

#### Prep Standard - Chemical Standard Summary

Order ID : Q1211

Test : VOC-TCLVOA-10

Prepbatch ID :

Sequence ID/Qc Batch ID: VN013025,VN013125,

#### Standard ID :

VP130430, VP131746, VP131767, VP132035, VP132096, VP132468, VP132613, VP132692, VP132711, VP132773, VP132774, VP132775, VP132796, VP132797, VP132802, VP132803, VP132804, VP132819, VP132898,

#### Chemical ID :

V13391,V13440,V13446,V13457,V13460,V13465,V13466,V13707,V13845,V13858,V14081,V14145,V14154,V14175,V 14176,V14289,V14308,V14352,V14433,V14439,V14454,V14521,V14522,V14554,V14605,V14607,V14610,V14611,V14 614,V14624,V14627,V14630,V14631,V14632,V14633,V14722,V14723,V14724,V14726,V14753,V14754,V14756,V1480 1,V14814,V14830,V14831,V14832,W3112,



| Recipe<br>ID<br>617 | NAME<br>8260 Surrogate, 400PPM     | <u>NO.</u><br>VP130430 | Prep Date<br>09/20/2024 | Expiration<br>Date<br>02/28/2025 | <u>Prepared</u><br><u>By</u><br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Supervised By<br>Mahesh Dadoda<br>09/26/2024 |
|---------------------|------------------------------------|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM                | 0.40000ml of V13707 + 24.60000ml o | of V14145 =            | Final Quanti            | ty: 25.000 ml                    |  |                        |                          |  |
|                     |                                    |                        |                         |                                  |  |                        |                          |  |
|                     |                                    |                        |                         |                                  |  |                        |                          |  |
|                     |                                    |                        |                         |                                  |  |                        |                          |  |

| <u>Recipe</u><br><u>ID</u><br>247 | NAME<br>8260 Internal Standard, 250PPM | <u>NO.</u><br>VP131746 | <u>Prep Date</u><br>11/22/2024 | Expiration<br>Date<br>05/18/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | <u>Supervised By</u><br>Mahesh Dadoda<br>11/23/2024 |
|-----------------------------------|--|------------------------|--------------------------------|----------------------------------|--|------------------------|--------------------------|---|
| <u>FROM</u>                       | 0.50000ml of V14289 + 49.50000ml       | I<br>of V14154 :       | = Final Quanti                 | ty: 50.000 ml                    | -  |                        |                          |   |
|                                   |  |                        |                                |                                  |  |                        |                          |   |
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| Recipe<br>ID<br>218 | NAME<br>BFB, 25PPM                 | <u>NO.</u><br>VP131767 | <u>Prep Date</u><br>11/22/2024 | Expiration<br>Date<br>05/18/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Supervised By<br>Mahesh Dadoda<br>11/27/2024 |
|---------------------|------------------------------------|------------------------|--------------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u>         | 0.50000ml of V13391 + 49.50000ml ( | of V14154 :            | = Final Quanti                 | ty: 50.000 ml                    |  |                        |                          |  |
|                     |                                    |                        |                                |                                  |  |                        |                          |  |
|                     |                                    |                        |                                |                                  |  |                        |                          |  |
|                     |                                    |                        |                                |                                  |  |                        |                          |  |
| <u>Recipe</u><br>ID | NAME                               | <u>NO.</u>             | Prep Date                      | Expiration<br>Date               | <u>Prepared</u><br><u>By</u>             | <u>ScaleID</u>         | PipettelD                | Supervised By                                |

| Recipe      |   |                 |                |                | riepareu      |                |             | Supervised by |
|-------------|---|-----------------|----------------|----------------|---------------|----------------|-------------|---------------|
| <u>ID</u>   | NAME  | <u>NO.</u>      | Prep Date      | <u>Date</u>    | <u>By</u>     | <u>ScaleID</u> | PipetteID   | Mahesh Dadoda |
| 1810        | 5   | <u>VP132035</u> | 12/10/2024     | 06/10/2025     | Semsettin     | None           | None        |               |
|             | Std(2-CVE)-800ppm   |                 |                |                | Yesilyurt     |                |             | 12/12/2024    |
| <u>FROM</u> | 1.00000ml of V14630 + 1.00000ml of<br>Quantity: 50.000 ml | f V14631 + 1    | 1.00000ml of \ | V14632 + 1.000 | 00ml of V1463 | 3 + 46.00000ml | of V14614 = | Final         |
|             |   |                 |                |                |               |                |             |               |
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| Recipe<br>ID<br>719 | NAME<br>8260 Working STD (BCM)-First<br>source, 400PPM    | <u>NO.</u><br>VP132096 | Prep Date<br>12/12/2024 | Expiration<br>Date<br>06/10/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Supervised By<br>Mahesh Dadoda<br>12/19/2024 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM                | 1.00000ml of V13465 + 1.00000ml of<br>Quantity: 25.000 ml | f V13466 + 7           | 1.50000ml of            | V13457 + 1.500                   | 000ml of V1346                           | 0 + 20.00000ml         | of V14614 =              | Final  |

| Recipe |                                    | 20                      | Dura Data      | Expiration     | Prepared       |                | Dia 444 ID      | Supervised By |
|--------|------------------------------------|-------------------------|----------------|----------------|----------------|----------------|-----------------|---------------|
| ID     | NAME                               | <u>NO.</u>              | Prep Date      | <u>Date</u>    | <u>By</u>      | <u>ScaleID</u> | PipetteID       | Mahesh Dadoda |
| 51     | 8260 Working STD (Acrolein) -first | <u>VP132468</u>         | 01/08/2025     | 02/07/2025     | Semsettin      | None           | None            |               |
|        | source, 800PPM                     |                         |                |                | Yesilyurt      |                |                 | 01/17/2025    |
| FROM   | 1.00000ml of V14832 + 1.50000ml of | f V14830 + <sup>-</sup> | 1.50000ml of ' | V14831 + 21.00 | 0000ml of V146 | 27 = Final Qua | ntity: 25.000 n | nl            |
|        |                                    |                         |                |                |                |                |                 |               |
|        |                                    |                         |                |                |                |                |                 |               |
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| Recipe<br>ID<br>257 | NAME<br>8260 Calibration Working STD<br>Mix-First source, 160PPM   | <u>NO.</u><br>VP132613 | Prep Date<br>01/20/2025 | Expiration<br>Date<br>02/28/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Supervised By<br>Mahesh Dadoda<br>01/29/2025 |
|---------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM                | 0.40000ml of V13446 + 1.00000ml o<br>1.00000ml of V14521 + 1.00000ml o<br>1.00000ml of V14801 + 1.00000ml o<br>Quantity: 25.000 ml | f V14522 + 1           | 1.00000ml of '          | V14722 + 1.000                   | 00ml of V1475                            | 4 + 1.00000ml d        | of V14756 +              | Final  |

| <u>Recipe</u><br><u>ID</u> | NAME                               | <u>NO.</u>      | Prep Date      | Expiration<br>Date | Prepared<br>By | <u>ScaleID</u> | <u>PipetteID</u> | Supervised By |
|----------------------------|------------------------------------|-----------------|----------------|--------------------|----------------|----------------|------------------|---------------|
|                            |                                    |                 |                |                    | <u>By</u>      |                |                  | Mahesh Dadoda |
| 1896                       | Trace internal standard 50 ppm     | <u>VP132692</u> | 01/27/2025     | 03/01/2025         | Semsettin      | None           | None             |               |
|                            |                                    |                 |                |                    | Yesilyurt      |                |                  | 01/29/2025    |
| FROM                       | 0.20000ml of V14352 + 9.80000ml of | V14624 =        | Final Quantity | /: 10.000 ml       |                |                |                  |               |
|                            |                                    |                 |                |                    |                |                |                  |               |
|                            |                                    |                 |                |                    |                |                |                  |               |
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| Recipe<br>ID<br>1897 | NAME<br>Trace surrogate mix 25 ppm                                      | <u>NO.</u><br>VP132711 | Prep Date<br>01/27/2025 | Expiration<br>Date<br>03/01/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | PipetteID<br>None | Supervised By<br>Mahesh Dadoda<br>01/29/2025 |
|----------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|-------------------|--|
| FROM                 | 0.50000ml of V14454 + 0.50000ml o<br>4.50000ml of V14624 = Final Quanti |                        |                         | V14605 + 1.500                   | 000ml of V1460                           | 7 + 1.50000ml c        | of V14610 +       |  |

| <u>Recipe</u><br><u>ID</u><br>589 | NAME<br>BFB TUNE CHECK            | <u>NO.</u><br>VP132773 | Prep Date<br>01/30/2025 | Expiration<br>Date<br>01/31/2025 | Prepared<br>By<br>John Carlone                | <u>ScaleID</u><br>None | PipetteID<br>None | Semsettin Yesilyurt<br>02/03/2025 |
|-----------------------------------|-----------------------------------|------------------------|-------------------------|----------------------------------|---|------------------------|-------------------|-----------------------------------|
| FROM                              | 39.98400ml of W3112 + 0.01600ml o | l<br>f VP131767        | / = Final Quai          | ntity: 40.000 m                  | <u>                                      </u> |                        |                   | 02/03/2025                        |
|                                   |                                   |                        |                         |                                  |   |                        |                   |                                   |
|                                   |                                   |                        |                         |                                  |   |                        |                   |                                   |
|                                   |                                   |                        |                         |                                  |   |                        |                   |                                   |
|                                   |                                   |                        |                         |                                  |   |                        |                   |                                   |
|                                   |                                   |                        |                         |                                  |   |                        |                   |                                   |



| Recipe<br>ID<br>620 | NAME<br>50 PPB CCC, 8260-Water  | <u>NO.</u><br>VP132774 | Prep Date<br>01/30/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Semsettin Yesilyurt |
|---------------------|---|------------------------|-------------------------|--------------------------------|------------------------|--------------------------|---------------------|
| FROM                | 39.94450ml of W3112 + 0.00500ml o<br>VP132035 + 0.01250ml of VP132468 |                        |                         |                                |                        | 1250ml of                |                     |
|                     |   |                        |                         |                                |                        |                          |                     |

| Recipe<br>ID<br>620 | NAME<br>50 PPB CCC, 8260-Water  | <u>NO.</u><br>VP132775 | Prep Date<br>01/30/2025 | Expiration<br>Date<br>01/31/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | PipetteID<br>None | Semsettin Yesilyurt<br>02/03/2025 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--------------------------------|------------------------|-------------------|-----------------------------------|
| FROM                | 39.94450ml of W3112 + 0.00500ml o<br>VP132035 + 0.01250ml of VP132468 |                        |                         |                                  |                                |                        | 1250ml of         |                                   |



| Recipe<br>ID<br>589 | NAME<br>BFB TUNE CHECK            | <u>NO.</u><br>VP132796 | Prep Date<br>01/31/2025 | Expiration<br>Date<br>02/01/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | PipetteID<br>None | Semsettin Yesilyurt |
|---------------------|-----------------------------------|------------------------|-------------------------|----------------------------------|--------------------------------|------------------------|-------------------|---------------------|
| FROM                | 39.98400ml of W3112 + 0.01600ml o | f VP131767             | = Final Quar            | ntity: 40.000 m                  | I                              |                        |                   |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                   |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                   |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                   |                     |

| Recipe<br>ID<br>620 | NAME<br>50 PPB CCC, 8260-Water  | <u>NO.</u><br>VP132797 | Prep Date<br>01/31/2025 | Expiration<br>Date<br>02/01/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Semsettin Yesilyurt |
|---------------------|---|------------------------|-------------------------|----------------------------------|--------------------------------|------------------------|--------------------------|---------------------|
| FROM                | 39.94450ml of W3112 + 0.00500ml o<br>VP132035 + 0.01250ml of VP132468 |                        |                         |                                  |                                |                        | 1250ml of                |                     |



| Recipe<br>ID<br>589 | NAME<br>BFB TUNE CHECK            | <u>NO.</u><br>VP132802 | Prep Date<br>01/31/2025 | Expiration<br>Date<br>02/01/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Semsettin Yesilyurt |
|---------------------|-----------------------------------|------------------------|-------------------------|----------------------------------|--------------------------------|------------------------|--------------------------|---------------------|
| <u>FROM</u>         | 39.98400ml of W3112 + 0.01600ml o | f VP131767             | = Final Qua             | ntity: 40.000 m                  | <u> </u>                       |                        |                          |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                          |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                          |                     |
|                     |                                   |                        |                         |                                  |                                |                        |                          |                     |

| Recipe<br>ID<br>620 | NAME<br>50 PPB CCC, 8260-Water  | <u>NO.</u><br>VP132803 | Prep Date<br>01/31/2025 | Expiration<br>Date<br>02/01/2025 | Prepared<br>By<br>John Carlone | <u>ScaleID</u><br>None | PipettelD<br>None | Semsettin Yesilyurt |
|---------------------|---|------------------------|-------------------------|----------------------------------|--------------------------------|------------------------|-------------------|---------------------|
| FROM                | 39.94450ml of W3112 + 0.00500ml o<br>VP132035 + 0.01250ml of VP132468 |                        |                         |                                  |                                |                        | 1250ml of         |                     |



| Recipe<br>ID<br>620 | NAME<br>50 PPB CCC, 8260-Water  | <u>NO.</u><br>VP132804 | Prep Date<br>01/31/2025 | Expiration<br>Date<br>02/01/2025 | <u>Prepared</u><br><u>By</u><br>John Carlone | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Semsettin Yesilyurt |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|---------------------|
| FROM                | 39.94450ml of W3112 + 0.00500ml o<br>VP132035 + 0.01250ml of VP132468 |                        |                         |                                  |  |                        | 1250ml of                |                     |

| Recipe<br>ID<br>1721 | NAME<br>SOM01.2 TRACE-Calibration<br>Mix,25 PPM                          | <u>NO.</u><br>VP132819 | Prep Date<br>01/30/2025 | Prepared<br>By<br>Semsettin<br>Yesilyurt | <u>ScaleID</u><br>None | <u>PipetteID</u><br>None | Supervised By<br>Mahesh Dadoda<br>02/06/2025 |
|----------------------|--|------------------------|-------------------------|--|------------------------|--------------------------|--|
| FROM                 | 0.12500ml of V13440 + 0.12500ml of<br>0.12500ml of V14554 + 0.12500ml of |                        |                         | 500ml of V1408                           |                        |                          |  |
|                      |  |                        |                         |  |                        |                          |  |



| Recipe<br>ID<br>1727 | NAME<br>5 PPB CCC-CCV SOM01.2 Trace     | <u>NO.</u><br>VP132898 | <u>Prep Date</u><br>02/05/2025 | Expiration<br>Date<br>02/06/2025 | Prepared<br>By<br>Amit Patel | <u>ScaleID</u><br>None | PipetteID<br>None | Semsettin Yesilyurt |
|----------------------|---|------------------------|--------------------------------|----------------------------------|------------------------------|------------------------|-------------------|---------------------|
| FROM                 | 39.98000ml of W3112 + 0.00400ml c<br>ml | f VP132692             | + 0.00800ml                    | of VP132711 +                    | 0.00800ml of \               | /P132819 = Fir         | al Quantity: 4    | 0.000               |



| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By        | Received Date /<br>Received By | Chemtech<br>Lot #           |
|----------|--|----------|--------------------|-----------------------------------|--------------------------------|-----------------------------|
| Restek   | 30067 / BFB tuneing solution   | A0191805 | 11/22/2025         | 11/22/2024 /<br>SAM               | 01/13/2023 /<br>SAM            | V13391                      |
| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By        | Received Date /<br>Received By | Chemtech<br>Lot #           |
| Restek   | 30429 /<br>1,2,3-Trichloropropane<br>Standard, 2,000 ug/ml               | A0188973 | 07/30/2025         | 01/30/2025 /<br>SAM               | 01/23/2023 /<br>SAM            | V13440                      |
| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By        | Received Date /<br>Received By | Chemtech<br>Lot #           |
| Restek   | 30470 / VOA Stock<br>Solution, tert-butanol std,<br>1mL, P&TM            | A0181905 | 02/28/2025         | 01/10/2025 /<br>SAM               | 01/23/2023 /<br>SAM            | V13446                      |
| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By        | Received Date /<br>Received By | Chemtech<br>Lot #           |
| Restek   | 30225 / VOA Mix,<br>bromochloromethane,<br>2000ug/mL, P&TM,<br>1mL/ampul | A0193071 | 06/12/2025         | 12/12/2024 /<br>SAM               | 01/27/2023 /<br>SAM            | V13457                      |
| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By        | Received Date /<br>Received By | Chemtech<br>Lot #           |
| Restek   | 30225 / VOA Mix,   | A0193071 | 06/12/2025         | 12/12/2024 /                      | 01/27/2023 /                   |                             |
|          | bromochloromethane,<br>2000ug/mL, P&TM,<br>1mL/ampul                     |          |                    | SAM                               | SAM                            | V13460                      |
| Supplier | bromochloromethane, 2000ug/mL, P&TM,                                     | Lot #    | Expiration<br>Date | SAM<br>Date Opened /<br>Opened By |                                | V13460<br>Chemtech<br>Lot # |



| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|--|------------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek                      | 30225 / VOA Mix,<br>bromochloromethane,<br>2000ug/mL, P&TM,<br>1mL/ampul | A0193071   | 06/12/2025         | 12/12/2024 /<br>SAM        | 01/27/2023 /<br>SAM            | V13466            |
| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek                      | 555582 / Custom Mixture,<br>8260 A/B Surrogate Mix [CS<br>5179-2]        | A0196865   | 06/10/2025         | 06/10/2024 /<br>SAM        | 04/12/2023 /<br>SAM            | V13707            |
| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 31491 /<br>1,2,4-Trimethylbenzene<br>2000ppm                             | 040821     | 07/30/2025         | 01/30/2025 /<br>SAM        | 06/22/2023 /<br>SAM            | V13845            |
| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 90319 /<br>1,3,5-Trimethylbenzene-<br>2000 ug/mL                         | 061923     | 07/30/2025         | 01/30/2025 /<br>SAM        | 06/22/2023 /<br>SAM            | V13858            |
| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 94159 / CLP SOM01.1<br>Volatiles   | 012323     | 07/30/2025         | 01/30/2025 /<br>SAM        | 12/21/2023 /<br>SAM            | V14081            |
| Supplier                    | ItemCode / ItemName  | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Seidler Chemical            | BA9077-02 / Methanol,<br>Purge/Trap (cs=6x1L)                            | 22L0562016 | 02/28/2025         | 08/29/2024 /<br>SAM        | 02/06/2024 /<br>SAM            | V14145            |



| Supplier                    | ItemCode / ItemName                               | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|---|------------|--------------------|----------------------------|--------------------------------|-------------------|
| Seidler Chemical            | BA9077-02 / Methanol,<br>Purge/Trap (cs=6x1L)     | 22L0562016 | 05/18/2025         | 11/18/2024 /<br>pedro      | 02/06/2024 /<br>SAM            | V14154            |
| Supplier                    | ItemCode / ItemName                               | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 95317 / Universal VOA<br>Mega Mix (Min order = 5) | 021624     | 07/10/2025         | 01/10/2025 /<br>SAM        | 02/20/2024 /<br>SAM            | V14175            |
| Supplier                    | ItemCode / ItemName                               | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 95317 / Universal VOA<br>Mega Mix (Min order = 5) | 021624     | 07/10/2025         | 01/10/2025 /<br>SAM        | 02/20/2024 /<br>SAM            | V14176            |

| ItemCode / ItemName                                      | Lot #                                     | Expiration<br>Date                                 | Date Opened /<br>Opened By  | Received Date /<br>Received By  | Chemtech<br>Lot #   |
|--|---|--|---|---|---|
| i5581 / Custom<br>andard, 8260 Internal Std<br>S 5179-1] | A0210184                                  | 11/22/2025   | 11/22/2024 /<br>SAM   | 04/15/2024 /<br>SAM   | V14289  |
| a  | 5581 / Custom<br>ndard, 8260 Internal Std | 5581 / Custom A0210184<br>ndard, 8260 Internal Std | ItemCode / ItemNameLot #Date5581 / CustomA021018411/22/2025ndard, 8260 Internal StdA021018411/22/2025 | ItemCode / ItemNameLot #DateOpened By5581 / CustomA021018411/22/202511/22/2024 /ndard, 8260 Internal StdSAM | ItemCode / ItemNameLot #DateOpened ByReceived By5581 / CustomA021018411/22/202511/22/2024 /04/15/2024 /ndard, 8260 Internal StdSAMSAM |

| Supplier                    | ItemCode / ItemName                | Lot #  | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|------------------------------------|--------|--------------------|----------------------------|--------------------------------|-------------------|
| Absolute<br>Standards, Inc. | 90298 / Naphthalene,<br>2000 ug/ml | 020123 | 07/30/2025         | 01/30/2025 /<br>SAM        | 04/17/2024 /<br>SAM            | V14308            |
|                             |                                    |        |                    |                            |                                |                   |

| Supplier | ItemCode / ItemName  | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|----------|--|----------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek   | 30091 / VOA Mix, CLP<br>method L/C Internal Std<br>2500uq/ml, PT&M,<br>1ml/ampul | A0209905 | 04/14/2025         | 10/14/2024 /<br>SAM        | 05/03/2024 /<br>SAM            | V14352            |



| Supplier                    | ItemCode / ItemName   | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|---|----------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek                      | 30489 / VOA Mix, 8260B<br>Acetates Mix, P&TM, 1mL   | A0209618 | 07/10/2025         | 01/10/2025 /<br>SAM        | 08/15/2024 /<br>SAM            | V14433            |
| Supplier                    | ItemCode / ItemName   | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek                      | 30489 / VOA Mix, 8260B<br>Acetates Mix, P&TM, 1mL   | A0209618 | 07/10/2025         | 01/10/2025 /<br>SAM        | 08/15/2024 /<br>SAM            | V14439            |
| Supplier                    | ItemCode / ItemName   | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek                      | 30624 / VOA Stock<br>Standard, OLC 3.2 VOA<br>non-ketone, deuterated<br>monitoring compounds, | A0211457 | 07/27/2025         | 01/27/2025 /<br>SAM        | 08/15/2024 /<br>SAM            | V14454            |
|                             | 1mL, 500ug/mL, Methanol-d   |          | Expiration         | Date Opened /              | Received Date /                | Chemtech          |
| Supplier                    | ItemCode / ItemName   | Lot #    | Date               | Opened By                  | Received By                    | Lot #             |
| Absolute<br>Standards, Inc. | 95319 / Revised Additions<br>Mix (Min = 5)  | 091724   | 07/10/2025         | 01/10/2025 /<br>SAM        | 09/18/2024 /<br>SAM            | V14521            |
| Supplier                    | ItemCode / ItemName   | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 95319 / Revised Additions<br>Mix (Min = 5)  | 091724   | 07/10/2025         | 01/10/2025 /<br>SAM        | 09/18/2024 /<br>SAM            | V14522            |
| Supplier                    | ItemCode / ItemName   | Lot #    | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 94559 /<br>1,3,5-Trichlorobenzene,<br>2000 ug/mL, in methanol                                 | 051421   | 07/30/2025         | 01/30/2025 /<br>SAM        | 10/09/2024 /<br>SAM            | V14554            |
|                             |   |          | 1                  | 1                          | I                              |                   |



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#### CHEMICAL RECEIPT LOG BOOK

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| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|------------------|---|------------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek           | 30625 / VOA Stock Std,<br>OLC 3.2 VOA Ketone<br>Deuterated Monitoring<br>Compounds, 1mL,<br>500ug/mL, d2O |            | 07/13/2025         | 01/13/2025 /<br>SAM        | 11/18/2024 /<br>SAM            | V14605            |
| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek           | 30625 / VOA Stock Std,<br>OLC 3.2 VOA Ketone<br>Deuterated Monitoring<br>Compounds, 1mL,<br>500ug/mL, d2O |            | 07/13/2025         | 01/13/2025 /<br>SAM        | 11/18/2024 /<br>SAM            | V14607            |
| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek           | 30625 / VOA Stock Std,<br>OLC 3.2 VOA Ketone<br>Deuterated Monitoring<br>Compounds, 1mL,<br>500ug/mL, d2O | A0219189   | 06/12/2025         | 12/12/2024 /<br>SAM        | 11/22/2024 /<br>SAM            | V14610            |
| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek           | 30625 / VOA Stock Std,<br>OLC 3.2 VOA Ketone<br>Deuterated Monitoring<br>Compounds, 1mL,<br>500ug/mL, d2O | A0219189   | 06/12/2025         | 12/12/2024 /<br>SAM        | 11/22/2024 /<br>SAM            | V14611            |
| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Seidler Chemical | BA9077-02 / Methanol,<br>Purge/Trap (cs=6x1L)   | 22L0562016 | 06/10/2025         | 12/10/2024 /<br>SAM        | 11/26/2024 /<br>SAM            | V14614            |
| Supplier         | ItemCode / ItemName   | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Seidler Chemical | BA9077-02 / Methanol,<br>Purge/Trap (cs=6x1L)   | 2310762004 | 07/13/2025         | 01/13/2025 /<br>SAM        | 11/26/2024 /<br>SAM            | V14624            |



| Supplier                    | ItemCode / ItemName                           | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|---|------------|--------------------|----------------------------|--------------------------------|-------------------|
| Seidler Chemical            | BA9077-02 / Methanol,<br>Purge/Trap (cs=6x1L) | 2310762004 | 07/06/2025         | 01/06/2025 /<br>SAM        | 11/26/2024 /<br>SAM            | V14627            |
| Supplier                    | ItemCode / ItemName                           | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | / 2-Chloroethyl vinyl ether                   | 120524     | 06/10/2025         | 12/10/2024 /<br>SAM        | 12/06/2024 /<br>SAM            | V14630            |
| Supplier                    | ItemCode / ItemName                           | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | / 2-Chloroethyl vinyl ether                   | 120524     | 06/10/2025         | 12/10/2024 /<br>SAM        | 12/06/2024 /<br>SAM            | V14631            |
| Supplier                    | ItemCode / ItemName                           | Lot #      | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | / 2-Chloroethyl vinyl ether                   | 120524     | 06/10/2025         | 12/10/2024 /<br>SAM        | 12/06/2024 /<br>SAM            | V14632            |

| Supplier                    | ItemCode / ItemName         | Lot #  | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|-----------------------------|--------|--------------------|----------------------------|--------------------------------|-------------------|
| Absolute<br>Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 06/10/2025         | 12/10/2024 /<br>SAM        | 12/06/2024 /<br>SAM            | V14633            |

| Supplier | ItemCode / ItemName   | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|----------|---|-----------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek   | 30006 / VOA Mix, CLP<br>method Calibration Std #1<br>ketones 5000uq/ml, PTM,<br>1ml | A02110618 | 07/10/2025         | 01/10/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14722            |



| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|----------|--|-----------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek   | 30006 / VOA Mix, CLP<br>method Calibration Std #1<br>ketones 5000uq/ml, PTM,<br>1ml            | A02110618 | 07/10/2025         | 01/10/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14723            |
| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek   | 30006 / VOA Mix, CLP<br>method Calibration Std #1<br>ketones 5000uq/ml, PTM,<br>1ml            | A02110618 | 07/10/2025         | 01/10/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14724            |
| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek   | 30006 / VOA Mix, CLP<br>method Calibration Std #1<br>ketones 5000uq/ml, PTM,<br>1ml            | A02110618 | 07/30/2025         | 01/30/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14726            |
| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek   | 30042 / VOA Mix,500<br>series method 502.2<br>Calibration Std #1 gases,<br>2000uq/ml, PTM, 1ml | A0216826  | 07/30/2025         | 01/30/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14753            |
| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek   | 30042 / VOA Mix,500<br>series method 502.2<br>Calibration Std #1 gases,<br>2000uq/ml, PTM, 1ml | A0216826  | 05/31/2031         | 01/10/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14754            |
| Supplier | ItemCode / ItemName  | Lot #     | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek   | 30042 / VOA Mix,500<br>series method 502.2<br>Calibration Std #1 gases,<br>2000uq/ml, PTM, 1ml | A0216826  | 07/10/2025         | 01/10/2025 /<br>SAM        | 12/17/2024 /<br>SAM            | V14756            |



| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|-----------------------------|--|---------------------|--------------------|----------------------------|--------------------------------|-------------------|
| Restek                      | 555408 / Custom<br>Standard, Vinyl Acetate<br>Standard w/ Grav [CS<br>5066-6] TWO SEPARATE<br>LOTS | A0220563            | 06/30/2026         | 01/10/2025 /<br>SAM        | 01/08/2025 /<br>SAM            | V14801            |
| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Restek                      | 555408 / Custom<br>Standard, Vinyl Acetate<br>Standard w/ Grav [CS<br>5066-6] TWO SEPARATE<br>LOTS | A0220471            | 07/10/2025         | 01/10/2025 /<br>SAM        | 01/08/2025 /<br>SAM            | V14814            |
| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 91980 / Acrolin Std (Min =<br>5)   | 010725              | 02/07/2025         | 01/08/2025 /<br>SAM        | 01/08/2025 /<br>SAM            | V14830            |
| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 91980 / Acrolin Std (Min =<br>5)   | 010725              | 02/07/2025         | 01/08/2025 /<br>SAM        | 01/08/2025 /<br>SAM            | V14831            |
| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Absolute<br>Standards, Inc. | 91980 / Acrolin Std (Min =<br>5)   | 010725              | 02/07/2025         | 01/08/2025 /<br>SAM        | 01/08/2025 /<br>SAM            | V14832            |
| Supplier                    | ItemCode / ItemName  | Lot #               | Expiration<br>Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
| Seidler Chemical            | DIW / DI Water   | Daily Lab-Certified | 07/03/2029         | 07/03/2024 /               | 07/03/2024 /                   | W3112             |

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





Material No.: 9077-02 Batch No.: 2310762004 Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10 Revision No.: 0

# Certificate of Analysis

| Test   | Specification | Result   |
|--|---------------|----------|
| Assay (CH3OH) (by GC, corrected for water)             | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                              | ≤ 1.0 ppm     | 0.5 ppm  |
| Titrable Acid (µeq/g)                                  | ≤ 0.3         | 0.2      |
| Titrablė Base (µeq/g)                                  | ≤ <b>0.10</b> | 0.01     |
| Water (by KF, coulometric)                             | ≤ 0.08 %      | < 0.01 % |
| Volatile Organic Trace Analysis – Below EPA 8260B CRQL | Conforms      | Conforms |

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

Country of Origin: USA Packaging Site: Phillipsburg Mfg Ctr & DC

fermetrikel.

Ken Koehnlein Sr. Manager, Quality Assurance Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





Material No.: 9077-02 Batch No.: 2310762004 Manufactured Date: 2023-08-11 Expiration Date: 2026-08-10 Revision No.: 0

# Certificate of Analysis

| Test   | Specification | Result   |
|--|---------------|----------|
| Assay (CH3OH) (by GC, corrected for water)             | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                              | ≤ 1.0 ppm     | 0.5 ppm  |
| Titrable Acid (µeq/g)                                  | ≤ 0.3         | 0.2      |
| Titrablė Base (µeq/g)                                  | ≤ <b>0.10</b> | 0.01     |
| Water (by KF, coulometric)                             | ≤ 0.08 %      | < 0.01 % |
| Volatile Organic Trace Analysis – Below EPA 8260B CRQL | Conforms      | Conforms |

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

Country of Origin: USA Packaging Site: Phillipsburg Mfg Ctr & DC

fermetrikel.

Ken Koehnlein Sr. Manager, Quality Assurance Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis



Material No.: 9077-02 Batch No.: 22L0562016 Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25 Revision No.: 0

# **Certificate of Analysis**

| Test   | Specification | Result   |
|--|---------------|----------|
| Assay (CH3OH) (by GC, corrected for water)             | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                              | ≤ 1.0 ppm     | 0.2 ppm  |
| Titrable Acid (µeq/g)                                  | ≤ 0.3         | 0.2      |
| Titrable Base (µeq/g)                                  | ≤ 0.10        | 0.03     |
| Water (by KF, coulometric)                             | ≤ 0.08 %      | < 0.01 % |
| Volatile Organic Trace Analysis – Below EPA 8260B CRQL | Conforms      | Conforms |

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

Country of Origin: USA Packaging Site: Phillipsburg Mfg Ctr & DC

James Techie

Jamie Ethier Vice President Global Quality

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Part # 91980 Lot # 010725

PO Box 5585 Hamden, CT 06518-0585

|   | Safety Data Sheet (SDS)  | GHS/OSHA Co  | npliant  |   |
|---|--|--|--|---|
| Section I Product and Cor   | npany Identification   |  |  |   |
| IDENTITY ANALYTIC<br>Manufacturer's Name<br>Address   | CAL STANDARD DISSOLVED IN WAT<br>ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.<br>Hamden CT, 06514   | Emergency Tele   | phone USA & CANADA<br>phone International<br>Revised   | <b>1-800-535-5053</b><br><b>1-352-323-3500</b><br>January 1, 2024 |
| Section II - Hazards Identi   | fication   |  |  |   |
| P302,332 If on skin   | GHS Classification in accord<br>ntilated area<br>, wash with soap and water<br>ord: DANGER   | dance with 29 CF<br>H315<br>P280<br>P305,351,338         | R 1910 (OSHA HCS)<br>Causes skin and eye irritation.<br>Use gloves, eye protection/fac<br>If in eyes, remove contacts, rin | e sheild  |
| Section III - Composition   |  |  |  |   |
|   | nical Identity; Common Name(s))  | CAS#: 7732-18-   | 5  | % (optional)<br>> 97  |
| See Certified Weight R<br>INTENDED USE: REFERE<br>Section IV. FIRST AID MEA                       |  | ent At Trace Qu  | uantities.   |   |
| General advice<br>If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | Consult a physician. Show this safety data s<br>If inhaled, move person into fresh air. If not t<br>Wash with soap and water. Consult a physis<br>Rinse thoroughly with plenty of water for at I<br>Do NOT induce vomiting. Rinse mouth with | breathing, give artific<br>cian.<br>least 15 minutes and | al respiration. Consult a physician.<br>consult a physician.   |   |
| Suitable extinguishing media<br>Protective equipment for fire<br>Hazardous Decomposition prot     | Use water spray, alcohol-resistant fo<br>Wear self contained breathing appar   |  |  |   |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |  |  |   |
| Personal precautions<br>Environmental precautions<br>Clean up                                     | Wear respiratory protection. Avoid breathing<br>ignition. Vapours accumulate to form explosi<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and place   | ive concentrations.<br>do so. Do not let pro             | duct enter drains.   |   |
| Section VII. HANDLING AM  | ID STORAGE   |  |  |   |
| Precautions for safe handling<br>Storage Conditions   |  | rces of ignition. No s                                   | our or mist.<br>moking. Prevent the build up of electrosta<br>place. Containers which are opened mus                       | -   |
| Section VIII. EXPOSURE C  | ONTROLS/PERSONAL PROTECTIO   | N  |  |   |
| Water<br>Personal protective equipment<br>Avoid contact with skin, eyes and                       | CAS#: 7732-18-5 TWA: 500 ppm<br>Respiratory protection Handle with glove<br>clothing. Wash hands thoroughly after handlin  |  | spected prior to use. Eye protection.  |   |
| Section IX - PHYSICAL/CH  | EMICAL CHARACTERISTICS   |  |  |   |
| Boiling Point<br>Vapor Pressure (mm Hg)   | 100°C  | Specific Gravity<br>Melting Point                        | (H2O = 1)  | 1   |

| Absolute Standards Inc.   | Ha                    | PO Box 5585<br>amden, CT 06518-0585                        | Phone: 203-281-2917<br>FAX: 203-281-2922 |
|---|-----------------------|--|--|
|   | NA                    |  | 0°C                                      |
| Vapor Density (AIR = 1)   | NA                    | Evaporation rate<br>(Butyl Acetate = 1)                    | NA                                       |
| Solubility in Water Completely misc   | zible                 |  |  |
| Appearance and Odor CLEAR, COLOF  | RLESS LIQUID WIT      | TH SLIGHT CHEMICAL ODOR.                                   |  |
| Section X. STABILITY AND REACTIVITY   |                       |  |  |
| Chemical stability     Stable under       Possibility of hazardous reactions     NA       Conditions to avoid     NA       Materials to avoid     NA       Hazardous decomposition products - No data available | er recommended storag | ge conditions.   |  |
| Section XI. TOXICOLOGICAL INFORMATIO  | N                     |  |  |
| LD50 Oral - Rat NA<br>LC50 Inhalation - Rat NA<br>LD50 Dermal - Guinea pig NA<br>Causes skin irritation.<br>Eye irritation  |                       |  |  |
| Section XII. ECOLOGICAL INFORMATION   |                       |  |  |
| LC50 NA<br>EC50 NA  |                       |  |  |
| Section XIII. DISPOSAL CONSIDERATIONS   |                       |  |  |
| Dispose with normal Laboratory Solvent Waste.   |                       |  |  |
| Section XIV. TRANSPORT INFORMATION  |                       |  |  |
| DOT (US)<br>Not dangerous goods<br>Proper shipping name: Water  |                       | IATA<br>Not dangerous goods<br>Proper shipping name: Water |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 eL seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

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1 of 1

Part # 91980 Lot # 010725

PO Box 5585 Hamden, CT 06518-0585

|   | Safety Data Sheet (SDS)  | GHS/OSHA Co  | npliant  |   |
|---|--|--|--|---|
| Section I Product and Cor   | npany Identification   |  |  |   |
| IDENTITY ANALYTIC<br>Manufacturer's Name<br>Address   | CAL STANDARD DISSOLVED IN WAT<br>ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.<br>Hamden CT, 06514   | Emergency Tele   | phone USA & CANADA<br>phone International<br>Revised   | <b>1-800-535-5053</b><br><b>1-352-323-3500</b><br>January 1, 2024 |
| Section II - Hazards Identi   | fication   |  |  |   |
| P302,332 If on skin   | GHS Classification in accord<br>ntilated area<br>, wash with soap and water<br>ord: DANGER   | dance with 29 CF<br>H315<br>P280<br>P305,351,338         | R 1910 (OSHA HCS)<br>Causes skin and eye irritation.<br>Use gloves, eye protection/fac<br>If in eyes, remove contacts, rin | e sheild  |
| Section III - Composition   |  |  |  |   |
|   | nical Identity; Common Name(s))  | CAS#: 7732-18-   | 5  | % (optional)<br>> 97  |
| See Certified Weight R<br>INTENDED USE: REFERE<br>Section IV. FIRST AID MEA                       |  | ent At Trace Qu  | uantities.   |   |
| General advice<br>If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | Consult a physician. Show this safety data s<br>If inhaled, move person into fresh air. If not t<br>Wash with soap and water. Consult a physis<br>Rinse thoroughly with plenty of water for at I<br>Do NOT induce vomiting. Rinse mouth with | breathing, give artific<br>cian.<br>least 15 minutes and | al respiration. Consult a physician.<br>consult a physician.   |   |
| Suitable extinguishing media<br>Protective equipment for fire<br>Hazardous Decomposition prot     | Use water spray, alcohol-resistant fo<br>Wear self contained breathing appar   |  |  |   |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |  |  |   |
| Personal precautions<br>Environmental precautions<br>Clean up                                     | Wear respiratory protection. Avoid breathing<br>ignition. Vapours accumulate to form explosi<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and place   | ive concentrations.<br>do so. Do not let pro             | duct enter drains.   |   |
| Section VII. HANDLING AM  | ID STORAGE   |  |  |   |
| Precautions for safe handling<br>Storage Conditions   |  | rces of ignition. No s                                   | our or mist.<br>moking. Prevent the build up of electrosta<br>place. Containers which are opened mus                       | -   |
| Section VIII. EXPOSURE C  | ONTROLS/PERSONAL PROTECTIO   | N  |  |   |
| Water<br>Personal protective equipment<br>Avoid contact with skin, eyes and                       | CAS#: 7732-18-5 TWA: 500 ppm<br>Respiratory protection Handle with glove<br>clothing. Wash hands thoroughly after handlin  |  | spected prior to use. Eye protection.  |   |
| Section IX - PHYSICAL/CH  | EMICAL CHARACTERISTICS   |  |  |   |
| Boiling Point<br>Vapor Pressure (mm Hg)   | 100°C  | Specific Gravity<br>Melting Point                        | (H2O = 1)  | 1   |

| Absolute Standards Inc.   | Ha                    | PO Box 5585<br>amden, CT 06518-0585                        | Phone: 203-281-2917<br>FAX: 203-281-2922 |
|---|-----------------------|--|--|
|   | NA                    |  | 0°C                                      |
| Vapor Density (AIR = 1)   | NA                    | Evaporation rate<br>(Butyl Acetate = 1)                    | NA                                       |
| Solubility in Water Completely misc   | zible                 |  |  |
| Appearance and Odor CLEAR, COLOF  | RLESS LIQUID WIT      | TH SLIGHT CHEMICAL ODOR.                                   |  |
| Section X. STABILITY AND REACTIVITY   |                       |  |  |
| Chemical stability     Stable under       Possibility of hazardous reactions     NA       Conditions to avoid     NA       Materials to avoid     NA       Hazardous decomposition products - No data available | er recommended storag | ge conditions.   |  |
| Section XI. TOXICOLOGICAL INFORMATIO  | N                     |  |  |
| LD50 Oral - Rat NA<br>LC50 Inhalation - Rat NA<br>LD50 Dermal - Guinea pig NA<br>Causes skin irritation.<br>Eye irritation  |                       |  |  |
| Section XII. ECOLOGICAL INFORMATION   |                       |  |  |
| LC50 NA<br>EC50 NA  |                       |  |  |
| Section XIII. DISPOSAL CONSIDERATIONS   |                       |  |  |
| Dispose with normal Laboratory Solvent Waste.   |                       |  |  |
| Section XIV. TRANSPORT INFORMATION  |                       |  |  |
| DOT (US)<br>Not dangerous goods<br>Proper shipping name: Water  |                       | IATA<br>Not dangerous goods<br>Proper shipping name: Water |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 eL seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

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1 of 1

Part # 91980 Lot # 010725

PO Box 5585 Hamden, CT 06518-0585

|   | Safety Data Sheet (SDS)  | GHS/OSHA Co  | npliant  |   |
|---|--|--|--|---|
| Section I Product and Cor   | npany Identification   |  |  |   |
| IDENTITY ANALYTIC<br>Manufacturer's Name<br>Address   | CAL STANDARD DISSOLVED IN WAT<br>ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.<br>Hamden CT, 06514   | Emergency Tele   | phone USA & CANADA<br>phone International<br>Revised   | <b>1-800-535-5053</b><br><b>1-352-323-3500</b><br>January 1, 2024 |
| Section II - Hazards Identi   | fication   |  |  |   |
| P302,332 If on skin   | GHS Classification in accord<br>ntilated area<br>, wash with soap and water<br>ord: DANGER   | dance with 29 CF<br>H315<br>P280<br>P305,351,338         | R 1910 (OSHA HCS)<br>Causes skin and eye irritation.<br>Use gloves, eye protection/fac<br>If in eyes, remove contacts, rin | e sheild  |
| Section III - Composition   |  |  |  |   |
|   | nical Identity; Common Name(s))  | CAS#: 7732-18-   | 5  | % (optional)<br>> 97  |
| See Certified Weight R<br>INTENDED USE: REFERE<br>Section IV. FIRST AID MEA                       |  | ent At Trace Qu  | uantities.   |   |
| General advice<br>If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | Consult a physician. Show this safety data s<br>If inhaled, move person into fresh air. If not t<br>Wash with soap and water. Consult a physis<br>Rinse thoroughly with plenty of water for at I<br>Do NOT induce vomiting. Rinse mouth with | breathing, give artific<br>cian.<br>least 15 minutes and | al respiration. Consult a physician.<br>consult a physician.   |   |
| Suitable extinguishing media<br>Protective equipment for fire<br>Hazardous Decomposition prot     | Use water spray, alcohol-resistant fo<br>Wear self contained breathing appar   |  |  |   |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |  |  |   |
| Personal precautions<br>Environmental precautions<br>Clean up                                     | Wear respiratory protection. Avoid breathing<br>ignition. Vapours accumulate to form explosi<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and place   | ive concentrations.<br>do so. Do not let pro             | duct enter drains.   |   |
| Section VII. HANDLING AM  | ID STORAGE   |  |  |   |
| Precautions for safe handling<br>Storage Conditions   |  | rces of ignition. No s                                   | our or mist.<br>moking. Prevent the build up of electrosta<br>place. Containers which are opened mus                       | -   |
| Section VIII. EXPOSURE C  | ONTROLS/PERSONAL PROTECTIO   | N  |  |   |
| Water<br>Personal protective equipment<br>Avoid contact with skin, eyes and                       | CAS#: 7732-18-5 TWA: 500 ppm<br>Respiratory protection Handle with glove<br>clothing. Wash hands thoroughly after handlin  |  | spected prior to use. Eye protection.  |   |
| Section IX - PHYSICAL/CH  | EMICAL CHARACTERISTICS   |  |  |   |
| Boiling Point<br>Vapor Pressure (mm Hg)   | 100°C  | Specific Gravity<br>Melting Point                        | (H2O = 1)  | 1   |

| Absolute Standards Inc.   | Ha                    | PO Box 5585<br>amden, CT 06518-0585                        | Phone: 203-281-2917<br>FAX: 203-281-2922 |
|---|-----------------------|--|--|
|   | NA                    |  | 0°C                                      |
| Vapor Density (AIR = 1)   | NA                    | Evaporation rate<br>(Butyl Acetate = 1)                    | NA                                       |
| Solubility in Water Completely misc   | zible                 |  |  |
| Appearance and Odor CLEAR, COLOF  | RLESS LIQUID WIT      | TH SLIGHT CHEMICAL ODOR.                                   |  |
| Section X. STABILITY AND REACTIVITY   |                       |  |  |
| Chemical stability     Stable under       Possibility of hazardous reactions     NA       Conditions to avoid     NA       Materials to avoid     NA       Hazardous decomposition products - No data available | er recommended storag | ge conditions.   |  |
| Section XI. TOXICOLOGICAL INFORMATIO  | N                     |  |  |
| LD50 Oral - Rat NA<br>LC50 Inhalation - Rat NA<br>LD50 Dermal - Guinea pig NA<br>Causes skin irritation.<br>Eye irritation  |                       |  |  |
| Section XII. ECOLOGICAL INFORMATION   |                       |  |  |
| LC50 NA<br>EC50 NA  |                       |  |  |
| Section XIII. DISPOSAL CONSIDERATIONS   |                       |  |  |
| Dispose with normal Laboratory Solvent Waste.   |                       |  |  |
| Section XIV. TRANSPORT INFORMATION  |                       |  |  |
| DOT (US)<br>Not dangerous goods<br>Proper shipping name: Water  |                       | IATA<br>Not dangerous goods<br>Proper shipping name: Water |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |
| Section XV. REGULATORY INFORMATION  |                       |  |  |

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 eL seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com



**Certified Reference Material CRM** 



ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

| <b>CERTIFIED WEIGHT REPORT</b>                           |                        |       |                     |              |  |
|--|------------------------|-------|---------------------|--------------|--|
| Part Number:   | 94159                  |       | Solvent:            | Lota         |  |
| Lot Number:  | 012323                 |       | Methanol            | EF282-4 ISO1 |  |
| Description:   | CLP SOM 01.1 Volatiles |       |                     |              |  |
|  | 42 components          |       |                     |              |  |
| Expiration Date:   | 012326                 |       |                     |              |  |
| Recommended Storage:                                     | Freezer (0 °C)         |       |                     |              |  |
| Nominal Concentration (µg/mL):                           | Varied                 |       |                     |              |  |
| NIST Test ID#:   | GUTB                   | 5E-05 | Balance Uncertainty | intr         |  |
| Volume(s) shown below were combined and diluted to (mL): | diluted to (mL): 100.0 | 0.012 |                     |              |  |
|  |                        |       |                     |              |  |

| DATE   | Pedro L. Rentas  | eviewed By:  |
|--------|------------------|--------------|
| 012323 | da tento         | K            |
| DATE   | Preshant Chauhan | omulated By: |
| 012323 | 2 Shart Cheulan  | 1.00         |

| Pedro L Rentas | SDS Information<br>(Solvent Safely Into. On Attached pg.) |
|----------------|---|
| Reviewed By:   | Expanded<br>Uncertainty                                   |
|                | Final   |

Part

| Compound   | Number | Number | Factor | Vol. (mL) | Pipette (mL)  | Conc.fua/mL) | Conc.(uo/ml.) Conc.(no/ml.)  | (+++) ((notim)) | CASE  | Person occurs and on concerned py.  | vev i<br>frikd no     |
|--|--------|--------|--------|-----------|---|--------------|--|-----------------|---|---|-----------------------|
|  |        |        |        |           | And a subscription of the |              |  |                 | and a   |   |                       |
| Renzene  | 10000  |        |        |           |   |              | And an a second resource of the second secon |                 | A PARTY OF A |   |                       |
| Delizere   | LEASE  | 060616 | 0.10   | 10,00     | 0.042   | 20008.6      | 2000.6   | 18.7            | 71-43-2   | 1 ppm   | ort-rat 4894mo/ro     |
| 2. Iotuene   | 93831  | 060618 | 0.10   | 10.00     | 0.042   | 20002.8      | 2000.2   | 18.7            | 108-88-3  | 200 mm  | ord soft Software     |
| 3. Ethyl benzene   | 93831  | 060616 | 0.10   | 10.00     | 0.042   | 20002.5      | 20002  | 18.7            | 100-41-4  | 100 nom (distandingsbun   | Enternance sources    |
| 4. o-Xylene  | 93831  | 060616 | 0.10   | 10.00     | 0.042   | 20003.8      | 20003  | 19.7            | 05.47.B   | a new present index of  | Buddunner merin       |
| 5. m-Xylene  | 93831  | 060616 | 0.10   | 10.00     | 0.042   | 10003.3      | 1000.3   | 40              | 100.00.1  | [Hoverngment) mpg uni   | pr-mus 1364mg/ng      |
| 6. p-Xylene  | 93831  | 060816 | 0.10   | 10.00     | 0.042   | 1006.2       | 1000 5   | 10              | 0.01.001  | (HOWW Duces) undd ool   | On-rat song           |
| 7. Bromodichloromethane  | 35171  | 100220 | 0.05   | 5.00      | 0.017   | ADDIRR       | 0000   |                 | 2004  | (HRARUDUCE) udd Oni   | Ort-Fatt 5g/kg        |
| 8. Dibromochloromethane  | 35171  | 100220 | 0.05   | 200       | 0.017   | 4 2000       | 0,000  | 40.0            | +17-01  | NN  | orf-rat 916mg/kg      |
| cis-1,2-Dichloroethene   | 35171  | 100220 | 0.05   | 8         | 0.017   | 1.1000       | SUNUS  | 8.0L            | 1-86-621  | NA  | ort-rat 848mg/kg      |
| 10. trans-1.2-Dichloroethene   | 36171  | 100001 | 200    | 30        | 1000  | 40002        | 2000.5   | 8.01            | 156-59-2  | NA  | NA                    |
| 11. Methylene chickle  | 36171  | 100000 | 200    | 300       | 100   | 40000        | 20002  | 15.9            | 156-60-5  | VN  | orl-rat 1235mg/kg     |
| 19 11_Dichlomothana  | 12100  | 100FED | 000    | 2.00      | 100   | 40013.9      | 2000.6   | 15.8            | 75-09-2   | 500 ppm   | ort-rat 820mg/kg      |
| Democratica de la composición de la composicinde la composición de la composición de la composición de | 0000   | 120100 | 0.0    | 10.00     | 0.042   | 20009.1      | 2000.8   | 18.7            | 75-36-4   | 1 ppm (4mp/m3/8H)   | ort-rat 200ma/kg      |
| 13. BIOINOCRIDIONBINANO  | 94170  | 010616 | 0.10   | 10.00     | 0.042   | 20017.5      | 2001.7   | 18.7            | 74-97-5   | 200 pom (1050mo/m3/8H)  | ort-rat 5000mo/ro     |
| 14. Bromotorm  | 94170  | 010616 | 0.10   | 10.00     | 0.042   | 20010.4      | 2000.9   | 18.7            | 75-25-2   | 0.5 com (Second) (stan)   | Ad and D'O'ma An      |
| 15. Carbon tetrachloride   | 94170  | 010616 | 0.10   | 10.00     | 0.042   | 20006.0      | 2000.5   | 18.7            | 58-23-5   | 2 mm (12 female 110   | THE POST OF           |
| 16. Chloroform   | 94170  | 010616 | 0.10   | 10.00     | 0.042   | 20019.5      | 2001.8   | 18.7            | 67.99.1   | ED anne ("Safarantino") ("  | BUDINOS2 TRAIN        |
| 17. 1,1-Dichloroethane   | 94170  | 010616 | 0,10   | 10.00     | 0.042   | 20007.6      | 2000 7   | 18.7            | 75 24.2   | an plant (construction)   | OTHER MUSTIC          |
| 18. Tetrachloroethene  | 94170  | 010618 | 0.10   | 10.00     | 0.042   | 20015.7      | 2004 6   | 10.7            | 101 101   | uidd noi  |                       |
| 18. 1,1,1-Trichioroethane  | 94170  | 010616 | 0.10   | 10.00     | 0.042   | 20007.4      | 2000 G   | 18.7            | 74.65.6   | (Bull)(HRADUCULUT) undd cz  |                       |
| 1,2-Dibromo-3-chloropropane  | 94171  | 010816 | 0.10   | 10.00     | 0.042   | 20015.3      | 2001 4   | 10.1            | 00100   | (HRARIII/Dunness) under noo   | ON-FAIL 1USUOMONG     |
| 21. 1,2-Dibromoethane  | 94171  | 010616 | 0,10   | 10.00     | 0.042   | 20017.3      | 2001 8   | 10.7            | 100.001   | Lind toorn  | On-Fait 170mg/kg      |
| 1,2-Dichloroethane   | 94171  | 010616 | 0,10   | 10.00     | 0.042   | 20064        | STOD &   | 10.1            | 100.001   | (H8) mdd 02   | ortrat 108mp/vg       |
| 1,2-Dichloropropane  | 94171  | 010616 | 0.10   | 0001      | 0.040   | - SOOOS      | 2000   | 101             | 101-10-2  | (1-89) udd (xe-1)   | ort-rat 670mg/vg      |
| 24. cis-1,3-Dichloropropene  | 94171  | 010618 | 010    | 10.01     | 0000  | 20040.0      | -  | 10.1            | C-19-91   | (H8/Sm/gm055) mdd c/  | ort-rat 1947mg/kg     |
| trans-1.3-Dichloroonoone   | QA171  | 010010 | 010    | 0001      | 2010  | 0.01002      | CINZ   | 19./            | 9-L0-L9001  | NA  | NA                    |
| 1 1 2 2-Tatrachicmethana   | 04474  | 010010 | 0.0    | 10.00     | 0.042   | 4.1100S      | 2001.0   | 18.7            | 10061-02-6  | NA  | NA                    |
| 27 1 1 2. Trichlemothene   | 1/140  | 010010 | 01.0   | 00.01     | 0.042   | 20014.3      | 2001.3   | 18.7            | 79-34-5   | 5 ppm (35mg/m3/8H)(skin)  | ort-rat 800mg/kg      |
| ry system of the construction of the construct | 1/100  | 910010 | 01.0   | 10:00     | 0.042   | 20024.9      | 2002.4   | 18.8            | 79-00-5   | 10 ppm (45mg/m3/8H)(skin)   | ort-rat 836mg/kg      |
| A Hand and a hard a   | L/LAR  | 919010 | 0.10   | 10.00     | 0.042   | 20012.9      | 2001.2   | 18.7            | 79-01-6   | 50 ppm (270mg/m3/8H)  | ort-mus 2402ma/ka     |
| Uniorobenzene  | 68766  | 091118 | 0.10   | 10.00     | 0.042   | 20001.9      | 2000.1   | 18.7            | 108-90-7  | 75 ppm (350mg/m3/8H)  | art-art 2290mo/io     |
| 34. 1,2-Dichiobenzene  | 88788  | 091118 | 0.10   | 10.00     | 0.042   | 20002.9      | 2000.2   | 18.7            | 95-50-1   | 50 ppm (300ma/m3) (CL)  | ort-rat 500mm/m       |
| 31. 1.3-Dichlorobenzene  | 99783  | 091118 | 0.10   | 10.00     | 0.042   | 20003.7      | 2000.3   | 18.7            | 541-73-1  | NIA   | in-mere 1062molen     |
| 1,4-Dichlorobenzene  | 99783  | 091118 | 0.10   | 10.00     | 0.042   | 20005.9      | 2000.5   | 18.7            | 106-48-7  | 75 com (450mo/m3/840  | and and Roberton      |
| Isopropylbenzene   | 99783  | 091118 | 0.10   | 10.00     | 0.042   | 20391.8      | 2039.1   | 19.0            | 98-82-8   | 50 mm /245mm/m245h  | Underson a cross      |
| 34. 1,2,3-Trichlorobenzene   | 99783  | 091118 | 0.10   | 10.00     | 0.042   | 20003.7      | 2000.3   | 18.7            | 87.61.6   | ALM AND AND ALM AND ALM AND ALM AND ALM AND ALM AND ALM AND | Unrial Incompring     |
| 35. 1,2,4-Trichlorobenzene   | 89783  | 091118 | 0.10   | 10.00     | 0.042   | 20084.7      | 2008.4   | 18.8            | 120-82-1  | S more (CE ) (ADminimum)  | Christian Loburgh     |
| 36. Styrene  | 32361  | 052120 | 0.10   | 10.00     | 0.042   | 20041.4      | 2004.0   | 18.7            | 100.42.6  |   | CULTER / DOUNDING     |
| 37. Carbon disulphide  | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20001.9      | 2000.1   | 18.7            | 75-15-0   | A new (10meter) false)  | Con-rat sources       |
| 38. Cyclohexane  | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20002.0      | 2000.1   | 18.7            | 110.82.7  | SAD more (CARAME LOBAL)   | CITER LEUWIGHT        |
| 39. Methyl acetate   | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20002.4      | 2000.1   | 18.7            | 79.20.0   | 200 none (240mm/mm/mm/  | Direction 12/Vicender |
| 40. Methylcyclohexane  | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20001.7      | 2000.1   | 18.7            | 108-87-2  | MAA   | Control of Victoria   |
| 41. Methyl tert-butyl ether (MTBE)   | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20001.2      | 2000.0   | 18.7            | 1824-DALA   | NG  | BWGUINCZZ SDILL-LID   |
| 1,1,2-Trichloro-1,2,2-trifluoroethane  | 94173  | 010716 | 0.10   | 10.00     | 0.042   | 20001 9      | 2000 1   | 10.1            |   | VN  | 0r1-r8t 4g/vg         |

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are reperted gravimetrically using tulnoors that are collorwolds when off, we have a stated of the stated of the stated value, unless otherwise stated.
 Standards, after effect (+>) 65 of the stated value, unless otherwise stated.
 All Standards, after opening ansports, abound be stored with carefording and experopriate laborations.
 Standards, after opening ansports, abound be stored with carefording and Expressing the Uncertainty of NIST Network.
 User Chaining Performent Typing, U.S., Government Printing Office, Washington, D.C. (1994).

rement Read,"

Lot # 012323 Part # 94159

Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com

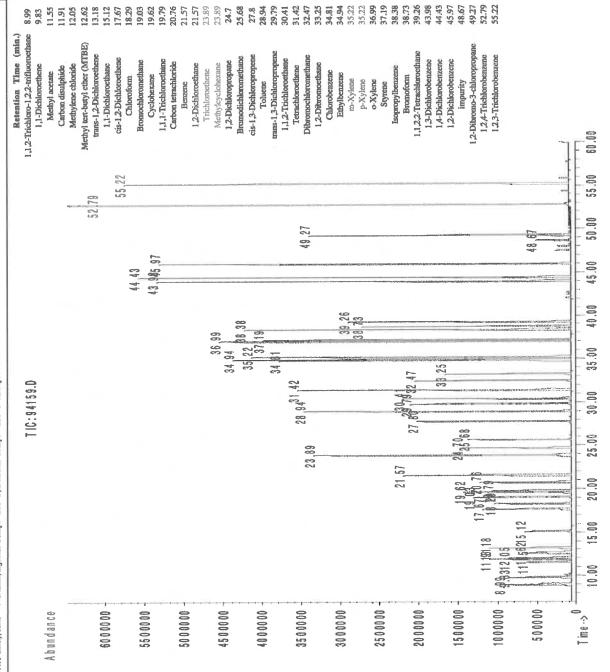
1

Certified Reference Material CRM



ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

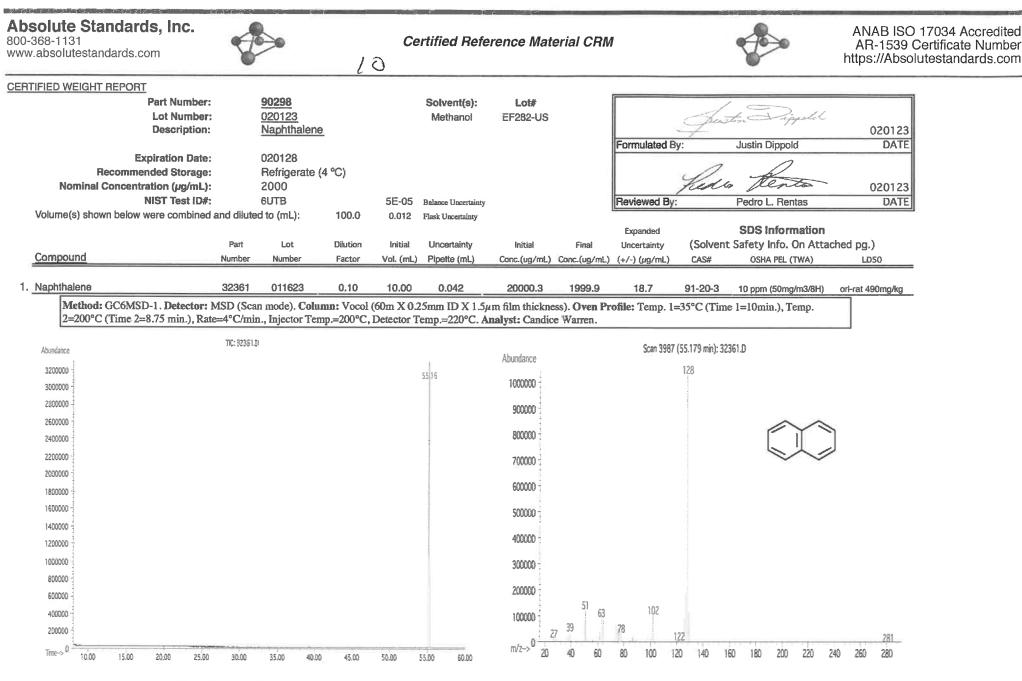
Method: GC6MSD1. Detector: Mass Selective Detector. Column: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Ovea Profile: Temp. 1 = 35°C (Time 1=10min.), Temp. 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Gina McLane.



Printed: 12/19/2023, 3:05:35 PM

2 of 2

Part # 94159 Lot # 012323



The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.

. Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

\* Standards are certiled (+/-) 0.5% of the stated value, unless otherwise stated.

• All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.

" Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result,"

NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



www.absolutestandards.com

-**Certified Reference Material CRM**  ¢,



| CEF  | TIFIED WEIGHT REPORT  |   |  |  |  |                               |                      |                  |                       |                               |                     |                     |                            |                      |                                 |   |  |
|--|---|---|--|--|--|-------------------------------|----------------------|------------------|-----------------------|-------------------------------|---------------------|---------------------|----------------------------|----------------------|---------------------------------|---|--|
|  |   | er: 02162   | 4  | -  |  |                               |                      |                  |                       | Solvent(s):<br>Methanoi       | EG359-US            | Q12                 |                            |                      | 0                               | GHI   |  |
|  | Expiration Da   | 69 con  | sal VOA Meg<br>nponents  |  |  |                               |                      |                  |                       |                               |                     |                     |                            | Formula              | ated By:                        | Preshant Chaufer                                    | 021624<br>DATE                           |
|  | Recommended Storag<br>Nominal Concentration (µg/m)  | e: Freezer  |  |  |  |                               |                      |                  |                       |                               |                     |                     |                            |                      | 4                               | 2. A.   |  |
|  | NIST Test IC  | #: BUTB   |  |  |  | 5 Balance Unce                |                      |                  |                       |                               |                     |                     |                            | Review               |                                 | Pedro L. Rentas                                     | 021624<br>DATE                           |
|  | Weight(a) shown below were combine  |   |  | 100.   | 0 0.02   | 1 Flask Uncerta               | daty                 |                  |                       |                               |                     |                     |                            | Expande              | rd                              | SDS information                                     |  |
|  | Compound  | (RM#)<br>Pert Numb  | Lot<br>er Number   | Di).<br>Facto                                | Initial<br>r Vol. (m                                 | initial<br>L) Conc.(ug/mi     | Nominal              | Purity<br>L) (%) | Purity<br>Uncertainty | Uncortainty<br>y Pipette (mL) | Target<br>Weight(g) | Actual<br>Weight(g) | Actual<br>Conc (µg/mL      | Uncertain            | rty (Sol                        | vent Safety Info. On Atta<br>OSHA PEL (TWA)         |  |
| 1.<br>2.   | Acetonitrile  | (0324)  | 021644   | NA   |  | NA                            | 2000                 | 99.99            | 0.2                   | NA                            | 0.20007             | 0.20020             | 2001.3                     | 8.1                  | 75-05-8                         | 40 ppm (70mg/m3/8H)                                 | ori-rat 2460mg/kg                        |
| 3.   | Allyl chloride (3-Chloropropene)<br>Carbon disulphide   | (0325)<br>(0060)  | 102396<br>MKCR858  | NA<br>11 NA                                  | NA   | NA<br>NA                      | 2000                 | 99.99            | 0.2                   | NA                            | 0.20207             | 0.20221             | 2001.4 2001.6              | 8.2<br>8.1           | 107-05-1<br>75-15-0             | 1 ppm (3mg/m3/8H)                                   | orl-rat 700mg/kg                         |
| 4,   | cis-1,4-Dichloro-2-butene   | (1198)  | 14718EF  |  | NA   | NA                            | 2000                 | 95               | 0.2                   | NA                            | 0.21058             | 0.21069             | 2001.1                     | B,5                  | 1478-11-5                       | 4 ppm (12mg/m3) (skin)<br>5 N/A                     | ori-rat 1200mg/kg<br>N/A                 |
| 6.   | trans-1,4-Dichloro-2-butene<br>Diethyl ether  | (0486)<br>(0153)  | MKBP6041<br>K18CAS00   |  | NA   | NA                            | 2000                 | 96.5             | 0.2                   | NA                            | 0.20731             | 0.20748             | 2001.7                     | 8.4                  | 110-57-6                        | N/A   | N/A                                      |
| 7.   |   | (0381)  | 06126PX  | NA   | NA   | NA                            | 2000                 | 99               | 0.2                   | NA                            | 0.20025             | 0.20240             | 2001.5                     | 8.1                  | 80-29-7<br>97-63-2              | N/A<br>N/A  | NA                                       |
| 8.<br>9.   | lodomethane   | (0489)  | SH8F8718   |  | NA   | NA                            | 2000                 | 99.5             | 0.2                   | NA                            | 0.20106             | 0.20121             | 2001.5                     | 8.2                  | 74-88-4                         | 5 ppm(28mp/m3/8H)(sidn                              | orl-rat 14800mg/kg<br>i) orl-rat 76mg/kg |
| 10.  | 2-Methyl-1-propanol<br>Methacrylonitrile  | (0445)  | 15241EB<br>00427ET   | NA   | NA   | NA<br>NA                      | 2000                 | 99.5             | 0.2                   | NA                            | 0.20106             | 0.20120             | 2001.4                     | 8.1                  | 78-83-1                         | 60 ppm (150mg/m3/8H)                                | orl-rat 2460mg/kg                        |
| 11.  | Methyl acrylate   | (1075)  | SHBK0679   |  | NA   | NA                            | 2000                 | 99<br>99.9       | 0.2                   | NA<br>NA                      | 0.20207             | 0.20221             | 2001.4                     | 8.2                  | 126-98-7<br>96-33-3             | 1 ppm (3mg/m3/8H)(skin)                             |  |
|  | Methyl methacrylate   | (0404)  | MKBW5137   |  | NA   | NA                            | 2000                 | 99.9             | 0.2                   | NA                            | 0.20025             | 0.20041             | 2001.6                     | 8.1                  | 80-62-6                         | 10 ppm(35mg/m3/8H)(sidn<br>100 ppm (410mg/m3/8H)    | ori-ret 277mg/kg<br>ori-ret 7872mg/kg    |
|  | Nitrobenzene<br>2-Nitropropane  | (0228) (0461)   | 01213TV<br>14002JX   | NA   | NA   | NA                            | 2000                 | 99               | 0.2                   | NA                            | 0.20207             | 0.20220             | 2001.3                     | 8.2                  | 98-95-3                         | 1 ppm (5mg/m3/8H)(akin)                             |  |
|  | Peniactiloroethane  | (0450)  | HGA01  | NA   | NA   | NA<br>NA                      | 2000                 | 97.3<br>98       | 0.2                   | NA<br>NA                      | 0.20560             | 0.20577             | 2001.6                     | 6.3                  | 79-46-9                         | 10 ppm (35mg/m3/6H)                                 | orl-rat 720mg/kg                         |
|  | 1,1,2-Trichlorotrifiuoroethane  | (0474)  | 18930  | NA   | NA   | NA                            | 2000                 | 88               | 0.2                   | NA                            | 0.20413             | 0.20430             | 2001.8                     | 8.3                  | 76-01-7<br>78-13-1              | N/A<br>1000 ppm (7500mg/m3/8H                       | N/A<br>orl-rat 43g/kg                    |
|  | Bromodichioromethane  | 35171   | 101623   | 0.05   | 5.00   | 40001.7                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9                 | 75-27-4                         | N/A   | orf-rat 43g/kg                           |
|  | Dibromochloromethane<br>cis-1,2-Dichloroethene  | 35171   | 101623   | 0.05   | 6.00   | 40002.1                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 124-48-1                        | NA  | orl-rat 648mg/kg                         |
|  | trans-1,2-Dichloroethone  | 35171   | 101623   | 0.05   | 5.00   | 40003.1 40002.4               | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 158-59-2                        | N/A   | N/A                                      |
|  | Methylene chloride  | 35171   | 101623   | 0.05   | 5.00   | 40002.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 156-60-5                        | 500 ppm   | ort-rat 1235mg/kg                        |
|  | 1,1-Dichloroethene  | 32251   | 102023   | 0.10   | 10,00  | 20001.8                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1009.7                     | 20,4                 | 75-35-4                         | 1 ppm (4mg/m3/8H)                                   | ori-rat 820mg/kg<br>ori-rat 200mg/kg     |
|  | Bromotorm<br>Carbon tetrachloride   | 95321   | 020724   | 0.10   | 10.00  | 20003.2                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.5                 | 75-25-2                         | 0.5 ppm (5mg/m3) (skin)                             | orl-rat 933mg/kg                         |
|  | Chloroform  | 85321   | 020724   | 0.10   | 10.00  | 20003.4 20024.0               | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.4                 | 58-23-5                         | 2 ppm (12.6mg/m3/8H)                                | ori-rat 2350mg/kg                        |
|  | Dibromomethane  | 95321   | 020724   | 0.10   | 10.00  | 20002.9                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 2001.9                     | 20.5                 | 67-66-3<br>74-95-3              | 50 ppm (240mp/m3) (CL)<br>N/A                       | orf-ret 908mg/kg                         |
|  | 1,1-Dichloroethane  | 95321   | 020724   | 0.10   | 10.00  | 20003.4                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.5                 | 75-34-3                         | 100 ppm   | orl-rat 106mg/kg<br>orl-rat 725mg/kg     |
|  | 2,2-Dichloropropane<br>Tetrachloroethene  | 95321<br>95321  | 020724   | 0.10   | 10.00  | 20003.4 20201.1               | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.4                 | 594-20-7                        | N/A   | N/A                                      |
| -  | 1,1,1-Trichloroethane   | 95321   | 020724   | 0.10   | 10.00  | 20201.1                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 2019.6                     | 20.6                 | 127-18-4<br>71-55-6             | 25 ppm (170mg/m3/8H)(final                          |  |
|  | 2-Dibromo-3-chloropropane   | 35161   | 112322   | 0.05   | 5.00   | 40016.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.3                     | 20.0                 | 96-12-8                         | 350 ppm (1900mg/m3/8H)<br>0.001 ppm                 | orl-rat 10300mg/kg<br>orl-rat 170mg/kg   |
|  | I,2-Dibromoethane   | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40024.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.7                     | 22.9                 | 108-93-4                        | 20 ppm (8H)   | orf-rat 108mg/kg                         |
|  | ,2-Dichloropropane  | 35161   | 112322   | 0.08   | 5.00   | 40018.0 40051.0               | 2000                 | NA               | NA                    | 0.017                         | NA<br>NA            | NA                  | 2000.4                     | 22.9                 | 107-08-2                        | 50 ppm (8H)   | orl-rat 670mg/kg                         |
|  | ,3-Dichloropropane  | 35161   | 112322   | 0.05   | 5.00   | 40005.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2002.0                     | 22.9                 | 78-87-5                         | 75 ppm (350mg/m3/8H)<br>N/A                         | orl-rat 1947mg/kg<br>Unr-muli 3600mg/kg  |
|  | .1-Dichloropropene  | 35161   | 112322   | 0.05   | 5.00   | 40012.1                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.1                     | 29.7                 | 563-58-6                        | N/A   | N/A                                      |
| _  | ia-1,3-Dichloropropene<br>rans-1,3-Dichloropropene  | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40010.0                       | 2000                 | NA<br>NA         | NA                    | 0.017                         | NA                  | NA                  | 2000.0                     | 23.0                 | 10061-01-5                      | N/A   | N/A                                      |
|  | lexachloro-1,3-butadiene  | 35181   | 112322   | 0.05   | 5.00   | 40021.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.4 2000.6              | 23.0<br>29.7         | 10061-02-8<br>87-68-3           | N/A   | N/A                                      |
|  | 1,1,2-Tetrachloroethane   | 35161   | 112322   | 0.05   | 5.00   | 40011.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.0                     | 22.9                 | 630-20-6                        | 0.02 ppm (0.24mg/m3/8H)<br>N/A                      | ori-rat 62mg/kg<br>ori-rat 670mg/kg      |
|  | ,1,2,2-Tetrachloroethane<br>,1,2-Trichloroethane  | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40007.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.9                     | 22.9                 | 79-34-5                         | 5 ppm (35mg/m3/9H)(eldn)                            | gAgm008 tsr-ho                           |
|  | richloroethene  | 35161   | 112322   | 0.05   | 5.00<br>5.00   | 40006.6                       | 2000                 | NA               | NA                    | 0.017                         | NA<br>NA            | NA                  | 1999.8                     | 23.0                 | 79-00-5                         | 10 ppm (46mg/m3/8H)(skin)                           | orl-rat 636mg/kg                         |
| 44. 1  | ,2,3-Trichloropropane   | 35181   | 112322   | 0.05   | 5.00   | 40007.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.9                     | 22.9                 | 79-01-6                         | 50 ppm (270mg/m3/8H)                                | orl-mus 2402mg/kg                        |
|  | enzene  | 36162   | 050823   | 0.05   | 5.00   | 40005.0                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 71-43-2                         | 10 ppm (60mg/m3/8H)<br>1 ppm                        | orl-rat 149.6mg/kg<br>orl-rat 4894mg/kg  |
|  | romobenzene<br>Butvi benzene  | 35162<br>35162  | 050823   | 0.05   | 5.00   | 40005.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 108-86-1                        | N/A   | orl-rat 2000mg/kg                        |
| 48. E  | thyi benzene  | 35162   | 050823   | 0.05   | 5.00   | 40003.8<br>40004.8            | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7<br>1999.7           | 22.9                 | 104-51-8                        | N/A   | N/A                                      |
| 49. P  | isopropyl toluene   | 35162   | 050823   | 0.05   | 5.00   | 40005.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 100-41-4                        | 100 ppm (435mg/m3/8H)<br>N/A                        | orl-rat >2000mg/kg<br>orl-rat 4750mg/kg  |
| 50. N<br>51. 5   | aphthalene  | 35162   | 050823   | 0.05   | 5.00   | 40006.2                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 91-20-3                         | 10 ppm (50mg/m3/8H)                                 | orl-rat 490mg/kg                         |
| 52. To   |   | 35162<br>35162  | 050823   | 0.05   | 5.00   | 40004.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 100-42-5                        | 100 ppm   | orl-rat 5000mg/kg                        |
| 53. 1  | 2,3-Trichlorobenzene  | 35162   | 050823   | 0.05   |  | 40003.1                       | 2000                 | NA               | NA                    | 0.017                         | NA NA               | NA                  | 1999.8                     | 22.9                 | 108-88-3<br>87-61-6             | 200 ppm   | orl-rat 5000mg/kg                        |
|  | 2,4-Trichlorobenzene  | 35162   | 050823   | 0.05   | 5.00   | 40006.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 120-82-1                        | N/A<br>5 ppm (CL) (40mg/m3)                         | lpr-mus 1390mg/kg<br>off-rat 756mg/kg    |
|  | 2,4-Trimethylbenzene<br>3,5-Trimethylbenzene  | 35162<br>35162  | 050823   |  |  | 40001.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 95-63-6                         | N/A   | ori-rat 5g/kg                            |
|  | -Xylane   | 35162   | 050823   | 0.05   |  | 40006.7<br>40005.8            | 2000                 | NA<br>NA         | NA                    | 0.017                         | NA                  | NA                  | 1999.0                     | 22.9                 | 108-67-8                        | N/A   | orl-rat 5000mg/kg                        |
| 58. 1e   | rt-Butyl benzene  | 35163   | 101923   |  |  | 40001.2                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8<br>1999.6           | 22.9                 | 108-38-3<br>98-06-6             | 100 ppm (435mg/m3/8H)<br>N/A                        | orl-rat 5g/kg<br>N/A                     |
|  | c-Butyl benzene<br>Norobenzene  | 35163   | 101923   |  |  | 40002.4                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9                 | 135-98-8                        | N/A   | ori-rat 2240mg/kg                        |
|  | PROFESSION CONTRACTOR OF CONTRACTOR |   | 101923   |  |  | 40003.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 108-90-7                        | 75 ppm (350mg/m3/8H)                                | orl-rail 2290mg/kg                       |
| 60. Či   |   |   | 101020   |  |  | 40000.3                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA<br>NA            | 1999.5<br>1999.7           | 22.9                 | 95-49-8                         | 50 ppm (250mg/m3/8H)                                | orl-rat 3900mg/kg                        |
| 60. Cr<br>61. 2-   | Chiorotoluene<br>Chiorotoluene  | 35163   | 101923   | 0.05   |  |                               |                      |                  | NA                    |                               |                     |                     | 1999.7                     |                      | 106-43-4                        | N/A   | orl-ret 2100mg/kg                        |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1,1                                  | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene   | 35163<br>35163  | 101923   | 0.05   |  | 40003.8                       | 2000                 | NA               | THPIC .               | 0.017                         | NA                  | NA                  |                            | 22.9                 | 95-50-1                         | 50 ppps (300mm/m/h) //** 1                          |  |
| 60. Cr<br>61. 24<br>62. 44<br>63. 1.<br>64. 1.                           | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene  | 35163<br>35163<br>35163                                     | 101923<br>101923   | 0.05   | 5.00<br>5.00   | 40001.7                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9<br>23.0         | 95-50-1<br>541-73-1             | 50 ppm (300mp/m3) (CL)<br>N/A                       | orl-rat 500mg/kg<br>lpr-mus 1062mg/kg    |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4            | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene<br>1-Dichlorobenzene   | 35163<br>35163<br>35163<br>35163                            | 101923<br>101923<br>101923   | 0.05<br>0.05<br>0.05                         | 5.00<br>5.00<br>5.00                                 | 40001.7<br>40001.8            | 2000<br>2000         | NA<br>NA         | NA<br>NA              | 0.017<br>0.017                | NA<br>NA            | NA<br>NA            | 1999.6<br>1999.6           | 23.0<br>22.9         | 541-73-1<br>106-48-7            | N/A<br>76 ppm (450mg/m3/8H)                         | ipr-mus 1062mg/kg<br>orl-rat 500mg/kg    |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4<br>66. 1sc | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene<br>1-Dichlorobenzene<br>apropy/benzene   | 35163<br>35163<br>35163<br>35163<br>35163                   | 101923<br>101923<br>101923<br>101923                               | 0.05<br>0.05<br>0.05<br>0.05                 | 5.00<br>5.00<br>5.00<br>5.00                         | 40001.7                       | 2000<br>2000<br>2000 | NA<br>NA<br>NA   | NA<br>NA<br>NA        | 0.017<br>0.017<br>0.017       | NA<br>NA<br>NA      | NA<br>NA<br>NA      | 1999.6<br>1999.6<br>1999.5 | 23.0<br>22.9<br>22.9 | 541-73-1<br>106-48-7<br>98-82-8 | N/A<br>76 ppm (450mg/m3/8H)<br>50 ppm (245mg/m3/8H) | ori-rat 500mg/kg<br>ori-rat 500mg/kg     |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4<br>66. 1sc | Chiorotoluene<br>Chiorotoluene<br>2-Dichiorobenzene<br>3-Dichiorobenzene<br>1-Dichiorobenzene<br>8-ropytbenzene<br>?ropytbenzene<br>Kylene  | 35163<br>35163<br>35163<br>35163<br>35163<br>35163<br>35163 | 101923<br>101923<br>101923<br>101923<br>101923<br>101923<br>101923 | 0.05<br>0.05<br>0.08<br>0.05<br>0.05<br>0.05 | 5.00<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00 | 40001.7<br>40001.8<br>40000.8 | 2000<br>2000         | NA<br>NA         | NA<br>NA              | 0.017<br>0.017                | NA<br>NA            | NA<br>NA            | 1999.6<br>1999.6           | 23.0<br>22.9         | 541-73-1<br>106-48-7            | N/A<br>76 ppm (450mg/m3/8H)                         | ipr-mus 1062mg/kg<br>orl-rat 500mg/kg    |

The certified value is the concentration exclusion of the gravimetric and volumetric measurements unless otherwise stated,
 Standards are perpared gravimetrically using balances their are calibration with weights traceable to NEST (see above),
 Standards are certified (<) 0.5% of the stated value, usion otherwise stated,
 Ad Standards, full and the stated value, usion otherwise stated,
 Ad Standards, full empirically using anyote, should be stored with complete light and under appropriate theoretically candillions.
 Uncertainty Reference: Taylor, R.N. and Kuyat, C.E., "Calciolines for Evaluating and Expressing the Uncertainty of NIST Measurement Resolt,"
 NIST Technical Note 1297, U.S. Government Printing Office, Washington, UC, (1994).

Certified Reference Material CRM

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 0,077

 10.33
 0,077

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 0,077

 10.35
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 12.361
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 13.46
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 13.16
 33.40

 33.160
 33.40

 33.24
 27.73

 13.34
 12.73

 13.48
 12.44

 13.46
 12.73

 13.46
 12.73

 13.46
 12.74

 14.48
 14.42

 44.52
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 44.42
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 44.43
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 14.42

 44.54
 14.42

 44.53
 14.42

 44.54
 14.52

 51.16
 51.16

Run 16, "P95317 L021624 [2000µg/mL in MeOH]" Faher 1,1,2-Trichtoro-1,2,2-tr Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 8:56:46 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". 1,1-Dichiorosthane Acetonitrile Iodomethane Allyi chloride Carbon disullide/Nathylene ( trans-1,2-Dicklonethene 1.1-Dicklonethane 2,2-Dicklonethane Analyzed using Method "GC5-M1". 2,2:0:0kileropropana cis-1,2:0ciliarosthane Mathacrytonityle/Methyl ecry Isobutane/1,1,1-Trictikoredit 1,1-0ciliaropropana Carbon tetrachioride Bernsen(1,2:0kinarostnana 1,2:0kinarosthana 1,2:0kinarosthana Bichmontetkana/3:Nikropana Comments Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air (make-up)=230mL/min. Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C. GC5-M1 Analysis by Candice Warren amethane/2-Nik Dibrom Distriminanti anti Anteoproje els 1,3-Dickiorpetin Distene Ethyl methacryfels/trans-1,3-D 1,1,2-Trichloroethene Tetrachioroethene/1,3-Dickior FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=3 Dibromochioromethe 1,2-Dibromoethene 1,2-Directmeethene
 Chorobarrene
 L,2,2-Titterioreabhare
 L,2,2-Titterioreabhare
 Torson-2-budene
 Eronobarrene
 foresen
 Artificiation-2-budene
 Eronobarrene 1000000 800000 чась 1, и обстоит-3-сти Висопольтана Висопольтана 2.-Спартовона и и и и и и и и и и и и сталовородите и и водушение и и водушение и и водушение и и водушение и воду и водушение и водушение и воду и 600000 N 400000 Nitrobenzane 1,2,4-Trichkorobenzan Hexachiorobutadiima Naphchalena 1,2,3-Trichkorobenken \$2 200000 50 20 30 10 min

Absolute Standards Inc.

# Safety Data Sheet (SDS) GHS/OSHA Compliant

# Section I Product and Company Identification

| Manufacturer's Name  | ABSOLUTE STANDARDS INC   |  | ephone USA & CANADA  | 1-800-535-5053                       |
|--|--|--|--|--------------------------------------|
| Address  | 44 Rossotto Dr.<br>Hamden CT, 06514  | Emergency Tele   | phone International  | 1-352-323-3500                       |
| Section II - Hazards Ider  |  | Date Prepared/   | Hevised  | January 1, 2023                      |
|  |  |  |  |                                      |
|  | GHS Classification In accor  |  |  |                                      |
| H225 Highly Fi<br>H370 Cause da  | lammable Liquid and Vapor<br>amage to organs   | H301, 311, 331   | Toxic if swallowed, skin con   | tact, inhaled                        |
| P271 Use in ve   | entilated area   | H351<br>P280   | Suspected of causing cance<br>Use gloves, eye protection/  | er<br>er sheild                      |
| P302,332 If on skir  | n, wash with soap and water  | P305,351,338   | If in eyes, remove contacts,   | rinse with water                     |
|  | Signal Word: DANGER  |  |  |                                      |
| Section III - Composition  | 1  |  |  |                                      |
| Components (Specific Che<br>Methanol   | emical Identity; Common Name(s))   | 010# 07 50 1   |  | % (optional)                         |
| vietriarior  | METHYL ALCOHOL   | CAS#: 67-56-1  |  | > 97                                 |
| See Certified Weight   | Report For Other Analytes Pre  | esent At Trace   | Quantities.  |                                      |
| NTENDED USE: REFER   |  |  |  |                                      |
| Section IV. FIRST AID ME   | ASURES   |  |  |                                      |
| General advice   | Consult a physician. Show this safety data   | a sheet to the doctor i  | n attendance Move to sefe area   |                                      |
| finhaled   | If inhaled, move person into fresh air. If no  | ot breathing, give artifi  | cial respiration. Consult a physician.   |                                      |
| n case of skin contact   | Wash with soap and water. Consult a phy  | /sician.   |  |                                      |
| n case of eye contact<br>f swallowed   | Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth with  | at least 15 minutes and  | d consult a physician.   |                                      |
|  |  | in water. Consult a pri  | ysiciali.  |                                      |
| Section V. FIREFIGHTING  | MEASURES   |  |  |                                      |
|  |  |  |  |                                      |
| lammability  | Flammable in the presence of a sour  | ce of ignition when the<br>No smoking.   | e temperature is above the flash point   | . Keep away from                     |
| lammability<br>uitable extinguishing media   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability<br>uitable extinguishing media   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathing  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r   | arbon dioxide.<br>necessary.   |                                      |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>section VI. ACCIDENTAL<br>ersonal precautions  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo   | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>sive concentrations.   | arbon dioxide.<br>necessary.<br>. Ensure adequate ventilation. Remov   |                                      |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathing  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>o do so. Do not let pro   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov   | ve all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>o do so. Do not let pro   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov   | re all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b>   | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>te in container for disp   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov<br>oduct enter drains.<br>osal according to local regulations (so                 | re all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AP<br>recautions for safe handling   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from source  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>or vapors, mist or gas<br>psive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo                           | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING A  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>or vapors, mist or gas<br>psive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo                           | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>eection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions<br>ection VIII. EXPOSURE C   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from source<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                                    | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>eection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions<br>ection VIII. EXPOSURE C   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                                      | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>eection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions<br>ection VIII. EXPOSURE C<br>ethanol 67-56-1 TVVA<br>in notation TVVA 200 ppn<br>tential for skin absorption , inge | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.<br><b>CONTROLS/PERSONAL PROTECTI</b> | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>es of ignition. No smo<br>and well-ventilated pla | arbon dioxide.<br>hecessary.   | re all sources of<br>se section 13). |

Section IX - Physical/Chemical Characteristics

#### PO Box 5585 Hamden, CT 06518-0585

| Boiling Point           | 65°C | Specific Gravity (H2O = 1)              | 0.79  |
|-------------------------|------|---|-------|
| Vapor Pressure (mm Hg)  | 96   | Melting Point                           | -98°C |
| Vapor Density (AIR = 1) | 1.11 | Evaporation rate<br>(Butyl Acetate = 1) | 4.6   |

Solubility in Water COMPLETE

# Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

# Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition products for

Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight.

void Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

# Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

## Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



www.absolutestandards.com

-**Certified Reference Material CRM**  ¢,



| CEF  | TIFIED WEIGHT REPORT  |   |  |  |  |                               |                      |                  |                       |                               |                     |                     |                            |                      |                                 |   |  |
|--|---|---|--|--|--|-------------------------------|----------------------|------------------|-----------------------|-------------------------------|---------------------|---------------------|----------------------------|----------------------|---------------------------------|---|--|
|  |   | er: 02162   | 4  | -  |  |                               |                      |                  |                       | Solvent(s):<br>Methanoi       | EG359-US            | Q12                 |                            |                      | 0                               | GHI   |  |
|  | Expiration Da   | 69 con  | sal VOA Meg<br>nponents  |  |  |                               |                      |                  |                       |                               |                     |                     |                            | Formula              | ated By:                        | Preshant Chaufer                                    | 021624<br>DATE                           |
|  | Recommended Storag<br>Nominal Concentration (µg/m)  | e: Freezer  |  |  |  |                               |                      |                  |                       |                               |                     |                     |                            |                      | 4                               | 2. A.   |  |
|  | NIST Test IC  | #: BUTB   |  |  |  | 5 Balance Unce                |                      |                  |                       |                               |                     |                     |                            | Review               |                                 | Pedro L. Rentas                                     | 021624<br>DATE                           |
|  | Weight(a) shown below were combine  |   |  | 100.   | 0 0.02   | 1 Flask Uncerta               | daty                 |                  |                       |                               |                     |                     |                            | Expande              | rd                              | SDS information                                     |  |
|  | Compound  | (RM#)<br>Pert Numb  | Lot<br>er Number   | Di).<br>Facto                                | Initial<br>r Vol. (m                                 | initial<br>L) Conc.(ug/mi     | Nominal              | Purity<br>L) (%) | Purity<br>Uncertainty | Uncortainty<br>y Pipette (mL) | Target<br>Weight(g) | Actual<br>Weight(g) | Actual<br>Conc (µg/mL      | Uncertain            | rty (Sol                        | vent Safety Info. On Atta<br>OSHA PEL (TWA)         |  |
| 1.<br>2.   | Acetonitrile  | (0324)  | 021644   | NA   |  | NA                            | 2000                 | 99.99            | 0.2                   | NA                            | 0.20007             | 0.20020             | 2001.3                     | 8.1                  | 75-05-8                         | 40 ppm (70mg/m3/8H)                                 | ori-rat 2460mg/kg                        |
| 3.   | Allyl chloride (3-Chloropropene)<br>Carbon disulphide   | (0325)<br>(0060)  | 102396<br>MKCR858  | NA<br>11 NA                                  | NA   | NA<br>NA                      | 2000                 | 99.99            | 0.2                   | NA                            | 0.20207             | 0.20221             | 2001.4 2001.6              | 8.2<br>8.1           | 107-05-1<br>75-15-0             | 1 ppm (3mg/m3/8H)                                   | orl-rat 700mg/kg                         |
| 4,   | cis-1,4-Dichloro-2-butene   | (1198)  | 14718EF  |  | NA   | NA                            | 2000                 | 95               | 0.2                   | NA                            | 0.21058             | 0.21069             | 2001.1                     | B,5                  | 1478-11-5                       | 4 ppm (12mg/m3) (skin)<br>5 N/A                     | ori-rat 1200mg/kg<br>N/A                 |
| 6.   | trans-1,4-Dichloro-2-butene<br>Diethyl ether  | (0486)<br>(0153)  | MKBP6041<br>K18CAS00   |  | NA   | NA                            | 2000                 | 96.5             | 0.2                   | NA                            | 0.20731             | 0.20748             | 2001.7                     | 8.4                  | 110-57-6                        | N/A   | N/A                                      |
| 7.   |   | (0381)  | 06126PX  | NA   | NA   | NA                            | 2000                 | 99               | 0.2                   | NA                            | 0.20025             | 0.20040             | 2001.5                     | 8.1                  | 80-29-7<br>97-63-2              | N/A<br>N/A  | NA                                       |
| 8.<br>9.   | lodomethane   | (0489)  | SH8F8718   |  | NA   | NA                            | 2000                 | 99.5             | 0.2                   | NA                            | 0.20106             | 0.20121             | 2001.5                     | 8.2                  | 74-88-4                         | 5 ppm(28mp/m3/8H)(sidn                              | orl-rat 14800mg/kg<br>i) orl-rat 76mg/kg |
| 10.  | 2-Methyl-1-propanol<br>Methacrylonitrile  | (0445)  | 15241EB<br>00427ET   | NA   | NA   | NA<br>NA                      | 2000                 | 99.5             | 0.2                   | NA                            | 0.20106             | 0.20120             | 2001.4                     | 8.1                  | 78-83-1                         | 60 ppm (150mg/m3/8H)                                | orl-rat 2460mg/kg                        |
| 11.  | Methyl acrylate   | (1075)  | SHBK0679   |  | NA   | NA                            | 2000                 | 99<br>99.9       | 0.2                   | NA<br>NA                      | 0.20207             | 0.20221             | 2001.4                     | 8.2                  | 126-98-7<br>96-33-3             | 1 ppm (3mg/m3/8H)(skin)                             |  |
|  | Methyl methacrylate   | (0404)  | MKBW5137   |  | NA   | NA                            | 2000                 | 99.9             | 0.2                   | NA                            | 0.20025             | 0.20041             | 2001.6                     | 8.1                  | 80-62-6                         | 10 ppm(35mg/m3/8H)(sidn<br>100 ppm (410mg/m3/8H)    | ori-ret 277mg/kg<br>ori-ret 7872mg/kg    |
|  | Nitrobenzene<br>2-Nitropropane  | (0228) (0461)   | 01213TV<br>14002JX   | NA   | NA   | NA                            | 2000                 | 99               | 0.2                   | NA                            | 0.20207             | 0.20220             | 2001.3                     | 8.2                  | 98-95-3                         | 1 ppm (5mg/m3/8H)(akin)                             |  |
|  | Peniactiloroethane  | (0450)  | HGA01  | NA   | NA   | NA<br>NA                      | 2000                 | 97.3<br>98       | 0.2                   | NA<br>NA                      | 0.20560             | 0.20577             | 2001.6                     | 6.3                  | 79-46-9                         | 10 ppm (35mg/m3/6H)                                 | orl-rat 720mg/kg                         |
|  | 1,1,2-Trichlorotrifiuoroethane  | (0474)  | 18930  | NA   | NA   | NA                            | 2000                 | 88               | 0.2                   | NA                            | 0.20413             | 0.20430             | 2001.8                     | 8.3                  | 76-01-7<br>78-13-1              | N/A<br>1000 ppm (7500mg/m3/8H                       | N/A<br>orl-rat 43g/kg                    |
|  | Bromodichioromethane  | 35171   | 101623   | 0.05   | 5.00   | 40001.7                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9                 | 75-27-4                         | N/A   | orf-rat 43g/kg                           |
|  | Dibromochloromethane<br>cis-1,2-Dichloroethene  | 35171   | 101623   | 0.05   | 6.00   | 40002.1                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 124-48-1                        | NA  | orl-rat 648mg/kg                         |
|  | trans-1,2-Dichloroethone  | 35171   | 101623   | 0.05   | 5.00   | 40003.1 40002.4               | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 158-59-2                        | N/A   | N/A                                      |
|  | Methylene chloride  | 35171   | 101623   | 0.05   | 5.00   | 40002.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 156-60-5                        | 500 ppm   | ort-rat 1235mg/kg                        |
|  | 1,1-Dichloroethene  | 32251   | 102023   | 0.10   | 10,00  | 20001.8                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1009.7                     | 20,4                 | 75-35-4                         | 1 ppm (4mg/m3/8H)                                   | ori-rat 820mg/kg<br>ori-rat 200mg/kg     |
|  | Bromotorm<br>Carbon tetrachloride   | 95321   | 020724   | 0.10   | 10.00  | 20003.2                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.5                 | 75-25-2                         | 0.5 ppm (5mg/m3) (skin)                             | orl-rat 933mg/kg                         |
|  | Chloroform  | 85321   | 020724   | 0.10   | 10.00  | 20003.4 20024.0               | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.4                 | 58-23-5                         | 2 ppm (12.6mg/m3/8H)                                | ori-rat 2350mg/kg                        |
|  | Dibromomethane  | 95321   | 020724   | 0.10   | 10.00  | 20002.9                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 2001.9                     | 20.5                 | 67-66-3<br>74-95-3              | 50 ppm (240mp/m3) (CL)<br>N/A                       | orf-ret 908mg/kg                         |
|  | 1,1-Dichloroethane  | 95321   | 020724   | 0.10   | 10.00  | 20003.4                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.5                 | 75-34-3                         | 100 ppm   | orl-rat 106mg/kg<br>orl-rat 725mg/kg     |
|  | 2,2-Dichloropropane<br>Tetrachloroethene  | 95321<br>95321  | 020724   | 0.10   | 10.00  | 20003.4 20201.1               | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 1999.8                     | 20.4                 | 594-20-7                        | N/A   | N/A                                      |
| -  | 1,1,1-Trichloroethane   | 95321   | 020724   | 0.10   | 10.00  | 20201.1                       | 2000                 | NA               | NA                    | 0.042                         | NA                  | NA                  | 2019.6                     | 20.6                 | 127-18-4<br>71-55-6             | 25 ppm (170mg/m3/8H)(final                          |  |
|  | 2-Dibromo-3-chloropropane   | 35161   | 112322   | 0.05   | 5.00   | 40016.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.3                     | 20.0                 | 96-12-8                         | 350 ppm (1900mg/m3/8H)<br>0.001 ppm                 | orl-rat 10300mg/kg<br>orl-rat 170mg/kg   |
|  | I,2-Dibromoethane   | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40024.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.7                     | 22.9                 | 108-93-4                        | 20 ppm (8H)   | orf-rat 108mg/kg                         |
|  | ,2-Dichloropropane  | 35161   | 112322   | 0.08   | 5.00   | 40018.0 40051.0               | 2000                 | NA               | NA                    | 0.017                         | NA<br>NA            | NA                  | 2000.4                     | 22.9                 | 107-08-2                        | 50 ppm (8H)   | orl-rat 670mg/kg                         |
|  | ,3-Dichloropropane  | 35161   | 112322   | 0.05   | 5.00   | 40005.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2002.0                     | 22.9                 | 78-87-5                         | 75 ppm (350mg/m3/8H)<br>N/A                         | orl-rat 1947mg/kg<br>Unr-muli 3600mg/kg  |
|  | .1-Dichloropropene  | 35161   | 112322   | 0.05   | 5.00   | 40012.1                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.1                     | 29.7                 | 563-58-6                        | N/A   | N/A                                      |
| _  | ia-1,3-Dichloropropene<br>rans-1,3-Dichloropropene  | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40010.0                       | 2000                 | NA<br>NA         | NA                    | 0.017                         | NA                  | NA                  | 2000.0                     | 23.0                 | 10061-01-5                      | N/A   | N/A                                      |
|  | lexachloro-1,3-butadiene  | 35181   | 112322   | 0.05   | 5.00   | 40021.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.4 2000.6              | 23.0<br>29.7         | 10061-02-8<br>87-68-3           | N/A   | N/A                                      |
|  | 1,1,2-Tetrachloroethane   | 35161   | 112322   | 0.05   | 5.00   | 40011.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.0                     | 22.9                 | 630-20-6                        | 0.02 ppm (0.24mg/m3/8H)<br>N/A                      | ori-rat 62mg/kg<br>ori-rat 670mg/kg      |
|  | ,1,2,2-Tetrachloroethane<br>,1,2-Trichloroethane  | 35161<br>35161  | 112322   | 0.05   | 5.00   | 40007.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.9                     | 22.9                 | 79-34-5                         | 5 ppm (35mg/m3/9H)(eldn)                            | gAgm008 tsr-ho                           |
|  | richloroethene  | 35161   | 112322   | 0.05   | 5.00<br>5.00   | 40006.6                       | 2000                 | NA               | NA                    | 0.017                         | NA<br>NA            | NA                  | 1999.8                     | 23.0                 | 79-00-5                         | 10 ppm (46mg/m3/8H)(skin)                           | orl-rat 636mg/kg                         |
| 44. 1  | ,2,3-Trichloropropane   | 35181   | 112322   | 0.05   | 5.00   | 40007.5                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 2000.9                     | 22.9                 | 79-01-6                         | 50 ppm (270mg/m3/8H)                                | orl-mus 2402mg/kg                        |
|  | enzene  | 36162   | 050823   | 0.05   | 5.00   | 40005.0                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 71-43-2                         | 10 ppm (60mg/m3/8H)<br>1 ppm                        | orl-rat 149.6mg/kg<br>orl-rat 4894mg/kg  |
|  | romobenzene<br>Butvi benzene  | 35162<br>35162  | 050823   | 0.05   | 5.00   | 40005.9                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 108-86-1                        | N/A   | orl-rat 2000mg/kg                        |
| 48. E  | thyi benzene  | 35162   | 050823   | 0.05   | 5.00   | 40003.8<br>40004.8            | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7<br>1999.7           | 22.9                 | 104-51-8                        | N/A   | N/A                                      |
| 49. P  | isopropyl toluene   | 35162   | 050823   | 0.05   | 5.00   | 40005.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 100-41-4                        | 100 ppm (435mg/m3/8H)<br>N/A                        | orl-rat >2000mg/kg<br>orl-rat 4750mg/kg  |
| 50. N<br>51. 5   | aphthalene  | 35162   | 050823   | 0.05   | 5.00   | 40006.2                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 91-20-3                         | 10 ppm (50mg/m3/8H)                                 | orl-rat 490mg/kg                         |
| 52. To   |   | 35162<br>35162  | 050823   | 0.05   | 5.00   | 40004.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 100-42-5                        | 100 ppm   | orl-rat 5000mg/kg                        |
| 53. 1  | 2,3-Trichlorobenzene  | 35162   | 050823   | 0.05   |  | 40003.1                       | 2000                 | NA               | NA                    | 0.017                         | NA NA               | NA                  | 1999.8                     | 22.9                 | 108-88-3<br>87-61-6             | 200 ppm   | orl-rat 5000mg/kg                        |
|  | 2,4-Trichlorobenzene  | 35162   | 050823   | 0.05   | 5.00   | 40006.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8                     | 22.9                 | 120-82-1                        | N/A<br>5 ppm (CL) (40mg/m3)                         | lpr-mus 1390mg/kg<br>off-rat 756mg/kg    |
|  | 2,4-Trimethylbenzene<br>3,5-Trimethylbenzene  | 35162   | 050823   |  |  | 40001.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 23.0                 | 95-63-6                         | N/A   | ori-rat 5g/kg                            |
|  | -Xylane   | 35162   | 050823   | 0.05   |  | 40006.7<br>40005.8            | 2000                 | NA<br>NA         | NA                    | 0.017                         | NA                  | NA                  | 1999.0                     | 22.9                 | 108-67-8                        | N/A   | orl-rat 5000mg/kg                        |
| 58. 1e   | rt-Butyl benzene  | 35163   | 101923   |  |  | 40001.2                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.8<br>1999.6           | 22.9                 | 108-38-3<br>98-06-6             | 100 ppm (435mg/m3/8H)<br>N/A                        | orl-rat 5g/kg<br>N/A                     |
|  | c-Butyl benzene<br>Norobenzene  | 35163   | 101923   |  |  | 40002.4                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9                 | 135-98-8                        | N/A   | ori-rat 2240mg/kg                        |
|  | PROFESSION CONTRACTOR OF CONTRACTOR |   | 101923   |  |  | 40003.8                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.7                     | 22.9                 | 108-90-7                        | 75 ppm (350mg/m3/8H)                                | orl-rail 2290mg/kg                       |
| 60. Či   |   |   | 101020   |  |  | 40000.3                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA<br>NA            | 1999.5<br>1999.7           | 22.9                 | 95-49-8                         | 50 ppm (250mg/m3/8H)                                | orl-rat 3900mg/kg                        |
| 60. Cr<br>61. 2-   | Chiorotoluene<br>Chiorotoluene  | 35163   | 101923   | 0.05   |  |                               |                      |                  | NA                    |                               |                     |                     | 1999.7                     |                      | 106-43-4                        | N/A   | orl-ret 2100mg/kg                        |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1,1                                  | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene   | 35163<br>35163  | 101923   | 0.05   |  | 40003.8                       | 2000                 | NA               | THPIC .               | 0.017                         | NA                  | NA                  |                            | 22.9                 | 95-50-1                         | 50 ppps (300mm/m/h) //** 1                          |  |
| 60. Cr<br>61. 24<br>62. 44<br>63. 1.<br>64. 1.                           | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene  | 35163<br>35163<br>35163                                     | 101923<br>101923   | 0.05   | 5.00<br>5.00   | 40001.7                       | 2000                 | NA               | NA                    | 0.017                         | NA                  | NA                  | 1999.6                     | 22.9<br>23.0         | 95-50-1<br>541-73-1             | 50 ppm (300mp/m3) (CL)<br>N/A                       | orl-rat 500mg/kg<br>lpr-mus 1062mg/kg    |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4            | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene<br>1-Dichlorobenzene   | 35163<br>35163<br>35163<br>35163                            | 101923<br>101923<br>101923   | 0.05<br>0.05<br>0.05                         | 5.00<br>5.00<br>5.00                                 | 40001.7<br>40001.8            | 2000<br>2000         | NA<br>NA         | NA<br>NA              | 0.017<br>0.017                | NA<br>NA            | NA<br>NA            | 1999.6<br>1999.6           | 23.0<br>22.9         | 541-73-1<br>106-48-7            | N/A<br>76 ppm (450mg/m3/8H)                         | ipr-mus 1062mg/kg<br>orl-rat 500mg/kg    |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4<br>66. 1sc | Chlorotoluene<br>Chlorotoluene<br>2-Dichlorobenzene<br>3-Dichlorobenzene<br>1-Dichlorobenzene<br>apropy/benzene   | 35163<br>35163<br>35163<br>35163<br>35163                   | 101923<br>101923<br>101923<br>101923                               | 0.05<br>0.05<br>0.05<br>0.05                 | 5.00<br>5.00<br>5.00<br>5.00                         | 40001.7                       | 2000<br>2000<br>2000 | NA<br>NA<br>NA   | NA<br>NA<br>NA        | 0.017<br>0.017<br>0.017       | NA<br>NA<br>NA      | NA<br>NA<br>NA      | 1999.6<br>1999.6<br>1999.5 | 23.0<br>22.9<br>22.9 | 541-73-1<br>106-48-7<br>98-82-8 | N/A<br>76 ppm (450mg/m3/8H)<br>50 ppm (245mg/m3/8H) | ori-rat 500mg/kg<br>ori-rat 500mg/kg     |
| 60. Cr<br>61. 2-4<br>62. 4-4<br>63. 1.1<br>64. 1.1<br>65. 1.4<br>66. 1sc | Chicrotoluene<br>Chicrotoluene<br>2-Dichicrobenzene<br>3-Dichicrobenzene<br>1-Dichicrobenzene<br>8-rogytbenzene<br>?rogytbenzene<br>Kylene  | 35163<br>35163<br>35163<br>35163<br>35163<br>35163<br>35163 | 101923<br>101923<br>101923<br>101923<br>101923<br>101923<br>101923 | 0.05<br>0.05<br>0.08<br>0.05<br>0.05<br>0.05 | 5.00<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00<br>5.00 | 40001.7<br>40001.8<br>40000.8 | 2000<br>2000         | NA<br>NA         | NA<br>NA              | 0.017<br>0.017                | NA<br>NA            | NA<br>NA            | 1999.6<br>1999.6           | 23.0<br>22.9         | 541-73-1<br>106-48-7            | N/A<br>76 ppm (450mg/m3/8H)                         | ipr-mus 1062mg/kg<br>orl-rat 500mg/kg    |

The certified value is the concentration exclusion of the gravimetric and volumetric measurements unless otherwise stated,
 Standards are perpared gravimetrically using balances their are calibration with weights traceable to NEST (see above),
 Standards are certified (<) 0.5% of the stated value, usion otherwise stated,
 Ad Standards, full and the stated value, usion otherwise stated,
 Ad Standards, full empirically using anyote, should be stored with complete light and under appropriate theoretically candillions.
 Uncertainty Reference: Taylor, R.N. and Kuyat, C.E., "Calciolines for Evaluating and Expressing the Uncertainty of NIST Measurement Resolt,"
 NIST Technical Note 1297, U.S. Government Printing Office, Washington, UC, (1994).

Certified Reference Material CRM

10



 contac.)
 0,077

 10.33
 0,077

 10.34
 0,077

 10.35
 11.36

 12.361
 12.361

 12.351
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 36.62
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 37.98
 14.42

 44.43
 46.42

 44.42
 14.42

 44.42
 14.42

 44.53
 14.42

 44.54
 14.42

Run 16, "P95317 L021624 [2000µg/mL in MeOH]" Faher 1,1,2-Trichtoro-1,2,2-tr Run Length: 60.00 min, 35998 points at 10 points/second. Created: Sat, Feb 17, 2024 at 8:56:46 AM. Sampled: Sequence "021624-GC5M1", Method "GC5-M1". 1,1-Dichiorosthane Acetonitrile Iodomethane Allyi chloride Carbon disullide/Nathylene ( trans-1,2-Dicklonethene 1.1-Dicklonethane 2,2-Dicklonethane Analyzed using Method "GC5-M1". 2,2:0:0kileropropana cis-1,2:0ciliarosthane Mathacrytonityle/Methyl ecry Isobutane/1,1,1-Trictikoredit 1,1-0ciliaropropana Carbon tetrachioride Bernsen(1,2:0kinarostnana 1,2:0kinarosthana 1,2:0kinarosthana Bichmontetkana/3:Nikropana Comments Column ID SPB-Vocol 105 meter X 0.53mm X 3.0µm film thickness Flow rates: Total flow=290mL/min., Helium (carrier)=10mL/min., Helium(make-up)=10mL/min., Hydogen(make-up)=40mL/min., Air (make-up)=230mL/min. Oven Profile: Temp. 1=35°C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), Rate = 4°C/min., Total run time=60 min. Injector temp.=200°C, FID Temp.=200°C. GC5-M1 Analysis by Candice Warren amethane/2-Nik Dibrom Distriminanti anti Anteoproje els 1,3-Dickiorpetin Distene Ethyl methacryfels/trans-1,3-D 1,1,2-Trichloroethene Tetrachioroethene/1,3-Dickior FID Signal = Edaq Channel 1 Standard injection = 0.5µL, Range=3 Dibromochioromethe 1,2-Dibromoethene 1,2-Directmeethene
 Chorobarrene
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 Eronobarrene 1000000 800000 чась 1, и обстоит-3-сти Висопольтана Висопольтана 2.-Спартовона и и и и и и и и и и и и сталовородите и и водушение и и водушение и и водушение и и водушение и воду и водушение и водушение и воду и 600000 N 400000 Nitrobenzane 1,2,4-Trichkorobenzan Hexachiorobutadiima Naphchalena 1,2,3-Trichkorobenken \$2 200000 50 20 30 10 min

Absolute Standards Inc.

# Safety Data Sheet (SDS) GHS/OSHA Compliant

# Section I Product and Company Identification

| Manufacturer's Name   | ABSOLUTE STANDARDS INC   |  | ephone USA & CANADA  | 1-800-535-5053                       |
|---|--|--|--|--------------------------------------|
| Address   | 44 Rossotto Dr.<br>Hamden CT, 06514  | Emergency Tele   | phone International  | 1-352-323-3500                       |
| Section II - Hazards Ider   |  | Date Prepared/   | Hevised  | January 1, 2023                      |
|   |  |  |  |                                      |
|   | GHS Classification In accor  |  |  |                                      |
| H225 Highly Fi<br>H370 Cause da   | lammable Liquid and Vapor<br>amage to organs   | H301, 311, 331   | Toxic if swallowed, skin con   | tact, inhaled                        |
| P271 Use in ve  | entilated area   | H351<br>P280   | Suspected of causing cance<br>Use gloves, eye protection/  | er<br>er sheild                      |
| P302,332 If on skir   | n, wash with soap and water  | P305,351,338   | If in eyes, remove contacts,   | rinse with water                     |
|   | Signal Word: DANGER  |  |  |                                      |
| Section III - Composition   | 1  |  |  |                                      |
| Components (Specific Che<br>Methanol  | emical Identity; Common Name(s))   | 010# 07 50 1   |  | % (optional)                         |
| vietriarior   | METHYL ALCOHOL   | CAS#: 67-56-1  |  | > 97                                 |
| See Certified Weight  | Report For Other Analytes Pre  | esent At Trace   | Quantities.  |                                      |
| NTENDED USE: REFER  |  |  |  |                                      |
| Section IV. FIRST AID ME  | ASURES   |  |  |                                      |
| General advice  | Consult a physician. Show this safety data   | a sheet to the doctor i  | n attendance Move to sefe area   |                                      |
| finhaled  | If inhaled, move person into fresh air. If no  | ot breathing, give artifi  | cial respiration. Consult a physician.   |                                      |
| n case of skin contact  | Wash with soap and water. Consult a phy  | /sician.   |  |                                      |
| n case of eye contact<br>f swallowed  | Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth with  | at least 15 minutes and  | d consult a physician.   |                                      |
|   |  | in water. Consult a pri  | ysiciali.  |                                      |
| Section V. FIREFIGHTING   | MEASURES   |  |  |                                      |
|   |  |  |  |                                      |
| lammability   | Flammable in the presence of a sour  | ce of ignition when the<br>No smoking.   | e temperature is above the flash point   | . Keep away from                     |
| lammability<br>uitable extinguishing media  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability<br>uitable extinguishing media  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara   | No smoking.<br>am, dry chemical or ca  | arbon dioxide.   | . Keep away from                     |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire  | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathing  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r   | arbon dioxide.<br>necessary.   |                                      |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>section VI. ACCIDENTAL<br>ersonal precautions   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo   | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>sive concentrations.   | arbon dioxide.<br>necessary.<br>. Ensure adequate ventilation. Remov   |                                      |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathing  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>o do so. Do not let pro   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov   | ve all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>o do so. Do not let pro   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov   | re all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b>   | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>te in container for disp   | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remov<br>oduct enter drains.<br>osal according to local regulations (se                 | re all sources of                    |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AP<br>recautions for safe handling  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from source   | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>or vapors, mist or gas<br>psive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo                           | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING A   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>or vapors, mist or gas<br>psive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo                           | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry  | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>eection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions   | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe to<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from source<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                                    | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>eection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions<br>ection VIII. EXPOSURE C  | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                                      | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>ces of ignition. No smo<br>and well-ventilated pla                               | arbon dioxide.<br>hecessary.<br>. Ensure adequate ventilation. Remove<br>oduct enter drains.<br>osal according to local regulations (se<br>or or mist. | re all sources of<br>se section 13). |
| lammability<br>uitable extinguishing media<br>rotective equipment for fire<br>ection VI. ACCIDENTAL<br>ersonal precautions<br>nvironmental precautions<br>lean up<br>ection VII. HANDLING AI<br>recautions for safe handling<br>orage Conditions<br>ection VIII. EXPOSURE C<br>ethanol 67-56-1 TVVA<br>in notation TVVA 200 ppn<br>tential for skin absorption , inge | Flammable in the presence of a sourn<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appara<br><b>RELEASE MEASURES</b><br>Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe t<br>Contain spillage, and then collect and plac<br><b>ND STORAGE</b><br>Avoid contact with skin and eyes. Avo<br>Use ventilation Keep away from sourc<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.<br><b>CONTROLS/PERSONAL PROTECTI</b> | No smoking.<br>am, dry chemical or ca<br>atus for fire fighting if r<br>atus for fire fighting if r<br>ng vapors, mist or gas<br>usive concentrations.<br>to do so. Do not let pro-<br>e in container for disp<br>id inhalation of vapour<br>es of ignition. No smo<br>and well-ventilated pla | arbon dioxide.<br>hecessary.   | re all sources of<br>se section 13). |

Section IX - Physical/Chemical Characteristics

#### PO Box 5585 Hamden, CT 06518-0585

| Boiling Point           | 65°C | Specific Gravity (H2O = 1)              | 0.79  |
|-------------------------|------|---|-------|
| Vapor Pressure (mm Hg)  | 96   | Melting Point                           | -98°C |
| Vapor Density (AIR = 1) | 1.11 | Evaporation rate<br>(Butyl Acetate = 1) | 4.6   |

Solubility in Water COMPLETE

# Appearance and Odor CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

# Section X. STABILITY AND REACTIVITY

Chemical stability Possibility of hazardous reactions Conditions to avoid Materials to avoid Hazardous decomposition products for

Stable under recommended storage conditions. Vapours may form explosive mixture with air. Heat, flames, sparks, extreme temperature and sunlight.

void Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, Acids

Hazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

# Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

## Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

| Certified Reference Material CRM                                      | Solvent(s): Lot#<br>Methanol DY186-US                                  |
|---|--|
|   | <u>31491</u><br>040821<br>1,2,4-Trimethylbenzene                       |
| Absolute Standards, Inc.<br>800-368-1131<br>www.absolutestandards.com | CERTIFIED WEIGHT REPORT<br>Part Number:<br>Lot Number:<br>Description: |



ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com

|                         | Freshertchedler 040821                      | Formulated By: Prashant Chauhan DATE<br>Part An Performed By: Pedro L. Rentas DATE  | Expanded SDS Information<br>Actual Uncertainty (Solvent Safety Info. On Attached pg.)<br>Conc (ug/mL) (H-) (ug/mL) CAS# OSHA PEL (TWA) 1050 | OL-RY-R                    | min.), Rate = 4°C/min., Injector Te  | Scan 2758 (45.670 min): [BSB2]70475.D | 105    | -      | $\mathbb{Z}$ |        |        |        | 120    |        |        |         |          | 154172 199 262 33695566 396 429 474<br>100 150 200 250 300 350 400 450 |
|-------------------------|---|---|---|----------------------------|--|---------------------------------------|--------|--------|--------------|--------|--------|--------|--------|--------|--------|---------|----------|--|
|                         | ): Lot#<br>DY186-US                         |   | Actual<br>Weight(g)   | 0.10140                    | n.), Temp. 2 = 20  | 800                                   |        | 000    | 00           | 000    | 00     | 000    | 00     |        | 00     |         | 00 51 77 | 20   |
|                         | Solvent(s):<br>Methanol                     | tainty  | inty<br>/ Target<br>Weight(g)   | 0.10127                    | : 35°C (10mi   | Abundance                             |        | 180000 | 160000       | 140000 | 120000 | 100000 | NUCUCR | 5      | 60000  | 40000   | 20000    | ×0   |
|                         |   | 5E-05 Balance Uncertainly   | 0.007 Flack Uncertainty<br>Purity Uncertainty<br>(%) Purity   | 0.2                        | ). Temp. 1 =   |                                       |        |        |              |        |        |        |        |        |        |         |          | 55.00 60.0K  |
|                         | Øl  |   |   | 98.8<br>98.8               | n thickness  |                                       | 1      | 00     |              |        |        |        |        |        |        |         |          | 50.00  |
|                         | 31491<br>040821<br>1,2,4-Trimethylbenzene   | (4 °C)  | ou.u<br>Nominal<br>Conc (µg/mL)   | / 2000                     | <u> ( 1.5μm film</u>   |                                       |        | 45,69  |              |        |        |        |        |        |        |         |          | .00 45.00  |
|                         | <u>31491</u><br>040821<br>1,2,4-Trime       | 040826<br>Refrigerate (4 °C)<br>2000<br>6UTB  | Lot<br>Number   | WXBC9778V                  | 25mm ID X<br>Warren.   | 0475.D                                |        |        |              |        |        |        |        |        |        |         |          | 35.00 40.  |
| CERTIFIED WEIGHT REPORT | Part Number:<br>Lot Number:<br>Description: | Expiration Date: 040826<br>Recommended Storage: Refrigerate<br>Nominal Concentration (µg/mL): 2000<br>NIST Test ID#: 6UTB | Compound RM#  | 1,2,4-Trimethylbenzene 475 | Method GC6MSD-1: Column: Vocol (60m X 0.25mm ID X 1.5µm film thic)<br>Temp. = 220°C. Analysis performed by Candice Warren. | TIC: [BSB2]70475.D                    | 00     | 00     | 00           | 00     | 00     | 00     | 00     | 00     | 8      | 00      | 00       | Time>0<br>10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00              |
| CERTIFIEL               |   | Weid  | Com   | 1. 1,2,4                   | Met  | Abundance                             | 550000 | 500000 | 450000       | 400000 | 350000 | 300000 | 250000 | 200000 | 150000 | 1000000 | 50000    | Time   |

Lot # 040821 Part # 31491

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The cartified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 Standards are prepared gravimetrically using balances that are calibrated with weights traccable to NIST (see above).
 Standards are cartified (+/-) 0.5% of the stated value, unless otherwise stated.
 All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
 Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

| INC: [ESSES]/V4U9.0       Abundance       12         1400000       53,11       1300000         11000000       1100000         11000000       1200000         11000000       1000000         11000000       900000         900000       70         900000       70         900000       70         900000       70         900000       70         900000       74         400000       105         900000       73         200000       73         200000       73         91       100         100000       54         91       131         166       180         200000       73         91       131         166       160         100000       54         91       131         166       160         160       160         160       160         160       160         160       160         160       160         160       160         160       160         160 |
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| 40 145 3.1 G   |

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Safety Data Sheet (SDS)

GHS/OSHA Compliant

|   | Safety Data Sheet (SDS)   | GHS/OSHA Cor   | npliant  |   |
|---|---|--|--|---|
| Section I Product and Co  | mpany Identification  |  |  |   |
| IDENTITY ANALYTI  | CAL STANDARD DISSOLVED IN M   | ETHANOL  |  |   |
| Manufacturer's Name<br>Address  | ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.<br>Hamden CT, 06514   | Emergency Tele   | phone USA & CANADA<br>phone International<br>Revised   | 1 <b>-800-535-5053</b><br>1 <b>-352-323-3500</b><br>January 1, 2024 |
| Section II - Hazards Ident  | lification  |  |  |   |
|   | GHS Classification in accord  | lance with 29 CF   | R 1910 (OSHA HCS)  |   |
| H370 Cause da<br>P271 Use in ve   | ammable Liquid and Vapor<br>mage to organs<br>ntilated area<br>, wash with soap and water<br>Signal Word: DANGER  | H301, 311, 331<br>H351<br>P280<br>P305,351,338                 | Toxic if swallowed, skin con<br>Suspected of causing cance<br>Use gloves, eye protection/f<br>If in eyes, remove contacts, | er<br>ace sheild  |
| Section III - Composition   |   |  |  |   |
| Components (Specific Che<br>Methanol  | mical Identity; Common Name(s))<br>METHYL ALCOHOL   | CAS#: 67-56-1  |  | % (optional)<br>> 97  |
| INTENDED USE: REFER   |   | esent At Trace   | Quantities.  |   |
| Section IV. FIRST AID ME  | ASURES  |  |  |   |
| General advice<br>If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | Consult a physician. Show this safety data<br>If inhaled, move person into fresh air. If no<br>Wash with soap and water. Consult a phy<br>Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth wi | ot breathing, give artif<br>/sician.<br>at least 15 minutes ar | icial respiration. Consult a physician.<br>d consult a physician.  |   |
| Section V. FIREFIGHTING   | IMEASURES   |  |  |   |
| Flammability<br>Suitable extinguishing media<br>Protective equipment for fire                     | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appar   | No smoking.<br>am, dry chemical or c                           | arbon dioxide.   | it. Keep away from  |
| Section VI. ACCIDENTAL  | RELEASE MEASURES  |  |  |   |
| Personal precautions<br>Environmental precautions<br>Clean up                                     | Wear respiratory protection. Avoid breathi<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe<br>Contain spillage, and then collect and place   | osive concentrations.<br>to do so. Do not let p                | roduct enter drains.   |   |
| Section VII. HANDLING A   | ND STORAGE  |  |  |   |
| Precautions for safe handling<br>Storage Conditions   | Avoid contact with skin and eyes. Avenues and eyes and eyes and the sour Use ventilation Keep away from sour Keep container tightly closed in a dry and kept upright to prevent leakage.  | ces of ignition. No sr   | noking. Prevent the build up of electro  |   |
| Section VIII. EXPOSURE  | CONTROLS/PERSONAL PROTECT   | ION  |  |   |
|   | m   |  | spected prior to use. Eye protectio  | n.  |
| Section IX - Physical/Che   | mical Characteristics   |  |  |   |
|   |   |  |  |   |

|                              |      | Hamden, CT 06518-0585                   | FAX: 203-281-2922 |
|------------------------------|------|---|-------------------|
| Boiling Point                |      | Specific Gravity (H2O = 1)              | 0.70              |
|                              | 65°C |   | 0.79              |
| Vapor Pressure (mm Hg)       | 96   | Melting Point                           | -98°C             |
| Vapor Density (AIR = 1)      | 1.11 | Evaporation rate<br>(Butyl Acetate = 1) | 4.6               |
| Solubility in Water COMPLETE |      |   |                   |

PO Box 5585

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Absolute Standards Inc.

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

#### Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

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LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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Phone: 203-281-2917

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|--|---|--|--|---|---|--|---|---|--|--------------------------------------|--|--|---|---|--|
| ADSOIUTE<br>800-368-1131<br>www.absolute | ADSOIUTE STANDARDS, INC.<br>800-368-1131<br>www.absolutestandards.com   | uc.  |  |   |   | Ö  | ertified  | Referenc  | Certified Reference Material CRM   | al CRM                               |  |  |   | ANAB IS<br>AR-1539<br>https://Abs         | ANAB ISO 17034 Accredited<br>AR-1539 Certificate Number<br>https://Absolutestandards.com |
| CERTIFIED                                | CERTIFIED WEIGHT REPORT<br>Part Number: 90319<br>Lot Number: 90319<br>Lot Number: 051923<br>Description: 1.3.5-Trim<br>(Mesitylen<br>Expiration Date: 061928<br>Recommended Storage: Refrigerat<br>Nominal Concentration (µg/mL): 2000<br>NIST Test ID#: 6UTB<br>Weight(s) shown below were combined and diluted to (mL): | AT<br>Part Number:<br>Lot Number:<br>Description:<br>Expiration Date:<br>ntration (µg/mL):<br>NIST Test ID#:<br>vere combined an | 90319<br>90319<br>061923<br>1.3.5-Trime<br>(Mesitylene)<br>061928<br>Refrigerate<br>6UTB<br>6UTB   | 90319<br>90319<br>061923<br>1.3.5-Trimethylbenzene<br>[Mesitylene]<br>061928<br>Refrigerate (4 °C)<br>2000<br>6UTB<br>6UTB<br>d to (mL): 50.0 | 50.0<br>50.0                                      | 5E-05<br>0.001<br>E                        | Sol<br>Meti<br>Balance Uncertainty                  | Solvent:<br>Methanol<br>Inteinty                  | EF282-US   | ω                                    | Formulated By:                               | Salmi .  | Cabriel Helland<br>Gabriel Helland  | 061923<br>DATE<br>061923                  |  |
| Compound                                 | puno  |  | Lot<br>RM# Number  |   | Nominal<br>Conc (µg/mL)                           |  | Uncertainty<br>Purity (%)                           | Target<br>Weight(g)                               | Actual<br>Weight(g)  | Actual<br>Conc (µg/ml.)              | Expanded<br>Uncertainty<br>ht) (+/-) (µg/mL) | 0  | SDS Information<br>(Solvent Safety Info. On Attached pg.)<br>.AS# OSHA PEL (TWA) t  | n<br>ached pg.)<br>LD50                   |  |
| 1. 1,3,5-T<br>Metho<br>Temp.             | 1,3,5-Trimethylbenzene     301     TOOOF-IC     2000     97     0.2       Method GC6MSD-1: Column: Vocol 60m X 0.25mm ID X 1.5μm film thickness). Temp. 1     Temp. 220°C. Analysis performed by Candice Warren.  | m: Vocol 60n<br>formed by Ca   | 301 TOOOF-IC<br>m X 0.25mm ID X<br>andice Warren.  | DF-IC<br>ID X 1.5μι<br>ι.   | 2000<br>m film thic                               | 97<br>kness). To                           |   | 0.10315<br>5°C (10min.)                           | 0.10341<br>), Temp. 2 =  | 2004.9<br>200°C (8.75                | 8.5<br>min.), Rate =                         | 108-67-8<br>= 4°C/min., Injé   | 0.10315 0.10341 2004.9 8.5 108-67-8 N/A ont-rat 5<br>= 35°C (10min.), Temp. 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector Temp.= 200°C, Detector | orl-rat 5000mg/kg<br>C, Detector          |  |
| Åhindonna                                |   | TIC: [B  | TIC: [BSB5]70301.D   |   |   |  |   | Abundance   | lancé  |                                      | Scan 3075 (4)                                | Start 3075 (43.095 min); [9595]70301.0   |   |   |  |
| 100000                                   |   |  |  |   |   |  |   | 285   | 30000  |                                      |  |  | 2   |   |  |
| 000006                                   |   |  |  | 4   | 43.1  |  |   | ni Ki   | 000082   |                                      |  |  |   |   |  |
| 80000                                    |   |  |  |   |   |  |   | ~1 F  | 54000  |                                      |  | Ъд   |   |   |  |
| 700000                                   |   |  |  |   |   |  |   | DA N  | 000022   |                                      |  |  |   |   |  |
| 60000                                    |   |  |  |   |   |  |   | 9 <u>1</u>  | 180000   |                                      | с<br>Б                                       | چَ<br>ک  |   |   |  |
| 500000<br>400000                         |   |  |  |   |   |  |   | х<br>12   | 12000 H  |                                      |  |  |   |   |  |
| 30000                                    | _   |  |  |   |   |  |   | 96  | 10000  |                                      |  |  |   |   |  |
| 20000                                    |   |  |  |   | razion Auditz et a ditesta                        |  |   | ¢   | 00000  | 1                                    |  |  |   |   |  |
| 100000                                   |   |  |  |   |   |  |   | च   | 0000   | ₿~~~~~                               | 1  | R2   | -<br>Friend   | al inter a statistical<br>gaine scattiste |  |
| Time>0                                   | 10.00 15.00   | 20.00 25.00  | 30.00 35.00  | 0 40.00   | 45.00 5   | 50.00 55                                   | 55.00 60.00   |   | 2000 - 20 | 8                                    | 9<br>9<br>9<br>9                             | 2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2  | 2<br>2<br>2<br>3<br>3<br>3<br>3<br>3  | 8   |  |
|  |   | <ul> <li>The cer</li> <li>Standau</li> <li>Standau</li> </ul>  | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated,<br>• Standards are prepared gravimetrically using halances that are calibrated with weights traceable to NIST (see above).<br>• Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated. | the concentral<br>d gravimetria<br>(+/-) 0.5 % of   | tion calculats<br>cally using is<br>the stated v. | ed from gri<br>alances tha<br>alue, unless | avimetric and<br>a are calibrat<br>otherwise sta    | volumetric m<br>ed with weigh<br>sted.            | casorements u  | nkes otherwise<br>NIST (see abov     | stated.<br>e).                               |  |   |   |  |
|  |   | <ul> <li>All Stat</li> <li>Uncerts</li> <li>NIST Tet</li> </ul>  | ndards, after op<br>ainty Reference:<br>chnical Note 129   | ening ampul<br>: Taylor, B.?<br>97, U.S. Gove   | e, should be<br>V. and Kuyat<br>rrnment Prin      | stored with<br>t, C.E., "Gu                | n caps tight au<br>aidelines for 1<br>., Washington | nd under appr<br>Evaluating and<br>1, DC, (1994). | opriate laborat<br>Expressing th   | tory conditions.<br>ie Uncertainty c | if NIST Measu                                | <ul> <li>All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul> |   |   |  |
|  |   |  |  |   |   |  |   |   |  |                                      |  |  |   |   |  |

Lot # 061923 Part # 90319

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|--|--|--|---|---|--|---|--|---|--|--|---|--|
| CERTIFIED WEIGHT REPORT  | HT REPORI<br>Part Number:<br>Lot Number:<br>Description:   | 91980<br>091424<br>Acrolein  |   |   | Solve  | Lots<br>072324  |  |   | Justine  | Harden K   |   |  |
| Nomi<br>Weight(s) shc  | Expiration Date: 101424<br>Recommended Storage: Refrigerate<br>Nominal Concentration ( <i>ug/mL</i> ): 5000<br>NIST Test ID#; 6UTB<br>Weight(s) shown below were combined and diluted to (mL):   | 101424<br>Refrigerate (4 °C)<br>5000<br>6UTB<br>d diluted to (mL):   | 10.0  | 5E-05 Balance Uncertainty<br>0.001 Flask Uncertainty  | ertainty<br>ainty  |   |  | Formulated By:                                    | N N  | Justin Dippold   | 091424<br>DATE<br>091424<br>DATE            |  |
| Compound   | L  | Lot<br>RM# Number  | Nominat<br>Conc (µg/mL)   | Purity Uncertainty<br>(%) Purity  | ty Target<br>Weight(g)   | Actual<br>Weight(g)   | Expanded<br>Actual Uncertainty<br>Conc (µg/mL) (+/-) (µg/mL)           |   | Solvent Safety<br>CAS# 0SH   | SDS Information<br>(Solvent Safety info. On Attached pg.)<br>CAS# 05HA PEL (TWA) UDS | hed pg.)<br>LDS0                            |  |
| 1. Acrolein<br>Method:<br>Rate = 4 <sup>o</sup><br>Lone tern     | oil         5         103755V10F         5000         97         0.5         0.05166         0.05175         5008.9         52.5         107-02-8         0.1 ppm         o           Mathed         GC6MSD-1. Detector:         Mass Selective Detector (Scan mode). Columns: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.). Temp. 2=20°C (Time 2 = 8.75 min.)         0           Lone term strater is not recommended for comment of the mode.         NOTE: Due to the instability of acrolein in solutions of acrolein. and any dilutions thereaf, femult have a immediated.         0.600.0         0.557 min.)         0.600.0 | 5 103755V10F<br>we Detector (Scan mode)<br>ector Temp. = 220°C. An   | 5000<br>). Column: Vocol (<br>nalyst: Pedro Rent  | 97 0.5<br>(60m X 0.25mm ID)<br>as. NOTE: Due to th  | 0.05166<br>X 1.5µm film thicknown in the context of acrol  | 0.05175<br>css). Oven Profile<br>cia in solution, all                         | 5008.9<br>le: Temp. 1 = 35°C.<br>Il solutions of acrol                 | 52.5 10<br>(Time 1 = 10min<br>lein, and any dilut | 107-02-8 0<br>nin.), Temp. 2–200°C (<br>littions thereof, should   | 0.1 ppm<br>(Time 2 = 8.75 min.)<br>( he need inversely                               | -La   |  |
| Abundance  | TIC: [BS   | TIC: [BSB2]79005.D   | partnens n sunnes   | unotmation is requ  | Abundance  | φ   | Scan 232   | (8.927 min)                                       | Scan 232 (8.927 min): [BSB2]79005.D  | D.   |   |  |
| 250000 8.93  | 33   | ·  |   |   | 6000   | 27<br>0   |  |   |  |  |   |  |
| 200000   |  | Ì  | 0////   |   | 5000   | 0   | 50   |   |  |  |   |  |
| 15000  |  |  |   |   | 40000  | 0   |  |   |  |  |   |  |
| 10000  |  |  |   |   | 30000  | 0   |  |   |  |  |   |  |
|  |  |  |   |   | 2000   | 0   |  |   |  |  |   |  |
| 50000  |  |  |   |   | 10000  | 0 37  | ~  |   |  |  |   |  |
| Time>0 10  | 10.00 15.00 20.00 25.00 30.00 35.00  | 30.00 35.00 40.  | 00 45.00 50   | 40.00 45.00 50.00 55.00 60.00   | 0,00 m/z>0   | 20 30   | 44 65 7<br>40 50 60 70   | 80 80   | 119<br>100 110 120   | 130 140 150  | 158 169<br>1 160 170                        |  |
|  | <ul> <li>The certification</li> <li>Shandards:</li> <li>Shandards:</li> <li>All Shandards:</li> <li>Uncertainty</li> <li>NIST Tech</li> </ul>  | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Shandards are prepared gravimetrically using hadances that are calibrated with weights traceable to MIST (see above).</li> <li>Shandards are certified (++) 0.5% of the stated value, unless otherwise stated.</li> <li>All Shandards, after opening ampule, should be stored with eags tight stated.</li> <li>All Shandards, after opening ampule, should be stored with cass tight and under appropriate taboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul> | ation calculated f<br>rically using bala<br>of the stated value<br>ule, should be stor<br>.N. and Kuyat, C. | rom gravimetric au<br>nocs that are calibr<br>e, unless otherwise:<br>red with caps tight,<br>E, "Guidelines for<br>ing Office, Washing | d volumetric means<br>aled with weights th<br>stated.<br>In under appropri-<br>tind under appropri-<br>tion, DC, (1994). | arements unless (<br>aceable to NIST<br>afe laboratory ex<br>pressing the Une | otherwise stated.<br>(see above),<br>onditions.<br>certainty of NIST ) | Measurement R                                     | esstafe <sup>a</sup>   |  |   |  |
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Lot # 091424 Part # 91980

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|--|---|--|---|---|--|---|--|---|--|--|---|--|
| CERTIFIED WEIGHT REPORT  | HT REPORI<br>Part Number:<br>Lot Number:<br>Description:  | 91980<br>091424<br>Acrolein  |   |   | Solve  | Lots<br>072324  |  |   | Justine  | Harden K   |   |  |
| Nomi<br>Weight(s) shc  | Expiration Date: 101424<br>Recommended Storage: Refrigerate<br>Nominal Concentration ( <i>ug/mL</i> ): 5000<br>NIST Test ID#; 6UTB<br>Weight(s) shown below were combined and diluted to (mL):  | 101424<br>Refrigerate (4 °C)<br>5000<br>6UTB<br>d diluted to (mL):   | 10.0  | 5E-05 Balance Uncertainty<br>0.001 Flask Uncertainty  | ertainty<br>ainty  |   |  | Formulated By:                                    | N N  | Justin Dippold   | 091424<br>DATE<br>091424<br>DATE            |  |
| Compound   | L   | Lot<br>RM# Number  | Nominat<br>Conc (µg/mL)   | Purity Uncertainty<br>(%) Purity  | ty Target<br>Weight(g)   | Actual<br>Weight(g)   | Expanded<br>Actual Uncertainty<br>Conc (µg/mL) (+/-) (µg/mL)           |   | Solvent Safety<br>CAS# 0SH   | SDS Information<br>(Solvent Safety info. On Attached pg.)<br>CAS# 05HA PEL (TWA) UDS | hed pg.)<br>LDS0                            |  |
| 1. Acrolein<br>Method:<br>Rate = 4 <sup>o</sup><br>Lone tern     | oil         5         103755V10F         5000         97         0.5         0.05166         0.05175         5008.9         52.5         107-02-8         0.1 ppm         o           Mathed         GC6MSD-1. Detector:         Mass Selective Detector (Scan mode). Columns: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.). Temp. 2=20°C (Time 2 = 8.75 min.)         0           Lone term strater is not recommended for comment of the mode.         NOTE: Due to the instability of acrolein in solutions of acrolein. and any dilutions thereaf, femult have a immediated.         2=8.75 min.) | 5 103755V10F<br>we Detector (Scan mode)<br>ector Temp. = 220°C. An   | 5000<br>). Column: Vocol (<br>nalyst: Pedro Rent  | 97 0.5<br>(60m X 0.25mm ID)<br>as. NOTE: Due to th  | 0.05166<br>X 1.5µm film thicknown in the context of acrol  | 0.05175<br>css). Oven Profile<br>cia in solution, all                         | 5008.9<br>le: Temp. 1 = 35°C.<br>Il solutions of acrol                 | 52.5 10<br>(Time 1 = 10min<br>lein, and any dilut | 107-02-8 0<br>nin.), Temp. 2–200°C (<br>littions thereof, should   | 0.1 ppm<br>(Time 2 = 8.75 min.)<br>( he need inversely                               | -La   |  |
| Abundance  | TIC: [BS  | TIC: [BSB2]79005.D   | partnens n sunnes   | unotmation is requ  | Abundance  | φ   | Scan 232   | (8.927 min)                                       | Scan 232 (8.927 min): [BSB2]79005.D  | D.   |   |  |
| 250000 8.93  | 33  | ·  |   |   | 6000   | 27<br>0   |  |   |  |  |   |  |
| 200000   |   | Ì  | 0////   |   | 5000   | 0   | 50   |   |  |  |   |  |
| 15000  |   |  |   |   | 40000  | 0   |  |   |  |  |   |  |
| 10000  |   |  |   |   | 30000  | 0   |  |   |  |  |   |  |
|  |   |  |   |   | 2000   | 0   |  |   |  |  |   |  |
| 50000  |   |  |   |   | 10000  | 0 37  | ~  |   |  |  |   |  |
| Time>0 10  | 10.00 15.00 20.00 25.00 30.00 35.00   | 30.00 35.00 40.  | 00 45.00 50   | 40.00 45.00 50.00 55.00 60.00   | 0,000 m/z>0  | 20 30   | 44 65 7<br>40 50 60 70   | 80 80   | 119<br>100 110 120   | 130 140 150  | 158 169<br>160 170                          |  |
|  | <ul> <li>The certification</li> <li>Shandards:</li> <li>Shandards:</li> <li>All Shandards:</li> <li>Uncertainty</li> <li>NIST Tech</li> </ul>   | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Shandards are prepared gravimetrically using hadances that are calibrated with weights traceable to MIST (see above).</li> <li>Shandards are certified (++) 0.5% of the stated value, unless otherwise stated.</li> <li>All Shandards, after opening ampule, should be stored with eags tight stated.</li> <li>All Shandards, after opening ampule, should be stored with caps tight and under appropriate taboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul> | ation calculated f<br>rically using bala<br>of the stated value<br>ule, should be stor<br>.N. and Kuyat, C. | rom gravimetric au<br>nocs that are calibr<br>e, unless otherwise:<br>red with caps tight,<br>E, "Guidelines for<br>ing Office, Washing | d volumetric means<br>aled with weights th<br>stated.<br>In under appropri-<br>tind under appropri-<br>tion, DC, (1994). | arements unless (<br>aceable to NIST<br>afe laboratory ex<br>pressing the Une | otherwise stated.<br>(see above),<br>onditions.<br>certainty of NIST ) | Measurement R                                     | esstafe <sup>a</sup>   |  |   |  |
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Lot # 091424 Part # 91980

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|--|--|---|--|
| CERTIFIED WEIGHT REPORT     95318       Part Number:     95318       Lot Number:     120524       Description:     2-Chloroet       Expiration Date:     120527       Recommended Storage:     Refrigerat       Nominal Concentration ( <i>ug/mL</i> ):     10000       Neight(s) shown below were combined and diluted to (mL):     Uted to (mL):       Compound     RM#     Lot Number | 95318<br>120524<br>2-Chloroethyl vinyl ether<br>120527<br>Refrigerate (4 °C)<br>10000<br>6UTB<br>10000<br>6UTB<br>30.0<br>M# Lot Number Conc (vg/mt)   | 2.6.1 $1.1$ $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14.5$  | Formulated By: Prashant Chaufuan 120524<br>Formulated By: Prashant Chaufuan DATE<br>Reviewed By: Pedro L. Rentas DATE<br>Expanded SDS Information<br>Uncertainty (Solvent Safety Info. On Attached pg.)<br>(++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 $\mu$ m).<br>Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.   | 74 MKCD0033 10000<br>. Column: (60m X 0.25mm X 1.5<br>np. = 220°C. Analyst: Candice W  | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren.   | 40.5         110-75-8         N/A         ort-rat 250mg/kg           ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min.,   |
| Abordance<br>222000<br>160000<br>140000<br>100000<br>60000<br>60000<br>20000<br>100000<br>100000<br>100000<br>100000<br>100000<br>100000<br>15.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00   | MG 553162  | Abordance<br>20005<br>20005<br>20005<br>20005<br>20005<br>16000<br>16000<br>16000<br>16000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200 |  |
| <ul> <li>The ce</li> <li>Stands</li> <li>Stands</li> <li>Stands</li> <li>All Sta</li> <li>Uncert</li> <li>NUST'</li> </ul>   | <ul> <li>The certified value is the concentration calculated from gravimetri<br/>standards are prepend gravinetrically using balances that are cal<br/>smalards are precrifted (<i>H</i>-1) 0.3% of the stated value, unless otherw<br/>- All Standards, after opening ampule, should be stored with caps fig<br/>of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines<br/>NIST Technical Note 1297, U.S. Government Printing Office, Wasl</li> </ul> | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with cass tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>  | tated.<br>).<br>NIST Measurement Result,"  |

Contraction of the

Safety Data Sheet (SDS)

GHS/OSHA Compliant

| Section I Product and Co  | mpany Identification   |   |   |                                  |
|---|--|---|---|----------------------------------|
|   |  |   |   |                                  |
|   | CAL STANDARD DISSOLVED IN ME   |   |   | 4 000 525 5052                   |
| Manufacturer's Name   | ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.  |   | phone USA & CANADA<br>phone International   | 1-800-535-5053<br>1-352-323-3500 |
| Address   | Hamden CT, 06514   | Date Prepared/F                                 |   | January 1, 2024                  |
| Section II - Hazards Identi   |  |   |   |                                  |
|   | GHS Classification in accord   | ance with 29 CF                                 | R 1910 (OSHA HCS)   |                                  |
| H370 Cause dar<br>P271 Use in ver   | mmable Liquid and Vapor<br>nage to organs<br>ntilated area<br>wash with soap and water<br>Signal Word: DANGER  |   | Toxic if swallowed, skin co<br>Suspected of causing canc<br>Use gloves, eye protection<br>if in eyes, remove contacts | er<br>fface sheild               |
| Section III - Composition   | ·  |   |   |                                  |
| Components (Specific Cher<br>Methanol   | nical Identity; Common Name(s))<br>METHYL ALCOHOL  | CAS#: 67-56-1                                   |   | % (optional)<br>> 97             |
| See Certified Weight F  | Report For Other Analytes Pre  | esent At Trace                                  | Quantities.   |                                  |
| Section IV. FIRST AID ME  | ASURES   |   |   |                                  |
| If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | If inhaled, move person into fresh air. If no<br>Wash with soap and water. Consult a phy<br>Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth wit       | /sician.<br>at least 15 minutes ar              | d consult a physician.  |                                  |
| Section V. FIREFIGHTING   | MEASURES   |   |   |                                  |
| Flammability<br>Suitable extinguishing media<br>Protective equipment for fire   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare                             | No smoking.<br>am, dry chemical or c            | arbon dioxide.  | int. Keep away from              |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |   |   |                                  |
| Personal precautions<br>Environmental precautions<br>Clean up                   | Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe<br>Contain spillage, and then collect and place | osive concentrations.<br>to do so. Do not let p | roduct enter drains.  |                                  |
| Section VII. HANDLING A   | ND STORAGE   |   |   |                                  |
| Precautions for safe handling<br>Storage Conditions                             | Avoid contact with skin and eyes. Ave<br>Use ventilation Keep away from sour<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                           | ces of ignition. No si                          | noking. Prevent the build up of elec  |                                  |
| Section VIII. EXPOSURE (  | CONTROLS/PERSONAL PROTECT  | ION   |   |                                  |
|   | m =  |   | spected prior to use. Eye protect   | ion.                             |
| Section IX - Physical/Che   | mical Characteristics  |   |   |                                  |
|   |  |   |   |                                  |

| Boiling Point                            |          |      | Specific Gravity (H2O = 1) |       |
|--|----------|------|----------------------------|-------|
| J. J |          | 65°C |                            | 0.79  |
| Vapor Pressure (mm Hg)                   |          |      | Melting Point              |       |
|  |          | 96   |                            | -98°C |
| Vapor Density (AIR = 1)                  |          |      | Evaporation rate           |       |
|  |          | 1.11 | (Butyl Acetate = 1)        | 4.6   |
| Solubility in Water                      | COMPLETE |      |                            |       |

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

#### Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. Warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

| Absolute Standards, Inc.<br>800-368-1131<br>www.absolutestandards.com  |  | Certified Reference Material CRM  | ANAB ISO 17034 Accredited<br>AR-1539 Certificate Number<br>https://Absolutestandards.com   |
|--|--|---|--|
| CERTIFIED WEIGHT REPORT     95318       Part Number:     95318       Lot Number:     120524       Description:     2-Chloroet       Expiration Date:     120527       Recommended Storage:     Refrigerat       Nominal Concentration ( <i>ug/mL</i> ):     10000       Neight(s) shown below were combined and diluted to (mL):     Uted to (mL):       Compound     RM#     Lot Number | 95318<br>120524<br>2-Chloroethyl vinyl ether<br>120527<br>Refrigerate (4 °C)<br>10000<br>6UTB<br>10000<br>6UTB<br>30.0<br>M# Lot Number Conc (vg/mt)   | 2.6.1 $1.1$ $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14$  | Formulated By: Prashant Chaufuan 120524<br>Formulated By: Prashant Chaufuan DATE<br>Reviewed By: Pedro L. Rentas DATE<br>Expanded SDS Information<br>Uncertainty (Solvent Safety Info. On Attached pg.)<br>(++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 $\mu$ m).<br>Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.   | 74 MKCD0033 10000<br>. Column: (60m X 0.25mm X 1.5<br>np. = 220°C. Analyst: Candice W  | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren.   | 40.5         110-75-8         N/A         ort-rat 250mg/kg           ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min.,   |
| Abordance<br>222000<br>160000<br>140000<br>100000<br>60000<br>60000<br>20000<br>100000<br>100000<br>100000<br>100000<br>100000<br>100000<br>15.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00   | MG 553162  | Abordance<br>20005<br>20005<br>20005<br>20005<br>20005<br>16000<br>16000<br>16000<br>16000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200 |  |
| <ul> <li>The ce</li> <li>Stands</li> <li>Stands</li> <li>Stands</li> <li>All Sta</li> <li>Uncert</li> <li>NUST'</li> </ul>   | <ul> <li>The certified value is the concentration calculated from gravimetri<br/>standards are prepend gravinetrically using balances that are cal<br/>smalards are precrifted (<i>H</i>-1) 0.3% of the stated value, unless otherw<br/>- All Standards, after opening ampule, should be stored with caps fig<br/>of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines<br/>NIST Technical Note 1297, U.S. Government Printing Office, Wasl</li> </ul> | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with cass tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>  | tated.<br>).<br>NIST Measurement Result,"  |

Contraction of the

Safety Data Sheet (SDS)

GHS/OSHA Compliant

| Section I Product and Co  | mpany Identification   |   |   |                                  |
|---|--|---|---|----------------------------------|
|   |  |   |   |                                  |
|   | CAL STANDARD DISSOLVED IN ME   |   |   | 4 000 525 5052                   |
| Manufacturer's Name   | ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.  |   | phone USA & CANADA<br>phone International   | 1-800-535-5053<br>1-352-323-3500 |
| Address   | Hamden CT, 06514   | Date Prepared/F                                 |   | January 1, 2024                  |
| Section II - Hazards Identi   |  |   |   |                                  |
|   | GHS Classification in accord   | ance with 29 CF                                 | R 1910 (OSHA HCS)   |                                  |
| H370 Cause dar<br>P271 Use in ver   | mmable Liquid and Vapor<br>nage to organs<br>ntilated area<br>wash with soap and water<br>Signal Word: DANGER  |   | Toxic if swallowed, skin co<br>Suspected of causing canc<br>Use gloves, eye protection<br>if in eyes, remove contacts | er<br>fface sheild               |
| Section III - Composition   | ·  |   |   |                                  |
| Components (Specific Cher<br>Methanol   | nical Identity; Common Name(s))<br>METHYL ALCOHOL  | CAS#: 67-56-1                                   |   | % (optional)<br>> 97             |
| See Certified Weight F  | Report For Other Analytes Pre  | esent At Trace                                  | Quantities.   |                                  |
| Section IV. FIRST AID ME  | ASURES   |   |   |                                  |
| If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | If inhaled, move person into fresh air. If no<br>Wash with soap and water. Consult a phy<br>Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth wit       | /sician.<br>at least 15 minutes ar              | d consult a physician.  |                                  |
| Section V. FIREFIGHTING   | MEASURES   |   |   |                                  |
| Flammability<br>Suitable extinguishing media<br>Protective equipment for fire   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare                             | No smoking.<br>am, dry chemical or c            | arbon dioxide.  | int. Keep away from              |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |   |   |                                  |
| Personal precautions<br>Environmental precautions<br>Clean up                   | Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe<br>Contain spillage, and then collect and place | osive concentrations.<br>to do so. Do not let p | roduct enter drains.  |                                  |
| Section VII. HANDLING A   | ND STORAGE   |   |   |                                  |
| Precautions for safe handling<br>Storage Conditions                             | Avoid contact with skin and eyes. Ave<br>Use ventilation Keep away from sour<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                           | ces of ignition. No si                          | noking. Prevent the build up of elec  |                                  |
| Section VIII. EXPOSURE (  | CONTROLS/PERSONAL PROTECT  | ION   |   |                                  |
|   | m =  |   | spected prior to use. Eye protect   | ion.                             |
| Section IX - Physical/Che   | mical Characteristics  |   |   |                                  |
|   |  |   |   |                                  |

| Boiling Point                            |          |      | Specific Gravity (H2O = 1) |       |
|--|----------|------|----------------------------|-------|
| J. J |          | 65°C |                            | 0.79  |
| Vapor Pressure (mm Hg)                   |          |      | Melting Point              |       |
|  |          | 96   |                            | -98°C |
| Vapor Density (AIR = 1)                  |          |      | Evaporation rate           |       |
|  |          | 1.11 | (Butyl Acetate = 1)        | 4.6   |
| Solubility in Water                      | COMPLETE |      |                            |       |

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

#### Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. Warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

| Absolute Standards, Inc.<br>800-368-1131<br>www.absolutestandards.com  |   | Certified Reference Material CRM  | ANAB ISO 17034 Accredited<br>AR-1539 Certificate Number<br>https://Absolutestandards.com   |
|--|---|---|--|
| CERTIFIED WEIGHT REPORT     95318       Part Number:     95318       Lot Number:     120524       Description:     2-Chloroet       Expiration Date:     120527       Recommended Storage:     Refrigerat       Nominal Concentration ( <i>ug/mL</i> ):     10000       Neight(s) shown below were combined and diluted to (mL):     Under the tot (mL): | 95318<br>120524<br>2-Chloroethyl vinyl ether<br>120527<br>Refrigerate (4 °C)<br>10000<br>6UTB<br>10000<br>6UTB<br>30.0<br>M# Lot Number Conc (vg/mt)  | 2.6.1 $1.1$ $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14$  | Formulated By: Prashant Chaufuan 120524<br>Formulated By: Prashant Chaufuan DATE<br>Reviewed By: Pedro L. Rentas DATE<br>Expanded SDS Information<br>Uncertainty (Solvent Safety Info. On Attached pg.)<br>(++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 $\mu$ m).<br>Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.   | 74 MKCD0033 10000<br>. Column: (60m X 0.25mm X 1.5<br>np. = 220°C. Analyst: Candice W   | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren.   | 40.5         110-75-8         N/A         ort-rat 250mg/kg           ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min.,   |
| Abordance<br>222000<br>160000<br>140000<br>100000<br>60000<br>60000<br>20000<br>100000<br>100000<br>100000<br>100000<br>100000<br>100000<br>15.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00   | MG 553162   | Abordance<br>20005<br>20005<br>20005<br>20005<br>20005<br>16000<br>16000<br>16000<br>16000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200 |  |
| <ul> <li>The ce</li> <li>Stands</li> <li>Stands</li> <li>Stands</li> <li>All Sta</li> <li>Uncert</li> <li>NUST'</li> </ul>   | <ul> <li>The certified value is the concentration calculated from gravimetri<br/>standards are prepend gravinetrically using balances that are cal<br/>standards are recrifted (<i>H</i>.) 0.3% of the stated value, unless otherw<br/>. All Standards, after opening ampule, should be stored with caps fig<br/>of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines<br/>NIST Technical Note 1297, U.S. Government Printing Office, Wasl</li> </ul> | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with cass tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>  | tated.<br>).<br>NIST Measurement Result,"  |

Constant Con

Safety Data Sheet (SDS)

GHS/OSHA Compliant

| Section I Product and Co  | mpany Identification   |   |   |                                  |
|---|--|---|---|----------------------------------|
|   |  |   |   |                                  |
|   | CAL STANDARD DISSOLVED IN ME   |   |   | 4 000 525 5052                   |
| Manufacturer's Name   | ABSOLUTE STANDARDS INC<br>44 Rossotto Dr.  |   | phone USA & CANADA<br>phone International   | 1-800-535-5053<br>1-352-323-3500 |
| Address   | Hamden CT, 06514   | Date Prepared/F                                 |   | January 1, 2024                  |
| Section II - Hazards Identi   |  |   |   |                                  |
|   | GHS Classification in accord   | ance with 29 CF                                 | R 1910 (OSHA HCS)   |                                  |
| H370 Cause dar<br>P271 Use in ver   | mmable Liquid and Vapor<br>nage to organs<br>ntilated area<br>wash with soap and water<br>Signal Word: DANGER  |   | Toxic if swallowed, skin co<br>Suspected of causing canc<br>Use gloves, eye protection<br>if in eyes, remove contacts | er<br>fface sheild               |
| Section III - Composition   | ·  |   |   |                                  |
| Components (Specific Cher<br>Methanol   | nical Identity; Common Name(s))<br>METHYL ALCOHOL  | CAS#: 67-56-1                                   |   | % (optional)<br>> 97             |
| See Certified Weight F  | Report For Other Analytes Pre  | esent At Trace                                  | Quantities.   |                                  |
| Section IV. FIRST AID ME  | ASURES   |   |   |                                  |
| If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | If inhaled, move person into fresh air. If no<br>Wash with soap and water. Consult a phy<br>Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth wit       | /sician.<br>at least 15 minutes ar              | d consult a physician.  |                                  |
| Section V. FIREFIGHTING   | MEASURES   |   |   |                                  |
| Flammability<br>Suitable extinguishing media<br>Protective equipment for fire   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare                             | No smoking.<br>am, dry chemical or c            | arbon dioxide.  | int. Keep away from              |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |   |   |                                  |
| Personal precautions<br>Environmental precautions<br>Clean up                   | Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe<br>Contain spillage, and then collect and place | osive concentrations.<br>to do so. Do not let p | roduct enter drains.  |                                  |
| Section VII. HANDLING A   | ND STORAGE   |   |   |                                  |
| Precautions for safe handling<br>Storage Conditions                             | Avoid contact with skin and eyes. Ave<br>Use ventilation Keep away from sour<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                           | ces of ignition. No si                          | noking. Prevent the build up of elec  |                                  |
| Section VIII. EXPOSURE (  | CONTROLS/PERSONAL PROTECT  | ION   |   |                                  |
|   | m =  |   | spected prior to use. Eye protect   | ion.                             |
| Section IX - Physical/Che   | mical Characteristics  |   |   |                                  |
|   |  |   |   |                                  |

| Boiling Point                            |          |      | Specific Gravity (H2O = 1) |       |
|--|----------|------|----------------------------|-------|
| J. J |          | 65°C |                            | 0.79  |
| Vapor Pressure (mm Hg)                   |          |      | Melting Point              |       |
|  |          | 96   |                            | -98°C |
| Vapor Density (AIR = 1)                  |          |      | Evaporation rate           |       |
|  |          | 1.11 | (Butyl Acetate = 1)        | 4.6   |
| Solubility in Water                      | COMPLETE |      |                            |       |

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

#### Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. Warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.

| Absolute Standards, Inc.<br>800-368-1131<br>www.absolutestandards.com  |   | Certified Reference Material CRM  | ANAB ISO 17034 Accredited<br>AR-1539 Certificate Number<br>https://Absolutestandards.com   |
|--|---|---|--|
| CERTIFIED WEIGHT REPORT     95318       Part Number:     95318       Lot Number:     120524       Description:     2-Chloroet       Expiration Date:     120527       Recommended Storage:     Refrigerat       Nominal Concentration ( <i>ug/mL</i> ):     10000       Neight(s) shown below were combined and diluted to (mL):     Under the tot (mL): | 95318<br>120524<br>2-Chloroethyl vinyl ether<br>120527<br>Refrigerate (4 °C)<br>10000<br>6UTB<br>10000<br>6UTB<br>30.0<br>M# Lot Number Conc (vg/mt)  | 2.6.1 $1.1$ $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14$  | Formulated By: Prashant Chaufuan 120524<br>Formulated By: Prashant Chaufuan DATE<br>Reviewed By: Pedro L. Rentas DATE<br>Expanded SDS Information<br>Uncertainty (Solvent Safety Info. On Attached pg.)<br>(++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 $\mu$ m).<br>Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren.   | 74 MKCD0033 10000<br>. Column: (60m X 0.25mm X 1.5<br>np. = 220°C. Analyst: Candice W   | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00<br>Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren.   | 40.5         110-75-8         N/A         ort-rat 250mg/kg           ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min.,   |
| Abordance<br>222000<br>160000<br>140000<br>100000<br>60000<br>60000<br>20000<br>100000<br>100000<br>100000<br>100000<br>100000<br>100000<br>15.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00   | MG 553162   | Abordance<br>20005<br>20005<br>20005<br>20005<br>20005<br>16000<br>16000<br>16000<br>16000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>2000<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200<br>200 |  |
| <ul> <li>The ce</li> <li>Stands</li> <li>Stands</li> <li>Stands</li> <li>All Sta</li> <li>Uncert</li> <li>NUST'</li> </ul>   | <ul> <li>The certified value is the concentration calculated from gravimetri<br/>standards are prepend gravinetrically using balances that are cal<br/>standards are recrifted (<i>H</i>.) 0.3% of the stated value, unless otherw<br/>. All Standards, after opening ampule, should be stored with caps fig<br/>of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines<br/>NIST Technical Note 1297, U.S. Government Printing Office, Wasl</li> </ul> | <ul> <li>The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.</li> <li>Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).</li> <li>Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.</li> <li>All Standards, after opening ampule, should be stored with cass tight and under appropriate laboratory conditions.</li> <li>Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).</li> </ul>  | tated.<br>).<br>NIST Measurement Result,"  |

Constant Con

Safety Data Sheet (SDS)

GHS/OSHA Compliant

| Section I Product and Co  | mpany Identification   |   |   |  |
|---|--|---|---|--|
|   |  |   |   |  |
|   | CAL STANDARD DISSOLVED IN ME   |   |   | 4 000 505 5050                           |
| Manufacturer's Name   | ABSOLUTE STANDARDS INC   | Emergency Telephone USA & CANADA<br>Emergency Telephone International |   | 1-800-535-5053                           |
| Address   | 44 Rossotto Dr.<br>Hamden CT, 06514  | Date Prepared/F   |   | <b>1-352-323-3500</b><br>January 1, 2024 |
| Section II - Hazards Identi   |  |   |   |  |
|   | GHS Classification in accord   | ance with 29 CF   | R 1910 (OSHA HCS)   |  |
| H370 Cause dar<br>P271 Use in ver   | mmable Liquid and Vapor<br>nage to organs<br>ntilated area<br>wash with soap and water<br>Signal Word: DANGER  |   | Toxic if swallowed, skin co<br>Suspected of causing canc<br>Use gloves, eye protection<br>if in eyes, remove contacts | er<br>fface sheild                       |
| Section III - Composition   |  |   |   |  |
| Components (Specific Cher<br>Methanol   | nical Identity; Common Name(s))<br>METHYL ALCOHOL  | CAS#: 67-56-1   |   | % (optional)<br>> 97                     |
| See Certified Weight F  | Report For Other Analytes Pre  | esent At Trace  | Quantities.   |  |
| Section IV. FIRST AID ME  | ASURES   |   |   |  |
| If inhaled<br>In case of skin contact<br>In case of eye contact<br>If swallowed | If inhaled, move person into fresh air. If no<br>Wash with soap and water. Consult a phy<br>Rinse thoroughly with plenty of water for a<br>Do NOT induce vomiting. Rinse mouth wit       | /sician.<br>at least 15 minutes ar                                    | d consult a physician.  |  |
| Section V. FIREFIGHTING   | MEASURES   |   |   |  |
| Flammability<br>Suitable extinguishing media<br>Protective equipment for fire   | Flammable in the presence of a sour<br>heat/sparks/open flame/hot surface.<br>Use water spray, alcohol-resistant for<br>Wear self contained breathing appare                             | No smoking.<br>am, dry chemical or c                                  | arbon dioxide.  | int. Keep away from                      |
| Section VI. ACCIDENTAL  | RELEASE MEASURES   |   |   |  |
| Personal precautions<br>Environmental precautions<br>Clean up                   | Wear respiratory protection. Avoid breathin<br>ignition. Vapours accumulate to form explo<br>Prevent further leakage or spillage if safe<br>Contain spillage, and then collect and place | osive concentrations.<br>to do so. Do not let p                       | roduct enter drains.  |  |
| Section VII. HANDLING A   | ND STORAGE   |   |   |  |
| Precautions for safe handling<br>Storage Conditions                             | Avoid contact with skin and eyes. Ave<br>Use ventilation Keep away from sour<br>Keep container tightly closed in a dry<br>and kept upright to prevent leakage.                           | ces of ignition. No si  | noking. Prevent the build up of elec  |  |
| Section VIII. EXPOSURE (  | CONTROLS/PERSONAL PROTECT  | ION   |   |  |
|   | m =  |   | spected prior to use. Eye protect   | ion.                                     |
| Section IX - Physical/Che   | mical Characteristics  |   |   |  |
|   |  |   |   |  |

| Boiling Point                            |          |      | Specific Gravity (H2O = 1) |       |
|--|----------|------|----------------------------|-------|
| J. J |          | 65°C |                            | 0.79  |
| Vapor Pressure (mm Hg)                   |          |      | Melting Point              |       |
|  |          | 96   |                            | -98°C |
| Vapor Density (AIR = 1)                  |          |      | Evaporation rate           |       |
|  |          | 1.11 | (Butyl Acetate = 1)        | 4.6   |
| Solubility in Water                      | COMPLETE |      |                            |       |

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

#### Section X. STABILITY AND REACTIVITY

Chemical stabilityStable under recommended storage conditions.Possibility of hazardous reactionsVapours may form explosive mixture with air.Conditions to avoidHeat, flames, sparks, extreme temperature and sunlight.Materials to avoidAcid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals, Reducing agents, AcidsHazardous decomposition products formed under fire conditions. - Carbon oxides

## Section XI. TOXICOLOGICAL INFORMATION

LD50 Oral - rat - 5,628 mg/kg LC50 Inhalation - rat - 4 h - 64000 ppm LD50 Dermal - rabbit - 15,800 mg/kg Toxic if absorbed through skin. Causes skin irritation. Eye damage/eye irritation Toxic if inhaled. Causes respiratory tract irritation. Toxic if swallowed.

#### Section XII. ECOLOGICAL INFORMATION FOR REPORTABLE QUANTITY OF 5000 lbs.

LC50 15,400 mg/l - 96 h EC50 24,500.00 mg/l - 48 h EC100 10,000.00 mg/l - 24 h

#### Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

#### Section XIV. TRANSPORT INFORMATION

DOT (US) UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol IATA UN number: 1230 Class: 3 Packing group: II Proper shipping name: Methanol

#### Section XV. REGULATORY INFORMATION

OSHA Hazards Flammable liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Section XVI. Misc. INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and Global Harmonized System (GHS). This document is intended only as a guide to the appropriate precautionary handling of the material by trained personnel, or supervised by a person trained in chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warn of all the potential dangers of use or interaction with other chemicals or substances. ABSOLUTE STANDARDS INC. Warrants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Safety Data Sheet. If you have any questions, please call Technical Service at 1-203-281-2917 for assistance.



**CERTIFIED REFERENCE MATERIAL** 

# **Certificate of Analysis**



110 Benner Circle Bellefonte, PA 16823-8812 Tel: (800)356-1688 Fax: (814)353-1309

www.restek.com



# FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30429   | Lot No.: | Lot No.: <u>A0188973</u> |  |  |  |
|-------------------|---|----------|--------------------------|--|--|--|
| Description :     | 1,2,3-Trichloropropane Standard                           |          |                          |  |  |  |
|                   | 1,2,3-Trichloropropane 2000µg/mL, P&T Methanol, 1mL/ampul |          |                          |  |  |  |
| Container Size :  | <u>2 mL</u>   | Pkg Amt: | > 1 mL                   |  |  |  |
| Expiration Date : | August 31, 2027   | Storage: | 0°C or colder            |  |  |  |
|                   |   | Ship:    | Ambient                  |  |  |  |

# CERTIFIED VALUES

| Elution<br>Order |   | Compound     | Grav. Conc.<br>_(weight/volume) | Expanded<br>(95% C.L.;          | Uncertainty<br>K=2)     |                                       |
|------------------|---|--------------|---------------------------------|---------------------------------|-------------------------|---------------------------------------|
| 1                | 1,2,3-Trichloropropane<br>CAS # 96-18-4<br>Purity 99% | (Lot 332900) | 2,000.0 µg/mL                   | 11.7371<br>112.1494<br>114.7730 | μg/mL<br>μg/mL<br>μg/mL | Gravimetric<br>Unstressed<br>Stressed |
| Solvent:         | P&T Methanol  |              |                                 |                                 |                         |                                       |

CAS # 67-56-1 Purity 99%

- writy 99%

 Column:

 105m x 0.53mm x 3.0μm

 Rtx-502.2 (cat.#10910)

 Carrier Gas:

 hydrogen-constant pressure 11.0 psi.

 Temp. Program:

 40°C (hold 2 min.) to 240°C

 @ 8°C/min. (hold 5 min.)

 Inj. Temp:

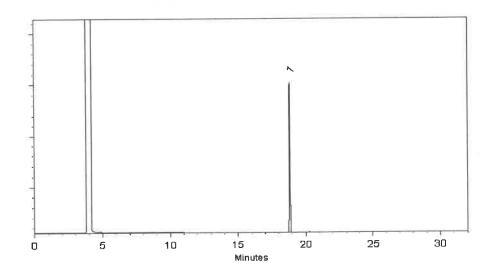
 200°C

 Det. Temp:

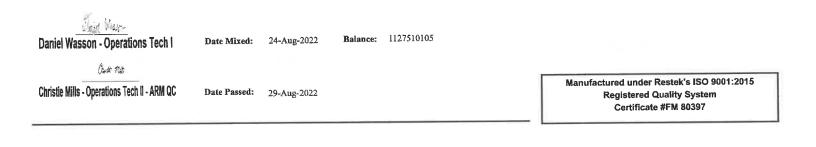
 250°C

 Det. Type:

 FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.



#### **General Certified Reference Material Notes**

#### Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

#### Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

## Certified Uncertainty Value Notes:

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined \ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage \ stability}^2 + U_{shipping \ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at <u>www.restek.com/Contact-Us</u> for use recommendations if your shipment was in-transit for more than 7 days at nonstandard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

| Label Conditions  | Standard Conditions | Non-Standard Conditions |
|---|---------------------|-------------------------|
| 25°C Nominal (Room Temperature)                           | < 60°C              | ≥ 60°C up to 7 days     |
| 10°C or colder (Refrigerate)                              | < 40°C              | ≥ 40°C up to 7 days     |
| 0°C or colder (Freezer)<br>-20°C or colder (Deep Freezer) | < 25°C              | ≥ 25°C up to 7 days     |

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at <u>www.restek.com/Contact-Us</u>.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

## Manufacturing Notes:

Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily
using NIST traceable weights, and/or dilutions with Class A glassware.

# Handling Notes:

Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

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## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**



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## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE. This Reference Material is intended for Laboratory Use Only as a standard for

the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30470                       | Lot No.:                | A0181905      |  |  |
|-------------------|-----------------------------|-------------------------|---------------|--|--|
| Description :     | tert-Butanol Standard       |                         |               |  |  |
|                   | tert-Butanol Std 50,000µg/m | L, P&T Methanol, 1mL/an | որսն          |  |  |
| Container Size :  | 2 mL                        | Pkg Amt:                | > 1 mL        |  |  |
| Expiration Date : | February 28, 2025           | Storage:                | 0°C or colder |  |  |
|                   |                             | Ship:                   | Ambient       |  |  |

## CERTIFIED VALUES

| Elution<br>Order |   | Compound       | Grav. Conc.<br>(weight/volume) |                   | Expanded U<br>(95% C.L.; K           | second in the second second |                                       |
|------------------|---|----------------|--------------------------------|-------------------|--------------------------------------|-----------------------------|---------------------------------------|
| 1                | tert-Butanol (TBA)<br>CAS # 75-65-0<br>Purity 99% | (Lot SHBM7694) | 50,126.0 μg/mL                 | +/-<br>+/-<br>+/- | 293.4988<br>1,073.7654<br>1,104.9494 | μg/mL<br>μg/mL<br>μg/mL     | Gravimetric<br>Unstressed<br>Stressed |
| Solvent:         | P&T Methanol                                      |                |                                |                   |                                      |                             |                                       |

CAS # 67-56-1 Purity 99% 

 Column:

 105m x 0.53mm x 3.0µm

 Rtx-502.2 (cat.#10910)

 Carrier Gas:

 hydrogen-constant pressure 11.0 psi.

 Temp. Program:

 40°C (hold 2 min.) to 240°C

 @ 8°C/min. (hold 5 min.)

 Inj. Temp:

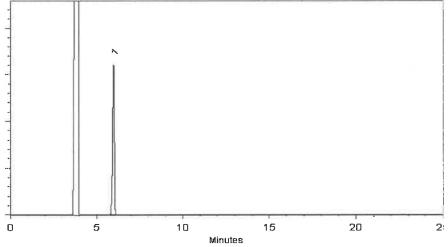
 200°C

 Det. Temp:

 250°C

 Det. Type:

 FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Mr Julli

John Friedline - Operations Technician I

Date Mixed: 16-Feb-2022

022 Balance: B442140311



Date Passed: 21-Feb-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

#### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

#### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

#### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined \ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage \ stability}^2 + U_{shipping \ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time
  intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was
  stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at
  www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at nonstandard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

| Label Conditions  | Standard Conditions | Non-Standard Conditions |
|---|---------------------|-------------------------|
| 25°C Nominal (Room Temperature)                           | < 60°C              | ≥ 60°C up to 7 days     |
| 10°C or colder (Refrigerate)                              | < 40°C              | ≥ 40°C up to 7 days     |
| 0°C or colder (Freezer)<br>-20°C or colder (Deep Freezer) | < 25°C              | ≥ 25°C up to 7 days     |

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at <u>www.restek.com/Contact-Us</u>.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

## Manufacturing Notes:

Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily
using NIST traceable weights, and/or dilutions with Class A glassware.

#### Handling Notes:

Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
information, with the knowledge/understanding that open product stability is subject to the specific handling and
environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with
most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom
ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
which includes complete instructions.



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## **CERTIFIED REFERENCE MATERIAL**



# **Certificate of Analysis**

chromatographic plus



This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30067   | Lot No.: A0191805       |
|-------------------|---|-------------------------|
| Description :     | 4-Bromofluorobenzene Standard                 |                         |
|                   | 4-Bromofluorobenzene Standard 2,<br>1mL/ampul | 500μg/mL, P&T Methanol, |
| Container Size :  | 2 mL  | Pkg Amt: _ > 1 mL       |
| Expiration Date : | November 30, 2027                             | Storage: 0°C or colder  |
|                   |   | Ship: Ambient           |

#### CERTIFIED VALUES

| Elution<br>Order | Compound                      | CAS #    | Lot #  | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|-------------------------------|----------|--------|--------|--------------------------------|--|
| 1                | 1-Bromo-4-fluorobenzene (BFB) | 460-00-4 | 184975 | 99%    | 2,483.9 µg/mL                  | +/- 139.5488                                 |

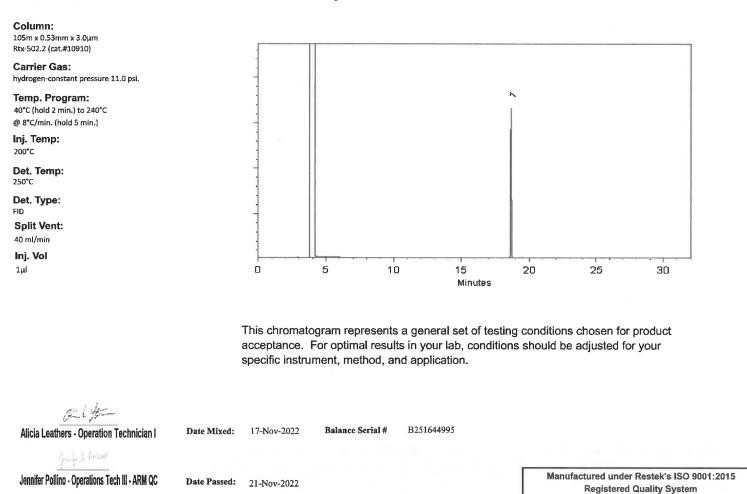
\* Expanded Uncertainty displayed in same units as Grav. Conc.

 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%







Certificate #FM 80397

## **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

#### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- · Purity values are rounded to the nearest whole number.

#### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

 $U_{combined\ uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage\ stability}^2 + u_{shipping\ stability}^2}$ 

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

#### Manufacturing Notes:

 Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
  the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
  information, with the knowledge/understanding that open product stability is subject to the specific handling and
  environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with
  most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
  ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
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## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

chromatographic plus



## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30225   | Lot No.: | <u>A0193071</u> |  |
|-------------------|---|----------|-----------------|--|
| Description :     | Bromochloromethane Standard                           |          |                 |  |
|                   | Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul |          |                 |  |
| Container Size :  | 2 mL  | Pkg Amt: | > 1 mL          |  |
| Expiration Date : | December 31, 2027                                     | Storage: | 0°C or colder   |  |
|                   |   | Ship:    | Ambient         |  |

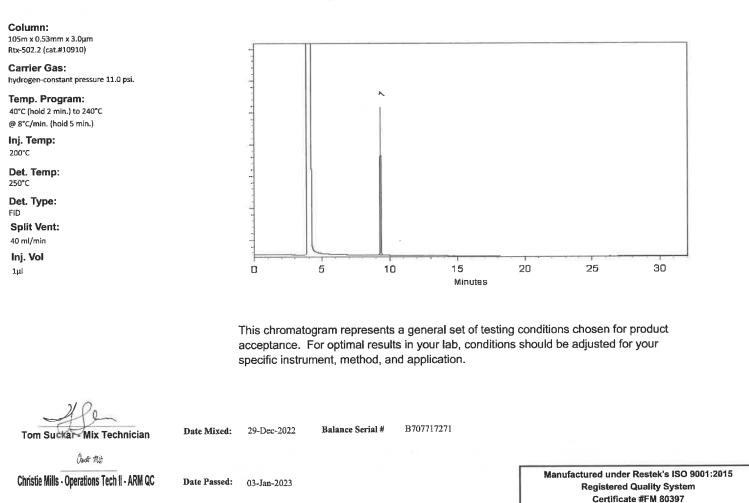
#### CERTIFIED VALUES

| Elution<br>Order | Compound           | CAS# .  | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|--------------------|---------|----------|--------|--------------------------------|--|
| 1                | Bromochloromethane | 74-97-5 | 00008541 | 99%    | 2,018.0 µg/mL                  | +/- 113.3890                                 |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS# 67-56-1 Purity 99%







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## **Certified Uncertainty Value Notes:**

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|  | le 🖕 a Marinan Marina de La Constante Marina de La Constante de Constante de Carlos de Constante de C |  |
|--|--|--|
| $U_{combined uncertainty} = k$           | $u^{4} + u^{2} + u^{2}$  |  |
| COMPONING CHECKING                       | gravimetric homogeneity "storage stability "shipping stability   |  |
| o sen di an la Dimeni da dei ana las per | . 2011년 1월 19일 - 19일<br>- 19일 - 19g - 19   |  |

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## **Certificate of Analysis**

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|-------------------|---|----------|-----------------|--|
| Description :     | Bromochloromethane Standard                           |          |                 |  |
|                   | Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul |          |                 |  |
| Container Size :  | 2 mL  | Pkg Amt: | > 1 mL          |  |
| Expiration Date : | December 31, 2027                                     | Storage: | 0°C or colder   |  |
|                   |   | Ship:    | Ambient         |  |

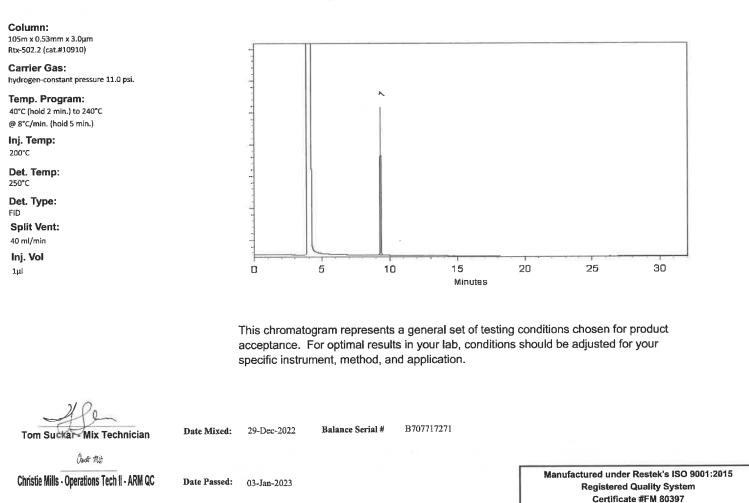
#### CERTIFIED VALUES

| Elution<br>Order | Compound           | CAS# .  | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|--------------------|---------|----------|--------|--------------------------------|--|
| 1                | Bromochloromethane | 74-97-5 | 00008541 | 99%    | 2,018.0 µg/mL                  | +/- 113.3890                                 |

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Solvent: P&T Methanol CAS# 67-56-1 Purity 99%







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|--|--|--|
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| COMPONING CHECKING                       | gravimetric homogeneity "storage stability "shipping stability   |  |
| o sen di an la Dimeni da dei ana las per | . 2011년 1월 19일 - 19일<br>- 19일 - 19g - 19   |  |

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## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

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|                   | Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul |          |                 |  |
| Container Size :  | 2 mL  | Pkg Amt: | > 1 mL          |  |
| Expiration Date : | December 31, 2027                                     | Storage: | 0°C or colder   |  |
|                   |   | Ship:    | Ambient         |  |

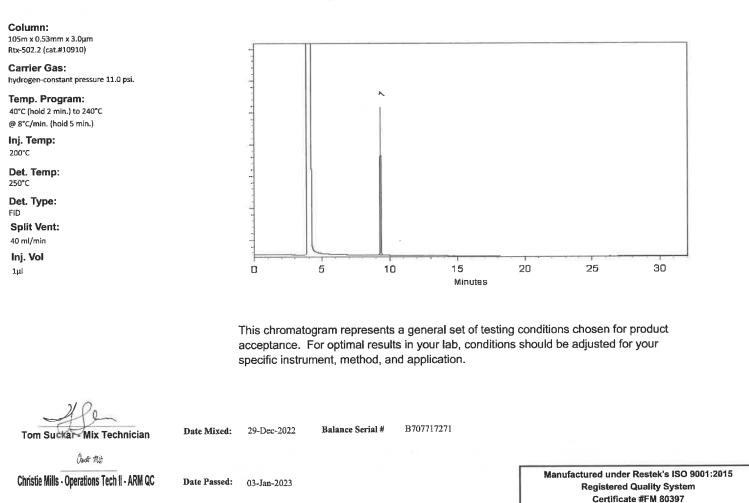
#### CERTIFIED VALUES

| Elution<br>Order | Compound           | CAS# .  | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|--------------------|---------|----------|--------|--------------------------------|--|
| 1                | Bromochloromethane | 74-97-5 | 00008541 | 99%    | 2,018.0 µg/mL                  | +/- 113.3890                                 |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS# 67-56-1 Purity 99%







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|--|--|--|
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| COMPONING CHECKING                       | gravimetric homogeneity "storage stability "shipping stability   |  |
| o sen di an la Dimeni da dei ana las per | . 2011년 1월 19일 - 19일<br>- 19일 - 19g - 19   |  |

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## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

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| Catalog No. :     | 30225                       | Lot No.:             | <u>A0193071</u> |
|-------------------|-----------------------------|----------------------|-----------------|
| Description :     | Bromochloromethane Standard |                      |                 |
|                   | Bromochloromethane 2000µg/m | L, P&T Methanol, 1mL | ./ampul         |
| Container Size :  | 2 mL                        | Pkg Amt:             | > 1 mL          |
| Expiration Date : | December 31, 2027           | Storage:             | 0°C or colder   |
|                   |                             | Ship:                | Ambient         |

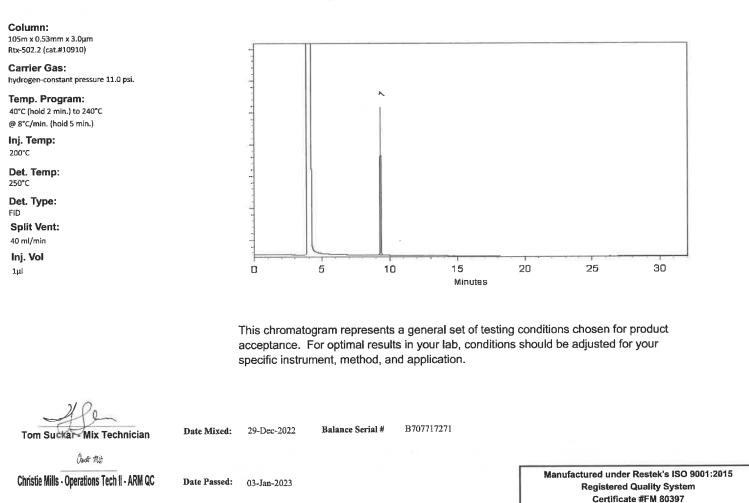
#### CERTIFIED VALUES

| Elution<br>Order | Compound           | CAS# .  | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|--------------------|---------|----------|--------|--------------------------------|--|
| 1                | Bromochloromethane | 74-97-5 | 00008541 | 99%    | 2,018.0 µg/mL                  | +/- 113.3890                                 |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS# 67-56-1 Purity 99%







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|--|--|--|
| $U_{combined uncertainty} = k$           | $u^{4} + u^{2} + u^{2}$  |  |
| COMPONING CHECKING                       | gravimetric homogeneity "storage stability "shipping stability   |  |
| o sen di an la Dimeni da dei ana las per | . 2011년 1월 19일 - 19일<br>- 19일 - 19g - 19   |  |

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**CERTIFIED REFERENCE MATERIAL** 



ISO/IEC 17 025 Acared Testing Laboratory Certificate #3222.02

## **Certificate of Analysis**

gravimetric

## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 555582 Lot No.: A0196865                |                        |                |  |  |
|-------------------|---|------------------------|----------------|--|--|
| Description :     | Custom 8260A/B Surrogate                | Mix                    |                |  |  |
|                   | Custom 8260A/B Surrogate I<br>1mL/ampul | Mix 25,000µg/mL, P&T M | ethanol,       |  |  |
| Container Size :  | 2 mL                                    | Pkg Amt:               | > 1 mL         |  |  |
| Expiration Date : | April 30, 2026                          | Storage:               | 10°C or colder |  |  |
|                   |   | Ship:                  | Ambient        |  |  |

#### CERTIFIED VALUES

| Componen<br>t# | Compound                      | CAS #      | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|----------------|-------------------------------|------------|----------|--------|--------------------------------|--|
| 1              | 1,2-Dichloroethane-d4         | 17060-07-0 | PR-32845 | 99% 2  | 25,036.0 μg/mL                 | +/- 1,417.9179                               |
| 2              | 1-Bromo-4-fluorobenzene (BFB) | 460-00-4   | 184975   | 99% 2  | 25,132.0 μg/mL                 | +/- 1,423.3549                               |
| 3              | Dibromofluoromethane          | 1868-53-7  | 022013   | 99% 2  | 25,040.0 μg/mL                 | +/- 1,418.1445                               |
| 4              | Toluene-d8                    | 2037-26-5  | PR-33397 | 99% 2  | 25,028.0 μg/mL                 | +/- 1,417.4648                               |
|                |                               |            |          |        |                                |  |

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

Darker 7. Bu

Date Mixed:

Balance: 1127510105

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

Russ Bookhamer - Operations Technician I

\_\_\_\_\_

11-Apr-2023



## **Expiration Notes:**

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```
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```

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## **CERTIFIED REFERENCE MATERIAL**

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chromatographic plus





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| Catalog No. :     | 30489                           | Lot No.:             | A0209618        |   |
|-------------------|---------------------------------|----------------------|-----------------|---|
| Description :     | 8260B Acetates Mix              |                      |                 |   |
|                   | 8260B Acetates Mix 2,000 µg/ml  | L, P&T Methanol, 1mL | /ampul          |   |
| Container Size :  | <u>2 mL</u>                     | Pkg Amt:             | > 1 mL          |   |
| Expiration Date : | September 30, 2025              | Storage:             | -20°C or colder |   |
| Handling:         | This product is photosensitive. | Ship:                | On Ice          | _ |

#### CERTIFIED VALUES

| Elution<br>Order | Compound          | CAS #    | Lot #       | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-------------------|----------|-------------|--------|--------------------------------|--|
| 1                | Methyl acetate    | 79-20-9  | SHBP3100    | 99%    | 2,019.3 μg/mL                  | +/- 69.7974                                |
| 2                | Vinyl acetate     | 108-05-4 | RP231030CTH | 98%    | 2,016.8 μg/mL                  | +/- 69.7112                                |
| 3                | Ethyl acetate     | 141-78-6 | SHBQ9682    | 99%    | 2,010.7 μg/mL                  | +/- 69.4979                                |
| 4                | Isopropyl acetate | 108-21-4 | BCCG7069    | 99%    | 2,016.0 µg/mL                  | +/- 69.6822                                |
| 5                | Propyl acetate    | 109-60-4 | P8XLN       | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                |
| 6                | Butyl acetate     | 123-86-4 | SHBP6314    | 99%    | 2,007.3 µg/mL                  | +/- 69.3826                                |
| 7                | Amyl acetate      | 628-63-7 | 41325/1     | 97%    | 2,004.7 μg/mL                  | +/- 69.2905                                |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this

reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

## **Quality Confirmation Test**

Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) **Carrier Gas:** hydrogen-constant pressure 11.0 psi. Temp. Program: ٩ 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Ø Inj. Temp: ÷-200°C Det. Temp: 0 250°C Det. Type: FID **Split Vent:** 40 ml/min Inj. Vol ٥ **1**µl 5 10 15 20 Minutes This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application. Soumuer Moodler Sam Moodler - Operations Tech I Date Mixed: 28-Mar-2024 **Balance Serial #** B707717271 Tiller Hurthy **Dillan Murphy - Operations Technician I** Manufactured under Restek's ISO 9001:2015 Date Passed: 01-Apr-2024 **Registered Quality System** 

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Certificate #FM 80397

## **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

## **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

## **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

*k* is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

## **Manufacturing Notes:**

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
  the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
  information, with the knowledge/understanding that open product stability is subject to the specific handling and
  environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with
  most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
  ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
  which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



www.restek.com

## **CERTIFIED REFERENCE MATERIAL**

# **Certificate of Analysis**

chromatographic plus





## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30489                           | Lot No.:             | A0209618        |   |
|-------------------|---------------------------------|----------------------|-----------------|---|
| Description :     | 8260B Acetates Mix              |                      |                 |   |
|                   | 8260B Acetates Mix 2,000 µg/ml  | L, P&T Methanol, 1mL | /ampul          |   |
| Container Size :  | <u>2 mL</u>                     | Pkg Amt:             | > 1 mL          |   |
| Expiration Date : | September 30, 2025              | Storage:             | -20°C or colder |   |
| Handling:         | This product is photosensitive. | Ship:                | On Ice          | _ |

#### CERTIFIED VALUES

| Elution<br>Order | Compound          | CAS #    | Lot #       | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-------------------|----------|-------------|--------|--------------------------------|--|
| 1                | Methyl acetate    | 79-20-9  | SHBP3100    | 99%    | 2,019.3 μg/mL                  | +/- 69.7974                                |
| 2                | Vinyl acetate     | 108-05-4 | RP231030CTH | 98%    | 2,016.8 μg/mL                  | +/- 69.7112                                |
| 3                | Ethyl acetate     | 141-78-6 | SHBQ9682    | 99%    | 2,010.7 μg/mL                  | +/- 69.4979                                |
| 4                | Isopropyl acetate | 108-21-4 | BCCG7069    | 99%    | 2,016.0 µg/mL                  | +/- 69.6822                                |
| 5                | Propyl acetate    | 109-60-4 | P8XLN       | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                |
| 6                | Butyl acetate     | 123-86-4 | SHBP6314    | 99%    | 2,007.3 µg/mL                  | +/- 69.3826                                |
| 7                | Amyl acetate      | 628-63-7 | 41325/1     | 97%    | 2,004.7 μg/mL                  | +/- 69.2905                                |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this

reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.

## **Quality Confirmation Test**

Column: 105m x 0.53mm x 3.0µm Rtx-502.2 (cat.#10910) **Carrier Gas:** hydrogen-constant pressure 11.0 psi. Temp. Program: ٩ 40°C (hold 2 min.) to 240°C @ 8°C/min. (hold 5 min.) Ø Inj. Temp: ÷-200°C Det. Temp: 0 250°C Det. Type: FID **Split Vent:** 40 ml/min Inj. Vol ٥ **1**µl 5 10 15 20 Minutes This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application. Soumuer Moodler Sam Moodler - Operations Tech I Date Mixed: 28-Mar-2024 **Balance Serial #** B707717271 Tiller Hurthy **Dillan Murphy - Operations Technician I** Manufactured under Restek's ISO 9001:2015 Date Passed: 01-Apr-2024 **Registered Quality System** 

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Certificate #FM 80397

## **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

## **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

## **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

*k* is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

## **Manufacturing Notes:**

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
  the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
  information, with the knowledge/understanding that open product stability is subject to the specific handling and
  environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with
  most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom
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  which includes complete instructions.
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## **CERTIFIED REFERENCE MATERIAL**

## **Certificate of Analysis**

chromatographic plus



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## FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :     | 30091                          | Lot No.:             | A0209905      |
|-------------------|--------------------------------|----------------------|---------------|
| Description :     | L/C VOA Internal Standard Mix  |                      |               |
|                   | L/C Internal Std 2500µg/mL, P& | Ր Methanol, 1mL/ampւ | ł             |
| Container Size :  | 2 mL                           | Pkg Amt:             | > 1 mL        |
| Expiration Date : | March 31, 2029                 | Storage:             | 0°C or colder |
|                   |                                | Ship:                | Ambient       |

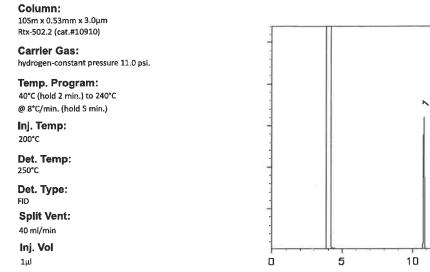
#### CERTIFIED VALUES

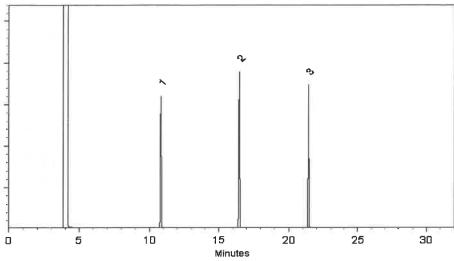
\* Expanded Uncertainty displayed in same units as Grav. Conc.

| Elution<br>Order | Compound               | CAS #     | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|------------------------|-----------|----------|--------|--------------------------------|--|
| 1                | 1,4-Difluorobenzene    | 540-36-3  | MKCS8657 | 99%    | 2,508.0 µg/mL                  | +/- 142.0596                                 |
| 2                | Chlorobenzene-d5       | 3114-55-4 | PR-31132 | 99%    | 2,512.0 μg/mL                  | +/- 142.2862                                 |
| 3                | 1,4-Dichlorobenzene-d4 | 3855-82-1 | PR-30447 | 99%    | 2,512.0 μg/mL                  | +/- 142.2862                                 |

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

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This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Steres

Ethan Winiarski - Operations Tech I

Date Mixed: 05-Apr-2024

Balance Serial #

Serial # 1127510105

Tillen Hurthy Dillan Murphy - Operations Technician I

perations Technician I Date Passed:

Passed: 08-Apr-2024

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

## **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

## Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

## **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage\ stability}^2 + u_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

## **Manufacturing Notes:**

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



**CERTIFIED REFERENCE MATERIAL** 

**Certificate of Analysis** 

gravimetric





www.restek.com

# FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

|                         | נוים להמוומואם מנותיחו להמונומואם הבובוווווומוחיו חו נוום מומואבו(א) וואפחי | ui ui iile ailaiyie(s) iisieu. |
|-------------------------|---|--------------------------------|
| Catalog No. :           | 555581 Lot No.: A0210184  | 84                             |
| Description :           | Custom 8260 Internal Standard Mix   |                                |
|                         | Custom 8260 Internal Standard Mix 25,000µg/mL, P&T Methanol,<br>1mL/ampul   | 0,                             |
| <b>Container Size :</b> | 2 mL Pkg Amt: > 1 mL  |                                |
| Expiration Date :       | April 30, 2027 Storage: 10°C or colder                                      | r colder                       |

VALUES CERTIFIED

Ship: Ambient

| Componen<br>t# | Compound                                    | CAS #              | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) | ty *<br>K=2) |
|----------------|---|--------------------|----------|--------|--------------------------------|--|--------------|
| 1              | 1,4-Dichlorobenzene-d4                      | 3855-82-1 PR-30447 | PR-30447 | 66%    | 99% 25,212.0 μg/mL             | +/- 1,427.8857                               | .8857        |
| 2              | 1,4-Difluorobenzene                         | 540-36-3           | MKCS8657 | %66    | 99% 25,220.0 μg/mL             | +/- 1,428.3388                               | .3388        |
| ε              | Chlorobenzene-d5                            | 3114-55-4 PR-31132 | PR-31132 | %66    | 99% 25,116.0 μg/mL             | +/- 1,422.4487                               | .4487        |
| 4              | Pentafluorobenzene                          | 363-72-4           | MKCR9383 | 666    | 99% 25,180.0 μg/mL             | +/- 1,426.0734                               | .0734        |
| Solvent:       | P&T Methanol<br>CAS # 67-56-1<br>Purity 99% |                    |          |        |                                |  |              |

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397 HAR SA MY WART IN COMPANYING TO 1127510105 Balance: 11-Apr-2024 Date Mixed: John Friedline - Operations Technician I Mr. J. Ili



### Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field. .

### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD GC/MS, LC/MS, RI, and/or melting point. .
- 4 Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution. .
  - Purity of isomeric compounds is reported as the sum of the isomers.

Purity values are rounded to the nearest whole number.

### Certified Uncertainty Value Notes: • The uncertainties are determined i

uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula: The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded

$$U_{combined}$$
 uncertainty  $=k \sqrt{u_{s}^2}$  unstric  $+ u_{homogeneity}^2 + u_{storage}^2$  stability  $+ u_{s}^2$  hipping stability

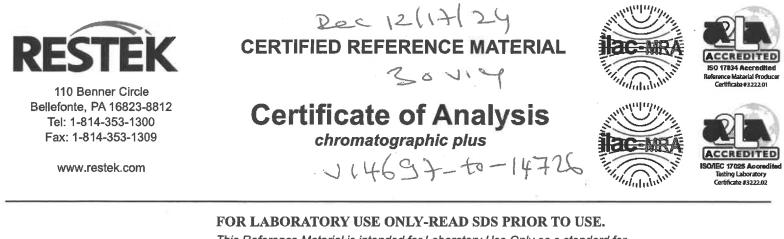
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

The ampuls are over-filled to ensure The packaged amount is the minimum sample size for which uncertainty is valid. that the minimum packaged amount can be sufficiently transferred •

### Manufacturing Notes:

Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware .

- environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and which includes complete instructions. .
  - If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved. .



This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :        | 30006                                    | Lot No.:               | A0210618      |  |
|----------------------|--|------------------------|---------------|--|
| <b>Description</b> : | VOA Calibration Mix #1                   |                        |               |  |
|                      | VOA Calibration Mix #1 5,00<br>1mL/ampul | 0µg/mL, P&T Methanol/W | /ater(90:10), |  |
| Container Size :     | 2 mL                                     | Pkg Amt:               | > 1 mL        |  |
| Expiration Date :    | July 31, 2027                            | Storage:               | 0°C or colder |  |
|                      | 3  | Ship:                  | Ambient       |  |

### CERTIFIED VALUES

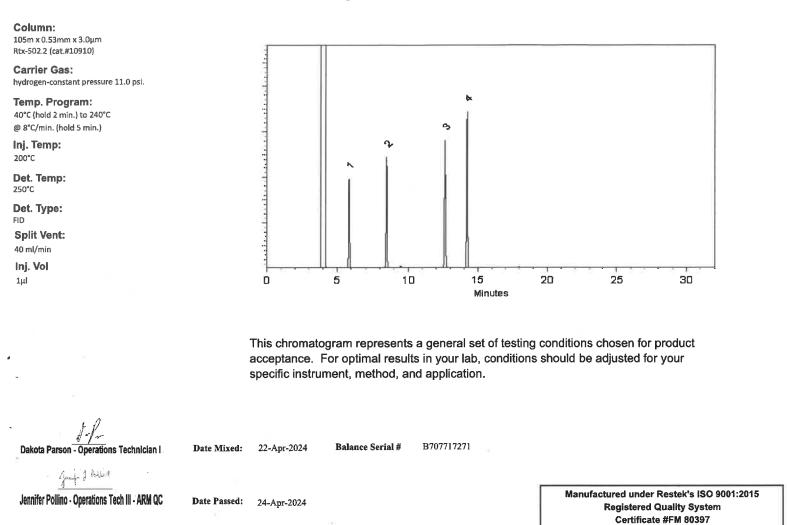
| Elution<br>Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1                | Acetone                     | 67-64-1  | SHBQ8504 | 99%    | 5,014.8 μg/mL                  | +/- 173.2883                               |
| 2                | 2-Butanone (MEK)            | 78-93-3  | SHBQ4704 | 99%    | 5,012.4 μg/mL                  | +/- 173.2054                               |
| 3                | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP9200 | 99%    | 5,011.6 μg/mL                  | +/- 173.1777                               |
| 4                | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,013.0 µg/mL                  | +/- 173.2261                               |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%

-



### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

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  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

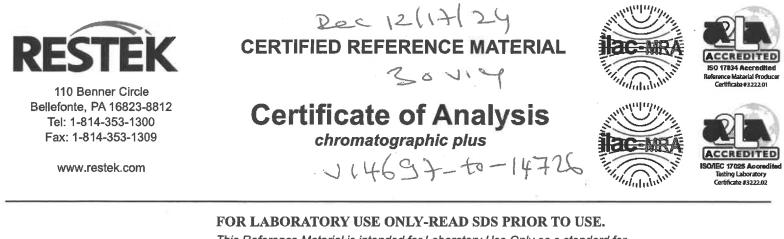
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### **Manufacturing Notes:**

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

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| Catalog No. :        | 30006                                    | Lot No.:               | A0210618      |  |
|----------------------|--|------------------------|---------------|--|
| <b>Description</b> : | VOA Calibration Mix #1                   |                        |               |  |
|                      | VOA Calibration Mix #1 5,00<br>1mL/ampul | 0µg/mL, P&T Methanol/W | /ater(90:10), |  |
| Container Size :     | 2 mL                                     | Pkg Amt:               | > 1 mL        |  |
| Expiration Date :    | July 31, 2027                            | Storage:               | 0°C or colder |  |
|                      | 3  | Ship:                  | Ambient       |  |

### CERTIFIED VALUES

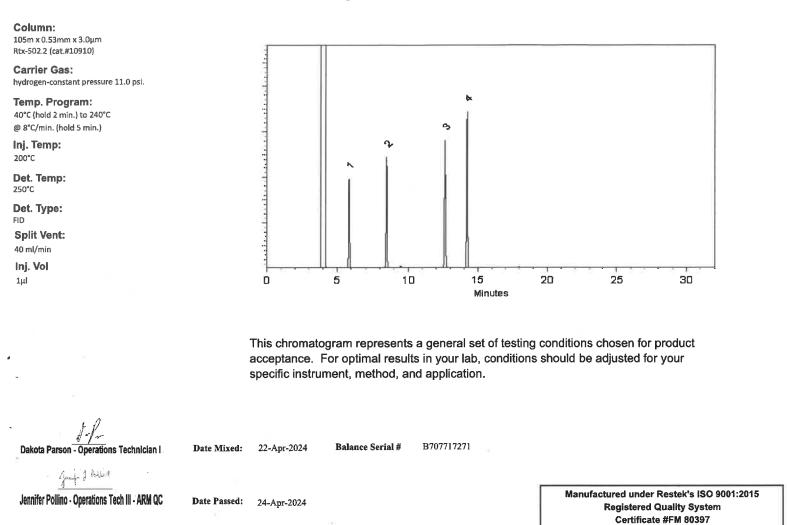
| Elution<br>Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1                | Acetone                     | 67-64-1  | SHBQ8504 | 99%    | 5,014.8 μg/mL                  | +/- 173.2883                               |
| 2                | 2-Butanone (MEK)            | 78-93-3  | SHBQ4704 | 99%    | 5,012.4 μg/mL                  | +/- 173.2054                               |
| 3                | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP9200 | 99%    | 5,011.6 μg/mL                  | +/- 173.1777                               |
| 4                | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,013.0 µg/mL                  | +/- 173.2261                               |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%

-



### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

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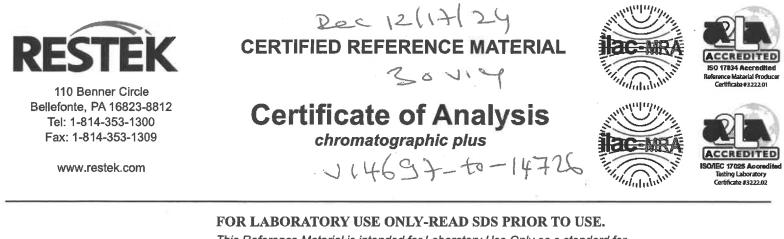
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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### **Manufacturing Notes:**

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| Catalog No. :        | 30006                                    | Lot No.:               | A0210618      |  |
|----------------------|--|------------------------|---------------|--|
| <b>Description</b> : | VOA Calibration Mix #1                   |                        |               |  |
|                      | VOA Calibration Mix #1 5,00<br>1mL/ampul | 0µg/mL, P&T Methanol/W | /ater(90:10), |  |
| Container Size :     | 2 mL                                     | Pkg Amt:               | > 1 mL        |  |
| Expiration Date :    | July 31, 2027                            | Storage:               | 0°C or colder |  |
|                      | 3  | Ship:                  | Ambient       |  |

### CERTIFIED VALUES

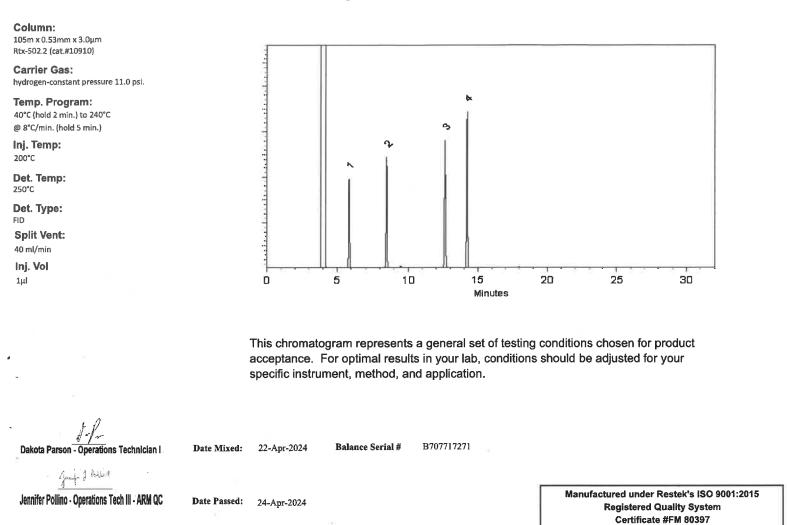
| Elution<br>Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1                | Acetone                     | 67-64-1  | SHBQ8504 | 99%    | 5,014.8 μg/mL                  | +/- 173.2883                               |
| 2                | 2-Butanone (MEK)            | 78-93-3  | SHBQ4704 | 99%    | 5,012.4 μg/mL                  | +/- 173.2054                               |
| 3                | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP9200 | 99%    | 5,011.6 μg/mL                  | +/- 173.1777                               |
| 4                | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,013.0 µg/mL                  | +/- 173.2261                               |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%

-



### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

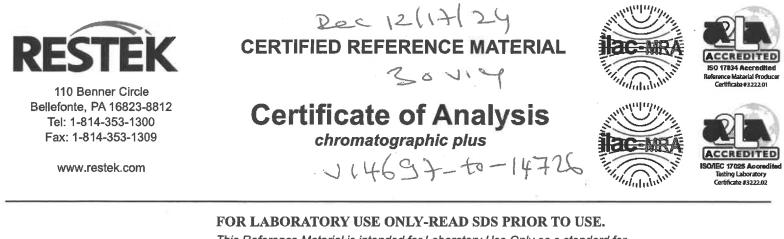
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### **Manufacturing Notes:**

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
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| Catalog No. :        | 30006                                    | Lot No.:               | A0210618      |  |
|----------------------|--|------------------------|---------------|--|
| <b>Description</b> : | VOA Calibration Mix #1                   |                        |               |  |
|                      | VOA Calibration Mix #1 5,00<br>1mL/ampul | 0µg/mL, P&T Methanol/W | /ater(90:10), |  |
| Container Size :     | 2 mL                                     | Pkg Amt:               | > 1 mL        |  |
| Expiration Date :    | July 31, 2027                            | Storage:               | 0°C or colder |  |
|                      | 3  | Ship:                  | Ambient       |  |

### CERTIFIED VALUES

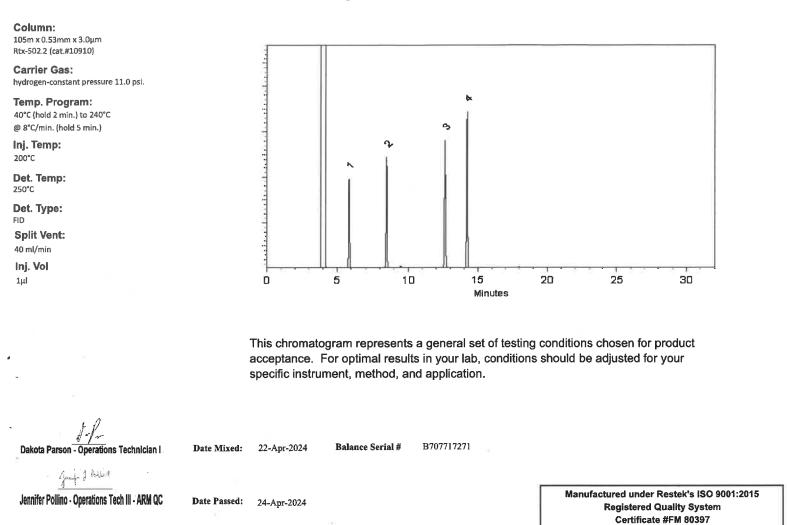
| Elution<br>Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1                | Acetone                     | 67-64-1  | SHBQ8504 | 99%    | 5,014.8 μg/mL                  | +/- 173.2883                               |
| 2                | 2-Butanone (MEK)            | 78-93-3  | SHBQ4704 | 99%    | 5,012.4 μg/mL                  | +/- 173.2054                               |
| 3                | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP9200 | 99%    | 5,011.6 μg/mL                  | +/- 173.1777                               |
| 4                | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,013.0 µg/mL                  | +/- 173.2261                               |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol/Water (90:10)

CAS # 67-56-1/7732-18-5 Purity 99%

-



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  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

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k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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ISO/IEC 17025 Accredited Testing Laboratory Certificate #3222.02

### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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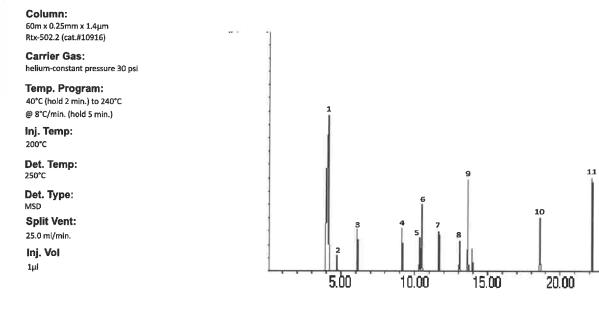
| Catalog No. :        | 30624                               | Lot No.:                 | Lot No.: <u>A0211457</u> |  |  |  |  |
|----------------------|-------------------------------------|--------------------------|--------------------------|--|--|--|--|
| <b>Description</b> : | SOM 01.1 VOA DMC Non-k              | etones Standard          |                          |  |  |  |  |
|                      | SOM 01.1 VOA DMC Non-K<br>1mL/ampul | ketones Standard 500μg/m | L, Methanol-OD,          |  |  |  |  |
| Container Size :     | 2 mL                                | Pkg Amt:                 | > 1 mL                   |  |  |  |  |
| Expiration Date :    | May 31, 2027                        | Storage:                 | 0°C or colder            |  |  |  |  |
|                      |                                     | Ship:                    | Ambient                  |  |  |  |  |

### CERTIFIED VALUES

| Elution<br>Order | Compound  | CAS #       | Lot #       | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty<br>(95% C.L.; K=2) |
|------------------|---|-------------|-------------|--------|--------------------------------|--|
| 1                | Vinyl Chloride-d3   | 6745-35-3   | PR-26294    | 99%    | 515.3 μg/mL                    | +/- 42.5161                                |
| 2                | Chloroethane-d5   | 19199-91-8  | PR-19060    | 99%    | 498.2 µg/mL                    | +/- 40.0866                                |
| 3                | 1,1-Dichloroethylene-d2   | 22280-73-5  | PR-21050    | 99%    | 503.0 µg/mL                    | +/- 28.2630                                |
| 4                | Chloroform-d  | 865-49-6    | A0219685001 | 99%    | 503.0 μg/mL                    | +/- 28.2630                                |
| 5                | 1,2-Dichloroethane-d4   | 17060-07-0  | PR-33313    | 99%    | 503.0 µg/mL                    | +/- 28.2630                                |
| 6                | Benzene-d6  | 1076-43-3   | PR-33510    | 99%    | 501.0 µg/mL                    | +/- 28.1506                                |
| 7                | 1,2-Dichloropropane-d6  | 93952-08-0  | Z-322       | 99%    | 503.0 μg/mL                    | +/- 28.2630                                |
| 8                | 1,3-Dichloropropene-d4 (cis/ trans mixture)<br>58% cis Isomer; 42% trans Isomer | 202656-23-3 | Z-181       | 99%    | 504.0 µg/mL                    | +/- 28.3192                                |
| 9                | Toluene-d8  | 2037-26-5   | PR-34141    | 99%    | 503.0 μg/mL                    | +/- 28.2630                                |
| 10               | 1,1,2,2-Tetrachloroethane-d2  | 33685-54-0  | F465P1      | 99%    | 502.0 μg/mL                    | +/- 28.2068                                |
| 11               | 1,2-Dichlorobenzene-d4  | 2199-69-1   | PR-32597    | 99%    | 503.0 μg/mL                    | +/- 28.2630                                |

### Solvent: Methanol-OD CAS# 1455-13-6 Purity 99%

### **Quality Confirmation Test**



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Tom Suckar-Mix Technician

Date Mixed: 15-May-2024 Balance Serial #

1128342314

Tellen Humphy **Dillan Murphy - Operations Technician I** 

Date Passed: 17-May-2024 Manufactured under Restek's ISO 9001:2015 **Registered Quality System** Certificate #FM 80397

25.00

30.00

### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

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- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### Manufacturing Notes:

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using NIST traceable weights, and/or dilutions with Class A glassware.

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### **Certificate of Analysis**

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### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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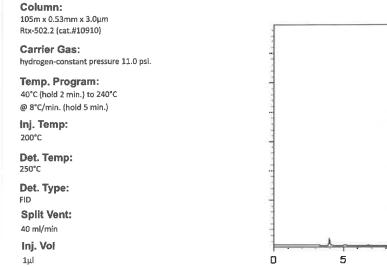
| Catalog No. :     | 30625  | Lot No.: <u>A0216280</u>          |                |  |  |  |
|-------------------|--|-----------------------------------|----------------|--|--|--|
| Description :     | OLC 3.2 VOA Deuterated Mo                              | A Deuterated Monitoring Compounds |                |  |  |  |
|                   | OLC 3.2 VOA Ketone Deuter<br>Deuterium Oxide, 1mL/ampu |                                   | nds 500µg/mL,  |  |  |  |
| Container Size :  | 2 mL Pkg Amt: > 1 mL                                   |                                   |                |  |  |  |
| Expiration Date : | March 31, 2026   | Storage:                          | 10°C or colder |  |  |  |
|                   |  | Ship:                             | Ambient        |  |  |  |

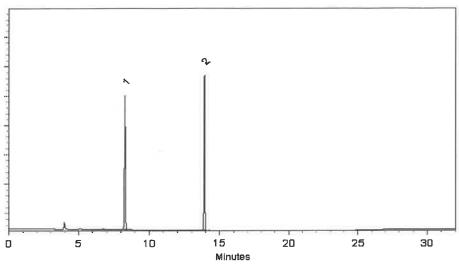
### CERTIFIED VALUES

| Elution<br>Order | Compound      | CAS#       | Lot #  | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|---------------|------------|--------|--------|--------------------------------|--|
| 1                | 2-Butanone-d5 | 24313-50-6 | M-276  | 99%    | 504.0 μg/mL                    | +/- 17.5357                                  |
| 2                | 2-Hexanone-d5 | 4840-82-8  | GH-242 | 99%    | 502.0 μg/mL                    | +/- 17.4661                                  |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Deuterium oxide CAS # 7789-20-0 Purity 99%





This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

TUVR

Richard Zimmerman - Operations Tech I

Date Mixed: 10-S

10-Sep-2024 B

Balance Serial # B251644995

<u>ینایہ استقبر</u> Dillan Murphy - Operations Technician I

Date Passed: 12-Sep-2024

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

### **Expiration Notes:**

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k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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### Manufacturing Notes:

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### **CERTIFIED REFERENCE MATERIAL**



### **Certificate of Analysis**

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### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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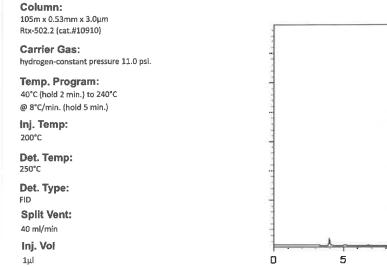
| Catalog No. :     | 30625  | Lot No.: <u>A0216280</u>          |                |  |  |  |
|-------------------|--|-----------------------------------|----------------|--|--|--|
| Description :     | OLC 3.2 VOA Deuterated Mo                              | A Deuterated Monitoring Compounds |                |  |  |  |
|                   | OLC 3.2 VOA Ketone Deuter<br>Deuterium Oxide, 1mL/ampu |                                   | nds 500µg/mL,  |  |  |  |
| Container Size :  | 2 mL Pkg Amt: > 1 mL                                   |                                   |                |  |  |  |
| Expiration Date : | March 31, 2026   | Storage:                          | 10°C or colder |  |  |  |
|                   |  | Ship:                             | Ambient        |  |  |  |

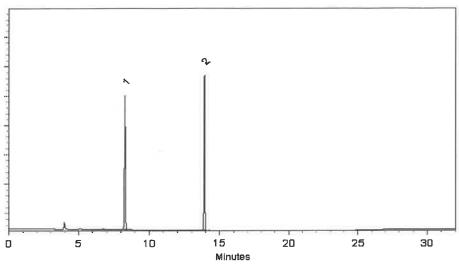
### CERTIFIED VALUES

| Elution<br>Order | Compound      | CAS#       | Lot #  | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|---------------|------------|--------|--------|--------------------------------|--|
| 1                | 2-Butanone-d5 | 24313-50-6 | M-276  | 99%    | 504.0 μg/mL                    | +/- 17.5357                                  |
| 2                | 2-Hexanone-d5 | 4840-82-8  | GH-242 | 99%    | 502.0 μg/mL                    | +/- 17.4661                                  |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: Deuterium oxide CAS # 7789-20-0 Purity 99%





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TUVR

Richard Zimmerman - Operations Tech I

Date Mixed: 10-S

10-Sep-2024 B

Balance Serial # B251644995

<u>ینایہ استقبر</u> Dillan Murphy - Operations Technician I

Date Passed: 12-Sep-2024

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

### **Expiration Notes:**

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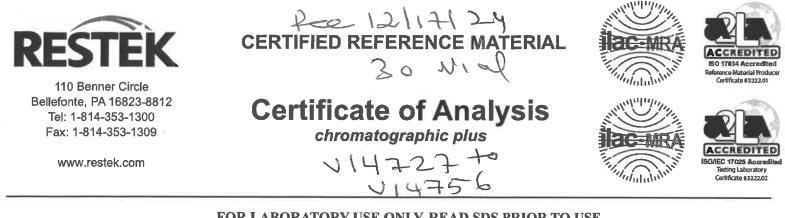
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| Catalog No. :        | 30042                          | Lot No.:                | A0216826      |  |
|----------------------|--------------------------------|-------------------------|---------------|--|
| <b>Description</b> : | 502.2 Calibration Mix #1       |                         |               |  |
|                      | 502.2 Calibration Mix #1 2,000 | )µg/mL, P&T Methanol, 1 | ImL/ampul     |  |
| Container Size :     | 2 mL                           | Pkg Amt:                | > 1 mL        |  |
| Expiration Date :    | May 31, 2031                   | Storage:                | 0°C or colder |  |
|                      |                                | Ship:                   | Ambient       |  |

### CERTIFIED VALUES

| Elution<br>Order | Compound                         | CAS #   | Lot #           | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|----------------------------------|---------|-----------------|--------|--------------------------------|--|
| 1                | Dichlorodifluoromethane (CFC-12) | 75-71-8 | 00022922        | 99%    | 2,000.9 µg/mL                  | +/- 112.4144                                 |
| 2                | Chloromethane (methyl chloride)  | 74-87-3 | 00022694        | 99%    | 2,000.7 μg/mL                  | +/- 112.3998                                 |
| 3                | Vinyl chloride                   | 75-01-4 | 00015559        | 99%    | 2,000.3 μg/mL                  | +/- 112.3779                                 |
| 4                | Bromomethane (methyl bromide)    | 74-83-9 | 00017022        | 99%    | 2,001.8 µg/mL                  | +/- 112.4650                                 |
| 5                | Chloroethane (ethyl chloride)    | 75-00-3 | 107-401039114-1 | 99%    | 2,000.1 μg/mL                  | +/- 112.3700                                 |
| 6                | Trichlorofluoromethane (CFC-11)  | 75-69-4 | MKCJ8658        | 99%    | 2,000.7 μg/mL                  | +/- 112.3992                                 |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS # 67-56-1

Purity 99%

\_\_\_\_\_

**Column:** 60m x 0.25mm x 1.4μm Rtx-502.2 (cat.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

Temp. Program: 40°C (hold 6 min.) to 100°C

@ 6°C/min. Inj. Temp: 200°C

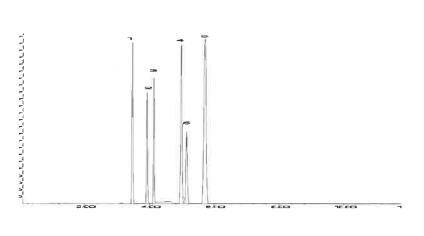
Det. Temp: 250°C

Det. Type:

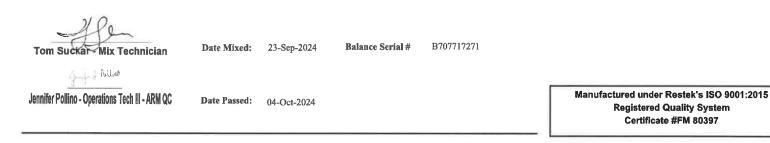
MSD Split Vent:

Split ratio 10:1 Inj. Vol

1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.



### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

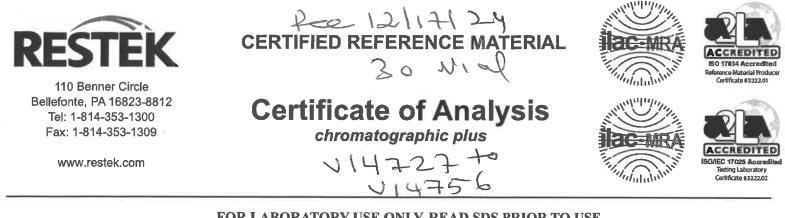
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### Manufacturing Notes:

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

| Catalog No. :        | 30042                          | Lot No.:                | A0216826      |  |
|----------------------|--------------------------------|-------------------------|---------------|--|
| <b>Description</b> : | 502.2 Calibration Mix #1       |                         |               |  |
|                      | 502.2 Calibration Mix #1 2,000 | )µg/mL, P&T Methanol, 1 | ImL/ampul     |  |
| Container Size :     | 2 mL                           | Pkg Amt:                | > 1 mL        |  |
| Expiration Date :    | May 31, 2031                   | Storage:                | 0°C or colder |  |
|                      |                                | Ship:                   | Ambient       |  |

### CERTIFIED VALUES

| Elution<br>Order | Compound                         | CAS #   | Lot #           | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|----------------------------------|---------|-----------------|--------|--------------------------------|--|
| 1                | Dichlorodifluoromethane (CFC-12) | 75-71-8 | 00022922        | 99%    | 2,000.9 µg/mL                  | +/- 112.4144                                 |
| 2                | Chloromethane (methyl chloride)  | 74-87-3 | 00022694        | 99%    | 2,000.7 μg/mL                  | +/- 112.3998                                 |
| 3                | Vinyl chloride                   | 75-01-4 | 00015559        | 99%    | 2,000.3 μg/mL                  | +/- 112.3779                                 |
| 4                | Bromomethane (methyl bromide)    | 74-83-9 | 00017022        | 99%    | 2,001.8 µg/mL                  | +/- 112.4650                                 |
| 5                | Chloroethane (ethyl chloride)    | 75-00-3 | 107-401039114-1 | 99%    | 2,000.1 μg/mL                  | +/- 112.3700                                 |
| 6                | Trichlorofluoromethane (CFC-11)  | 75-69-4 | MKCJ8658        | 99%    | 2,000.7 μg/mL                  | +/- 112.3992                                 |

\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS # 67-56-1

Purity 99%

\_\_\_\_\_

**Column:** 60m x 0.25mm x 1.4μm Rtx-502.2 (cat.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

Temp. Program: 40°C (hold 6 min.) to 100°C

@ 6°C/min. Inj. Temp: 200°C

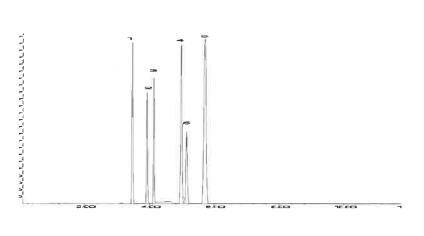
Det. Temp: 250°C

Det. Type:

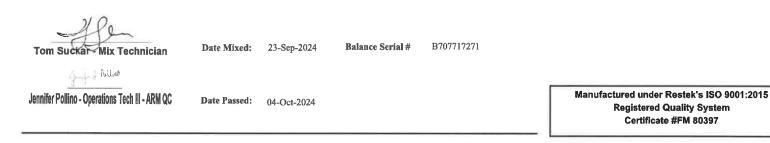
MSD Split Vent:

Split ratio 10:1 Inj. Vol

1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.



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  parent compound in solution.
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- Purity values are rounded to the nearest whole number.

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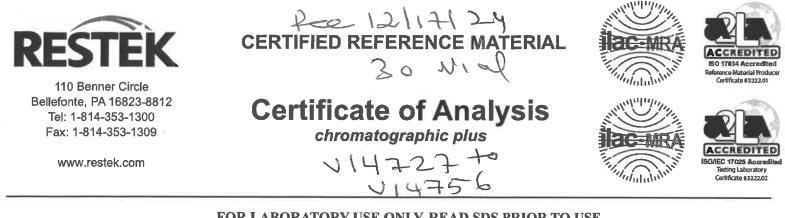
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| Catalog No. :        | 30042                          | Lot No.:                | A0216826      |  |
|----------------------|--------------------------------|-------------------------|---------------|--|
| <b>Description</b> : | 502.2 Calibration Mix #1       |                         |               |  |
|                      | 502.2 Calibration Mix #1 2,000 | )µg/mL, P&T Methanol, 1 | ImL/ampul     |  |
| Container Size :     | 2 mL                           | Pkg Amt:                | > 1 mL        |  |
| Expiration Date :    | May 31, 2031                   | Storage:                | 0°C or colder |  |
|                      |                                | Ship:                   | Ambient       |  |

### CERTIFIED VALUES

| Elution<br>Order | Compound                         | CAS #   | Lot #           | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|----------------------------------|---------|-----------------|--------|--------------------------------|--|
| 1                | Dichlorodifluoromethane (CFC-12) | 75-71-8 | 00022922        | 99%    | 2,000.9 µg/mL                  | +/- 112.4144                                 |
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\* Expanded Uncertainty displayed in same units as Grav. Conc.

Solvent: P&T Methanol CAS # 67-56-1

Purity 99%

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**Column:** 60m x 0.25mm x 1.4μm Rtx-502.2 (cat.#10916)

Carrier Gas: helium-constant flow 2.0 mL/min.

Temp. Program: 40°C (hold 6 min.) to 100°C

@ 6°C/min. Inj. Temp: 200°C

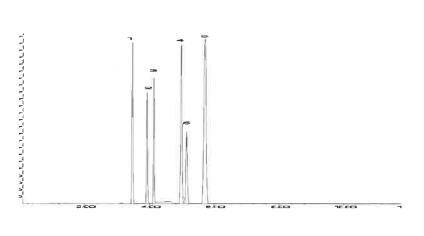
Det. Temp: 250°C

Det. Type:

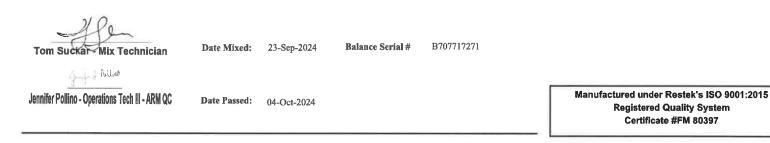
MSD Split Vent:

Split ratio 10:1 Inj. Vol

1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.



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**CERTIFIED REFERENCE MATERIAL** 



chromatographic plus



www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the minimum of the manufactor listed isted. the qualitative and/or qua

|                   | and decimants analog data  | and youndaryo and young where we will allow of the analyte(s) in |
|-------------------|--|--|
| Catalog No. :     | 30625 L  | Lot No.: A0219189  |
| Description :     | OLC 3.2 VOA Deuterated Monitoring Compounds  | ounds  |
|                   | OLC 3.2 VOA Ketone Deuterated Monitoring Compounds 500µg/mL,<br>Deuterium Oxide, 1mL/ampul | J Compounds 500µg/mL,  |
| Container Size :  | 2 mL   | Pkg Amt: > 1 mL  |
| Expiration Date : | May 31, 2026   | Storage: 10°C or colder  |

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Ship:

| Order |               | Compound | CAS #             | Lot #  | Purity | Grav. Conc.<br>(weight/volume) | Uncertainty *    |
|-------|---------------|----------|-------------------|--------|--------|--------------------------------|------------------|
| 1     | 2-Butanone-d5 |          |                   |        |        |                                | (23/0 C.L.; N=Z) |
|       |               |          | 24313-30-0 HJ-279 | HJ-279 | %66    | 99% 504.0 μg/mL                | +/- 17.5357      |
| 2     | 2-Hexanone-d5 |          | 4840-82-8 I-500   | I-500  | %66    | 504.0 us/mT +/- 17 5357        | +/- 17 5357      |

Solvent: Deuterium oxide CAS# 7789-20-0 Purity 99%

\* Expanded Uncertainty displayed in same units as Grav. Conc.

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|  |  |   | 20 25 30   | conditions chosen for product<br>should be adjusted for your  |   | Manufactured under Restek's ISO 9001:2015<br>Registered Quality System<br>Certificate #FM 80397 |  |
|--|--|---|--|---|---|---|--|
|  | c*   |   | 5 10 15 Minutes  | This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application. | 24 Balance Serial # B345965662                                      | 4   |  |
|  |  |   |  | This chro<br>acceptan<br>specific ir  | Date Mixed: 15-Nov-2024   | Date Passed: 19-Nov-2024  |  |
| <b>Column:</b><br>105m x 0.53mm x 3.0µm<br>Rtx-502.2 (cat.#10910)<br>Carriar Gae | Varrier Gas:<br>hydrogen-constant pressure 11.0 psi.<br><b>Temp. Program:</b><br>40°C (hold 2 min.) to 240°C<br>@ 8°C/min. (hold 5 min.)<br><b>Inj. Temp:</b><br>200°C | Det. Temp:<br>250°C<br>Det. Type:<br>FID<br>Split Vent:<br>40 ml/min<br>Loi Vol | price and the second seco |   | $\mathcal{W} \circ \mathcal{E}$<br>Aaron Enyart - Operations Tech I | Dillan Murphy - Operations Technician I   |  |

| Notes     |
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| Material  |
| Reference |
| Certified |
| General   |

### Expiration Notes:

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### **Purity Notes:**

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uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula: The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded .

$$U_{combined}$$
 uncertainty =  $k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$ 

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred. •

### Manufacturing Notes:

Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware. .

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**CERTIFIED REFERENCE MATERIAL** 



chromatographic plus



www.restek.com

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|                   | and decimants analog data  | and youndaryo and or youndaryo determination of the analyte(s) in |
|-------------------|--|---|
| Catalog No. :     | 30625 L  | Lot No.: A0219189   |
| Description :     | OLC 3.2 VOA Deuterated Monitoring Compounds  | ounds   |
|                   | OLC 3.2 VOA Ketone Deuterated Monitoring Compounds 500µg/mL,<br>Deuterium Oxide, 1mL/ampul | J Compounds 500µg/mL,   |
| Container Size :  | 2 mL   | Pkg Amt: > 1 mL   |
| Expiration Date : | May 31, 2026   | Storage: 10°C or colder   |

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Ship:

| Order |               | Compound | CAS #             | Lot #  | Purity | Grav. Conc.<br>(weight/volume) | Uncertainty *    |
|-------|---------------|----------|-------------------|--------|--------|--------------------------------|------------------|
| 1     | 2-Butanone-d5 |          |                   |        |        |                                | (23/0 C.L.; N=Z) |
|       |               |          | 24313-30-0 HJ-279 | HJ-279 | %66    | 99% 504.0 μg/mL                | +/- 17.5357      |
| 2     | 2-Hexanone-d5 |          | 4840-82-8 I-500   | I-500  | %66    | 504.0 us/mT +/- 17 5357        | +/- 17 5357      |

Solvent: Deuterium oxide CAS# 7789-20-0 Purity 99%

\* Expanded Uncertainty displayed in same units as Grav. Conc.

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|  | 20 25 30 | i conditions chosen for product<br>s should be adjusted for your  |   | Manufactured under Restek's ISO 9001:2015<br>Registered Quality System<br>Certificate #FM 80397 |
|--|----------|---|---|---|
| 4  | 5 10 15  | This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application. | 15-Nov-2024 Balance Serial # B345965662 | 19-Nov-2024   |
| Column:<br>105m x 0.53mm x 3.0µm<br>Rtv-502.2 (cat #10910)<br>Carrier Gas:<br>hydrogen-constant pressure 11.0 psi.<br>Temp. Program:<br>0°C (hold 2 min.) to 240°C<br>@ 8°C/min. (hold 5 min.)<br>Inj. Temp:<br>200°C<br>Det. Type:<br>FiD<br>Det. Type:<br>FiD<br>A0 ml/min |          | acce<br>spec  | ns Tech   Date Mixed:                   | Date Passed:  |

| Notes     |
|-----------|
| Material  |
| Reference |
| Certified |
| General   |

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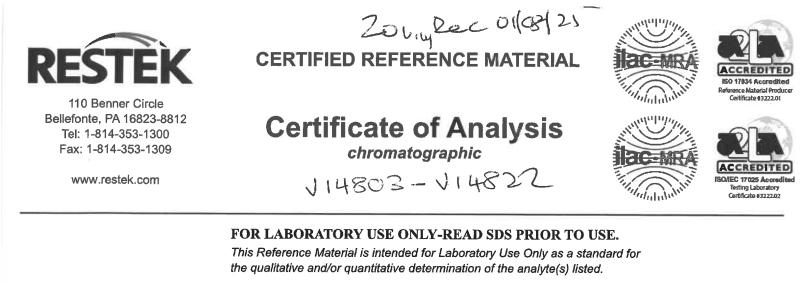
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| Catalog No. :     | 555408-SL                       | Lot No.:             | A0220471         |  |
|-------------------|---------------------------------|----------------------|------------------|--|
| Description :     | Custom Vinyl Acetate Standard   |                      |                  |  |
|                   | Custom Vinyl Acetate Standard 8 | 3,000µg/mL, P&T Meth | nanol, 1mL/ampul |  |
| Container Size :  | 2 mL                            | Pkg Amt:             | > 1 mL           |  |
| Expiration Date : | June 30, 2026                   | Storage:             | -20°C or colder  |  |
| Handling:         | This product is photosensitive. | Ship:                | On Ice           |  |

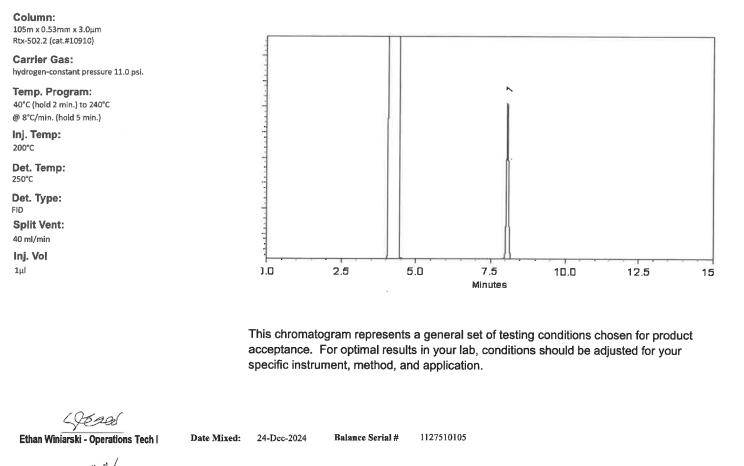
### CERTIFIED VALUES

| Elution<br>Order |               | Compound | CAS #    | Lot #       | Purity     | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|---------------|----------|----------|-------------|------------|--------------------------------|--|
| 1                | Vinyl acetate |          | 108-05-4 | RD240423RSR | 99%        | 8,066.0 μg/mL                  | +/- 278.7979                                 |
|                  |               |          |          | * Expanded  | Uncertaint | y displayed in same            | units as Grav. Conc.                         |

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

### Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.



<u>بنائیہ</u> Dillan Murphy - Operations Technician I

02-Jan-2025

Date Passed:

REVIEWED By Janviller Polition at 7:12 um, Jan 63, 2025

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

### **Expiration Notes:**

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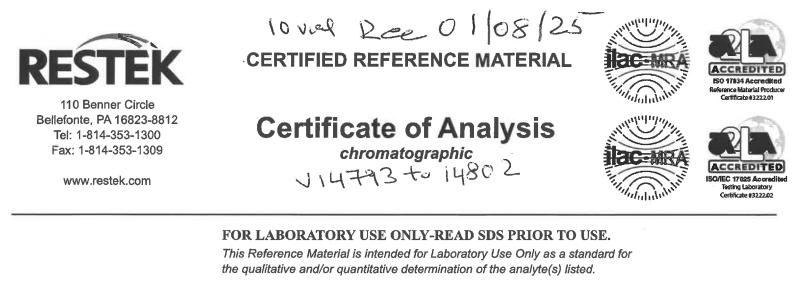
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• The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### Manufacturing Notes:

• Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



| Catalog No. :        | 555408-FL                        | Lot No.:           | A0220563         |
|----------------------|----------------------------------|--------------------|------------------|
| <b>Description</b> : | Custom Vinyl Acetate Standard    |                    |                  |
|                      | Custom Vinyl Acetate Standard 8, | 000µg/mL, P&T Meth | nanol, 1mL/ampul |
| Container Size :     | 2 mL                             | Pkg Amt:           | > 1 mL           |
| Expiration Date :    | June 30, 2026                    | Storage:           | -20°C or colder  |
| Handling:            | This product is photosensitive.  | Ship:              | On Ice           |

### CERTIFIED VALUES

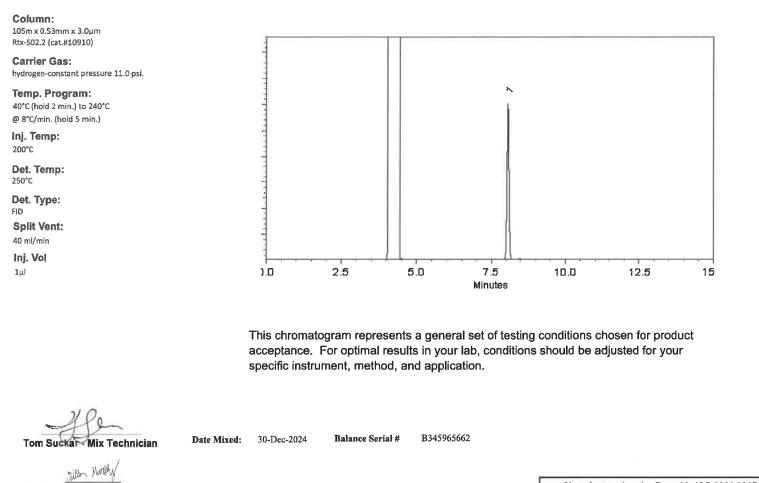
| Elution<br>Order | Compound      | CAS #    | Lot #       | Purity | Grav. Conc.<br>(weight/volume) | Expanded<br>Uncertainty *<br>(95% C.L.; K=2) |
|------------------|---------------|----------|-------------|--------|--------------------------------|--|
| 1 V              | /inyl acetate | 108-05-4 | RD240423RSR | 99%    | 8,060.0 μg/mL                  | +/- 278.5905                                 |

Solvent: P&T Methanol CAS # 67-56-1 Purity 99%

### \* Expanded Uncertainty displayed in same units as Grav. Conc.

### Tech Tips:

Vinyl acetate is a volatile organic ester included in the target lists of several US EPA and other methods. Under acidic conditions, esters react with alcohols to form new esters (transesterification). Methanol-based mixes containing halogenated compounds are slightly acidic, so it is important to minimize exposure of vinyl acetate to mixes of halogenated compounds in methanol. For this reason, we offer vinyl acetate in individual solution, and suggest that it be introduced into the working level calibration solution immediately before use. This will minimize problems and ensure more consistent results.



Dillan Murphy - Operations Technician I

Date Passed: 02-Jan-2025

REVIEWED By Jamiller Publico at 7:11 are, Jan 00, 2025 Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

### **Expiration Notes:**

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### **Purity Notes:**

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A
  correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
  parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### **Certified Uncertainty Value Notes:**

 The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage stability}^2 + u_{shipping stability}^2}$$

*k* is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

Avantor



Material No.: 9077-02 Batch No.: 22L0562016 Manufactured Date: 2022-10-26 Expiration Date: 2025-10-25 Revision No.: 0

### Certificate of Analysis

| Test   | Specification  | Result   |
|--|----------------|----------|
| Assay (CH3OH) (by GC, corrected for water)             | ≥ 99.9 %       | 100.0 %  |
| Residue after Evaporation                              | ≤ 1.0 ppm      | 0.2 ppm  |
| Titrable Acid (µeq/g)                                  | ≤ 0.3          | 0.2      |
| Titrable Base (µeq/g)                                  | ≤ <b>0.</b> 10 | 0.03     |
| Water (by KF, coulometric)                             | ≤ 0.08 %       | < 0.01 % |
| Volatile Organic Trace Analysis – Below EPA 8260B CRQL | Conforms       | Conforms |

For Laboratory,Research,or Manufacturing Use Performance Tested for Use in EPA Methods 500 Series for Drinking Water 600 Series for Wastewater 846 for Solid Waste

Country of Origin: USA Packaging Site: Phillipsburg Mfg Ctr & DC

James Techie

Jamie Ethier Vice President Global Quality

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

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