

## Prep Standard - Chemical Standard Summary

**Order ID :** Q3371

**Test :** VOC-TCLVOA-10

**Prepbatch ID :**

**Sequence ID/Qc Batch ID:** VX102025,Vx102125,

**Standard ID :**

VP134142,VP134145,VP134149,VP134151,VP134933,VP134935,VP134956,VP134957,VP135552,VP135554,VP135834,VP135836,VP135849,VP135850,VP135851,VP135852,VP135853,VP135854,VP135855,VP135856,VP135868,VP135869,VP135870,

**Chemical ID :**

V13391,V14200,V14204,V14205,V14290,V14509,V14510,V14531,V14532,V14625,V14626,V14636,V14637,V14638,V14639,V14668,V14671,V14673,V14675,V14727,V14728,V14803,V14815,V14844,V14906,V14928,V14929,V14951,V14952,V15073,V15074,V15075,W3112,

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                                 | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|---------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 719              | 8260 Working STD (BCM)-First source, 400PPM | <a href="#">VP134142</a> | 06/06/2025       | 12/06/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                                             |                          |                  |                        |                     |                |                  | 06/10/2025           |

**FROM** 1.00000ml of V14668 + 1.00000ml of V14671 + 1.00000ml of V14673 + 1.00000ml of V14675 + 16.00000ml of V14929 = Final Quantity: 20.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                                | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|--------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 253              | 8260 Working STD (BCM)-First source, 20PPM | <a href="#">VP134145</a> | 06/06/2025       | 12/06/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                                            |                          |                  |                        |                     |                |                  | 06/10/2025           |

**FROM** 0.50000ml of V14675 + 49.50000ml of V14929 = Final Quantity: 50.000 ml



## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                       | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>     | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>                           |
|------------------|-----------------------------------|--------------------------|------------------|------------------------|------------------------|----------------|------------------|------------------------------------------------|
| 1810             | 8260 Working<br>Std(2-CVE)-800ppm | <a href="#">VP134149</a> | 06/06/2025       | 12/06/2025             | Semsettin<br>Yesilyurt | None           | None             | <div>Mahesh Dadoda</div> <div>06/10/2025</div> |

**FROM** 1.00000ml of V14636 + 1.00000ml of V14637 + 1.00000ml of V14638 + 1.00000ml of V14639 + 46.00000ml of V14929 = Final  
Quantity: 50.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                    | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>                           |
|------------------|--------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|------------------------------------------------|
| 1812             | 8260 Working Std(2-CVE)-100ppm | <a href="#">VP134151</a> | 06/06/2025       | 12/06/2025             | Semsettin Yesilyurt | None           | None             | <div>Mahesh Dadoda</div> <div>06/10/2025</div> |

**FROM** 0.25000ml of V14639 + 24.75000ml of V14929 = Final Quantity: 25.000 ml

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>            | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 617              | 8260 Surrogate, 400PPM | <a href="#">VP134933</a> | 07/29/2025       | 01/29/2026             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                        |                          |                  |                        |                     |                |                  | 08/19/2025           |

**FROM** 0.40000ml of V14906 + 24.60000ml of V14625 = Final Quantity: 25.000 ml

| <u>Recipe ID</u> | <u>NAME</u>           | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-----------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 1738             | 8260 surrogate 20 ppm | <a href="#">VP134935</a> | 07/29/2025       | 01/29/2026             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                       |                          |                  |                        |                     |                |                  | 08/06/2025           |

**FROM** 0.02000ml of V14906 + 24.99000ml of V14625 = Final Quantity: 25.000 ml

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                    | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|--------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 247              | 8260 Internal Standard, 250PPM | <a href="#">VP134956</a> | 08/01/2025       | 11/09/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
| 08/06/2025       |                                |                          |                  |                        |                     |                |                  |                      |

**FROM** 0.25000ml of V14290 + 24.75000ml of V14626 = Final Quantity: 25.000 ml

| <u>Recipe ID</u> | <u>NAME</u> | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 218              | BFB, 25PPM  | <a href="#">VP134957</a> | 08/01/2025       | 11/22/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
| 08/06/2025       |             |                          |                  |                        |                     |                |                  |                      |

**FROM** 0.50000ml of V13391 + 49.50000ml of V14625 = Final Quantity: 50.000 ml



## VOC STANDARD PREPARATION LOG

[illegible]

| <u>Recipe ID</u>                                                                            | <u>NAME</u>                                             | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>     | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>            |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------|------------------|------------------------|------------------------|----------------|------------------|---------------------------------|
| 245                                                                                         | 8260 Calibration Working STD<br>Mix-First source, 20PPM | <a href="#">VP135554</a> | 09/22/2025       | 11/03/2025             | Semsettin<br>Yesilyurt | None           | None             | Mahesh Dadoda<br><br>09/26/2025 |
| <b><u>FROM</u></b> 17.50000ml of V14928 + 2.50000ml of VP135552 = Final Quantity: 20.000 ml |                                                         |                          |                  |                        |                        |                |                  |                                 |

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                                       | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|---------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 51               | 8260 Working STD (Acrolein) -first source, 800PPM | <a href="#">VP135834</a> | 10/17/2025       | 11/16/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                                                   |                          |                  |                        |                     |                |                  | 10/17/2025           |

**FROM** 1.00000ml of V15073 + 1.50000ml of V15074 + 1.50000ml of V15075 + 21.00000ml of V14928 = Final Quantity: 25.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                                      | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|--------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|----------------------|
| 180              | 8260 Working STD (Acrolein)-First source, 100PPM | <a href="#">VP135836</a> | 10/17/2025       | 11/16/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda        |
|                  |                                                  |                          |                  |                        |                     |                |                  | 10/17/2025           |

**FROM** 17.50000ml of V14928 + 2.50000ml of VP135834 = Final Quantity: 20.000 ml

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>    | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|----------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 589              | BFB TUNE CHECK | <a href="#">VP135849</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda<br>10/21/2025 |

**FROM** 39.98400ml of W3112 + 0.01600ml of VP134957 = Final Quantity: 40.000 ml

| <u>Recipe ID</u> | <u>NAME</u>            | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 620              | 50 PPB CCC, 8260-Water | <a href="#">VP135850</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda<br>10/21/2025 |

**FROM** 39.94000ml of W3112 + 0.00500ml of VP134142 + 0.00500ml of VP134933 + 0.00800ml of VP134956 + 0.01250ml of VP134149 + 0.01250ml of VP135552 + 0.01250ml of VP135834 = Final Quantity: 40.000 ml

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                                                                                                                                                                                     | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 334              | 1 PPB ICC, 8260-Water                                                                                                                                                                           | <a href="#">VP135851</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Mahesh Dadoda<br>10/21/2025 |
| <u>FROM</u>      | 39.98200ml of W3112 + 0.00200ml of VP134145 + 0.00200ml of VP134151 + 0.00200ml of VP134935 + 0.00200ml of VP135554 + 0.00200ml of VP135836 + 0.00800ml of VP134956 = Final Quantity: 40.000 ml |                          |                  |                        |                     |                |                  |                             |

| <u>Recipe ID</u> | <u>NAME</u>                                                                                                                                                                                     | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 335              | 5 PPB ICC, 8260-Water                                                                                                                                                                           | <a href="#">VP135852</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Maresh Dadoda<br>10/21/2025 |
| <u>FROM</u>      | 39.94200ml of W3112 + 0.00800ml of VP134956 + 0.01000ml of VP134145 + 0.01000ml of VP134151 + 0.01000ml of VP134935 + 0.01000ml of VP135554 + 0.01000ml of VP135836 = Final Quantity: 40.000 ml |                          |                  |                        |                     |                |                  |                             |

[illegible]

| <u>Recipe ID</u> | <u>NAME</u>                                                                                                                                                                                     | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 380              | 50 PPB ICC, 8260-Water                                                                                                                                                                          | <a href="#">VP135854</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Mahesh Dadoda<br>10/21/2025 |
| <u>FROM</u>      | 39.94000ml of W3112 + 0.00500ml of VP134142 + 0.00500ml of VP134933 + 0.00800ml of VP134956 + 0.01250ml of VP134149 + 0.01250ml of VP135552 + 0.01250ml of VP135834 = Final Quantity: 40.000 ml |                          |                  |                        |                     |                |                  |                             |

[illegible]

| <u>Recipe ID</u> | <u>NAME</u>                                                                                                                                                                                     | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u>  | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|------------------------|---------------------|----------------|------------------|-----------------------------|
| 382              | 150 PPB ICC, 8260-Water                                                                                                                                                                         | <a href="#">VP135856</a> | 10/20/2025       | 10/21/2025             | Semsettin Yesilyurt | None           | None             | Mahesh Dadoda<br>10/21/2025 |
| <u>FROM</u>      | 39.84950ml of W3112 + 0.00800ml of VP134956 + 0.01500ml of VP134142 + 0.01500ml of VP134933 + 0.03750ml of VP134149 + 0.03750ml of VP135552 + 0.03750ml of VP135834 = Final Quantity: 40.000 ml |                          |                  |                        |                     |                |                  |                             |

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>    | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|----------------|--------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 589              | BFB TUNE CHECK | <a href="#">VP135868</a> | 10/21/2025       | 10/22/2025             | John Carlone       | None           | None             | Maresh Dadoda        |
|                  |                |                          |                  |                        |                    |                |                  | 10/21/2025           |

**FROM** 39.98400ml of W3112 + 0.01600ml of VP134957 = Final Quantity: 40.000 ml

| <u>Recipe ID</u> | <u>NAME</u>            | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|------------------------|--------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 620              | 50 PPB CCC, 8260-Water | <a href="#">VP135869</a> | 10/21/2025       | 10/22/2025             | John Carlone       | None           | None             | Maresh Dadoda        |
|                  |                        |                          |                  |                        |                    |                |                  | 10/21/2025           |

**FROM** 39.94450ml of W3112 + 0.00500ml of VP134142 + 0.00500ml of VP134933 + 0.00800ml of VP134956 + 0.01250ml of VP134149 + 0.01250ml of VP135552 + 0.01250ml of VP135834 = Final Quantity: 40.000 ml

## VOC STANDARD PREPARATION LOG

| <u>Recipe ID</u>                                                                                                                                                                                                   | <u>NAME</u>            | <u>NO.</u>               | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------|------------------|------------------------|--------------------|----------------|------------------|-----------------------------|
| 620                                                                                                                                                                                                                | 50 PPB CCC, 8260-Water | <a href="#">VP135870</a> | 10/21/2025       | 10/22/2025             | John Carlone       | None           | None             | Mahesh Dadoda<br>10/21/2025 |
| <b><u>FROM</u></b> 39.94450ml of W3112 + 0.00500ml of VP134142 + 0.00500ml of VP134933 + 0.00800ml of VP134956 + 0.01250ml of VP134149 + 0.01250ml of VP135552 + 0.01250ml of VP135834 = Final Quantity: 40.000 ml |                        |                          |                  |                        |                    |                |                  |                             |

## CHEMICAL RECEIPT LOG BOOK

| Supplier | ItemCode / ItemName          | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30067 / BFB tuneing solution | A0191805 | 11/22/2025      | 11/22/2024 / SAM        | 01/13/2023 / SAM            | V13391         |

| Supplier | ItemCode / ItemName                                                        | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|----------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml | A0200785 | 03/22/2026      | 09/22/2025 / sam        | 02/28/2024 / SAM            | V14200         |

| Supplier | ItemCode / ItemName                                                        | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|----------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml | A0200785 | 03/22/2026      | 09/22/2025 / sam        | 02/28/2024 / SAM            | V14204         |

| Supplier | ItemCode / ItemName                                                        | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|----------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30006 / VOA Mix, CLP method Calibration Std #1 ketones 5000uq/ml, PTM, 1ml | A0200785 | 03/22/2026      | 09/22/2025 / sam        | 02/28/2024 / SAM            | V14205         |

| Supplier | ItemCode / ItemName                                     | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|---------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 555581 / Custom Standard, 8260 Internal Std [CS 5179-1] | A0210184 | 12/12/2025      | 12/12/2024 / SAM        | 04/15/2024 / SAM            | V14290         |

| Supplier                 | ItemCode / ItemName                            | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|------------------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 95317 / Universal VOA Mega Mix (Min order = 5) | 021624 | 03/22/2026      | 09/22/2025 / sam        | 09/17/2024 / SAM            | V14509         |

## CHEMICAL RECEIPT LOG BOOK

| Supplier                 | ItemCode / ItemName                            | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|------------------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 95317 / Universal VOA Mega Mix (Min order = 5) | 021624 | 03/22/2026      | 09/22/2025 / sam        | 09/17/2024 / SAM            | V14510         |

| Supplier                 | ItemCode / ItemName                     | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 95319 / Revised Additions Mix (Min = 5) | 091724 | 03/22/2026      | 09/22/2025 / sam        | 09/18/2024 / SAM            | V14531         |

| Supplier                 | ItemCode / ItemName                     | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 95319 / Revised Additions Mix (Min = 5) | 091724 | 03/22/2026      | 09/22/2025 / sam        | 09/18/2024 / SAM            | V14532         |

| Supplier         | ItemCode / ItemName                        | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|--------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA9077-02 / Methanol, Purge/Trap (cs=6x1L) | 2310762004 | 01/29/2026      | 07/29/2025 / SAM        | 11/26/2024 / SAM            | V14625         |

| Supplier         | ItemCode / ItemName                        | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|--------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA9077-02 / Methanol, Purge/Trap (cs=6x1L) | 2310762004 | 11/09/2025      | 05/09/2025 / SAM        | 11/26/2024 / SAM            | V14626         |

| Supplier                 | ItemCode / ItemName         | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 12/06/2025      | 06/06/2025 / SAM        | 12/06/2024 / SAM            | V14636         |

## CHEMICAL RECEIPT LOG BOOK

| Supplier                 | ItemCode / ItemName         | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 12/06/2025      | 06/06/2025 / SAM        | 12/06/2024 / SAM            | V14637         |

| Supplier                 | ItemCode / ItemName         | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 12/06/2025      | 06/06/2025 / SAM        | 12/06/2024 / SAM            | V14638         |

| Supplier                 | ItemCode / ItemName         | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-----------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 12/06/2025      | 06/06/2025 / SAM        | 12/06/2024 / SAM            | V14639         |

| Supplier | ItemCode / ItemName                                             | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul | A0214960 | 12/06/2025      | 06/06/2025 / SAM        | 12/09/2024 / SAM            | V14668         |

| Supplier | ItemCode / ItemName                                             | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul | A0214960 | 12/06/2025      | 06/06/2025 / SAM        | 12/09/2024 / SAM            | V14671         |

| Supplier | ItemCode / ItemName                                             | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul | A0214960 | 12/06/2025      | 06/06/2025 / SAM        | 12/09/2024 / SAM            | V14673         |

## CHEMICAL RECEIPT LOG BOOK

| Supplier | ItemCode / ItemName                                             | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30225 / VOA Mix, bromochloromethane, 2000ug/mL, P&TM, 1mL/ampul | A0214960 | 12/06/2025      | 06/06/2025 / SAM        | 12/09/2024 / SAM            | V14675         |

| Supplier | ItemCode / ItemName                                                                    | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|----------------------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30042 / VOA Mix, 500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml | A0216826 | 03/22/2026      | 09/22/2025 / sam        | 12/17/2024 / SAM            | V14727         |

| Supplier | ItemCode / ItemName                                                                    | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|----------------------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30042 / VOA Mix, 500 series method 502.2 Calibration Std #1 gases, 2000uq/ml, PTM, 1ml | A0216826 | 03/22/2026      | 09/22/2025 / sam        | 12/17/2024 / SAM            | V14728         |

| Supplier | ItemCode / ItemName                                                               | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE | A0220471 | 03/22/2026      | 09/22/2025 / sam        | 01/08/2025 / SAM            | V14803         |

LOTS

| Supplier | ItemCode / ItemName                                                               | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-----------------------------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 555408 / Custom Standard, Vinyl Acetate Standard w/ Grav [CS 5066-6] TWO SEPARATE | A0220471 | 03/22/2026      | 09/22/2025 / sam        | 01/08/2025 / SAM            | V14815         |

LOTS

| Supplier | ItemCode / ItemName                                     | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|---------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM | A0217535 | 03/22/2026      | 09/22/2025 / sam        | 01/21/2025 / SAM            | V14844         |

## CHEMICAL RECEIPT LOG BOOK

| Supplier | ItemCode / ItemName                                         | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 555582 / Custom Mixture, 8260 A/B Surrogate Mix [CS 5179-2] | A0223904 | 07/29/2026      | 07/29/2025 / SAM        | 03/24/2025 / SAM            | V14906         |

| Supplier         | ItemCode / ItemName                        | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|--------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA9077-02 / Methanol, Purge/Trap (cs=6x1L) | 24G0262002 | 03/22/2026      | 09/22/2025 / sam        | 05/09/2025 / SAM            | V14928         |

| Supplier         | ItemCode / ItemName                        | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|--------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA9077-02 / Methanol, Purge/Trap (cs=6x1L) | 24G0262002 | 12/06/2025      | 06/06/2025 / SAM        | 05/09/2025 / SAM            | V14929         |

| Supplier | ItemCode / ItemName                            | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL | A0222076 | 03/22/2026      | 09/22/2025 / sam        | 05/19/2025 / SAM            | V14951         |

| Supplier | ItemCode / ItemName                            | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|------------------------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 30489 / VOA Mix, 8260B Acetates Mix, P&TM, 1mL | A0222076 | 03/22/2026      | 09/22/2025 / sam        | 05/19/2025 / SAM            | V14952         |

| Supplier                 | ItemCode / ItemName           | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 101625 | 11/16/2025      | 10/17/2025 / sam        | 10/17/2025 / sam            | V15073         |

### CHEMICAL RECEIPT LOG BOOK

| Supplier                 | ItemCode / ItemName           | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 101625 | 11/16/2025      | 10/17/2025 / sam        | 10/17/2025 / sam            | V15074         |

| Supplier                 | ItemCode / ItemName           | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|-------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 101625 | 11/16/2025      | 10/17/2025 / sam        | 10/17/2025 / sam            | V15075         |

| Supplier         | ItemCode / ItemName | Lot #               | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|---------------------|---------------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | DIW / DI Water      | Daily Lab-Certified | 07/03/2029      | 07/03/2024 / lwona      | 07/03/2024 / lwona          | W3112          |

Methanol  
ULTRA RESI-ANALYZED  
For Purge and Trap Analysis



Material No.: 9077-02  
Batch No.: 23I0762004  
Manufactured Date: 2023-08-11  
Expiration Date: 2026-08-10  
Revision No.: 0

## Certificate of Analysis

| Test                                                    | Specification | Result   |
|---------------------------------------------------------|---------------|----------|
| Assay (CH <sub>3</sub> OH) (by GC, corrected for water) | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                               | ≤ 1.0 ppm     | 0.5 ppm  |
| Titration Acid (μeq/g)                                  | ≤ 0.3         | 0.2      |
| Titration Base (μeq/g)                                  | ≤ 0.10        | 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

Ken Koehnlein  
Sr. Manager, Quality Assurance

Methanol  
ULTRA RESI-ANALYZED  
For Purge and Trap Analysis



Material No.: 9077-02  
Batch No.: 23I0762004  
Manufactured Date: 2023-08-11  
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For Laboratory, Research, or Manufacturing Use  
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500 Series for Drinking Water  
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846 for Solid Waste

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

Ken Koehnlein  
Sr. Manager, Quality Assurance



Ree 03117/24

## CERTIFIED WEIGHT REPORT

Part Number: 95317

Lot Number: 021624

Description: Universal VOA Megamix

69 components

Expiration Date: 021627

Recommended Storage: Freezer (0 °C)

Nominal Concentration (µg/mL): 2000

NIST Test ID#: BUTB

Solvent(s): Lot#  
Methanol EG359-USQ12Weight(s) shown below were combined and diluted to (mL): 100.0 0.021 Balance Uncertainty  
Flask Uncertainty

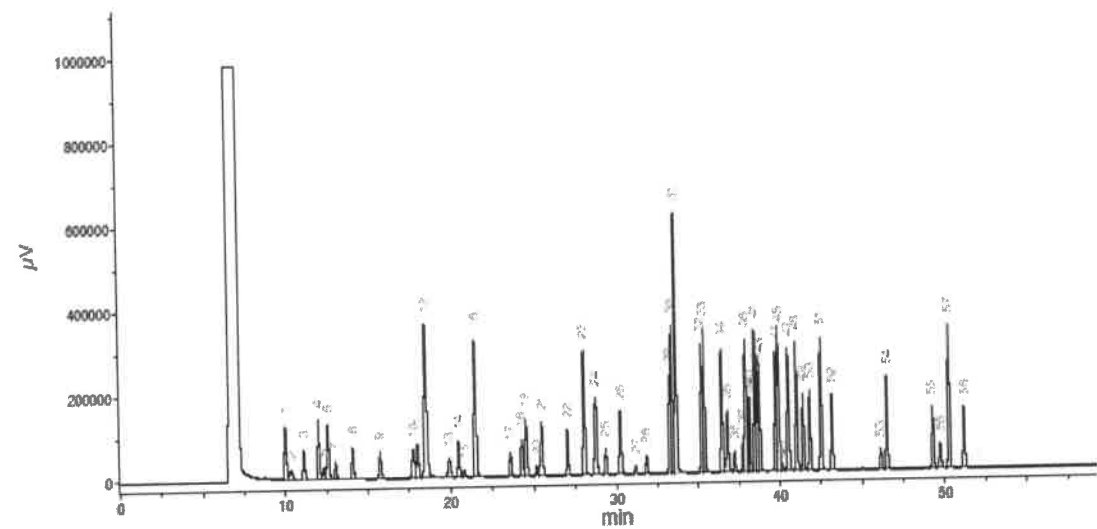
|                |                   |        |
|----------------|-------------------|--------|
| Formulated By: | Prashant Chauhan  | 021624 |
| Reviewed By:   | Pedro L. Renteria | 021624 |
| DATE           |                   |        |

| Compound                            | (K049)      | Lot         | Dil.   | Initial   | Initial       | Nominal       | Purity | Purity      | Uncertainty  | Target    | Actual    | Expanded | SDS Information |                                        |                              |                   |
|-------------------------------------|-------------|-------------|--------|-----------|---------------|---------------|--------|-------------|--------------|-----------|-----------|----------|-----------------|----------------------------------------|------------------------------|-------------------|
|                                     | Part Number | Number      | Factor | Vol. (mL) | Conc. (µg/mL) | Conc. (µg/mL) | (%)    | Uncertainty | Pipette (mL) | Weight(g) | Weight(g) | Actual   | Uncertainty     | (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA)               | LD50              |
| 1. Acetonitrile                     | (0324)      | 021644      | NA     | NA        | NA            | 2000          | 99.99  | 0.2         | NA           | 0.20007   | 0.20020   | 2001.3   | 8.1             | 75-05-8                                | 40 ppm (70mg/m3/8H)          | or-rat 2480mg/kg  |
| 2. Allyl chloride (3-Chloropropene) | (0325)      | 102396      | NA     | NA        | NA            | 2000          | 99     | 0.2         | NA           | 0.20207   | 0.20221   | 2001.4   | 8.2             | 107-05-1                               | 1 ppm (3mg/m3/8H)            | or-rat 700mg/kg   |
| 3. Carbon disulfide                 | (0060)      | MKCR8561    | NA     | NA        | NA            | 2000          | 99.99  | 0.2         | NA           | 0.20007   | 0.20023   | 2001.6   | 8.1             | 75-15-0                                | 4 ppm (12mg/m3) (skin)       | or-rat 1200mg/kg  |
| 4. cis-1,4-Dichloro-2-butene        | (1196)      | 14718EF     | NA     | NA        | NA            | 2000          | 95     | 0.2         | NA           | 0.21058   | 0.21069   | 2001.1   | 8.5             | 1478-11-5                              | N/A                          | N/A               |
| 5. trans-1,4-Dichloro-2-butene      | (0486)      | MKBP6041V   | NA     | NA        | NA            | 2000          | 96.5   | 0.2         | NA           | 0.20731   | 0.20746   | 2001.7   | 8.4             | 110-57-6                               | N/A                          | N/A               |
| 6. Diethyl ether                    | (0153)      | IK18CAS000C | NA     | NA        | NA            | 2000          | 99.9   | 0.2         | NA           | 0.20025   | 0.20040   | 2001.5   | 8.1             | 60-29-7                                | N/A                          | N/A               |
| 7. Ethyl methacrylate               | (0381)      | 06128PX     | NA     | NA        | NA            | 2000          | 99     | 0.2         | NA           | 0.20207   | 0.20230   | 2002.3   | 8.2             | 97-63-2                                | N/A                          | or-rat 14800mg/kg |
| 8. Iodomethane                      | (0489)      | SHBF8718V   | NA     | NA        | NA            | 2000          | 99.5   | 0.2         | NA           | 0.20106   | 0.20121   | 2001.5   | 8.2             | 74-88-4                                | 5 ppm (28mg/m3/8H) (skin)    | or-rat 75mg/kg    |
| 9. 2-Methyl-1-propanol              | (0445)      | 15241EB     | NA     | NA        | NA            | 2000          | 99.5   | 0.2         | NA           | 0.20106   | 0.20120   | 2001.4   | 8.1             | 78-83-1                                | 50 ppm (150mg/m3/8H)         | or-rat 2480mg/kg  |
| 10. Methacrylonitrile               | (0442)      | 00427ET     | NA     | NA        | NA            | 2000          | 99     | 0.2         | NA           | 0.20207   | 0.20221   | 2001.4   | 8.2             | 128-98-7                               | 1 ppm (3mg/m3/8H) (skin)     | or-rat 120mg/kg   |
| 11. Methyl acrylate                 | (1075)      | SHBK0679    | NA     | NA        | NA            | 2000          | 99.9   | 0.2         | NA           | 0.20025   | 0.20040   | 2001.5   | 8.1             | 96-33-3                                | 10 ppm (35mg/m3/8H) (skin)   | or-rat 277mg/kg   |
| 12. Methyl methacrylate             | (0404)      | MKGW6137V   | NA     | NA        | NA            | 2000          | 99.9   | 0.2         | NA           | 0.20025   | 0.20041   | 2001.6   | 8.1             | 80-62-6                                | 100 ppm (410mg/m3/8H)        | or-rat 7872mg/kg  |
| 13. Nitrobenzene                    | (0228)      | 01213TV     | NA     | NA        | NA            | 2000          | 99     | 0.2         | NA           | 0.20207   | 0.20220   | 2001.3   | 8.2             | 98-95-3                                | 1 ppm (5mg/m3/8H) (skin)     | or-rat 780mg/kg   |
| 14. 2-Nitropropane                  | (0461)      | 14002JK     | NA     | NA        | NA            | 2000          | 97.3   | 0.2         | NA           | 0.20560   | 0.20577   | 2001.6   | 8.3             | 78-46-9                                | 10 ppm (35mg/m3/8H)          | or-rat 720mg/kg   |
| 15. Perchloroethane                 | (0460)      | HGA01       | NA     | NA        | NA            | 2000          | 98     | 0.2         | NA           | 0.20413   | 0.20430   | 2001.6   | 8.3             | 78-01-7                                | N/A                          | N/A               |
| 16. 1,1,2-Trichlorotrifluoroethane  | (0474)      | 18990       | NA     | NA        | NA            | 2000          | 99     | 0.2         | NA           | 0.20207   | 0.20225   | 2001.8   | 8.2             | 78-13-1                                | 1000 ppm (7600mg/m3/8H)      | or-rat 435g/kg    |
| 17. Bromodichloromethane            | 35171       | 101623      | 0.05   | 5.00      | 40001.7       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 22.9            | 75-27-4                                | N/A                          | or-rat 915mg/kg   |
| 18. Dibromochloromethane            | 35171       | 101623      | 0.05   | 5.00      | 40002.1       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 23.0            | 124-48-1                               | N/A                          | or-rat 848mg/kg   |
| 19. cis-1,2-Dichloroethene          | 35171       | 101623      | 0.05   | 5.00      | 40003.1       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 156-59-2                               | N/A                          | N/A               |
| 20. trans-1,2-Dichloroethene        | 35171       | 101623      | 0.05   | 5.00      | 40003.2       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 23.0            | 156-60-5                               | N/A                          | or-rat 1235mg/kg  |
| 21. Methylene chloride              | 35171       | 101623      | 0.05   | 5.00      | 40002.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 22.9            | 75-09-2                                | 500 ppm                      | or-rat 820mg/kg   |
| 22. 1,1-Dichloroethane              | 32261       | 102023      | 0.10   | 10.00     | 20001.6       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 1999.7   | 20.4            | 75-35-4                                | 1 ppm (4mg/m3/8H)            | or-rat 200mg/kg   |
| 23. Bromoform                       | 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)      | or-rat 933mg/kg   |
| 24. Carbon tetrachloride            | 95321       | 020724      | 0.10   | 10.00     | 20003.4       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 1999.8   | 20.4            | 56-23-5                                | 2 ppm (12.6mg/m3/8H)         | or-rat 2350mg/kg  |
| 25. Chloroform                      | 95321       | 020724      | 0.10   | 10.00     | 20004.0       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 2001.3   | 20.5            | 67-68-3                                | 60 ppm (240mg/m3) (CL)       | or-rat 908mg/kg   |
| 26. Dibromomethane                  | 95321       | 020724      | 0.10   | 10.00     | 20002.9       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 1999.8   | 20.5            | 74-95-3                                | N/A                          | or-rat 108mg/kg   |
| 27. 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                      | or-rat 725mg/kg   |
| 28. 2,2-Dichloropropane             | 95321       | 020724      | 0.10   | 10.00     | 20003.4       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 1999.8   | 20.4            | 594-20-7                               | N/A                          | N/A               |
| 29. Trichloroethene                 | 95321       | 020724      | 0.10   | 10.00     | 20201.1       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 2019.8   | 20.8            | 127-18-4                               | 25 ppm (170mg/m3/8H) (final) | or-rat 2629mg/kg  |
| 30. 1,1,1-Trichloroethane           | 95321       | 020724      | 0.10   | 10.00     | 20003.0       | 2000          | NA     | NA          | 0.042        | NA        | NA        | 1999.8   | 20.5            | 71-55-6                                | 350 ppm (1900mg/m3/8H)       | or-rat 10300mg/kg |
| 31. 1,2-Dibromo-3-chloropropane     | 35161       | 112322      | 0.05   | 5.00      | 40018.5       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.3   | 22.9            | 86-12-8                                | 0.001 ppm                    | or-rat 170mg/kg   |
| 32. 1,2-Dibromoethane               | 35161       | 112322      | 0.05   | 5.00      | 40024.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.7   | 22.9            | 106-93-4                               | 20 ppm (8H)                  | or-rat 108mg/kg   |
| 33. 1,2-Dichloroethane              | 35161       | 112322      | 0.05   | 5.00      | 40018.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.4   | 22.9            | 107-06-2                               | 50 ppm (8H)                  | or-rat 670mg/kg   |
| 34. 1,2-Dichloropropane             | 35161       | 112322      | 0.05   | 5.00      | 40051.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2002.0   | 22.9            | 78-87-5                                | 75 ppm (350mg/m3/8H)         | or-rat 1847mg/kg  |
| 35. 1,3-Dichloropropane             | 35161       | 112322      | 0.05   | 5.00      | 40005.9       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 142-28-9                               | N/A                          | or-rat 3600mg/kg  |
| 36. 1,1-Dichloropropane             | 35161       | 112322      | 0.05   | 5.00      | 40012.1       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.1   | 28.7            | 563-58-6                               | N/A                          | or-rat 3600mg/kg  |
| 37. cis-1,3-Dichloropropene         | 35161       | 112322      | 0.05   | 5.00      | 40010.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.0   | 23.0            | 10061-01-5                             | N/A                          | N/A               |
| 38. trans-1,3-Dichloropropene       | 35161       | 112322      | 0.05   | 5.00      | 40017.6       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.4   | 23.0            | 10061-02-6                             | N/A                          | N/A               |
| 39. Hexachloro-1,3-butadiene        | 35161       | 112322      | 0.05   | 5.00      | 40021.9       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.6   | 29.7            | 87-68-3                                | 0.02 ppm (0.24mg/m3/8H)      | or-rat 82mg/kg    |
| 40. 1,1,1,2-Tetrachloroethane       | 35161       | 112322      | 0.05   | 5.00      | 40011.9       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.1   | 22.9            | 830-20-6                               | N/A                          | or-rat 670mg/kg   |
| 41. 1,1,2,2-Tetrachloroethane       | 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/m3/8H) (skin)    | or-rat 800mg/kg   |
| 42. 1,1,2-Trichloroethane           | 35161       | 112322      | 0.05   | 5.00      | 40006.6       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 23.0            | 79-00-5                                | 10 ppm (45mg/m3/8H) (skin)   | or-rat 936mg/kg   |
| 43. Trichloroethene                 | 35161       | 112322      | 0.05   | 5.00      | 40029.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 2000.9   | 22.9            | 79-01-6                                | 50 ppm (270mg/m3/8H)         | or-mus 2402mg/kg  |
| 44. 1,2,3-Trichloropropane          | 35161       | 112322      | 0.05   | 5.00      | 40007.5       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.9   | 22.9            | 96-18-4                                | 10 ppm (60mg/m3/8H)          | or-rat 149.8mg/kg |
| 45. Benzene                         | 35162       | 050823      | 0.05   | 5.00      | 40006.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 71-43-2                                | 1 ppm                        | or-rat 4894mg/kg  |
| 46. Bromobenzene                    | 35162       | 050823      | 0.05   | 5.00      | 40006.0       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 104-51-8                               | N/A                          | or-rat 2699mg/kg  |
| 47. n-Butyl benzene                 | 35162       | 050823      | 0.05   | 5.00      | 40003.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 100-41-4                               | 100 ppm (435mg/m3/8H)        | or-rat >2000mg/kg |
| 48. Ethyl benzene                   | 35162       | 050823      | 0.05   | 5.00      | 40004.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 99-87-6                                | N/A                          | or-rat 4750mg/kg  |
| 49. p-Isopropyl toluene             | 35162       | 050823      | 0.05   | 5.00      | 40005.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 91-20-3                                | 10 ppm (50mg/m3/8H)          | or-rat 490mg/kg   |
| 50. Naphthalene                     | 35162       | 050823      | 0.05   | 5.00      | 40005.2       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 100-42-5                               | 100 ppm                      | or-rat 5000mg/kg  |
| 51. Styrene                         | 35162       | 050823      | 0.05   | 5.00      | 40004.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 108-98-3                               | 200 ppm                      | or-rat 5000mg/kg  |
| 52. Toluene                         | 35162       | 050823      | 0.05   | 5.00      | 40006.2       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 87-81-6                                | N/A                          | or-rat 1390mg/kg  |
| 53. 1,2,3-Trichlorobenzene          | 35162       | 050823      | 0.05   | 5.00      | 40003.1       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 120-82-1                               | 5 ppm (CL) (40mg/m3)         | or-rat 756mg/kg   |
| 54. 1,2,4-Trichlorobenzene          | 35162       | 050823      | 0.05   | 5.00      | 40006.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 23.0            | 95-63-6                                | N/A                          | or-rat 5g/kg      |
| 55. 1,2,4-Trimethylbenzene          | 35162       | 050823      | 0.05   | 5.00      | 40001.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 108-87-8                               | N/A                          | or-rat 5000mg/kg  |
| 56. 1,3,5-Trimethylbenzene          | 35162       | 050823      | 0.05   | 5.00      | 40006.7       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 108-38-3                               | 100 ppm (435mg/m3/8H)        | or-rat 5g/kg      |
| 57. m-Xylene                        | 35162       | 050823      | 0.05   | 5.00      | 40005.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 96-06-6                                | N/A                          | N/A               |
| 58. tert-Butyl benzene              | 35163       | 101923      | 0.05   | 5.00      | 40001.2       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 135-98-8                               | N/A                          | or-rat 2240mg/kg  |
| 59. sec-Butyl benzene               | 35163       | 101923      | 0.05   | 5.00      | 40002.4       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.8   | 22.9            | 108-90-7                               | 75 ppm (350mg/m3/8H)         | or-rat 2290mg/kg  |
| 60. Chlorobenzene                   | 35163       | 101923      | 0.05   | 5.00      | 40003.8       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 95-49-8                                | 50 ppm (250mg/m3/8H)         | or-rat 3900mg/kg  |
| 61. 2-Chlorotoluene                 | 35163       | 101923      | 0.05   | 5.00      | 40003.3       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 106-43-4                               | N/A                          | or-rat 2100mg/kg  |
| 62. 4-Chlorotoluene                 | 35163       | 101923      | 0.05   | 5.00      | 40003.3       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.7   | 22.9            | 95-50-1                                | 50 ppm (300mg/m3) (CL)       | or-rat 500mg/kg   |
| 63. 1,2-Dichlorobenzene             | 35163       | 101923      | 0.05   | 5.00      | 40001.7       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 23.0            | 541-73-1                               | N/A                          | or-mus 1062mg/kg  |
| 64. 1,3-Dichlorobenzene             | 35163       | 101923      | 0.05   | 5.00      | 40001.7       | 2000          | NA     | NA          | 0.017        | NA        | NA        | 1999.6   | 22.9            | 108-46-7                               | 75 ppm (450mg/m3/8H)         | or-rat 500mg/kg   |
| 65. 1,4-Dichlorobenzene             | 35163       |             |        |           |               |               |        |             |              |           |           |          |                 |                                        |                              |                   |

Run 16, "P95317 L021624 (2000µg/mL in MeOH)"

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".  
Analyzed using Method "GC5-M1".

**Comments**  
GC5-M1 Analysis by Candice Warren  
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., Hydrogen(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.  
FID Signal = Edaq Channel 1  
Standard injection = 0.5µL, Range=3



| Peak # | Name                                           | FID RT (min.) |
|--------|------------------------------------------------|---------------|
| 1      | Ether                                          | 9.97          |
| 2      | 1,1,2-Trichloro-1,2,2-trifluoroethane          | 10.53         |
| 3      | 1,1-Dichloroethane                             | 11.10         |
| 4      | Acetonitrile                                   | 12.60         |
| 5      | Iodomethane                                    | 12.91         |
| 6      | Allyl chloride                                 | 12.96         |
| 7      | Carbon disulfide/Methylene chloride            | 13.04         |
| 8      | trans-1,2-Dichloroethene                       | 14.07         |
| 9      | 1,1-Dichloroethane                             | 15.74         |
| 10     | 2,2-Dichloropropane                            | 17.74         |
| 11     | cis-1,2-Dichloroethene                         | 18.00         |
| 12     | Methoxyvinylbenzene/Methyl acrylate/Chloroform | 18.49         |
| 13     | Isobutene/1,1,1-Trichloroethane                | 18.91         |
| 14     | 1,1-Dichloropropane                            | 20.46         |
| 15     | Carbon tetrachloride                           | 20.79         |
| 16     | Benzene/1,2-Dichloroethane                     | 21.48         |
| 17     | Trichloroethene                                | 23.88         |
| 18     | 1,2-Dichloropropane                            | 24.52         |
| 19     | Methyl methacrylate                            | 25.13         |
| 20     | Bromochloropropane                             | 25.46         |
| 21     | Dibromomethane/2-Pentene                       | 27.07         |
| 22     | cis-1,2-Dichloroethene                         | 28.03         |
| 23     | Toluene                                        | 28.73         |
| 24     | Ethyl methacrylate/Trans-1,2-Dichloroethene    | 29.34         |
| 25     | 1,1,2-Trichloroethane                          | 30.34         |
| 26     | Tetrachloroethane/1,2-Dichloropropane          | 31.16         |
| 27     | Dibromochloromethane                           | 31.84         |
| 28     | 1,2-Dibromomethane                             | 33.06         |
| 29     | Chlorobenzene                                  | 33.40         |
| 30     | Ethylbenzene/1,1,1,2-Tetrachloroethane         | 33.85         |
| 31     | m-Xylene/p-Xylene                              | 35.33         |
| 32     | o-Xylene                                       | 35.70         |
| 33     | Styrene                                        | 35.70         |
| 34     | Isopropylbenzene/Bromofarm                     | 36.48         |
| 35     | cis-1,4-Dichloro-3-butene                      | 36.80         |
| 36     | 1,1,2-Trichloropropane                         | 37.23         |
| 37     | n-Propylbenzene                                | 37.77         |
| 38     | trans-1,4-Dichloro-3-butene                    | 37.92         |
| 39     | Bromobenzene                                   | 38.05         |
| 40     | 1,3,5-Trimethylbenzene                         | 38.14         |
| 41     | 1,3,5-Trimethylbenzene                         | 38.50         |
| 42     | Chlorobenzene                                  | 38.63         |
| 43     | 4-Chlorobenzene                                | 38.77         |
| 44     | tert-Butylbenzene                              | 39.76         |
| 45     | 1,2,4-Trimethylbenzene                         | 39.91         |
| 46     | Pentachloroethane                              | 40.17         |
| 47     | sec-Butylbenzene                               | 40.52         |
| 48     | p-Isopropylbenzene                             | 41.02         |
| 49     | 1,3-Trichlorobenzene                           | 41.42         |
| 50     | 1,4-Dichlorobenzene                            | 41.83         |
| 51     | n-Butylbenzene                                 | 42.52         |
| 52     | 1,2-Dichlorobenzene                            | 42.18         |
| 53     | 1,2-Dibromo-3-chloropropane                    | 46.12         |
| 54     | Nitrobenzene                                   | 46.40         |
| 55     | 1,2,4-Trifluorobenzene                         | 49.28         |
| 56     | Hexachlorobutadiene                            | 49.72         |
| 57     | Naphthalene                                    | 50.56         |
| 58     | 1,2,3-Trichlorobenzene                         | 51.16         |

## Safety Data Sheet (SDS)

GHS/OSHA Compliant

## Section I Product and Company Identification

## IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

|                     |                                     |                                   |                 |
|---------------------|-------------------------------------|-----------------------------------|-----------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC              | Emergency Telephone USA & CANADA  | 1-800-535-5053  |
| Address             | 44 Rossotto Dr.<br>Hamden CT, 06514 | Emergency Telephone International | 1-352-323-3500  |
|                     |                                     | Date Prepared/Revised             | January 1, 2024 |

## Section II - Hazards Identification

## GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225  
H370  
P271  
P302,332

Highly Flammable Liquid and Vapor  
Cause damage to organs  
Use in ventilated area  
If on skin, wash with soap and water

H301, 311, 331  
H351  
P280  
P305,351,338

Toxic if swallowed, skin contact, inhaled  
Suspected of causing cancer  
Use gloves, eye protection/face shield  
If in eyes, remove contacts, rinse with water



Signal Word: DANGER

## Section III - Composition

|                                                         |                |                      |
|---------------------------------------------------------|----------------|----------------------|
| Components (Specific Chemical Identity; Common Name(s)) |                |                      |
| Methanol                                                | METHYL ALCOHOL | CAS#: 67-56-1        |
|                                                         |                | % (optional)<br>> 97 |

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

## Section IV. FIRST AID MEASURES

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| General advice          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| If inhaled              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact | Wash with soap and water. Consult a physician.                                                              |
| In case of eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| If swallowed            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

## Section V. FIREFIGHTING MEASURES

|                               |                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flammability                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| Suitable extinguishing media  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| Protective equipment for fire | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

## Section VI. ACCIDENTAL RELEASE MEASURES

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

## Section VII. HANDLING AND STORAGE

|                               |                                                                                                                                                                                                                                                                              |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.                                                                                                                                                                                                        |
| Storage Conditions            | Use ventilation. Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. |

## Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|                                                                                               |                                                                                                   |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Methanol                                                                                      | 67-56-1 TWA 200 ppm                                                                               |
| Skin notation                                                                                 | TWA 200 ppm                                                                                       |
| Potential for skin absorption, ingestion and inhalation.                                      |                                                                                                   |
| Personal protective equipment                                                                 | Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                                                                                                   |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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. 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.



Ree 03117/24

## CERTIFIED WEIGHT REPORT

Part Number: 95317

Lot Number: 021624

Description: Universal VOA Megamix

69 components

Expiration Date: 021627

Recommended Storage: Freezer (0 °C)

Nominal Concentration (µg/mL): 2000

NIST Test ID#: BUTB

Solvent(s): Lot#  
Methanol EG359-USQ12Weight(s) shown below were combined and diluted to (mL): 100.0 0.021 Balance Uncertainty  
Flask Uncertainty

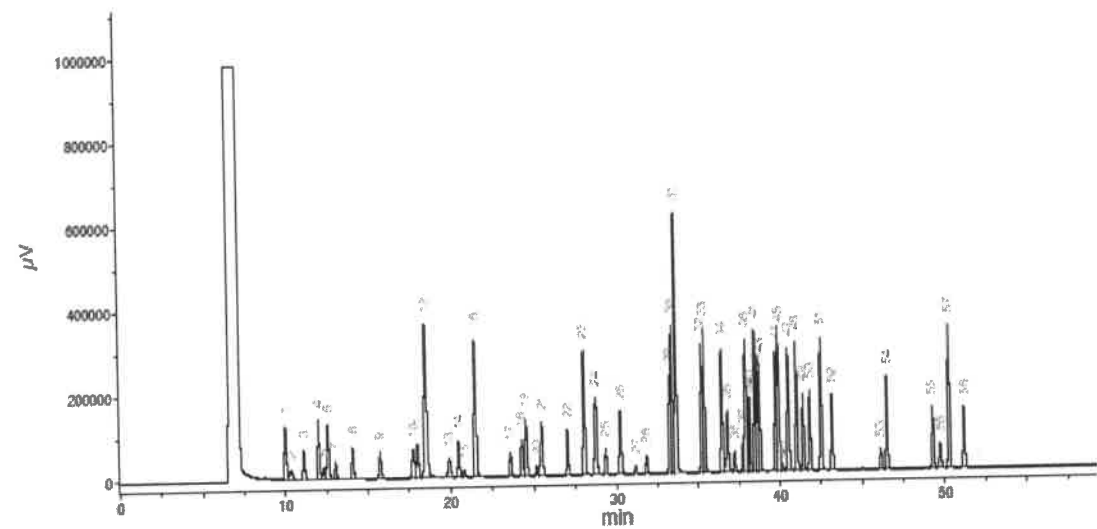
|                |                   |        |
|----------------|-------------------|--------|
| Formulated By: | Prashant Chauhan  | 021624 |
| Reviewed By:   | Pedro L. Renteria | 021624 |
| DATE           |                   |        |

| Compound                            | (KMe)<br>Part Number | Lot<br>Number | Dir.<br>Factor | Initial<br>Vol. (mL) | Initial<br>Conc. (µg/mL) | Nominal<br>Conc. (µg/mL) | Purity<br>(%) | Purity<br>Uncertainty | Uncertainty<br>Pipette (mL) | Target<br>Weight(g) | Actual<br>Weight(g) | Actual<br>Conc (µg/mL) | Expanded<br>Uncertainty<br>(+/-) (µg/mL) | SDS Information<br>(Solvent Safety Info. On Attached pg.) |                              |                   |
|-------------------------------------|----------------------|---------------|----------------|----------------------|--------------------------|--------------------------|---------------|-----------------------|-----------------------------|---------------------|---------------------|------------------------|------------------------------------------|-----------------------------------------------------------|------------------------------|-------------------|
|                                     |                      |               |                |                      |                          |                          |               |                       |                             |                     |                     |                        |                                          | CAS#                                                      | OSHA PEL (TWA)               | LD50              |
| 1. Acetonitrile                     | (0324)               | 021644        | NA             | NA                   | NA                       | 2000                     | 99.99         | 0.2                   | NA                          | 0.20007             | 0.20020             | 2001.3                 | 8.1                                      | 75-05-8                                                   | 40 ppm (70mg/m3/8H)          | or-rat 2400mg/kg  |
| 2. Allyl chloride (3-Chloropropene) | (0325)               | 102396        | NA             | NA                   | NA                       | 2000                     | 99            | 0.2                   | NA                          | 0.20207             | 0.20221             | 2001.4                 | 8.2                                      | 107-05-1                                                  | 1 ppm (3mg/m3/8H)            | or-rat 700mg/kg   |
| 3. Carbon disulfide                 | (0060)               | MKCR8561      | NA             | NA                   | NA                       | 2000                     | 99.99         | 0.2                   | NA                          | 0.20007             | 0.20023             | 2001.6                 | 8.1                                      | 75-15-0                                                   | 4 ppm (12mg/m3) (skin)       | or-rat 1200mg/kg  |
| 4. cis-1,4-Dichloro-2-butene        | (1196)               | 14718EF       | NA             | NA                   | NA                       | 2000                     | 95            | 0.2                   | NA                          | 0.21056             | 0.21069             | 2001.1                 | 8.5                                      | 1478-11-6                                                 | N/A                          | N/A               |
| 5. trans-1,4-Dichloro-2-butene      | (0486)               | MKBP9041V     | NA             | NA                   | NA                       | 2000                     | 96.5          | 0.2                   | NA                          | 0.20731             | 0.20746             | 2001.7                 | 8.4                                      | 110-57-6                                                  | N/A                          | N/A               |
| 6. Diethyl ether                    | (0153)               | IK18CAS000C   | NA             | NA                   | NA                       | 2000                     | 99.9          | 0.2                   | NA                          | 0.20025             | 0.20040             | 2001.5                 | 8.1                                      | 60-29-7                                                   | N/A                          | N/A               |
| 7. Ethyl methacrylate               | (0381)               | 06128PX       | NA             | NA                   | NA                       | 2000                     | 99            | 0.2                   | NA                          | 0.20207             | 0.20230             | 2002.3                 | 8.2                                      | 97-63-2                                                   | N/A                          | N/A               |
| 8. Iodomethane                      | (0489)               | SHBF8718V     | NA             | NA                   | NA                       | 2000                     | 99.5          | 0.2                   | NA                          | 0.20106             | 0.20121             | 2001.5                 | 8.2                                      | 74-88-4                                                   | 5 ppm (28mg/m3/8H) (skin)    | or-rat 14800mg/kg |
| 9. 2-Methyl-1-propanol              | (0445)               | 15241EB       | NA             | NA                   | NA                       | 2000                     | 99.5          | 0.2                   | NA                          | 0.20106             | 0.20120             | 2001.4                 | 8.1                                      | 78-83-1                                                   | 50 ppm (150mg/m3/8H)         | or-rat 3460mg/kg  |
| 10. Methacrylonitrile               | (0442)               | 00427ET       | NA             | NA                   | NA                       | 2000                     | 99            | 0.2                   | NA                          | 0.20207             | 0.20221             | 2001.4                 | 8.2                                      | 128-98-7                                                  | 1 ppm (3mg/m3/8H) (skin)     | or-rat 120mg/kg   |
| 11. Methyl acrylate                 | (0755)               | SHBK0679      | NA             | NA                   | NA                       | 2000                     | 99.9          | 0.2                   | NA                          | 0.20025             | 0.20040             | 2001.5                 | 8.1                                      | 96-33-3                                                   | 10 ppm (35mg/m3/8H) (skin)   | or-rat 277mg/kg   |
| 12. Methyl methacrylate             | (0404)               | MKGW6137V     | NA             | NA                   | NA                       | 2000                     | 99.9          | 0.2                   | NA                          | 0.20025             | 0.20041             | 2001.6                 | 8.1                                      | 80-62-6                                                   | 100 ppm (410mg/m3/8H)        | or-rat 7872mg/kg  |
| 13. Nitrobenzene                    | (0228)               | 01213TV       | NA             | NA                   | NA                       | 2000                     | 99            | 0.2                   | NA                          | 0.20207             | 0.20220             | 2001.3                 | 8.2                                      | 98-95-3                                                   | 1 ppm (5mg/m3/8H) (skin)     | or-rat 780mg/kg   |
| 14. 2-Nitropropane                  | (0461)               | HG002JK       | NA             | NA                   | NA                       | 2000                     | 97.3          | 0.2                   | NA                          | 0.20560             | 0.20577             | 2001.6                 | 8.3                                      | 78-46-9                                                   | 10 ppm (35mg/m3/8H)          | or-rat 720mg/kg   |
| 15. Pentachloroethane               | (0460)               | HGA01         | NA             | NA                   | NA                       | 2000                     | 98            | 0.2                   | NA                          | 0.20413             | 0.20430             | 2001.6                 | 8.3                                      | 78-01-7                                                   | N/A                          | N/A               |
| 16. 1,1,2-Trichlorotrifluoroethane  | (0474)               | 18990         | NA             | NA                   | NA                       | 2000                     | 99            | 0.2                   | NA                          | 0.20207             | 0.20225             | 2001.8                 | 8.2                                      | 78-13-1                                                   | 1000 ppm (7600mg/m3/8H)      | or-rat 435g/kg    |
| 17. Bromodichloromethane            | 35171                | 101623        | 0.05           | 5.00                 | 40001.7                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 22.9                                     | 75-27-4                                                   | NA                           | or-rat 915mg/kg   |
| 18. Dibromochloromethane            | 35171                | 101623        | 0.05           | 5.00                 | 40002.1                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 23.0                                     | 124-48-1                                                  | N/A                          | or-rat 848mg/kg   |
| 19. cis-1,2-Dichloroethene          | 35171                | 101623        | 0.05           | 5.00                 | 40003.1                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 156-59-2                                                  | N/A                          | N/A               |
| 20. trans-1,2-Dichloroethene        | 35171                | 101623        | 0.05           | 5.00                 | 40002.4                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 23.0                                     | 156-60-5                                                  | N/A                          | or-rat 1235mg/kg  |
| 21. Methylene chloride              | 35171                | 101623        | 0.05           | 5.00                 | 40002.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 22.9                                     | 75-09-2                                                   | 500 ppm                      | or-rat 820mg/kg   |
| 22. 1,1-Dichloroethane              | 32251                | 102023        | 0.10           | 10.00                | 20001.6                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.7                 | 20.4                                     | 75-35-4                                                   | 1 ppm (4mg/m3/8H)            | or-rat 200mg/kg   |
| 23. Bromoform                       | 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)      | or-rat 930mg/kg   |
| 24. Carbon tetrachloride            | 95321                | 020724        | 0.10           | 10.00                | 20003.4                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.4                                     | 56-23-5                                                   | 2 ppm (12.6mg/m3/8H)         | or-rat 2350mg/kg  |
| 25. Chloroform                      | 95321                | 020724        | 0.10           | 10.00                | 20024.0                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.5                                     | 67-68-3                                                   | 60 ppm (240mg/m3) (CL)       | or-rat 908mg/kg   |
| 26. Dibromomethane                  | 95321                | 020724        | 0.10           | 10.00                | 20002.9                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.5                                     | 74-95-3                                                   | N/A                          | or-rat 108mg/kg   |
| 27. 1,1-Dichloroethane              | 95321                | 020724        | 0.10           | 10.00                | 20003.4                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.4                                     | 594-20-7                                                  | N/A                          | N/A               |
| 28. 2,2-Dichloropropane             | 95321                | 020724        | 0.10           | 10.00                | 20003.4                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.4                                     | 594-20-7                                                  | N/A                          | N/A               |
| 29. Trichloroethene                 | 95321                | 020724        | 0.10           | 10.00                | 20201.1                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 2019.8                 | 20.8                                     | 127-18-4                                                  | 25 ppm (170mg/m3/8H) (final) | or-rat 2629mg/kg  |
| 30. 1,1,1-Trichloroethane           | 95321                | 020724        | 0.10           | 10.00                | 20003.0                  | 2000                     | NA            | NA                    | 0.042                       | NA                  | NA                  | 1999.8                 | 20.5                                     | 71-55-6                                                   | 350 ppm (1900mg/m3/8H)       | or-rat 10300mg/kg |
| 31. 1,2-Dibromo-3-chloropropane     | 35161                | 112322        | 0.05           | 5.00                 | 40016.5                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.3                 | 22.9                                     | 96-12-8                                                   | 0.001 ppm                    | or-rat 170mg/kg   |
| 32. 1,2-Dibromoethane               | 35161                | 112322        | 0.05           | 5.00                 | 40024.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.7                 | 22.9                                     | 106-93-4                                                  | 20 ppm (8H)                  | or-rat 108mg/kg   |
| 33. 1,2-Dichloroethane              | 35161                | 112322        | 0.05           | 5.00                 | 40018.0                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.4                 | 22.9                                     | 107-06-2                                                  | 50 ppm (8H)                  | or-rat 670mg/kg   |
| 34. 1,2-Dichloropropane             | 35161                | 112322        | 0.05           | 5.00                 | 40051.0                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2002.0                 | 22.9                                     | 78-87-5                                                   | 75 ppm (350mg/m3/8H)         | or-rat 1847mg/kg  |
| 35. 1,3-Dichloropropane             | 35161                | 112322        | 0.05           | 5.00                 | 40005.9                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 142-28-9                                                  | N/A                          | or-rat 3600mg/kg  |
| 36. 1,1-Dichloropropene             | 35161                | 112322        | 0.05           | 5.00                 | 40012.1                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.1                 | 28.7                                     | 563-58-6                                                  | N/A                          | N/A               |
| 37. cis-1,3-Dichloropropene         | 35161                | 112322        | 0.05           | 5.00                 | 40010.0                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.0                 | 23.0                                     | 10061-01-5                                                | N/A                          | N/A               |
| 38. trans-1,3-Dichloropropene       | 35161                | 112322        | 0.05           | 5.00                 | 40017.6                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.4                 | 23.0                                     | 10061-02-6                                                | N/A                          | N/A               |
| 39. Hexachloro-1,3-butadiene        | 35161                | 112322        | 0.05           | 5.00                 | 40021.9                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.6                 | 29.7                                     | 87-68-3                                                   | 0.02 ppm (0.24mg/m3/8H)      | or-rat 82mg/kg    |
| 40. 1,1,1,2-Tetrachloroethane       | 35161                | 112322        | 0.05           | 5.00                 | 40011.9                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.1                 | 22.9                                     | 830-20-6                                                  | N/A                          | or-rat 670mg/kg   |
| 41. 1,1,2,2-Tetrachloroethane       | 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/m3/8H) (skin)    | or-rat 800mg/kg   |
| 42. 1,1,2-Trichloroethane           | 35161                | 112322        | 0.05           | 5.00                 | 40006.6                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 23.0                                     | 79-00-5                                                   | 10 ppm (45mg/m3/8H) (skin)   | or-rat 936mg/kg   |
| 43. Trichloroethene                 | 35161                | 112322        | 0.05           | 5.00                 | 40029.0                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 2000.9                 | 22.9                                     | 79-01-6                                                   | 50 ppm (270mg/m3/8H)         | or-mus 2402mg/kg  |
| 44. 1,2,3-Trichloropropane          | 35161                | 112322        | 0.05           | 5.00                 | 40007.5                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.9                 | 22.9                                     | 96-18-4                                                   | 10 ppm (60mg/m3/8H)          | or-rat 149.8mg/kg |
| 45. Benzene                         | 35162                | 050823        | 0.05           | 5.00                 | 40007.5                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 71-43-2                                                   | 1 ppm                        | or-rat 4894mg/kg  |
| 46. Bromobenzene                    | 35162                | 050823        | 0.05           | 5.00                 | 40006.0                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 104-51-8                                                  | N/A                          | N/A               |
| 47. n-Butyl benzene                 | 35162                | 050823        | 0.05           | 5.00                 | 40003.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 100-41-4                                                  | 100 ppm (435mg/m3/8H)        | or-rat >2000mg/kg |
| 48. Ethyl benzene                   | 35162                | 050823        | 0.05           | 5.00                 | 40004.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 99-87-6                                                   | N/A                          | or-rat 4750mg/kg  |
| 49. p-Isopropyl toluene             | 35162                | 050823        | 0.05           | 5.00                 | 40005.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 91-20-3                                                   | 10 ppm (50mg/m3/8H)          | or-rat 490mg/kg   |
| 50. Naphthalene                     | 35162                | 050823        | 0.05           | 5.00                 | 40004.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 100-42-5                                                  | 100 ppm                      | or-rat 5000mg/kg  |
| 51. Styrene                         | 35162                | 050823        | 0.05           | 5.00                 | 40004.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 108-98-3                                                  | 200 ppm                      | or-rat 5000mg/kg  |
| 52. Toluene                         | 35162                | 050823        | 0.05           | 5.00                 | 40006.2                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 87-81-6                                                   | N/A                          | or-rat 1390mg/kg  |
| 53. 1,2,3-Trichlorobenzene          | 35162                | 050823        | 0.05           | 5.00                 | 40003.1                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 120-82-1                                                  | 5 ppm (CL) (40mg/m3)         | or-rat 756mg/kg   |
| 54. 1,2,4-Trichlorobenzene          | 35162                | 050823        | 0.05           | 5.00                 | 40006.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 23.0                                     | 95-63-6                                                   | N/A                          | or-rat 5g/kg      |
| 55. 1,2,4-Trimethylbenzene          | 35162                | 050823        | 0.05           | 5.00                 | 40001.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 108-87-6                                                  | N/A                          | or-rat 5000mg/kg  |
| 56. 1,3,5-Trimethylbenzene          | 35162                | 050823        | 0.05           | 5.00                 | 40006.7                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 108-38-3                                                  | 100 ppm (435mg/m3/8H)        | or-rat 5g/kg      |
| 57. m-Xylene                        | 35162                | 050823        | 0.05           | 5.00                 | 40005.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 96-06-6                                                   | N/A                          | N/A               |
| 58. tert-Butyl benzene              | 35163                | 101923        | 0.05           | 5.00                 | 40001.2                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.8                 | 22.9                                     | 135-98-6                                                  | N/A                          | or-rat 2240mg/kg  |
| 59. sec-Butyl benzene               | 35163                | 101923        | 0.05           | 5.00                 | 40002.4                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 108-90-7                                                  | 75 ppm (350mg/m3/8H)         | or-rat 2290mg/kg  |
| 60. Chlorobenzene                   | 35163                | 101923        | 0.05           | 5.00                 | 40003.8                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.5                 | 22.9                                     | 95-49-8                                                   | 50 ppm (250mg/m3/8H)         | or-rat 3900mg/kg  |
| 61. 2-Chlorotoluene                 | 35163                | 101923        | 0.05           | 5.00                 | 40003.3                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 106-43-4                                                  | N/A                          | or-rat 2100mg/kg  |
| 62. 4-Chlorotoluene                 | 35163                | 101923        | 0.05           | 5.00                 | 40003.3                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.7                 | 22.9                                     | 95-50-1                                                   | 50 ppm (300mg/m3) (CL)       | or-rat 500mg/kg   |
| 63. 1,2-Dichlorobenzene             | 35163                | 101923        | 0.05           | 5.00                 | 40001.7                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 23.0                                     | 541-73-1                                                  | N/A                          | or-mus 1060mg/kg  |
| 64. 1,3-Dichlorobenzene             | 35163                | 101923        | 0.05           | 5.00                 | 40001.7                  | 2000                     | NA            | NA                    | 0.017                       | NA                  | NA                  | 1999.6                 | 22.9                                     | 108-46-7                                                  | 75 ppm (450mg/m3/8H)         | or-rat            |

Run 16, "P95317 L021624 (2000µg/mL in MeOH)"

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".  
Analyzed using Method "GC5-M1".

**Comments**  
GC5-M1 Analysis by Candice Warren  
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., Hydrogen(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.  
FID Signal = Edaq Channel 1  
Standard injection = 0.5µL, Range=3



| Peak # | Name                                           | FID RT (min.) |
|--------|------------------------------------------------|---------------|
| 1      | Ether                                          | 9.97          |
| 2      | 1,1,2-Trichloro-1,2,2-trifluoroethane          | 10.53         |
| 3      | 1,1-Dichloroethane                             | 11.10         |
| 4      | Acetonitrile                                   | 12.60         |
| 5      | Iodomethane                                    | 12.91         |
| 6      | Allyl chloride                                 | 13.56         |
| 7      | Carbon disulfide/Methylene chloride            | 13.94         |
| 8      | trans-1,2-Dichloroethene                       | 14.07         |
| 9      | 1,1-Dichloroethane                             | 15.74         |
| 10     | 2,2-Dichloropropane                            | 17.74         |
| 11     | cis-1,2-Dichloroethene                         | 18.00         |
| 12     | Methoxyvinylbenzene/Methyl acrylate/Chloroform | 18.49         |
| 13     | Isobutene/1,1,1-Trichloroethane                | 18.91         |
| 14     | 1,1-Dichloropropane                            | 20.46         |
| 15     | Carbon tetrachloride                           | 20.79         |
| 16     | Benzene/1,2-Dichloroethane                     | 21.48         |
| 17     | Trichloroethene                                | 23.88         |
| 18     | 1,2-Dichloropropane                            | 24.52         |
| 19     | Methyl methacrylate                            | 25.13         |
| 20     | Bromochloropropane                             | 25.46         |
| 21     | Dibromomethane/2-Pentene                       | 27.07         |
| 22     | cis-1,2-Dichloroethene                         | 28.03         |
| 23     | Toluene                                        | 28.73         |
| 24     | Ethyl methacrylate/Trans-1,2-Dichloropropane   | 29.34         |
| 25     | 1,1,2-Trichloroethane                          | 30.34         |
| 26     | Tetrachloroethane/1,2-Dichloropropane          | 31.16         |
| 27     | Dibromochloromethane                           | 32.84         |
| 28     | 1,2-Dibromomethane                             | 33.35         |
| 29     | Chlorobenzene                                  | 33.40         |
| 30     | Ethylbenzene/1,1,1,2-Tetrachloroethane         | 33.85         |
| 31     | m-Xylene/p-Xylene                              | 35.33         |
| 32     | o-Xylene                                       | 35.70         |
| 33     | Styrene                                        | 35.70         |
| 34     | Isopropylbenzene/Bromofarm                     | 36.48         |
| 35     | cis-1,4-Dichloro-3-butene                      | 36.80         |
| 36     | 1,1,2-Trichloropropane                         | 37.23         |
| 37     | 1,2,2-Trichloropropane                         | 37.77         |
| 38     | n-Propylbenzene                                | 37.92         |
| 39     | trans-1,4-Dichloro-3-butene                    | 38.05         |
| 40     | Bromobenzene                                   | 38.14         |
| 41     | 1,3,5-Trimethylbenzene                         | 38.50         |
| 42     | 2-Chlorotoluene                                | 38.63         |
| 43     | 4-Chlorotoluene                                | 38.77         |
| 44     | tert-Butylbenzene                              | 39.76         |
| 45     | 1,2,4-Trimethylbenzene                         | 39.91         |
| 46     | Pentachloroethane                              | 40.17         |
| 47     | sec-Butylbenzene                               | 40.52         |
| 48     | p-Isopropyltoluene                             | 41.02         |
| 49     | 1,3-Trichlorobenzene                           | 41.42         |
| 50     | 1,4-Dichlorobenzene                            | 41.83         |
| 51     | n-Butylbenzene                                 | 42.52         |
| 52     | 1,2-Dichlorobenzene                            | 42.18         |
| 53     | 1,2-Dibromo-3-chloropropane                    | 46.12         |
| 54     | Nitrobenzene                                   | 46.40         |
| 55     | 1,2,4-Trifluorobenzene                         | 49.28         |
| 56     | Hexachlorocyclopentadiene                      | 49.72         |
| 57     | Naphthalene                                    | 50.56         |
| 58     | 1,2,3-Trichlorobenzene                         | 51.16         |

## Safety Data Sheet (SDS)

GHS/OSHA Compliant

## Section I Product and Company Identification

## IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

|                     |                                     |                                   |                 |
|---------------------|-------------------------------------|-----------------------------------|-----------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC              | Emergency Telephone USA & CANADA  | 1-800-535-5053  |
| Address             | 44 Rossotto Dr.<br>Hamden CT, 06514 | Emergency Telephone International | 1-352-323-3500  |
|                     |                                     | Date Prepared/Revised             | January 1, 2024 |

## Section II - Hazards Identification

## GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225  
H370  
P271  
P302,332

Highly Flammable Liquid and Vapor  
Cause damage to organs  
Use in ventilated area  
If on skin, wash with soap and water

H301, 311, 331  
H351  
P280  
P305,351,338

Toxic if swallowed, skin contact, inhaled  
Suspected of causing cancer  
Use gloves, eye protection/face shield  
If in eyes, remove contacts, rinse with water



Signal Word: DANGER

## Section III - Composition

|                                                         |                |                      |
|---------------------------------------------------------|----------------|----------------------|
| Components (Specific Chemical Identity; Common Name(s)) |                |                      |
| Methanol                                                | METHYL ALCOHOL | CAS#: 67-56-1        |
|                                                         |                | % (optional)<br>> 97 |

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

## Section IV. FIRST AID MEASURES

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| General advice          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| If inhaled              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact | Wash with soap and water. Consult a physician.                                                              |
| In case of eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| If swallowed            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

## Section V. FIREFIGHTING MEASURES

|                               |                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flammability                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| Suitable extinguishing media  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| Protective equipment for fire | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

## Section VI. ACCIDENTAL RELEASE MEASURES

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

## Section VII. HANDLING AND STORAGE

|                               |                                                                                                                                                                                                                                                                              |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.                                                                                                                                                                                                        |
| Storage Conditions            | Use ventilation. Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. |

## Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|                                                                                               |                                                                                                   |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Methanol                                                                                      | 67-56-1 TWA 200 ppm                                                                               |
| Skin notation                                                                                 | TWA 200 ppm                                                                                       |
| Potential for skin absorption, ingestion and inhalation.                                      |                                                                                                   |
| Personal protective equipment                                                                 | Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                                                                                                   |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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. 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 CRM



Dec 09/17/24

## CERTIFIED WEIGHT REPORT

## Part Number:

91980

## Lot Number:

091424

## Description:

Acrolein

## Solvent(s):

Water

## Lot#

072324Q

## Expiration Date:

101424

## Recommended Storage:

Refrigerate (4 °C)

## Nominal Concentration (µg/mL):

5000

## NIST Test ID#:

6UTB

Weight(s) shown below were combined and diluted to (mL):

10.0

5E-05 Balance Uncertainty

0.001 Flask Uncertainty

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (±) (µg/mL) | (Solvent Safety Info. On Attached pg.) | CAS# | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|----------------------------------|----------------------------------------|------|----------------|------|
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|----------------------------------|----------------------------------------|------|----------------|------|

|             |   |            |      |    |     |         |         |        |      |          |         |                 |
|-------------|---|------------|------|----|-----|---------|---------|--------|------|----------|---------|-----------------|
| 1. Acrolein | 5 | 103755V10F | 5000 | 97 | 0.5 | 0.05166 | 0.05175 | 5008.9 | 52.5 | 107-02-8 | 0.1 ppm | ori-rat 46mg/kg |
|-------------|---|------------|------|----|-----|---------|---------|--------|------|----------|---------|-----------------|

Method: GC/MSD-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 = 0min.), Temp. 2 = 200°C (Time 2 = 8.75 min.), Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Rentas, NOTE: Due to the instability of acrolein in solution, all solutions thereof, should be used immediately. Long term storage is not recommended. Please contact our technical department if further information is required.

## TIC: [BSB2]79005.D

Scan 232 (8.927 min): [BSB2]79005.D

Abundance 27

Abundance

250000

8.93

200000



50000

56

150000

40000

30000

20000

10000

37

50000

10000

37

Time--&gt;

10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00

m/z--&gt;

20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

44 65 75 85 119 158 169

\* 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 certified (±) 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).



## Certified Reference Material CRM



Dec 09/17/24

## CERTIFIED WEIGHT REPORT

## Part Number:

91980

## Lot Number:

091424

## Description:

Acrolein

## Solvent(s):

Water

## Lot#

072324Q

## Expiration Date:

101424

## Recommended Storage:

Refrigerate (4 °C)

## Nominal Concentration (µg/mL):

5000

## NIST Test ID#:

6UTB

Weight(s) shown below were combined and diluted to (mL):

10.0

5E-05 Balance Uncertainty

0.001 Flask Uncertainty

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|----------------------------------------|----------------|------|
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|----------------------------------------|----------------|------|

|             |   |            |      |    |     |         |         |        |      |          |         |                 |
|-------------|---|------------|------|----|-----|---------|---------|--------|------|----------|---------|-----------------|
| 1. Acrolein | 5 | 103755V10F | 5000 | 97 | 0.5 | 0.05166 | 0.05175 | 5008.9 | 52.5 | 107-02-8 | 0.1 ppm | ori-rat 46mg/kg |
|-------------|---|------------|------|----|-----|---------|---------|--------|------|----------|---------|-----------------|

Method: GC/MSD-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 = 0min.), Temp. 2 = 200°C (Time 2 = 8.75 min.), Rate = 4°C/min., Injector Temp. = 200°C, Detector Temp. = 220°C. Analyst: Pedro Rentas, NOTE: Due to the instability of acrolein in solution, all solutions thereof, should be used immediately. Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D

Scan 232 (8.927 min): [BSB2]79005.D

Abundance

27

250000

8.93

200000

C=CC=O

50000

56

150000

40000

30000

20000

10000

37

44

65

75

85

119

158

169

170

Time--&gt;

m/z--&gt;

\* 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 certified (+/-) 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).



CERTIFIED WEIGHT REPORT

Part Number:  
Lot Number:  
Description:

95318  
120524  
2-Chloroethyl vinyl ether

Solvent(s): Lot#  
Methanol EJ143-US

Expiration Date:  
Recommended Storage:  
Nominal Concentration (µg/mL):  
NIST Test ID#:

120527  
Refrigerate (4 °C)  
10000  
6UTB

Weight(s) shown below were combined and diluted to (mL):

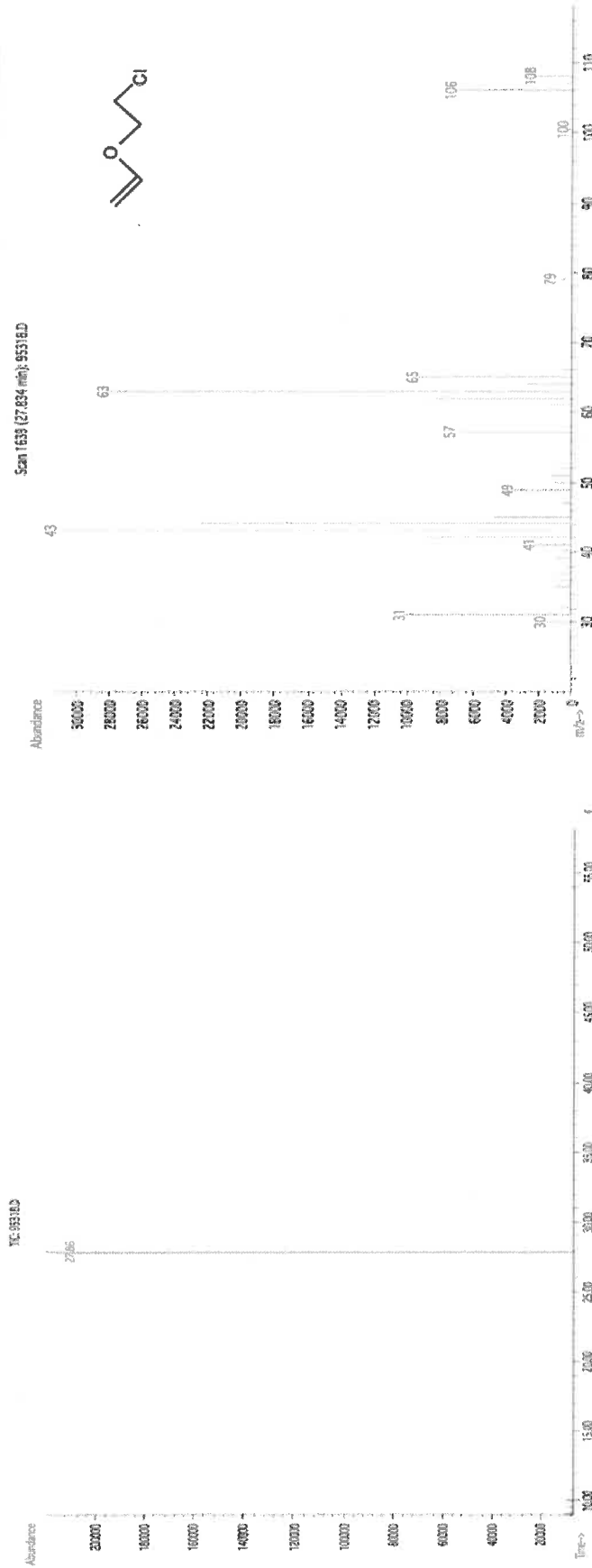
5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

|                |                  |        |      |
|----------------|------------------|--------|------|
| Formulated By: | Prashant Chauhan | 120524 | DATE |
| Reviewed By:   | Pedro L. Rentas  | 120524 | DATE |

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Purity Uncertainty | Target Weight (g) | Actual Weight (g) | Actual Conc (µg/mL) | Expanded Uncertainty (±) (µg/mL) | (Solvent Safety Info. On Attached pg.) | CAS# | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|--------------------|-------------------|-------------------|---------------------|----------------------------------|----------------------------------------|------|----------------|------|
|----------|-----|------------|----------------------|------------|--------------------|-------------------|-------------------|---------------------|----------------------------------|----------------------------------------|------|----------------|------|

1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 N/A or-rat 250mg/kg

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.



\* 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 certified (±) 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).



## Safety Data Sheet (SDS)

GHS/OSHA Compliant

## Section I Product and Company Identification

## IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

|                     |                        |                                   |                 |
|---------------------|------------------------|-----------------------------------|-----------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC | Emergency Telephone USA & CANADA  | 1-800-535-5053  |
| Address             | 44 Rossotto Dr.        | Emergency Telephone International | 1-352-323-3500  |
|                     | Hamden CT, 06514       | Date Prepared/Revised             | January 1, 2024 |

## Section II - Hazards Identification

## GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

|          |                                      |                |                                               |
|----------|--------------------------------------|----------------|-----------------------------------------------|
| H225     | Highly Flammable Liquid and Vapor    | H301, 311, 331 | Toxic if swallowed, skin contact, inhaled     |
| H370     | Cause damage to organs               | H351           | Suspected of causing cancer                   |
| P271     | Use in ventilated area               | P280           | Use gloves, eye protection/face shield        |
| P302,332 | If on skin, wash with soap and water | P305,351,338   | If in eyes, remove contacts, rinse with water |



Signal Word: DANGER

## Section III - Composition

|                                                         |                |              |
|---------------------------------------------------------|----------------|--------------|
| Components (Specific Chemical Identity; Common Name(s)) |                | % (optional) |
| Methanol                                                | METHYL ALCOHOL | > 97         |

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

## Section IV. FIRST AID MEASURES

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| General advice          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| If inhaled              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact | Wash with soap and water. Consult a physician.                                                              |
| In case of eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| If swallowed            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

## Section V. FIREFIGHTING MEASURES

|                               |                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flammability                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| Suitable extinguishing media  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| Protective equipment for fire | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

## Section VI. ACCIDENTAL RELEASE MEASURES

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

## Section VII. HANDLING AND STORAGE

|                               |                                                                                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.<br>Use ventilation. Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. |
| Storage Conditions            | Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.                           |

## Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|                                                                                               |                        |                                                            |                 |
|-----------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-----------------|
| Methanol                                                                                      | 67-56-1                | 67-56-1                                                    | TWA 200 ppm     |
| Skin notation                                                                                 |                        |                                                            | TWA 200 ppm     |
| Potential for skin absorption, ingestion and inhalation.                                      |                        |                                                            |                 |
| Personal protective equipment                                                                 | Respiratory protection | Handle with gloves. Gloves must be inspected prior to use. | Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                        |                                                            |                 |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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)                                   | IATA                                       |
| UN number: 1230 Class: 3 Packing group: II | UN number: 1230 Class: 3 Packing group: II |
| Proper shipping name: Methanol             | 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.



Dec 12/6/24  
20 vial

CERTIFIED WEIGHT REPORT

Part Number: 95318  
Lot Number: 120524  
Description: 2-Chloroethyl vinyl ether

Solvent(s): Lot#  
Methanol EJ143-US

Expiration Date: 120527  
Recommended Storage: Refrigerate (4 °C)  
Nominal Concentration (µg/mL): 10000  
NIST Test ID#: 6UTB

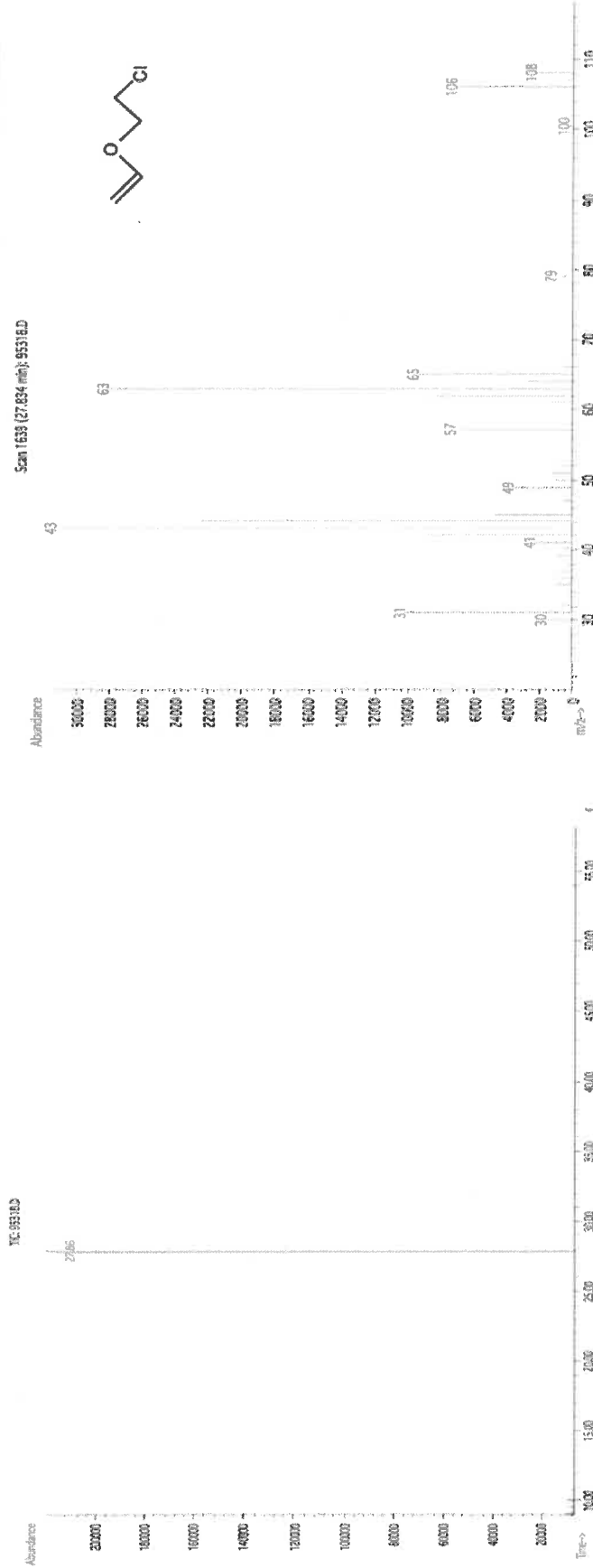
✓ 14630 to  
✓ 14649

Weight(s) shown below were combined and diluted to (mL):

5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

| Compound                     | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Purity Uncertainty | Target Weight (g) | Actual Weight (g) | Actual Conc (µg/mL) | Expanded Uncertainty (±) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) |
|------------------------------|-----|------------|----------------------|------------|--------------------|-------------------|-------------------|---------------------|----------------------------------|--------------------------------------------------------|
| 1. 2-Chloroethyl vinyl ether | 74  | MKCD0033   | 10000                | 99         | 0.2                | 0.50536           | 0.50550           | 10002.9             | 40.5                             | 110-75-8 N/A or-rat 250mg/kg                           |

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.



\* 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 certified (±) 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).



GHS/OSHA Compliant

|                     |                                     |                                                            |                                          |
|---------------------|-------------------------------------|------------------------------------------------------------|------------------------------------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC              | Emergency Telephone USA & CANADA                           | <b>1-800-535-5053</b>                    |
| Address             | 44 Rossotto Dr.<br>Hamden CT. 06514 | Emergency Telephone International<br>Date Prepared/Revised | <b>1-352-323-3500</b><br>January 1, 2024 |

|          |                                      |                |                                               |
|----------|--------------------------------------|----------------|-----------------------------------------------|
| H225     | Highly Flammable Liquid and Vapor    | H301, 311, 331 | Toxic if swallowed, skin contact, inhaled     |
| H370     | Cause damage to organs               | H351           | Suspected of causing cancer                   |
| P271     | Use in ventilated area               | P280           | Use gloves, eye protection/face shield        |
| P302,332 | If on skin, wash with soap and water | P305,351,338   | If in eyes, remove contacts, rinse with water |



**Signal Word: DANGER**

| Components (Specific Chemical Identity; Common Name(s)) | % (optional) |
|---------------------------------------------------------|--------------|
| Methanol METHYL ALCOHOL CAS#: 67-56-1                   | > 97         |

**See Certified Weight Report For Other Analytes Present At Trace Quantities.**

## Section IV. FIRST AID MEASURES

|                                |                                                                                                             |
|--------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| <b>If inhaled</b>              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| <b>In case of skin contact</b> | Wash with soap and water. Consult a physician.                                                              |
| <b>In case of eye contact</b>  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| <b>If swallowed</b>            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

|                                      |                                                                                                                                                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability</b>                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| <b>Suitable extinguishing media</b>  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| <b>Protective equipment for fire</b> | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

|                               |                                                                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.<br>Use ventilation Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. |
| Storage Conditions            | Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.                          |

|                                                                                               |                        |                                                            |                 |
|-----------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-----------------|
| Methanol                                                                                      | 67-56-1 TWA 200 ppm    |                                                            |                 |
| Skin notation                                                                                 | TWA 200 ppm            |                                                            |                 |
| Potential for skin absorption, ingestion and inhalation.                                      |                        |                                                            |                 |
| Personal protective equipment                                                                 | Respiratory protection | Handle with gloves. Gloves must be inspected prior to use. | Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                        |                                                            |                 |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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)                                   | IATA                                       |
| UN number: 1230 Class: 3 Packing group: II | UN number: 1230 Class: 3 Packing group: II |
| Proper shipping name: Methanol             | 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.



Dec 12/16/24  
20 vial

CERTIFIED WEIGHT REPORT

Part Number: 95318  
Lot Number: 120524  
Description: 2-Chloroethyl vinyl ether

Solvent(s): Lot#  
Methanol EJ143-US

Expiration Date: 120527  
Recommended Storage: Refrigerate (4 °C)  
Nominal Concentration (µg/mL): 10000  
NIST Test ID#: 6UTB

Weight(s) shown below were combined and diluted to (mL):

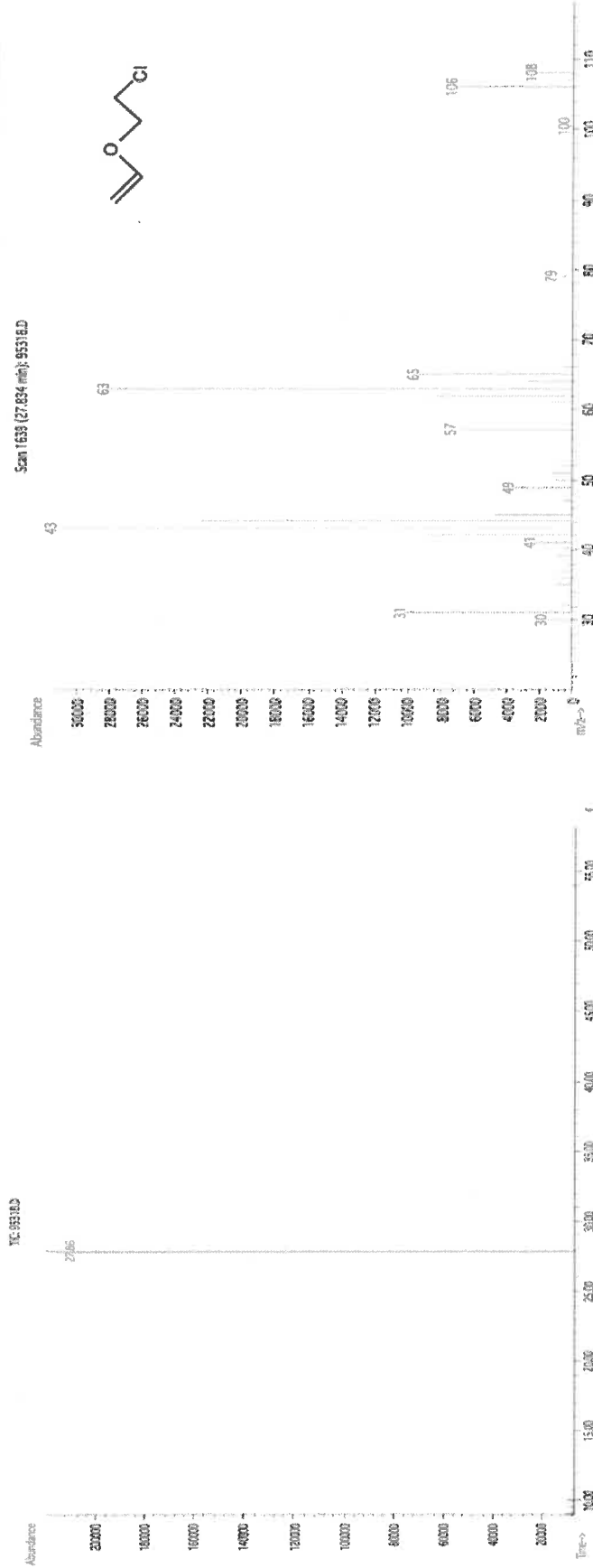
5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

Formulated By: Prashant Chauhan 120524  
Reviewed By: Pedro L. Rentas 120524

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (g) | Actual Weight (g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information                        |      |
|----------|-----|------------|----------------------|------------|--------------------|-------------------|-------------------|---------------------|------------------------------------|----------------------------------------|------|
|          |     |            |                      |            |                    |                   |                   |                     |                                    | (Solvent Safety Info. On Attached pg.) | LD50 |

|                              |    |          |       |    |     |         |         |         |      |          |     |                 |
|------------------------------|----|----------|-------|----|-----|---------|---------|---------|------|----------|-----|-----------------|
| 1. 2-Chloroethyl vinyl ether | 74 | MKCD0033 | 10000 | 99 | 0.2 | 0.50536 | 0.50550 | 10002.9 | 40.5 | 110-75-8 | N/A | or-rat 250mg/kg |
|------------------------------|----|----------|-------|----|-----|---------|---------|---------|------|----------|-----|-----------------|

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.



\* 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 certified (+/-) 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).



## Safety Data Sheet (SDS)

GHS/OSHA Compliant

## Section I Product and Company Identification

## IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

|                     |                        |                                   |                 |
|---------------------|------------------------|-----------------------------------|-----------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC | Emergency Telephone USA & CANADA  | 1-800-535-5053  |
| Address             | 44 Rossotto Dr.        | Emergency Telephone International | 1-352-323-3500  |
|                     | Hamden CT, 06514       | Date Prepared/Revised             | January 1, 2024 |

## Section II - Hazards Identification

## GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

|          |                                      |                |                                               |
|----------|--------------------------------------|----------------|-----------------------------------------------|
| H225     | Highly Flammable Liquid and Vapor    | H301, 311, 331 | Toxic if swallowed, skin contact, inhaled     |
| H370     | Cause damage to organs               | H351           | Suspected of causing cancer                   |
| P271     | Use in ventilated area               | P280           | Use gloves, eye protection/face shield        |
| P302,332 | If on skin, wash with soap and water | P305,351,338   | If in eyes, remove contacts, rinse with water |



Signal Word: DANGER

## Section III - Composition

|                                                         |                |              |
|---------------------------------------------------------|----------------|--------------|
| Components (Specific Chemical Identity; Common Name(s)) |                | % (optional) |
| Methanol                                                | METHYL ALCOHOL | > 97         |

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

## Section IV. FIRST AID MEASURES

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| General advice          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| If inhaled              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact | Wash with soap and water. Consult a physician.                                                              |
| In case of eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| If swallowed            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

## Section V. FIREFIGHTING MEASURES

|                               |                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flammability                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| Suitable extinguishing media  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| Protective equipment for fire | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

## Section VI. ACCIDENTAL RELEASE MEASURES

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

## Section VII. HANDLING AND STORAGE

|                               |                                                                                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.<br>Use ventilation. Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. |
| Storage Conditions            | Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.                           |

## Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|                                                                                               |                        |                                                            |                 |
|-----------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-----------------|
| Methanol                                                                                      | 67-56-1                | 67-56-1                                                    | TWA 200 ppm     |
| Skin notation                                                                                 |                        |                                                            | TWA 200 ppm     |
| Potential for skin absorption, ingestion and inhalation.                                      |                        |                                                            |                 |
| Personal protective equipment                                                                 | Respiratory protection | Handle with gloves. Gloves must be inspected prior to use. | Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                        |                                                            |                 |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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)                                   | IATA                                       |
| UN number: 1230 Class: 3 Packing group: II | UN number: 1230 Class: 3 Packing group: II |
| Proper shipping name: Methanol             | 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.



See 1216124  
20 vial

CERTIFIED WEIGHT REPORT

Part Number: 95318  
Lot Number: 120524  
Description: 2-Chloroethyl vinyl ether

Solvent(s): Lot#  
Methanol EJ143-US

Expiration Date: 120527  
Recommended Storage: Refrigerate (4 °C)  
Nominal Concentration (µg/mL): 10000  
NIST Test ID#: 6UTB

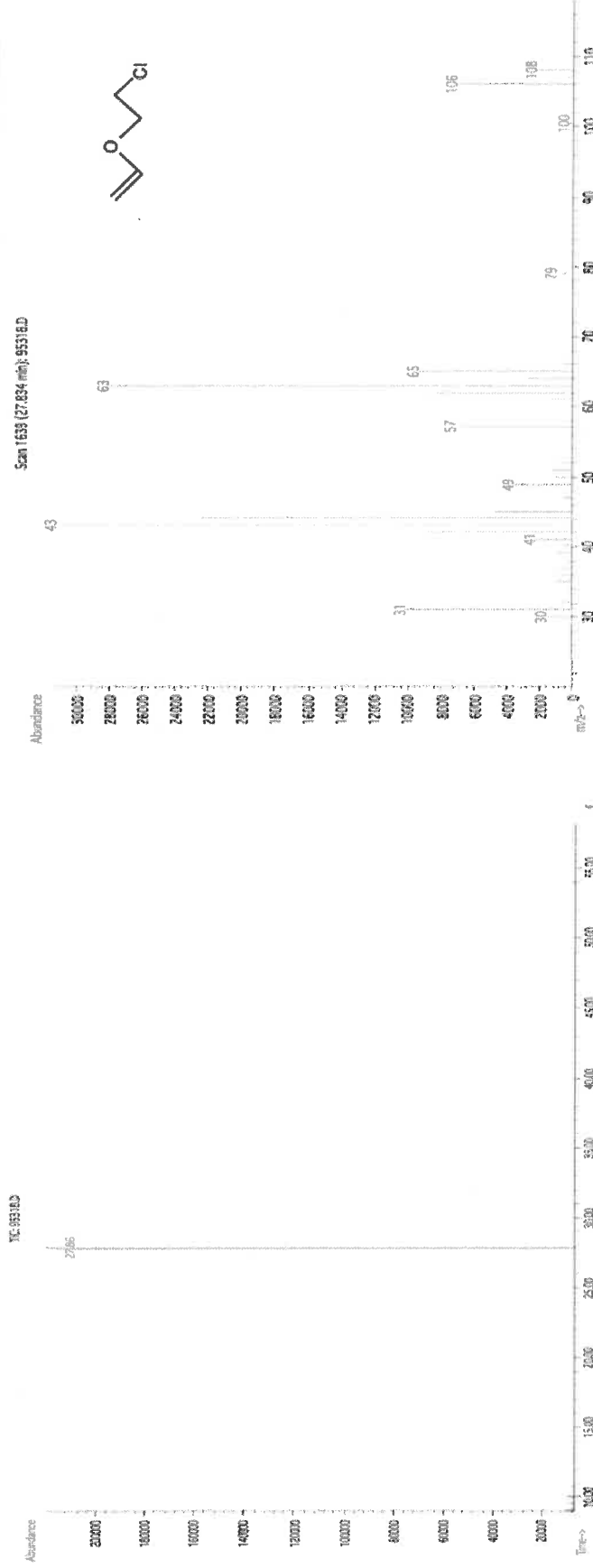
✓ 14630 to  
✓ 14649

Weight(s) shown below were combined and diluted to (mL):

5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

| Compound                     | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Purity Uncertainty | Target Weight (g) | Actual Weight (g) | Actual Conc (µg/mL) | Expanded Uncertainty (±) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) |
|------------------------------|-----|------------|----------------------|------------|--------------------|-------------------|-------------------|---------------------|----------------------------------|--------------------------------------------------------|
| 1. 2-Chloroethyl vinyl ether | 74  | MKCD0033   | 10000                | 99         | 0.2                | 0.50536           | 0.50550           | 10002.9             | 40.5                             | 110-75-8 N/A or-rat 250mg/kg                           |

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.



\* 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 certified (±) 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).



## Safety Data Sheet (SDS)

GHS/OSHA Compliant

## Section I Product and Company Identification

## IDENTITY ANALYTICAL STANDARD DISSOLVED IN METHANOL

|                     |                        |                                   |                 |
|---------------------|------------------------|-----------------------------------|-----------------|
| Manufacturer's Name | ABSOLUTE STANDARDS INC | Emergency Telephone USA & CANADA  | 1-800-535-5053  |
| Address             | 44 Rossotto Dr.        | Emergency Telephone International | 1-352-323-3500  |
|                     | Hamden CT, 06514       | Date Prepared/Revised             | January 1, 2024 |

## Section II - Hazards Identification

## GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

|          |                                      |                |                                               |
|----------|--------------------------------------|----------------|-----------------------------------------------|
| H225     | Highly Flammable Liquid and Vapor    | H301, 311, 331 | Toxic if swallowed, skin contact, inhaled     |
| H370     | Cause damage to organs               | H351           | Suspected of causing cancer                   |
| P271     | Use in ventilated area               | P280           | Use gloves, eye protection/face shield        |
| P302,332 | If on skin, wash with soap and water | P305,351,338   | If in eyes, remove contacts, rinse with water |



Signal Word: DANGER

## Section III - Composition

|                                                         |                |              |
|---------------------------------------------------------|----------------|--------------|
| Components (Specific Chemical Identity; Common Name(s)) |                | % (optional) |
| Methanol                                                | METHYL ALCOHOL | > 97         |

See Certified Weight Report For Other Analytes Present At Trace Quantities.

INTENDED USE: REFERENCE MATERIAL

## Section IV. FIRST AID MEASURES

|                         |                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------|
| General advice          | Consult a physician. Show this safety data sheet to the doctor in attendance. Move to safe area.            |
| If inhaled              | If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. |
| In case of skin contact | Wash with soap and water. Consult a physician.                                                              |
| In case of eye contact  | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.                      |
| If swallowed            | Do NOT induce vomiting. Rinse mouth with water. Consult a physician.                                        |

## Section V. FIREFIGHTING MEASURES

|                               |                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flammability                  | Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking. |
| Suitable extinguishing media  | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.                                                                                        |
| Protective equipment for fire | Wear self contained breathing apparatus for fire fighting if necessary.                                                                                         |

## Section VI. ACCIDENTAL RELEASE MEASURES

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Vapours accumulate to form explosive concentrations. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not let product enter drains.                                                                                              |
| Clean up                  | Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13).                                                             |

## Section VII. HANDLING AND STORAGE

|                               |                                                                                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautions for safe handling | Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.<br>Use ventilation. Keep away from sources of ignition. No smoking. Prevent the build up of electrostatic charge. |
| Storage Conditions            | Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.                           |

## Section VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

|                                                                                               |                        |                                                            |                 |
|-----------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-----------------|
| Methanol                                                                                      | 67-56-1                | 67-56-1                                                    | TWA 200 ppm     |
| Skin notation                                                                                 |                        |                                                            | TWA 200 ppm     |
| Potential for skin absorption, ingestion and inhalation.                                      |                        |                                                            |                 |
| Personal protective equipment                                                                 | Respiratory protection | Handle with gloves. Gloves must be inspected prior to use. | Eye protection. |
| Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product. |                        |                                                            |                 |

## Section IX - Physical/Chemical Characteristics

|                         |                                                           |                                         |       |
|-------------------------|-----------------------------------------------------------|-----------------------------------------|-------|
| Boiling Point           | 65°C                                                      | Specific Gravity (H <sub>2</sub> O = 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                                             | Stable under recommended storage conditions.                                             |
| Possibility of hazardous reactions                             | Vapours may form explosive mixture with air.                                             |
| Conditions to avoid                                            | Heat, flames, sparks, extreme temperature and sunlight.                                  |
| Materials to avoid                                             | 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.  
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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)                                   | IATA                                       |
| UN number: 1230 Class: 3 Packing group: II | UN number: 1230 Class: 3 Packing group: II |
| Proper shipping name: Methanol             | 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**

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110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309

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. :** 30067 **Lot No.:** A0191805

**Description :** 4-Bromofluorobenzene Standard

4-Bromofluorobenzene Standard 2,500µg/mL, P&T Methanol,  
1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** November 30, 2027 **Storage:** 0°C or colder

**Ship:** Ambient

### CERTIFIED VALUES

| Elution Order | Compound                      | CAS #    | Lot #  | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (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%

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

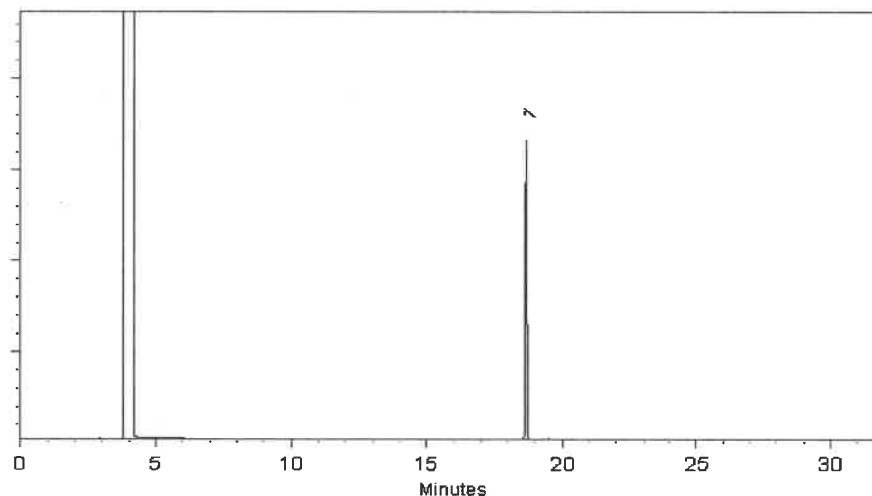
FID

**Split Vent:**

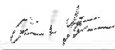
40 ml/min

**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.

  
Alicia Leathers - Operation Technician I

Date Mixed: 17-Nov-2022

Balance Serial # B251644995

  
Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 21-Nov-2022

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

## 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 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.

### 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 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.





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Fax: 1-814-353-1309

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. :** 30006 **Lot No.:** A0200785

**Description :** VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10), 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** November 30, 2026 **Storage:** 0°C or colder

**Ship:** Ambient

### CERTIFIED VALUES

| Elution Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|-----------------------------|----------|----------|--------|-----------------------------|----------------------------------------|
| 1             | Acetone                     | 67-64-1  | SHBP8774 | 99%    | 5,018.5 µg/mL               | +/- 173.4162                           |
| 2             | 2-Butanone (MEK)            | 78-93-3  | SHBL5543 | 99%    | 5,016.0 µg/mL               | +/- 173.3298                           |
| 3             | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP4724 | 99%    | 5,010.7 µg/mL               | +/- 173.1455                           |
| 4             | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,015.0 µg/mL               | +/- 173.2952                           |

\* 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%

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

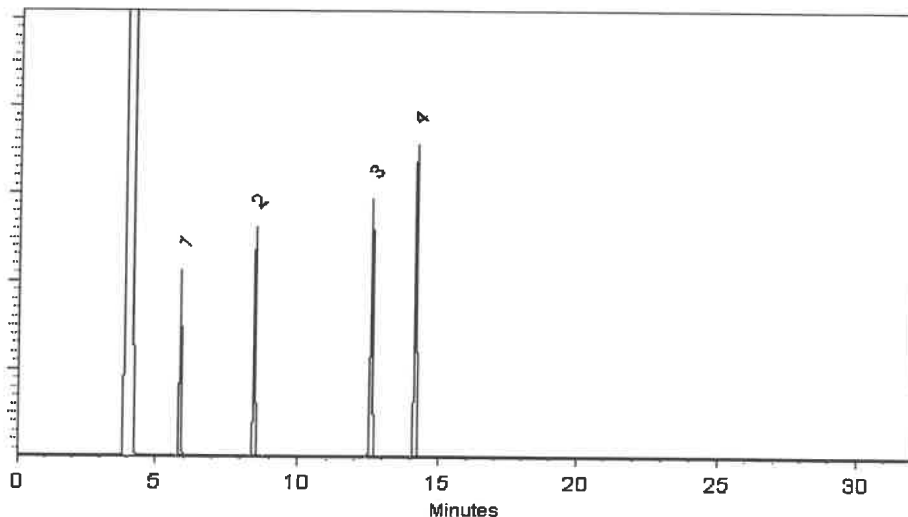
FID

**Split Vent:**

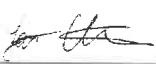
40 ml/min

**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.

  
Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

  
Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

## 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 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.

### 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 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.



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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. :** 30006 **Lot No.:** A0200785

**Description :** VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10), 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** November 30, 2026 **Storage:** 0°C or colder

**Ship:** Ambient

## CERTIFIED VALUES

| Elution Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|-----------------------------|----------|----------|--------|-----------------------------|----------------------------------------|
| 1             | Acetone                     | 67-64-1  | SHBP8774 | 99%    | 5,018.5 µg/mL               | +/- 173.4162                           |
| 2             | 2-Butanone (MEK)            | 78-93-3  | SHBL5543 | 99%    | 5,016.0 µg/mL               | +/- 173.3298                           |
| 3             | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP4724 | 99%    | 5,010.7 µg/mL               | +/- 173.1455                           |
| 4             | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,015.0 µg/mL               | +/- 173.2952                           |

\* 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%

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

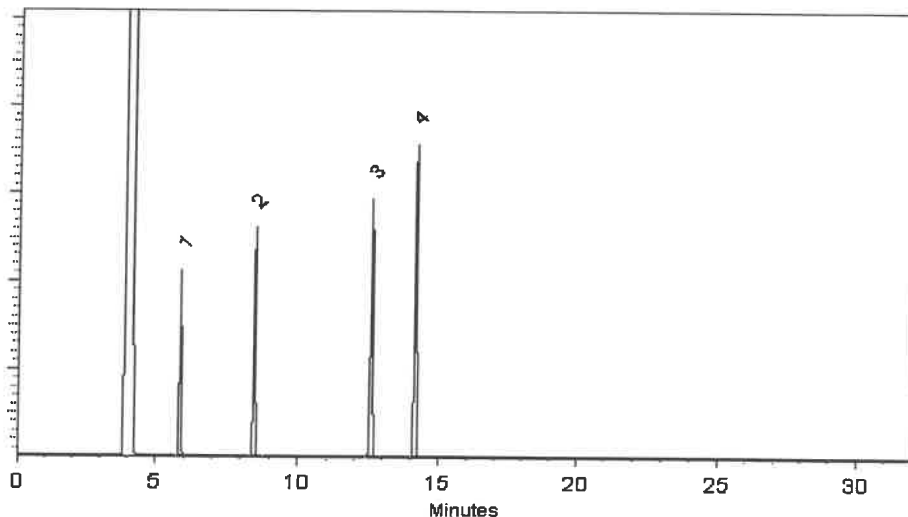
FID

**Split Vent:**

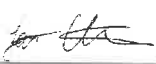
40 ml/min

**Inj. Vol**

1µl



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Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

  
Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

## 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 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.

### 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 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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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. :** 30006 **Lot No.:** A0200785

**Description :** VOA Calibration Mix #1

VOA Calibration Mix #1 5,000µg/mL, P&T Methanol/Water(90:10), 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** November 30, 2026 **Storage:** 0°C or colder

**Ship:** Ambient

## CERTIFIED VALUES

| Elution Order | Compound                    | CAS #    | Lot #    | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|-----------------------------|----------|----------|--------|-----------------------------|----------------------------------------|
| 1             | Acetone                     | 67-64-1  | SHBP8774 | 99%    | 5,018.5 µg/mL               | +/- 173.4162                           |
| 2             | 2-Butanone (MEK)            | 78-93-3  | SHBL5543 | 99%    | 5,016.0 µg/mL               | +/- 173.3298                           |
| 3             | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP4724 | 99%    | 5,010.7 µg/mL               | +/- 173.1455                           |
| 4             | 2-Hexanone                  | 591-78-6 | MKCQ6663 | 99%    | 5,015.0 µg/mL               | +/- 173.2952                           |

\* 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%

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

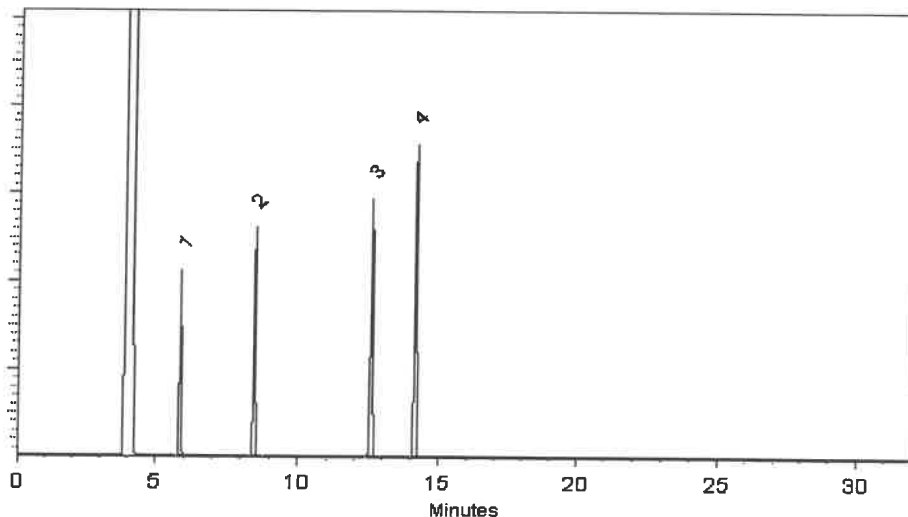
FID

**Split Vent:**

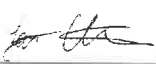
40 ml/min

**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.

  
Laith Clemente - Operations Technician I

Date Mixed: 09-Aug-2023

Balance Serial # B707717271

  
Marlina Cowan - Operations Tech II ARM QC

Date Passed: 16-Aug-2023

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

## 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 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.

### 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 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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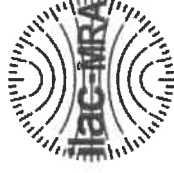
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## CERTIFIED REFERENCE MATERIAL

# 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.:** 555581 **Lot No.:** A0210184

**Description:** Custom 8260 Internal Standard Mix

Custom 8260 Internal Standard Mix 25,000µg/mL, P&T Methanol, 1mL/ampul

**Container Size:** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date:** April 30, 2027 **Storage:** 10°C or colder

**Ship:** Ambient

### CERTIFIED VALUES

| Component # | Compound               | CAS #     | Lot #    | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|-------------|------------------------|-----------|----------|--------|-----------------------------|----------------------------------------|
| 1           | 1,4-Dichlorobenzene-d4 | 3855-82-1 | PR-30447 | 99%    | 25,212.0 µg/mL              | +/- 1,427.8857                         |
| 2           | 1,4-Difluorobenzene    | 540-36-3  | MKCS8657 | 99%    | 25,220.0 µg/mL              | +/- 1,428.3388                         |
| 3           | Chlorobenzene-d5       | 3114-55-4 | PR-31132 | 99%    | 25,116.0 µg/mL              | +/- 1,422.4487                         |
| 4           | Pentafluorobenzene     | 363-72-4  | MKCR9383 | 99%    | 25,180.0 µg/mL              | +/- 1,426.0734                         |

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

John Friedline - Operations Technician I

**Date Mixed:** 11-Apr-2024

**Balance:** 11275.10105



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

## 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.
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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%.

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### 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:

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10 vial.  
Dec: 12/09/24  
**CERTIFIED REFERENCE MATERIAL**

**Certificate of Analysis**  
*chromatographic plus*

V14667-5  
V14676



**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.:** A0214960  
**Description :** Bromochloromethane Standard  
Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2029 **Storage:** 0°C or colder  
**Ship:** Ambient

**CERTIFIED VALUES**

| Elution Order | Compound           | CAS #   | Lot #        | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------|---------|--------------|--------|-----------------------------|----------------------------------------|
| 1             | Bromochloromethane | 74-97-5 | SYN240416CTH | 99%    | 2,012.0 µg/mL               | +/- 113.0519                           |

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

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

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

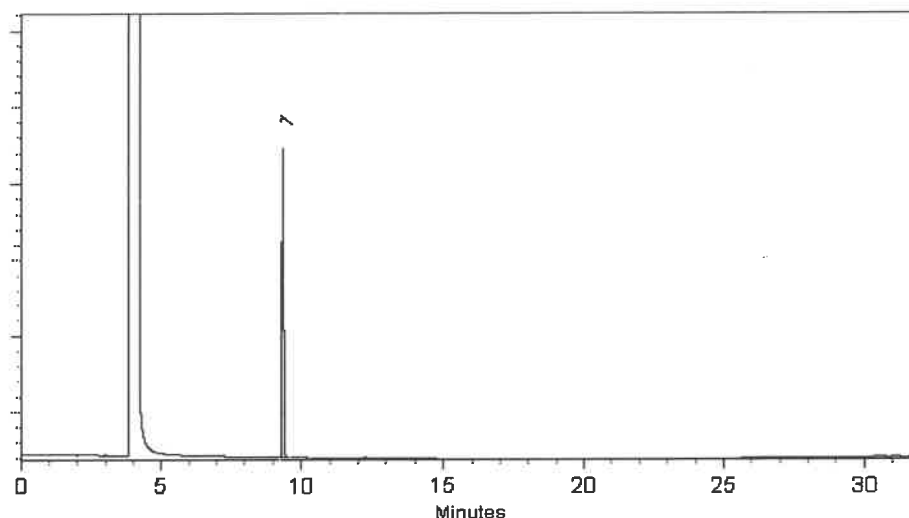
FID

**Split Vent:**

40 ml/min

**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.

Stacey Wanner - Operations Technician I

Date Mixed: 08-Aug-2024

Balance Serial # 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Aug-2024

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

## 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/ $\mu$ ECD, 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.

### Handling Notes:

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10 vial.  
CERTIFIED REFERENCE MATERIAL

Dec: 12/09/24  
**Certificate of Analysis**  
chromatographic plus  
V14667-5  
V14676



**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.:** A0214960  
**Description :** Bromochloromethane Standard  
Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2029 **Storage:** 0°C or colder  
**Ship:** Ambient

**CERTIFIED VALUES**

| Elution Order | Compound           | CAS #   | Lot #        | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------|---------|--------------|--------|-----------------------------|----------------------------------------|
| 1             | Bromochloromethane | 74-97-5 | SYN240416CTH | 99%    | 2,012.0 µg/mL               | +/- 113.0519                           |

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

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

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

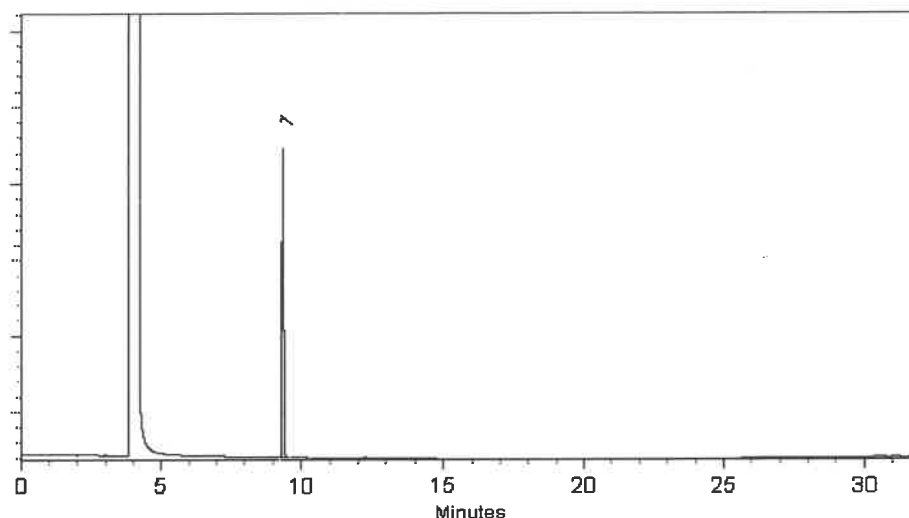
FID

**Split Vent:**

40 ml/min

**Inj. Vol**

1µl



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Stacey Wanner - Operations Technician I

Date Mixed: 08-Aug-2024

Balance Serial # 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Aug-2024

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

## General Certified Reference Material Notes

### Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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### Manufacturing Notes:

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### Handling Notes:

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- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



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10 vial.  
CERTIFIED REFERENCE MATERIAL

Dec: 12/09/24

## Certificate of Analysis

chromatographic plus

V14667-5

V14676



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.:** A0214960  
**Description :** Bromochloromethane Standard  
Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2029 **Storage:** 0°C or colder  
**Ship:** Ambient

### CERTIFIED VALUES

| Elution Order | Compound           | CAS #   | Lot #        | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------|---------|--------------|--------|-----------------------------|----------------------------------------|
| 1             | Bromochloromethane | 74-97-5 | SYN240416CTH | 99%    | 2,012.0 µg/mL               | +/- 113.0519                           |

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

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

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

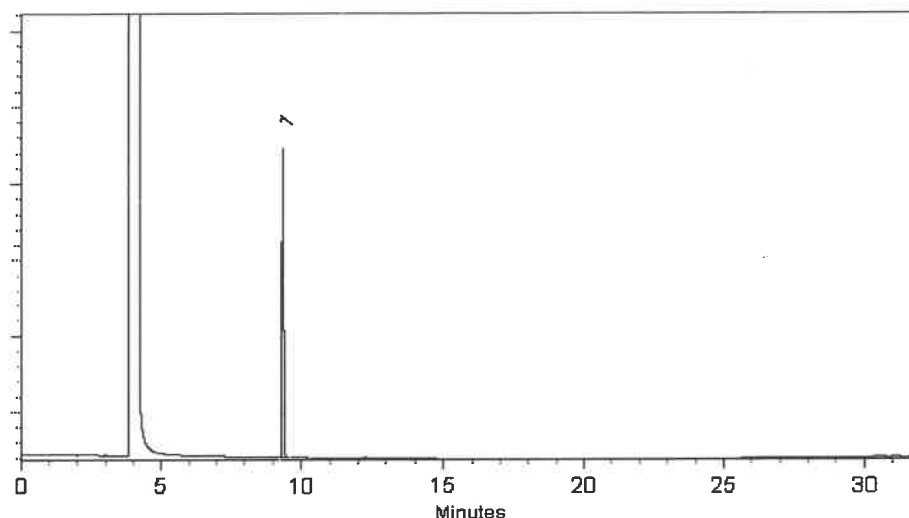
FID

**Split Vent:**

40 ml/min

**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.

Stacey Wanner - Operations Technician I

Date Mixed: 08-Aug-2024

Balance Serial # 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Aug-2024

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

## 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 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.

### 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 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.



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10 vial.  
Dec: 12/09/24  
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**Certificate of Analysis**  
*chromatographic plus*  
V14667-5  
V14676



**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.:** A0214960  
**Description :** Bromochloromethane Standard  
Bromochloromethane 2000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** August 31, 2029 **Storage:** 0°C or colder  
**Ship:** Ambient

**CERTIFIED VALUES**

| Elution Order | Compound           | CAS #   | Lot #        | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------|---------|--------------|--------|-----------------------------|----------------------------------------|
| 1             | Bromochloromethane | 74-97-5 | SYN240416CTH | 99%    | 2,012.0 µg/mL               | +/- 113.0519                           |

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

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

## 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

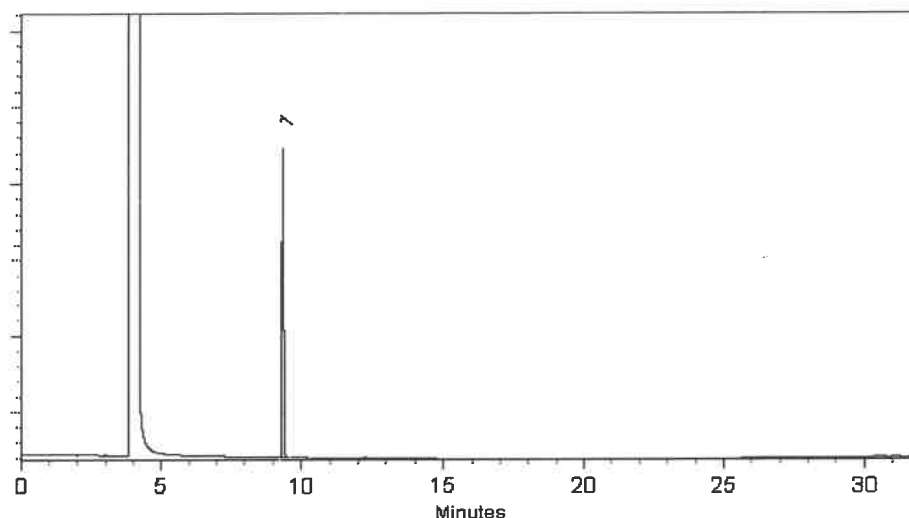
FID

**Split Vent:**

40 ml/min

**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.

Stacey Wanner - Operations Technician I

Date Mixed: 08-Aug-2024

Balance Serial # 1127510105

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 14-Aug-2024

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

## 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/ $\mu$ ECD, 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.

### 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 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.



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Rec 12/17/24  
30 ml  
CERTIFIED REFERENCE MATERIAL

**Certificate of Analysis**  
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V14727 to  
V14756



**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  
**Description :** 502.2 Calibration Mix #1  
502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** May 31, 2031 **Storage:** 0°C or colder  
**Ship:** Ambient

**CERTIFIED VALUES**

| Elution Order | Compound                         | CAS #   | Lot #           | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (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%

# Quality Confirmation Test

**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:**

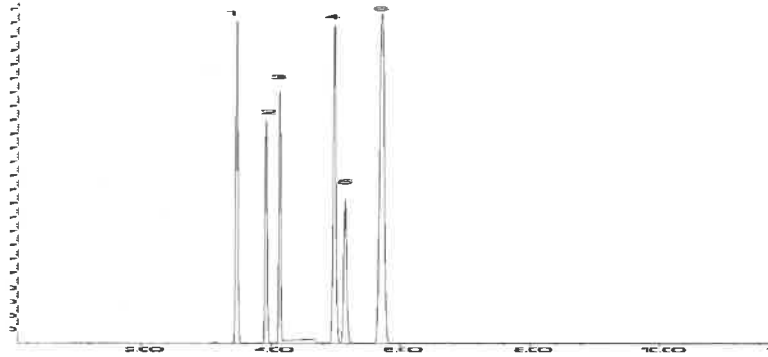
MSD

**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.



Tom Suckal - Mix Technician

Date Mixed: 23-Sep-2024

Balance Serial # B707717271



Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 04-Oct-2024

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

## 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 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.

### 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 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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Rec 12/17/24  
30 ml  
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**Certificate of Analysis**  
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V14727 to  
V14756



**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

**Description :** 502.2 Calibration Mix #1  
502.2 Calibration Mix #1 2,000µg/mL, P&T Methanol, 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** May 31, 2031 **Storage:** 0°C or colder

**Ship:** Ambient

**CERTIFIED VALUES**

| Elution Order | Compound                         | CAS #   | Lot #           | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (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%

# Quality Confirmation Test

**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:**

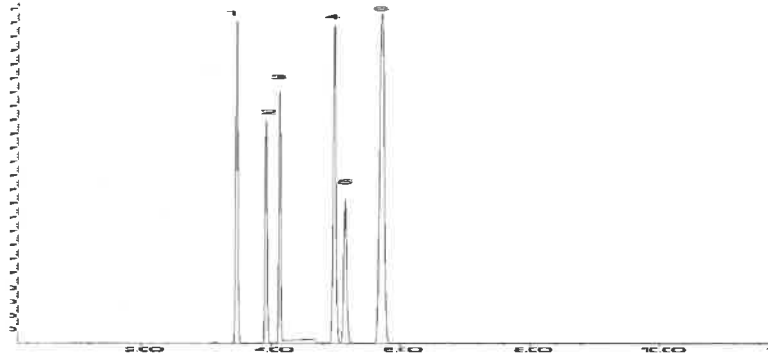
MSD

**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.

Tom Suckal - Mix Technician

Date Mixed: 23-Sep-2024

Balance Serial # B707717271

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 04-Oct-2024

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

## 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 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.

### 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 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.



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CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus

✓ 14842 to 14846



## 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.:** A0217535  
**Description :** tert-Butanol Standard  
tert-Butanol Std 50,000µg/mL, P&T Methanol, 1mL/ampul  
**Container Size :** 2 mL **Pkg Amt:** > 1 mL  
**Expiration Date :** October 31, 2027 **Storage:** 0°C or colder  
**Ship:** Ambient

## CERTIFIED VALUES

| Elution Order | Compound           | CAS #   | Lot #      | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------|---------|------------|--------|-----------------------------|----------------------------------------|
| 1             | tert-Butanol (TBA) | 75-65-0 | SHBQ8002-1 | 99%    | 50,007.5 µg/mL              | +/- 717.6137                           |

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

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

# 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

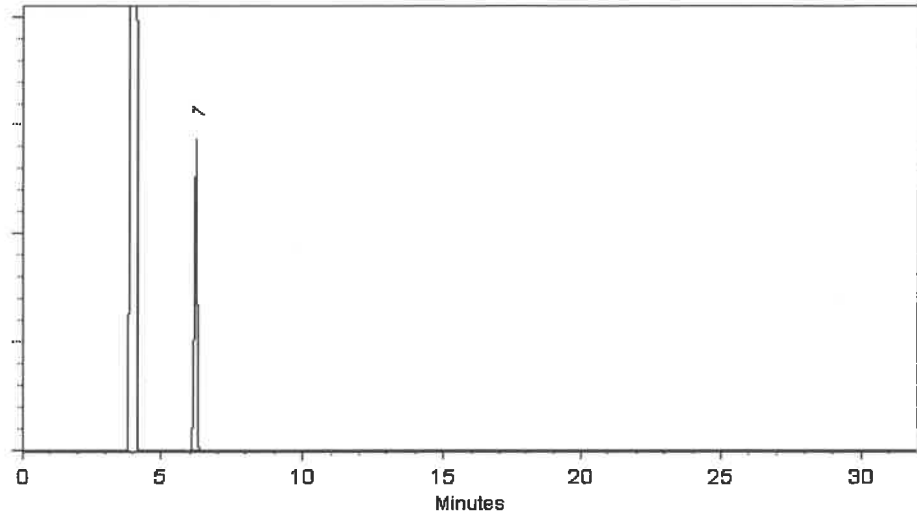
FID

**Split Vent:**

40 ml/min

**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.

*A. O. E.*  
Aaron Enyart - Operations Tech I

Date Mixed: 07-Oct-2024

Balance Serial # B251644995

*Brittany Federinko*  
Brittany Federinko - Operations Tech I

Date Passed: 09-Oct-2024

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

## 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/ $\mu$ ECD, 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.

### 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 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.



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2014 Dec 01/08/21  
CERTIFIED REFERENCE MATERIAL

## Certificate of Analysis

chromatographic

V14803 - V14822



### 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. :** 555408-SL **Lot No.:** A0220471  
**Description :** Custom Vinyl Acetate Standard  
Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 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 Order | Compound      | CAS #    | Lot #       | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|---------------|----------|-------------|--------|-----------------------------|----------------------------------------|
| 1             | Vinyl acetate | 108-05-4 | RD240423RSR | 99%    | 8,066.0 µg/mL               | +/- 278.7979                           |

\* 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

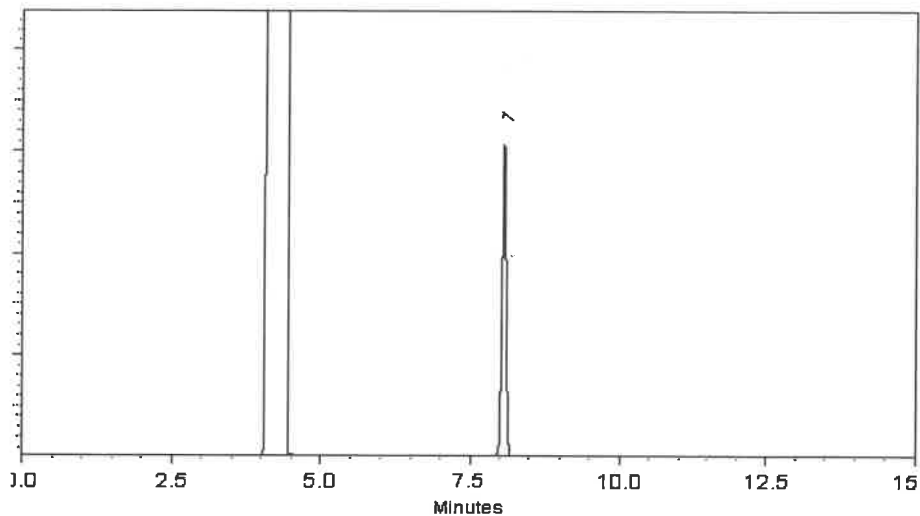
FID

**Split Vent:**

40 ml/min

**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.

Ethan Winiarski - Operations Tech I

Date Mixed: 24-Dec-2024

Balance Serial # 1127510105

Dillan Murphy - Operations Technician I

Date Passed: 02-Jan-2025

REVIEWED  
By Jennifer Pollock at 7:12 am, Jan 05, 2025

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

## 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/ $\mu$ ECD, 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.

### 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 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.



110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309

www.restek.com

2014 Dec 01/08/21  
CERTIFIED REFERENCE MATERIAL

## Certificate of Analysis

chromatographic

V14803 - V14822



### 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. :** 555408-SL **Lot No.:** A0220471  
**Description :** Custom Vinyl Acetate Standard  
Custom Vinyl Acetate Standard 8,000µg/mL, P&T Methanol, 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 Order | Compound      | CAS #    | Lot #       | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|---------------|----------|-------------|--------|-----------------------------|----------------------------------------|
| 1             | Vinyl acetate | 108-05-4 | RD240423RSR | 99%    | 8,066.0 µg/mL               | +/- 278.7979                           |

\* 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:**

40°C (hold 2 min.) to 240°C  
@ 8°C/min. (hold 5 min.)

**Inj. Temp:**

200°C

**Det. Temp:**

250°C

**Det. Type:**

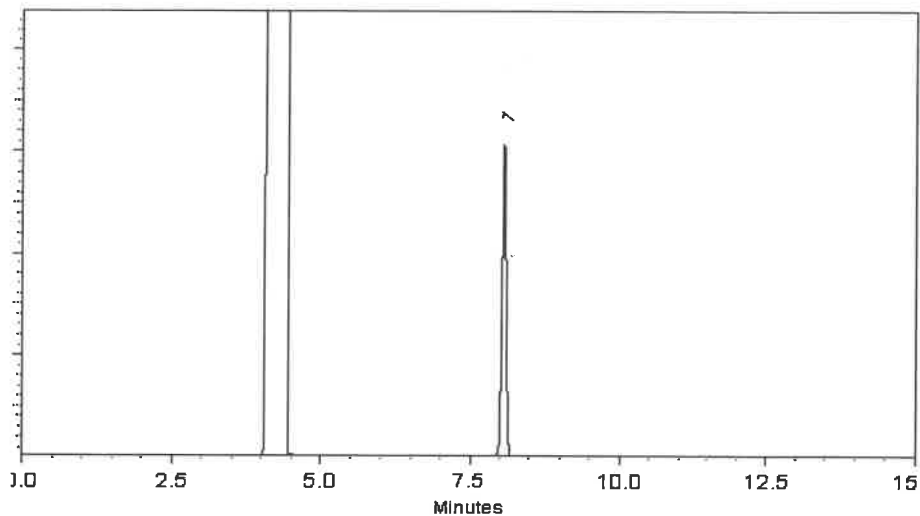
FID

**Split Vent:**

40 ml/min

**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.

Ethan Winiarski - Operations Tech I

Date Mixed: 24-Dec-2024

Balance Serial # 1127510105

Dillan Murphy - Operations Technician I

Date Passed: 02-Jan-2025

REVIEWED  
By Jennifer Pollock at 7:12 am, Jan 05, 2025

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

## 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/ $\mu$ ECD, 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.

### 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 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.



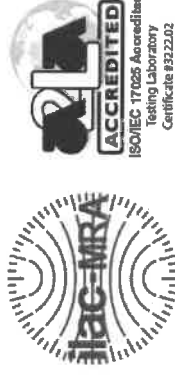
110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309

www.restek.com

## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

gravimetric



10 vial  
See 03/31/25  
V14904 to V14913

### 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.: A0223904

Description: Custom 8260A/B Surrogate Mix

Custom 8260A/B Surrogate Mix 25,000µg/mL, P&T Methanol, 1mL/ampul

Container Size: 2 mL Pkg Amt: > 1 mL

Expiration Date: March 31, 2028 Storage: 10°C or colder

Ship: Ambient

### CERTIFIED VALUES

| Component # | Compound                      | CAS #      | Lot #      | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty* (95% C.L.; K=2) |
|-------------|-------------------------------|------------|------------|--------|-----------------------------|---------------------------------------|
| 1           | 1,2-Dichloroethane-d4         | 17060-07-0 | PR-33313   | 99%    | 25,108.0 µg/mL              | +/- 1,421.9957                        |
| 2           | 1-Bromo-4-fluorobenzene (BFB) | 460-00-4   | 0000268853 | 99%    | 25,108.0 µg/mL              | +/- 1,421.9957                        |
| 3           | Dibromofluoromethane          | 1868-53-7  | VENKAT02   | 99%    | 25,232.0 µg/mL              | +/- 1,429.0184                        |
| 4           | Toluene-d8                    | 2037-26-5  | PR-34141   | 99%    | 25,156.0 µg/mL              | +/- 1,424.7141                        |

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

*Brittany Federlino*

Brittany Federlino - Operations Tech I

Date Mixed: 27-Mar-2025

Balance: B251644995

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

# 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 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.

## 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 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.

Methanol  
ULTRA RESI-ANALYZED  
For Purge and Trap Analysis

*Rec 05/09/25*  
**Avantor™**



*V14921 to  
V14938*

Material No.: 9077-02  
Batch No.: 24G0262002  
Manufactured Date: 2024-05-14  
Expiration Date: 2027-05-14  
Revision No.: 0

## Certificate of Analysis

| Test                                                    | Specification | Result   |
|---------------------------------------------------------|---------------|----------|
| Assay (CH <sub>3</sub> OH) (by GC, corrected for water) | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                               | ≤ 1.0 ppm     | 0.3 ppm  |
| Titration Acid (μeq/g)                                  | ≤ 0.3         | 0.3      |
| Titration 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

*Mark*  
Jamie Croak  
Director Quality Operations, Bioscience Production

Methanol  
ULTRA RESI-ANALYZED  
For Purge and Trap Analysis

*Rec 05/09/25*  
**Avantor™**



*V 14921 to  
V 14938*

Material No.: 9077-02  
Batch No.: 24G0262002  
Manufactured Date: 2024-05-14  
Expiration Date: 2027-05-14  
Revision No.: 0

## Certificate of Analysis

| Test                                                    | Specification | Result   |
|---------------------------------------------------------|---------------|----------|
| Assay (CH <sub>3</sub> OH) (by GC, corrected for water) | ≥ 99.9 %      | 100.0 %  |
| Residue after Evaporation                               | ≤ 1.0 ppm     | 0.3 ppm  |
| Titration Acid (µeq/g)                                  | ≤ 0.3         | 0.3      |
| Titration Base (µeq/g)                                  | ≤ 0.10        | 0.03     |
| Water (by KF, coulometric)                              | ≤ 0.08 %      | < 0.01 % |
| Volatile Organic Trace Analysis - Below EPA 82608 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

*Mark*  
Jamie Croak  
Director Quality Operations, Bioscience Production



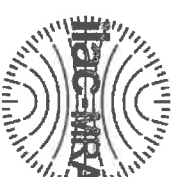
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Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309  
www.restek.com

## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus

✓ 149516 ✓ 14970



### 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.: A0222076

Description : 8260B Acetates Mix

8260B Acetates Mix 2,000 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : August 31, 2026 Storage: -20°C or colder

Handling: This product is photosensitive. Ship: On Ice

### CERTIFIED VALUES

| Elution 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  | SHBR1889    | 99%    | 2,004.0 µg/mL                  | +/- 69.2674                                  |
| 2             | Vinyl acetate     | 108-05-4 | RD240423RSR | 99%    | 2,010.0 µg/mL                  | +/- 69.4748                                  |
| 3             | Ethyl acetate     | 141-78-6 | SHBS3323    | 99%    | 2,019.3 µg/mL                  | +/- 69.7974                                  |
| 4             | Isopropyl acetate | 108-21-4 | BCCG7069    | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 5             | Propyl acetate    | 109-60-4 | P8XLN       | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 6             | Butyl acetate     | 123-86-4 | SHBR2024    | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 7             | Amyl acetate      | 628-63-7 | BCBT7442    | 99%    | 2,006.7 µg/mL                  | +/- 69.3596                                  |

\* 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



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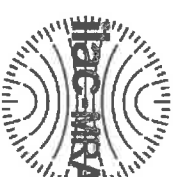
## CERTIFIED REFERENCE MATERIAL

222 05113125  
20 vial

## Certificate of Analysis

chromatographic plus

✓ 149516 ✓ 14970



### 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.: A0222076

Description : 8260B Acetates Mix

8260B Acetates Mix 2,000 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : August 31, 2026 Storage: -20°C or colder

Handling: This product is photosensitive. Ship: On Ice

### CERTIFIED VALUES

| Elution 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  | SHBR1889    | 99%    | 2,004.0 µg/mL                  | +/- 69.2674                                  |
| 2             | Vinyl acetate     | 108-05-4 | RD240423RSR | 99%    | 2,010.0 µg/mL                  | +/- 69.4748                                  |
| 3             | Ethyl acetate     | 141-78-6 | SHBS3323    | 99%    | 2,019.3 µg/mL                  | +/- 69.7974                                  |
| 4             | Isopropyl acetate | 108-21-4 | BCCG7069    | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 5             | Propyl acetate    | 109-60-4 | P8XLN       | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 6             | Butyl acetate     | 123-86-4 | SHBR2024    | 99%    | 2,008.0 µg/mL                  | +/- 69.4057                                  |
| 7             | Amyl acetate      | 628-63-7 | BCBT7442    | 99%    | 2,006.7 µg/mL                  | +/- 69.3596                                  |

\* 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



**Certified Reference Material CRM**



Rec 10/16/25 5:10p

**CERTIFIED WEIGHT REPORT**

Part Number:  
Lot Number:  
Description:

91980  
101625  
Acrolein

Solvent(s):  
Water

Lot#  
041725Q

Expiration Date:  
Recommended Storage:  
Nominal Concentration (µg/mL):  
NIST Test ID#:

111625  
Refrigerate (2°C to 8°C)  
5000  
6UTB

11507H-115075

Weight(s) shown below were combined and diluted to (mL):

5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

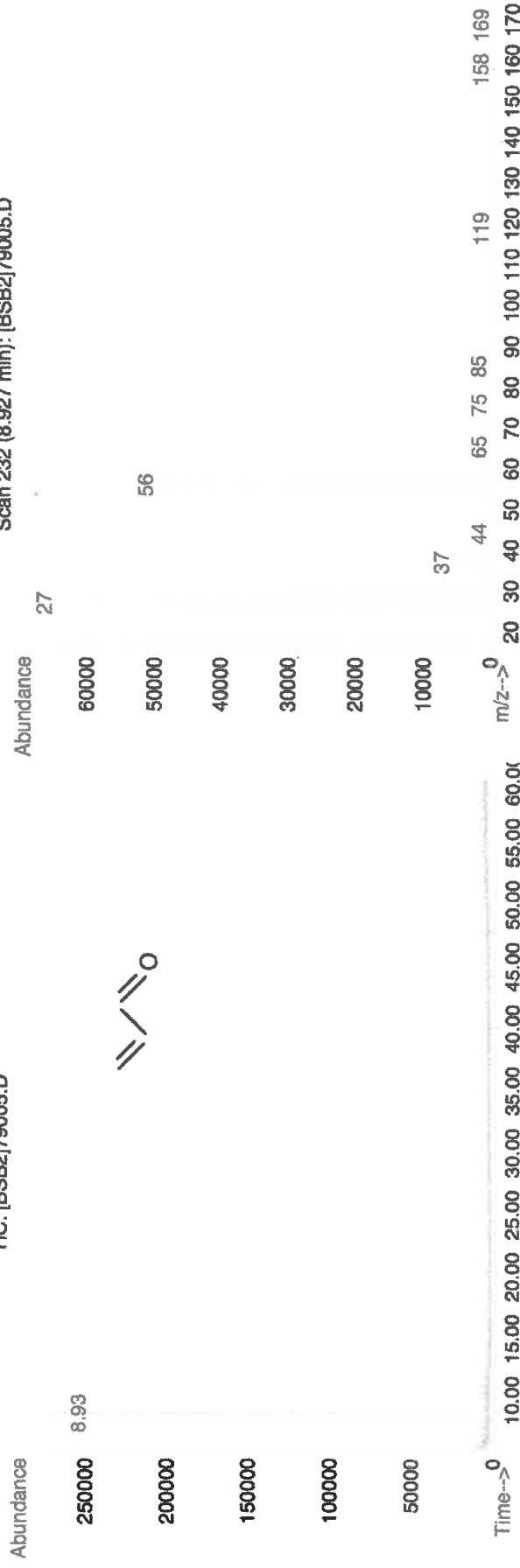
10.0

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (±) (µg/mL) | CAS# | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|----------------------------------|------|----------------|------|
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|----------------------------------|------|----------------|------|

1. Acrolein 5 103755V10F 5000 97 0.5 0.05166 0.05180 5013.7 52.6 107-02-8 0.1 ppm orl-rat 48mg/kg

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vool (60m X 0.25mm ID X 1.5µm film thickness). Oven 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: Pedro Renterias. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately. Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D



• The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
• Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI Kilogram (see above).  
• Standards are certified (±) 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).  
Rev 1A, 2/25/2025



**Certified Reference Material CRM**



Rec 10/16/25 5:10p

**CERTIFIED WEIGHT REPORT**

Part Number:  
Lot Number:  
Description:

91980  
101625  
Acrolein

Solvent(s):  
Water

Lot#  
041725Q

Expiration Date:  
Recommended Storage:  
Nominal Concentration (µg/mL):  
NIST Test ID#:

111625  
Refrigerate (2°C to 8°C)  
5000  
6UTB

11507H-115075

Weight(s) shown below were combined and diluted to (mL):

5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

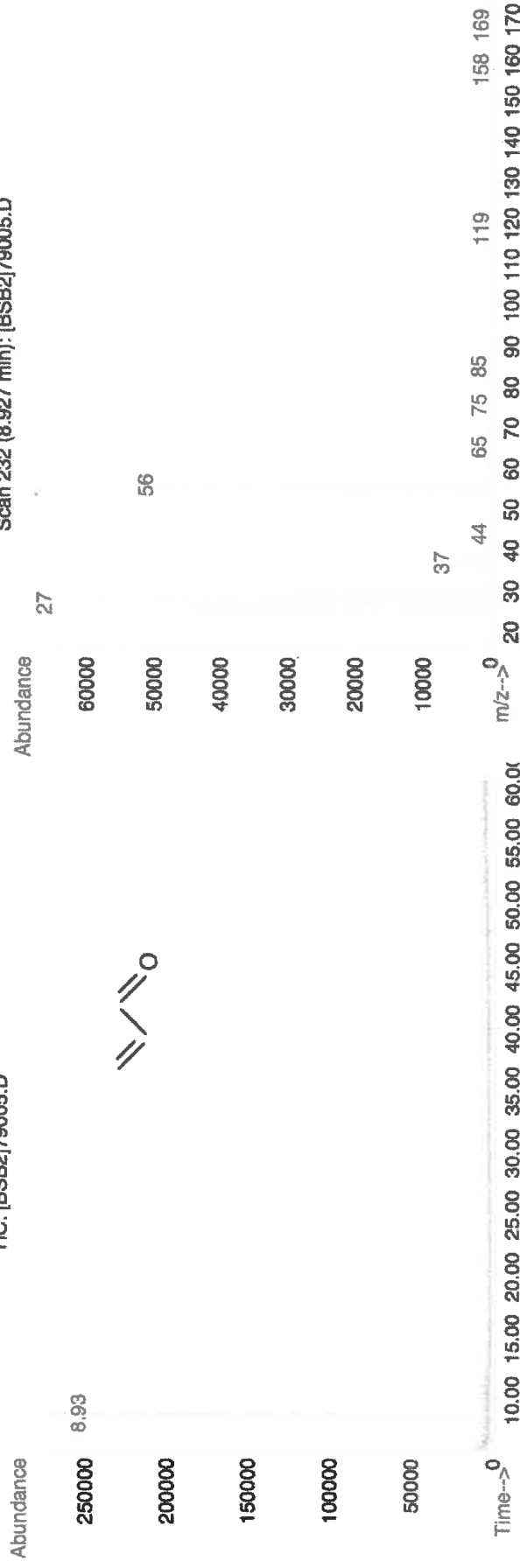
10.0

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | CAS# | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|------|----------------|------|
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|------|----------------|------|

1. Acrolein 5 103755V10F 5000 97 0.5 0.05166 0.05180 5013.7 52.6 107-02-8 0.1 ppm orl-rat 48mg/kg

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vool (60m X 0.25mm ID X 1.5µm film thickness). Oven 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: Pedro Renteria. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately. Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D



• The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
• Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI kilogram (see above).  
• Standards are certified (+/-) 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).  
Rev 1A, 2/25/2025



**Certified Reference Material CRM**



Re 101625 5100

**CERTIFIED WEIGHT REPORT**

Part Number:  
Lot Number:  
Description:

91980  
101625  
Acrolein

Solvent(s):  
Water

Lot#  
041725Q

Expiration Date:  
Recommended Storage:  
Nominal Concentration (µg/mL):  
NIST Test ID#:

111625  
Refrigerate (2°C to 8°C)  
5000  
6UTB

5E-05 Balance Uncertainty  
0.001 Flask Uncertainty

Weight(s) shown below were combined and diluted to (mL):

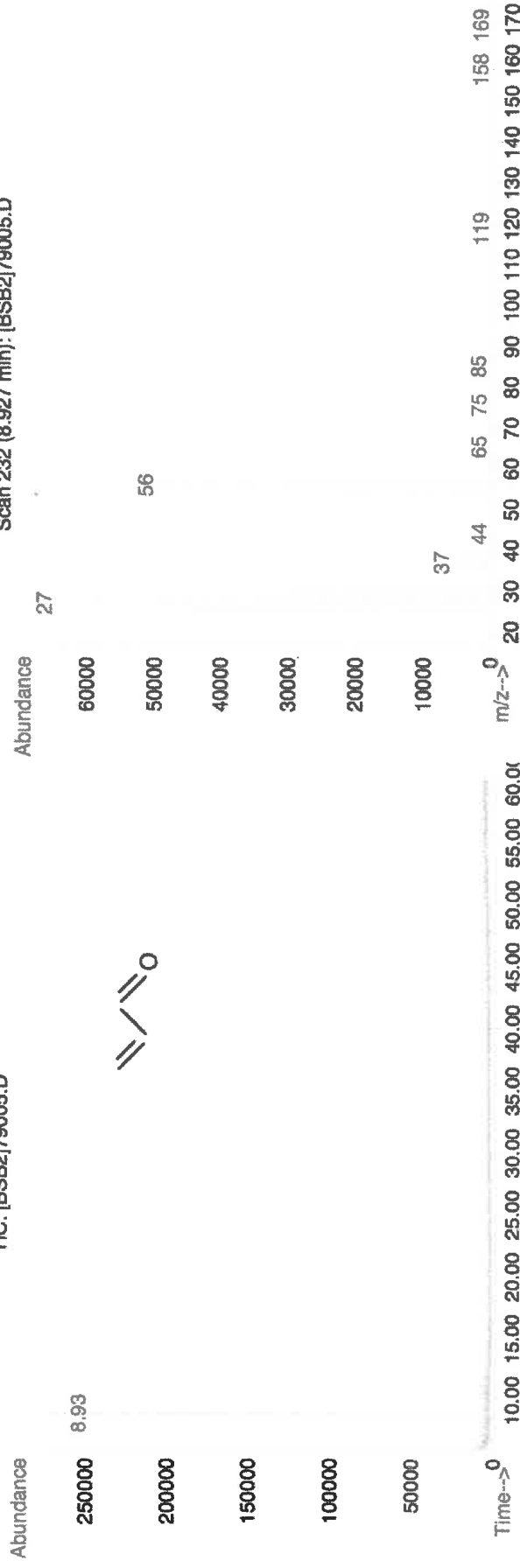
10.0

| Compound | RM# | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | CAS# | OSHA PEL (TWA) | LD50 |
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|------|----------------|------|
|----------|-----|------------|----------------------|------------|-------------|------------------|------------------|---------------------|------------------------------------|------|----------------|------|

1. Acrolein 5 103755V10F 5000 97 0.5 0.05166 0.05180 5013.7 52.6 107-02-8 0.1 ppm orl-rat 48mg/kg

Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vool (60m X 0.25mm ID X 1.5µm film thickness). Oven 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: Pedro Renteria. NOTE: Due to the instability of acrolein in solution, all solutions of acrolein, and any dilutions thereof, should be used immediately. Long term storage is not recommended. Please contact our technical department if further information is required.

TIC: [BSB2]79005.D



• The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
• Standards are prepared gravimetrically using balances that are calibrated by an ISO 17025 certified organization with weights traceable through NIST to the SI Kilogram (see above).  
• Standards are certified (+/-) 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).  
Rev 1A, 2/25/2025