

Prep Standard - Chemical Standard Summary

Order ID : Q1626

Test : VOC-TCLVOA-10

Prepbatch ID :

Sequence ID/Qc Batch ID: vy032525,VY030425

Standard ID :

VP131767,VP131783,VP132035,VP132036,VP132037,VP132038,VP132097,VP132098,VP132099,VP132101,VP132102,VP132678,VP133031,VP133033,VP133036,VP133037,VP133038,VP133039,VP133175,VP133176,VP133177,VP133178,VP133179,VP133180,VP133181,VP133191,VP133192,VP133207,VP133208,VP133209,VP133210,VP133211,VP133212,VP133212,VP133213,VP133214,VP133215,VP133216,VP133342,VP133483,VP133481,VP133482,VP133483,

Chemical ID :

V12967,V13391,V13449,V13465,V13466,V13582,V13706,V13811,V13919,V13921,V14126,V14154,V14175,V14176,V14179,V14289,V1425,V14433,V14439,V14521,V14522,V14613,V14614,V14624,V14630,V14631,V14632,V14633,V14722,V14723,V14724,V14744,V14754,V14801,V14809,V14814,V14842,V14872,V14873,V14874,V14875,V14877,V14878,V14883,V14896,V14896,V14899,W3112,



| Recipe ID 218 | NAME BFB, 25PPM | <u>NO.</u> VP131767 | Prep Date 11/22/2024 | Expiration Date 05/18/2025 | <u>Prepared</u> <u>By</u> Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 11/27/2024 |
|---------------------|------------------------------------|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 0.50000ml of V13391 + 49.50000ml o | of V14154 = | - Final Quanti | ty: 50.000 ml | | | | |
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| <u>Recipe</u> <u>ID</u> 1917 | NAME 8260 Internal standard 50 ppm | <u>NO.</u> VP131783 | <u>Prep Date</u> 11/22/2024 | Expiration Date 05/18/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | PipettelD None | Supervised By Mahesh Dadoda 11/27/2024 |
|------------------------------------|---------------------------------------|------------------------|--------------------------------|----------------------------------|--|------------------------|-------------------|--|
| <u>FROM</u> | 0.02000ml of V14289 + 9.98000ml o | f V14154 = | Final Quantity | /: 10.000 ml | | | | |
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| Recipe ID 1810 | NAME 8260 Working Std(2-CVE)-800ppm | <u>NO.</u> VP132035 | Prep Date 12/10/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/12/2024 |
|----------------------|---|------------------------|---------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 1.00000ml of V14630 + 1.00000ml of Quantity: 50.000 ml | FV14631 + ⁻ | 1.00000ml of ¹ | V14632 + 1.000 | 000ml of V1463 | 3 + 46.00000ml | of V14614 = | Final |

| <u>Recipe</u> | | | | Expiration | Prepared | | | Supervised By |
|---------------|----------------------------------|-----------------|---------------|------------------|-----------------|----------------|-----------|---------------|
| ID | NAME | <u>NO.</u> | Prep Date | <u>Date</u> | <u>By</u> | <u>ScaleID</u> | PipettelD | Mahesh Dadoda |
| 1811 | 8260 Working | <u>VP132036</u> | 12/10/2024 | 06/10/2025 | Semsettin | None | None | |
| | Std(2-CVE)-500ppm | | | | Yesilyurt | | | 12/12/2024 |
| FROM | 7.50000ml of V14614 + 12.50000ml | of VP13203 | 5 = Final Qua | antity: 20.000 r | nl | | | |
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| Recipe ID 1812 | NAME 8260 Working Std(2-CVE)-100ppm | <u>NO.</u> VP132037 | Prep Date 12/10/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/12/2024 |
|----------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u> | 0.25000ml of V14633 + 24.75000ml o | of V14614 = | = Final Quanti | ty: 25.000 ml | | | | |
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| Recipe | | | | Expiration | Prepared | | | Supervised By |
|---------------|----------------------------------|-----------------|---------------|------------------|-----------|----------------|-----------|---------------|
| ID | NAME | <u>NO.</u> | Prep Date | <u>Date</u> | <u>By</u> | <u>ScaleID</u> | PipettelD | Mahesh Dadoda |
| 1813 | 8260 Working Std(2-CVE)-50ppm | <u>VP132038</u> | 12/10/2024 | 06/10/2025 | Semsettin | None | None | |
| | | | | | Yesilyurt | | | 12/12/2024 |
| FROM | 20.00000ml of V14614 + 1.25000ml | of VP13203 | 5 = Final Qua | antity: 20.000 n | nl | | | |
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| Recipe ID 253 | NAME 8260 Working STD (BCM)-First source, 20PPM | <u>NO.</u> VP132097 | Prep Date 12/12/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/19/2024 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u> | 0.50000ml of V13466 + 49.50000ml o | of V14614 = | Final Quanti | ity: 50.000 ml | | | | |
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| <u>Recipe</u> <u>ID</u> 252 | NAME 8260 Working STD (BCM)-First source, 100PPM | <u>NO.</u> VP132098 | Prep Date 12/12/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | PipetteID None | Supervised By Mahesh Dadoda 12/19/2024 |
|-----------------------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|-------------------|--|
| FROM | 1.25000ml of V13466 + 23.75000ml of | I of V14614 : | I = Final Quanti | ty: 25.000 ml | , | | 1 | |
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| Recipe ID 254 | NAME 8260 Working STD (BCM)-First source, 10PPM | <u>NO.</u> VP132099 | Prep Date 12/12/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/19/2024 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u> | 0.05000ml of V13465 + 9.95000ml of | fV14614 = | Final Quantity | /: 10.000 ml | | | | |
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| <u>Recipe</u> <u>ID</u> 1817 | NAME 8260 Working Std(2-CVE)-SS, 800ppm | <u>NO.</u> VP132101 | Prep Date 12/12/2024 | Expiration Date 06/10/2025 | <u>Prepared</u> <u>By</u> Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/19/2024 |
|------------------------------------|---|------------------------|--------------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 0.80000ml of V13582 + 9.20000ml of | V14614 = | Final Quantity | y: 10.000 ml | | | | 12/10/2024 |
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| Recipe ID 1819 | NAME 8260 Working Std(2-CVE)-SS, 500ppm | <u>NO.</u> VP132102 | Prep Date 12/12/2024 | Expiration Date 06/10/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 12/19/2024 |
|----------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u> | 1.87500ml of V14614 + 3.12500ml of | VP132101 | = Final Quar | ntity: 5.000 ml | | | | |
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| <u>Recipe</u> <u>ID</u> | NAME | <u>NO.</u> | <u>Prep Date</u> | Expiration Date | <u>Prepared</u> <u>By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> Mahesh Dadoda |
|----------------------------|--|-----------------|------------------|--------------------|------------------------------|----------------|------------------|---------------------------------------|
| 262 | 8260 Working STD (BCM)-Second source, 100PPM | <u>VP132678</u> | 01/24/2025 | 07/13/2025 | Semsettin Yesilyurt | None | None | 01/29/2025 |
| FROM | 1.00000ml of V12967 + 9.00000ml of | V14624 = | Final Quantity | /: 10.000 ml | | | | |
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| Recipe ID 263 | (Acrolein)-Second source, | <u>NO.</u> VP133031 | Prep Date 02/14/2025 | Expiration Date 03/12/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 02/17/2025 |
|---------------------|--|------------------------|---------------------------|----------------------------------|--|------------------------|--------------------------|--|
| <u>FROM</u> | 800PPM 0.60000ml of V14878 + 1.00000ml of | f V14877 + 8 | 3.40000ml of ¹ | V14624 = Fina | l Quantity: 10.0 | 00 ml | | |
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| <u>Recipe</u> <u>ID</u> | NAME | <u>NO.</u> | Prep Date | Expiration Date | <u>Prepared</u> <u>By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|----------------------------|---|------------|--------------|--------------------|------------------------------|----------------|------------------|-----------------------------|
| 264 | 8260 Working STD (Acrolein)-Second source, | | 02/14/2025 | 03/12/2025 | Semsettin Yesilyurt | None | None | Mahesh Dadoda 02/18/2025 |
| <u>FROM</u> | 500PPM 1.87500ml of V14624 + 3.12500ml of | f VP133031 | = Final Quar | ntity: 5.000 ml | | | | |
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| Recipe ID 51 | NAME 8260 Working STD (Acrolein) -first source, 800PPM | <u>NO.</u> VP133036 | Prep Date 02/14/2025 | Expiration Date 03/13/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 02/18/2025 |
|--------------------|--|-------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 1.00000ml of V14872 + 1.00000ml o Quantity: 25.000 ml | f V14873 + ⁻ | 1.00000ml of ' | V14874 + 1.00(| 000ml of V1487 | 5 + 21.00000ml | of V14624 = | Final |

| Recipe | | | | Expiration | Prepared | | | Supervised By |
|--------|------------------------------------|-----------------|--------------|------------------|-----------|----------------|-----------|---------------|
| ID | NAME | <u>NO.</u> | Prep Date | <u>Date</u> | <u>By</u> | <u>ScaleID</u> | PipetteID | Mahesh Dadoda |
| 56 | | <u>VP133037</u> | 02/14/2025 | 03/13/2025 | Semsettin | None | None | |
| | source, 500PPM | | | | Yesilyurt | | | 02/18/2025 |
| FROM | 5.62500ml of V14624 + 9.37500ml of | FVP133036 | = Final Quar | ntity: 15.000 ml | | | | |
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VOC STANDARD PREPARATION LOG

| <u>Recipe</u> <u>ID</u> 180 | NAME 8260 Working STD (Acrolein)-First source, 100PPM | <u>NO.</u> VP133038 | Prep Date 02/14/2025 | Expiration Date 03/13/2025 | <u>Prepared</u> <u>By</u> Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 02/18/2025 |
|-----------------------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 17.50000ml of V14624 + 2.50000ml o | of VP13303 | 6 = Final Qua | ntity: 20.000 n | ייייייייייייייייייייייייייייייייייייי | | | |
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| Recipe | | | | Expiration | Prepared | | | Supervised By |
|---------------|------------------------------------|-----------------|--------------|-------------------|-----------|----------------|-----------|---------------|
| <u>ID</u> | NAME | <u>NO.</u> | Prep Date | <u>Date</u> | <u>By</u> | <u>ScaleID</u> | PipettelD | Mahesh Dadoda |
| 181 | | <u>VP133039</u> | 02/14/2025 | 03/13/2025 | Semsettin | None | None | |
| | source, 50PPM | | | | Yesilyurt | | | 02/18/2025 |
| FROM | 9.37500ml of V14624 + 0.62500ml of | VP133036 | = Final Quar | ntity: 10.000 ml | | | | |
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| Recipe ID 249 | NAME 8260 Surrogate, 100PPM | <u>NO.</u> VP133175 | Prep Date 02/27/2025 | Expiration Date 08/27/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|----------------------------------|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 0.10000ml of V13706 + 24.90000ml | of V14613 = | = Final Quanti | ty: 25.000 ml | | | | |

| <u>Recipe</u> <u>ID</u> | NAME | <u>NO.</u> | Prep Date | Expiration Date | <u>Prepared</u> <u>By</u> | <u>ScaleID</u> | <u>PipettelD</u> | Supervised By |
|----------------------------|------------------------------------|-----------------|----------------|--------------------|------------------------------|----------------|------------------|---------------|
| | | | | | | | | Mahesh Dadoda |
| 1738 | 8260 surrogate 20 ppm | <u>VP133176</u> | 02/27/2025 | 08/27/2025 | Semsettin Yesilyurt | None | None | 03/04/2025 |
| FROM | 0.02000ml of V13706 + 24.99000ml (| of V14613 = | = Final Quanti | ty: 25.000 ml | | | | |
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| Recipe ID 250 | NAME 8260 Surrogate, 10PPM | <u>NO.</u> VP133177 | Prep Date 02/27/2025 | Expiration Date 08/27/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | PipetteID None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|------------------------------------|------------------------|-------------------------|----------------------------------|--|------------------------|-------------------|--|
| <u>FROM</u> | 9.00000ml of V14613 + 1.00000ml of | VP133175 | = Final Quar | ntity: 10.000 ml | | | | |
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| Recipe | | | | Expiration | Prepared | | | Supervised By |

| <u>Recipe</u> <u>ID</u> | NAME | <u>NO.</u> | Prep Date | Expiration Date | <u>Prepared</u> <u>By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> Mahesh Dadoda |
|----------------------------|---|-----------------|----------------|--------------------|------------------------------|-----------------|------------------|---------------------------------------|
| 257 | 8260 Calibration Working STD Mix-First source, 160PPM | <u>VP133178</u> | 02/27/2025 | 03/31/2025 | Semsettin Yesilyurt | None | None | 03/04/2025 |
| <u>FROM</u> | 0.40000ml of V14842 + 1.00000ml of 1.00000ml of V14521 + 1.00000ml of 1.00000ml of V14809 + 1.00000ml of Quantity: 25.000 ml | V14522 + | 1.00000ml of V | V14724 + 1.000 | 000ml of V1474 | 4 + 1.00000ml o | of V14754 + | Final |



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VOC STANDARD PREPARATION LOG

| Recipe ID 244 | NAME 8260 Calibration Working STD Mix-First source, 100PPM | <u>NO.</u> VP133179 | Prep Date 02/27/2025 | Expiration Date 03/31/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 5.62500ml of V14613 + 9.37500ml o | f VP133178 | = Final Quar | itity: 15.000 ml | | | | |

| Recipe | | | | Expiration | Prepared | | | Supervised By |
|---------------|----------------------------------|-----------------|---------------|------------------|-----------------|----------------|-----------|---------------|
| ID | NAME | <u>NO.</u> | Prep Date | <u>Date</u> | <u>By</u> | <u>ScaleID</u> | PipetteID | Mahesh Dadoda |
| 245 | 8260 Calibration Working STD | <u>VP133180</u> | 02/27/2025 | 03/31/2025 | Semsettin | None | None | |
| | Mix-First source, 20PPM | | | | Yesilyurt | | | 03/04/2025 |
| FROM | 17.50000ml of V14613 + 2.50000ml | of VP13317 | 8 = Final Qua | antity: 20.000 n | nl | | | |
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| Recipe ID 246 | NAME 8260 Calibration Working STD Mix-First source, 10PPM | <u>NO.</u> VP133181 | Prep Date 02/27/2025 | Expiration Date 03/31/2025 | <u>Prepared</u> <u>By</u> Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 9.37500ml of V14613 + 0.62500ml of | f VP133178 | = Final Quar | ntity: 10.000 ml | | | | |
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| Recipe ID 259 | NAME 8260 Calibration Working STD Mix-Second source, 160PPM | <u>NO.</u> VP133191 | Prep Date 02/28/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | PipettelD None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|--|------------------------|-------------------------|--|------------------------|-------------------|--|
| FROM | 0.16000ml of V13449 + 0.60000ml of 0.80000ml of V14425 + 0.80000ml of | | | | | | |



| Recipe ID 260 | NAME 8260 Calibration Working STD Mix-Second source, 100PPM | <u>NO.</u> VP133192 | Prep Date 02/28/2025 | Expiration Date 04/05/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/04/2025 |
|---------------------|---|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 1.87500ml of V14613 + 3.12500ml of | f VP133191 | = Final Quar | ntity: 5.000 ml | | | | |
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| FROM 4.98000ml of W3112 + 0.00250ml of VP132038 + 0.00250ml of VP132099 + 0.00250ml of VP133039 + 0.00250ml of VP133177 + 0.00250ml of VP133181 + 0.00500ml of VP131783 = Final Quantity: 5.000 ml | Recipe ID 267 | NAME 5 PPB ICC, 8260-SOIL | <u>NO.</u> VP133207 | Prep Date 03/04/2025 | Prepared By Amit Patel | <u>ScaleID</u> None | PipettelD None | Supervised By Mahesh Dadoda 03/07/2025 |
|--|---------------------|------------------------------|------------------------|-------------------------|------------------------------|------------------------|-------------------|--|
| | FROM | | | | | - 2133039 + 0.00 | 250ml of VP13 | 33177 |



| Recipe ID 269 | NAME 10 PPB ICC, 8260-SOIL | <u>NO.</u> VP133208 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | Prepared By Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/07/2025 |
|---------------------|--|------------------------|-------------------------|----------------------------------|------------------------------|------------------------|--------------------------|--|
| FROM | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133180 + 0.00500 | | | | | P133038 + 0.00 | 250ml of VP13 | 33176 |

| <u>Recipe</u> <u>ID</u> 270 | NAME 20 PPB ICC, 8260-SOIL | <u>NO.</u> VP133209 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | PipetteID None | Supervised By Mahesh Dadoda 03/07/2025 |
|-----------------------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|-------------------|--|
| <u>FROM</u> | 4.96500ml of W3112 + 0.00500ml of + 0.00500ml of VP133176 + 0.00500 | | | | | P132097 + 0.00 | 500ml of VP13 | 33038 |
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| Recipe ID 273 | NAME 50 PPB ICC, 8260-SOIL | <u>NO.</u> VP133210 | Prep Date 03/04/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/07/2025 |
|---------------------|--|------------------------|-------------------------|--|------------------------|--------------------------|--|
| FROM | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133179 + 0.00500 | | | | P133037 + 0.00 | 250ml of VP13 | 33175 |

| NAME 100 PPB ICC, 8260-SOIL | <u>NO.</u> VP133211 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | PipetteID None | Supervised By Mahesh Dadoda 03/07/2025 |
|--------------------------------|---|--|--|--|--|---|---|
| | | | | | P132098 + 0.00 | 500ml of VP13 | 33037 |
| | | | | | | | |
| | | | | | | | |
| | 100 PPB ICC, 8260-SOIL 4.96500ml of W3112 + 0.00500ml of | 100 PPB ICC, 8260-SOIL VP133211 4.96500ml of W3112 + 0.00500ml of VP131783 - | 100 PPB ICC, 8260-SOIL VP133211 03/04/2025 4.96500ml of W3112 + 0.00500ml of VP131783 + 0.00500ml of | 100 PPB ICC, 8260-SOIL VP133211 03/04/2025 03/05/2025 4.96500ml of W3112 + 0.00500ml of VP131783 + 0.00500ml of VP132036 + 0.00500ml of VP13204 + 0.00500ml of VP132036 + 0.00500ml of VP132000000000000000000000000000000000000 | 100 PPB ICC, 8260-SOIL VP133211 03/04/2025 03/05/2025 Amit Patel | 100 PPB ICC, 8260-SOIL VP133211 03/04/2025 03/05/2025 Amit Patel None 4.96500ml of W3112 + 0.00500ml of VP131783 + 0.00500ml of VP132036 + 0.00500ml of VP132098 + 0.00500ml of VP13208 + 0.00500ml of VP13208 + 0.00500ml of | 100 PPB ICC, 8260-SOIL VP133211 03/04/2025 03/05/2025 Amit Patel None None 4.96500ml of W3112 + 0.00500ml of VP131783 + 0.00500ml of VP132036 + 0.00500ml of VP132098 + 0.00500ml of VP13208 + 0.00500ml of V |



| <u>Recipe</u> <u>ID</u> 1653 | NAME 150 PPB ICC,8260-SOIL | <u>NO.</u> VP133212 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/07/2025 |
|------------------------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 4.95000ml of W3112 + 0.00500ml of + 0.00750ml of VP133175 + 0.00750 | | | | | 2132098 + 0.00 | 750ml of VP13 | 33037 |

| <u>Recipe</u> <u>ID</u> 287 | <u>NAME</u> 50 PPB ICV, 8260-SOIL | <u>NO.</u> VP133213 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | PipettelD None | Supervised By Mahesh Dadoda 03/07/2025 |
|-----------------------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|-------------------|--|
| FROM | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133192 + 0.00500 | | | | | P133033 + 0.00 | 250ml of VP13 | 33175 |
| | | | | | | | | |



| Recipe ID 773 | NAME 50 PPB CCC, 8260-SOIL | <u>NO.</u> VP133214 | Prep Date 03/04/2025 | Prepared By Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/07/2025 |
|---------------------|--|------------------------|-------------------------|------------------------------|------------------------|--------------------------|--|
| FROM | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133179 + 0.00500 | | | | P133037 + 0.00 | 250ml of VP13 | 33175 |

| <u>Recipe</u> <u>ID</u> 773 | NAME 50 PPB CCC, 8260-SOIL | <u>NO.</u> VP133215 | Prep Date 03/04/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | <u>Supervised By</u> Mahesh Dadoda 03/07/2025 |
|-----------------------------------|--|------------------------|-------------------------|--|------------------------|--------------------------|---|
| <u>FROM</u> | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133179 + 0.00500 | | | | P133037 + 0.00 | 250ml of VP13 | 33175 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |



| Recipe ID 732 | NAME BFB TUNE CHECK - SOIL | <u>NO.</u> VP133216 | Prep Date 03/04/2025 | Expiration Date 03/05/2025 | Prepared By Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/07/2025 |
|---------------------|-----------------------------------|------------------------|-------------------------|----------------------------------|------------------------------|------------------------|--------------------------|--|
| FROM | 4.99800ml of W3112 + 0.00200ml of | VP131767 | = Final Quant | iity: 5.000 ml | | | | |
| Recipe ID | NAME | <u>NO.</u> | Prep Date | Expiration Date | <u>Prepared</u> <u>By</u> | <u>ScaleID</u> | <u>PipettelD</u> | <u>Supervised By</u> Mahesh Dadoda |

| <u>ID</u> | NAME | <u>NO.</u> | Prep Date | Date | <u>By</u> | <u>ScaleID</u> | PipetteID | Mahesh Dadoda |
|-----------|---|-------------------|----------------|----------------|------------------------|----------------|-------------|---------------|
| 51 | 8260 Working STD (Acrolein) -first source, 800PPM | <u>VP133342</u> | 03/18/2025 | 04/17/2025 | Semsettin Yesilyurt | None | None | 03/20/2025 |
| FROM | 1.00000ml of V14896 + 1.00000ml of Quantity: 25.000 ml | I f V14897 + 1 | 1.00000ml of ' | V14898 + 1.000 | - | 9 + 21.00000ml | of V14883 = | |
| | | | | | | | | |
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| Recipe ID 56 | NAME 8260 Working STD (Acrolein) -first source, 500PPM | <u>NO.</u> VP133343 | Prep Date 03/18/2025 | Expiration Date 04/17/2025 | Prepared By Semsettin Yesilyurt | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/20/2025 |
|--------------------|--|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 5.62500ml of V14883 + 9.37500ml of | VP133342 | = Final Quar | ntity: 15.000 ml | | | | |
| | | | | | | | | |

| <u>Recipe</u> <u>ID</u> 732 | NAME BFB TUNE CHECK - SOIL | <u>NO.</u> VP133481 | Prep Date 03/25/2025 | Expiration Date 03/26/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/26/2025 |
|-----------------------------------|-----------------------------------|------------------------|-------------------------|----------------------------------|--|------------------------|--------------------------|--|
| FROM | 4.99800ml of W3112 + 0.00200ml of | VP131767 | = Final Quant | tity: 5.000 ml | | | | 00/20/2020 |
| | | | | | | | | |
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| Recipe ID 773 | NAME 50 PPB CCC, 8260-SOIL | <u>NO.</u> VP133482 | Prep Date 03/25/2025 | Prepared By Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | Supervised By Mahesh Dadoda 03/26/2025 |
|---------------------|--|------------------------|-------------------------|------------------------------|------------------------|--------------------------|--|
| FROM | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133343 + 0.00500 | | | | P133175 + 0.00 | 250ml of VP13 | 33179 |

| <u>Recipe</u> <u>ID</u> 773 | NAME 50 PPB CCC, 8260-SOIL | <u>NO.</u> VP133483 | <u>Prep Date</u> 03/25/2025 | Expiration Date 03/26/2025 | <u>Prepared</u> <u>By</u> Amit Patel | <u>ScaleID</u> None | <u>PipetteID</u> None | <u>Supervised By</u> Mahesh Dadoda 03/26/2025 |
|-----------------------------------|--|------------------------|--------------------------------|----------------------------------|--|------------------------|--------------------------|---|
| <u>FROM</u> | 4.98000ml of W3112 + 0.00250ml of + 0.00250ml of VP133343 + 0.00500 | | | | | P133175 + 0.00 | 250ml of VP13 | 33179 |
| | | | | | | | | |
| | | | | | | | | |
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| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|-----------------------------|--|----------|--------------------|----------------------------|--------------------------------|-------------------|
| Absolute Standards, Inc. | 70046 / Bromochloromethane Std. sol/methanol 1000ppm | 070122 | 07/24/2025 | 01/24/2025 / SAM | 07/06/2022 / SAM | V12967 |
| 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 | 30470 / VOA Stock Solution, tert-butanol std, 1mL, P&TM | A0191703 | 06/02/2025 | 12/02/2024 / SAM | 01/23/2023 / SAM | V13449 |
| 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 | A0193071 | 06/12/2025 | 12/12/2024 / SAM | 01/27/2023 / SAM | V13465 |
| 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 | A0193071 | 06/12/2025 | 12/12/2024 / SAM | 01/27/2023 / SAM | V13466 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 95318 / 2-Chloroethyl Vinyl Ether (Min = 5) | 111722 | 11/17/2025 | 12/12/2024 / SAM | 01/30/2023 / SAM | V13582 |



| 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] | A0196865 | 02/27/2026 | 02/27/2025 / SAM | 04/12/2023 / SAM | V13706 |
| 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 | A0194279 | 08/28/2025 | 02/28/2025 / SAM | 05/31/2023 / SAM | V13811 |
| 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 | A0193887 | 07/10/2025 | 01/10/2025 / SAM | 07/24/2023 / SAM | V13919 |
| 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 | A0193887 | 08/24/2025 | 02/24/2025 / SAM | 07/24/2023 / SAM | V13921 |
| 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) | 011624 | 07/10/2025 | 01/10/2025 / SAM | 01/17/2024 / SAM | V14126 |
| 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) | 22L0562016 | 05/18/2025 | 11/18/2024 / pedro | 02/06/2024 / SAM | V14154 |



| 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 | 07/10/2025 | 01/10/2025 / SAM | 02/20/2024 / SAM | V14175 |
| 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 | 07/10/2025 | 01/10/2025 / SAM | 02/20/2024 / SAM | V14176 |
| 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) | 021524 | 07/10/2025 | 01/10/2025 / SAM | 02/20/2024 / SAM | V14179 |

| 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 | 11/22/2025 | 11/22/2024 / SAM | 04/15/2024 / SAM | V14289 |
| | | | | | | |

| 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 | A0205013 | 06/30/2025 | 01/10/2025 / SAM | 08/15/2024 / SAM | V14425 |
| | | | | | | |

| 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 | A0209618 | 07/10/2025 | 01/10/2025 / SAM | 08/15/2024 / SAM | V14433 |



| 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 | A0209618 | 07/10/2025 | 01/10/2025 / SAM | 08/15/2024 / SAM | V14439 |
| 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 | 07/10/2025 | 01/10/2025 / SAM | 09/18/2024 / SAM | V14521 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| | | | | | | |

| Cappilo | | | Date | Opened By | Received By | Lot # |
|-----------------------------|--|--------|------------|---------------------|---------------------|--------|
| Absolute Standards, Inc. | 95319 / Revised Additions Mix (Min = 5) | 091724 | 07/10/2025 | 01/10/2025 / SAM | 09/18/2024 / SAM | V14522 |
| | | | | | | |

| 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) | 22L0562016 | 08/27/2025 | 02/27/2025 / SAM | 11/26/2024 / SAM | V14613 |
| | | | | | | |

| 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) | 22L0562016 | 06/10/2025 | 12/10/2024 / SAM | 11/26/2024 / SAM | V14614 |
| | | | | | | |

| 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 | 07/13/2025 | 01/13/2025 / SAM | 11/26/2024 / SAM | V14624 |
| | | | | | | |



| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|-----------------------------|-----------------------------|--------|--------------------|----------------------------|--------------------------------|-------------------|
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 06/10/2025 | 12/10/2024 / SAM | 12/06/2024 / SAM | V14630 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 06/10/2025 | 12/10/2024 / SAM | 12/06/2024 / SAM | V14631 |
| | | | Expiration | Date Opened / | Received Date / | Chemtech |
| Supplier | ItemCode / ItemName | Lot # | Date | Opened By | Received By | Lot # |
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 06/10/2025 | 12/10/2024 / SAM | 12/06/2024 / SAM | V14632 |
| Supplier | ItemCode / ItemName | Lot # | Expiration | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | / 2-Chloroethyl vinyl ether | 120524 | 06/10/2025 | 12/10/2024 / SAM | 12/06/2024 / SAM | V14633 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |

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

| 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 | A02110618 | 07/10/2025 | 01/10/2025 / SAM | 12/17/2024 / SAM | V14723 |



| 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 | A02110618 | 07/10/2025 | 01/10/2025 / SAM | 12/17/2024 / SAM | V14724 |
| 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 | 08/27/2025 | 02/27/2025 / SAM | 12/17/2024 / SAM | V14744 |
| 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 | 05/31/2031 | 01/10/2025 / SAM | 12/17/2024 / SAM | V14754 |
| 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 LOTS | A0220563 | 06/30/2026 | 01/10/2025 / SAM | 01/08/2025 / SAM | V14801 |
| 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 LOTS | A0220471 | 07/10/2025 | 01/10/2025 / SAM | 01/08/2025 / SAM | V14809 |
| 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 | 07/10/2025 | 01/10/2025 / SAM | 01/08/2025 / SAM | V14814 |



| 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 | 08/27/2025 | 02/27/2025 / SAM | 01/21/2025 / SAM | V14842 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 021325 | 03/13/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14872 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 021325 | 03/13/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14873 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 021325 | 03/13/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14874 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 021325 | 03/13/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14875 |
| Supplier | ItemCode / ItemName | Lot # | Expiration | Date Opened / | Received Date / | Chemtech |

| ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------------------------------|----------------------------|-----------------------------------|---|--|---|
| 91980 / Acrolin Std (Min = 5) | 021225 | 03/12/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14877 |
| 1 | 91980 / Acrolin Std (Min = | 01980 / Acrolin Std (Min = 021225 | ItemCode / ItemName Lot # Date 01980 / Acrolin Std (Min = 021225 03/12/2025 | ItemCode / ItemName Lot # Date Opened By 01980 / Acrolin Std (Min = 021225 03/12/2025 02/14/2025 / | ItemCode / ItemName Lot # Date Opened By Received By 01980 / Acrolin Std (Min = 021225 03/12/2025 02/14/2025 / 02/14/2025 / |



| | | | Expiration | Date Opened / | Received Date / | Chemtech |
|-----------------------------|---|------------|--------------------|----------------------------|--------------------------------|-------------------|
| Supplier | ItemCode / ItemName | Lot # | Date | Opened By | Received By | Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 021225 | 03/12/2025 | 02/14/2025 / SAM | 02/14/2025 / SAM | V14878 |
| 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) | 22L0562016 | 10/25/2025 | 02/19/2025 / Jaswal | 04/22/2024 / Jaswal | V14883 |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 031725 | 04/17/2025 | 03/18/2025 / SAM | 03/18/2025 / SAM | V14896 |
| | | | | | | |
| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 031725 | 04/17/2025 | 03/18/2025 / SAM | 03/18/2025 / SAM | V14897 |
| | | _ | Expiration | Date Opened / | Received Date / | Chemtech |
| Supplier | ItemCode / ItemName | Lot # | Date | Opened By | Received By | Lot # |
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 031725 | 04/17/2025 | 03/18/2025 / SAM | 03/18/2025 / SAM | V14898 |

| Supplier | ItemCode / ItemName | Lot # | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|-----------------------------|-------------------------------|--------|--------------------|----------------------------|--------------------------------|-------------------|
| Absolute Standards, Inc. | 91980 / Acrolin Std (Min = 5) | 031725 | 04/17/2025 | 03/18/2025 / SAM | 03/18/2025 / SAM | V14899 |
| | | | | | | |



284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900, Fax : 908 789 8922

| 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 / Iwona | 07/03/2024 / Iwona | W3112 |

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





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

Certificate of Analysis

| Test | Specification | Result |
|--|---------------|----------|
| Assay (CH3OH) (by GC, corrected for water) | ≥ 99.9 % | 100.0 % |
| Residue after Evaporation | ≤ 1.0 ppm | 0.5 ppm |
| Titrable Acid (µeq/g) | ≤ 0.3 | 0.2 |
| Titrable 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

fermetrikel.

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



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

Certificate of Analysis

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

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

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

James Techie

Jamie Ethier Vice President Global Quality Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis



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

Certificate of Analysis

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

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

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

James Techie

Jamie Ethier Vice President Global Quality

| | | 13,5500 13,5500 13,5500 13,5500 13,5500 13,5000 13,500 13,500 13,500 13,500 13, | | Acryloni | | ar Temp. Z | ol (60m X 0.2 : 35°C (10mir Voint, Injecto Solvent Dela | = I .qmэT .(, Rate = 4°C | ickness (.nim 27 | 1.5µm film ti 1.5µm film ti | ALL PROPERTY AND | 810 | 5200000 - | |
|----|--|--|----------------|-------------------------------------|--------------------|---------------------|--|--------------------------------------|---------------------|--------------------------------|--|-------------|--|-----------|
| | 5 | | 9meN | - postore | | V GI wwast | COX (003) 10 | roft interilo | -1-USM | Mothod CCE | | : | - 0000005 | |
| | | | | | | | | | | | 00, where is a set | | 3200005 | |
| | nement Result." | ratory conditions. g the Uncertainty of NIST Measu | inizzorgal but | ht and under ap for Evaluating a | red with caps tig | ule, should be stor | ter opening ampuration, B | a strandards, al lacertainty Refe | ∦•]• | | 2683 | | - 000000+ | |
| | | s unless otherwise stated. a NIST (see above). | | gisw ditw batan | ces that are calib | | insoniverg basequ | tandards are pri | S * | 0.6158 | 1C: 3i | | ansbrudA | |
| | gx/gm8048 ten-ho | ¥/N | 488-53-3 | 7.8 | 2001.0 | 0.21522 | 0.21511 | 0.2 | 63 | 5000 | 109A | 461 | eneznedivntemarteT-4,6,2,1 | ិនរ |
| | galvgm0281 tiss-ho | (H8/Em/gm062) mqq 0S | 6-66-601 | 40.3 | S.70001 | 1.00200 | 1.00125 | 5.0 | 6'66 | 10000 | OEE8H8HS | 380 | [etrahydrofuran | 10. |
| | gylgm96 ter-ho | W/N | 107-12-0 | 6.18 | 8.70005 | 2.02150 | 17020.5 | S.0 | 66 | S0000 | 1395468 | 346 | elininoiqor | ī ·6 |
| | enter 49/kg | AN | 1634-04-4 | 8.2 | 2002.0 | 75205.0 | 0.20207 | 0.2 | 66 | S000 | 21880 | 509 | Methyl tert-butyl ether (MTBE) | Ĩ '8 |
| | orl-mus 2250mg/kg | ¥/N | 108-82-5 | 8.2 | 2002.3 | 0.20230 | 0.20207 | 0.2 | 66 | 5000 | A661058HS | 1627 | Methylcyclohexane | Γz. |
| | 6x/6w0267 6d6-µo | (nbis)(H8\Em\gm01) mqq 1 | 1-27-78 | S.8 | 4.100S | 0.20221 | 0.20207 | 0.2 | 66 | 5000 | 12604HBV | 661 | exectionocthane | 9 |
| | вуютоота гит-по | (nbis)(H8\Em\gm08) mqq 8S | 123-91-1 | 162.5 | 0.70004 | 4.04213 | 4.04142 | S.0 | 66 | 40000 | O3863KE | ELE | ensxoiG-4,1 | . · · · · |
| | px/pm0748 ten-ho | (H8/Em/gm001S) mqq 008 | 108-50-3 | 5.8 | \$005.0 | 0.20227 | 0.20207 | 0.2 | 66 | 5000 | XMS1400 | L 86 | Di-isopropyl ether (DIPE) | 1.4 |
| | pylemeorst ten-ho | (H8/Em/gm0201) mqq 00E | 110-85-7 | S. 8 | 2001.5 | 0.20222 | 0.20207 | 2.0 | 66 | S000 | 58930 | 1053 | Cyclohexane | |
| | Orl-rat 2670mg/kg | A/N | E-69-601 | 1.8 | 8.2002.8 | 0.20035 | 0.20007 | 5.0 | 66'66 | 5000 | MKCM5711 | 1072 | 1-Chlorobutane | 5. |
| | gylun 87 ter-ho | A\N | 1-61-701 | 40.6 | \$.\$000F | 08010.1 | 1.01035 | S.0 | 66 | 10000 | 4718CK | ۷ | Acrylonitrile | |
| | rD20 | (AWT) LEY AH20 | #S∀O | (ין <i>ш/8/1) (-;</i> +) | (Jm/gu) cooc | Weight(g) | (g))higiaW | Purity | (%) | (Jm/gu) Jno) | Number | KM# | punoduog | F. |
| | (-bd pəu | SDS Information t Safety Info. On Attach | nevlo2) | Expanded Uncertainty | Actual | Actual | jegæT | Uncertainty | Purity | Isnimol i | Lot | | | |
| ij | 17 | | | | 1 | | | yraistrood JaseF | | 0.001 | :(Jm) of bet | nlip pu | Weight(s) shown below were combined a | |
| | 429110 3TAG | Pedro L. Rentas | 201 | B beweiveß | | | An A | Balance Uncertain | 90-39 | | beinsV 8TU3 | | Nominal Concentration (µg/mL): NIST Test ID#: | |
| | | · · | n | | | | | | | (O. 1 | Retrigerate (4 | | Recommended Storage: | |
| | 211/0 | | | 0000000000 | | | | | | | 229110 | | Expiration Date: | |
| | DATE | Prashant Chauhan | | Formulated | | | | | | | 13 compone | | wendungen | |
| | 429110 | hav hender | Er t | | | 001/11/0 | | | | viM sooit | ibbA besiveA | | Description: | |
| | | 170 | 0 | | | SU-174H3 | Nethanol | | | | 011624 | | Fot Mumber: | |
| - | | | | | I | #10-1 | Solvent(s): | | | | 61636 | | FIED WEIGHT REPORT | UHH: |
| | the contraction of the contracti | | | | | | 15 | | | | 1 | | absolutestandards.com | .wwv |
| | 1539 Certi ANAB ISO Cert | | | | MRJ | laireterial | Reference | bəititiəC |) | | | | solute Standards, Inc. | |
| | | | | | | | | | | | | | | |

29'15

44.84

26.84

24.84

20.83

20.58

20.17

£S'8T

anaznadiyrtiamertaT-4,6,2,1

Hexachloroethane

Methylcydohexane

1-Chlorobutane

Tetrahydrofuran

Cydohexane

Sirtinoiqor

anexoid-4,1

0<--9mil

000005

1000000

1200000 L

2000000

00.02

29'15

49,84

42:00

minutes. Analysis performed by Candice Warren.

200°C, Detector Temp. = 220°C. Solvent Delay: 8

40.00

32.00

30.00

52'00

5¢¹82

20.00

andaz

12:00

29 EL 57 SI

13'26

10.00

22:00

00.09

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | ndards, Inc. dards.com | A. | Å | | | Certified | Certified Reference Material CRM こ い イ | nce Materia | I CRM | | | | httr | NAB ISO 1 AR-1539 Ce ps://Absolu | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|--|--|---|---|---|---|--|--|---|--|--|----------------------------------|--|--|
| CERTIFIED WEIGHT REPORT | HEPORI Part Number: Lot Number: Description: | | 91980 021225 Acrolein | | | | Solvent(s): Lots Water 072324(| 02 (Lott | - 78 | Formulated By: | ed By: | The Atlend Prashant Chauhan | uler | 021225 DATE | |
| ł Nominał Weight(s) showr | Expiration Date: 031225 Recommended Storage: Refrigerat Nominal Concentration (<i>ug/ml</i>): 5000 NIST Test ID#: 6UTB Weicht(s) shown below were combined and diluted to (mL): | d dilute | 031225 Refrigerate (4 °C) 5000 6UTB ed to (mL): | 1 °C) 10.0 | 5E-05 0.001 | Balance Uncer Flask Uncertai | A A A A A A A A A A A A A A A A A A A | х - | | Reviewed By | d By: | la Rentas | A 10 | 021225 DATE | |
| Compound | | RM# | i | Nominal Conc (µg/mL) | | | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/m) | Expanded Actual Uncertainty Conc (µg/mL) (H-) (µg/mL) | | SDS Information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDS | ation 1 Attached (A) | l pg.) LD50 | |
| 1. Acrolein Method: GC Rate = 4°Cri Long term st | bit 5 103755R02H 5000 97 0.5 0.05186 0.05180 5013.7 52.6 107-02-8 0.1 ppm 6 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (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.) Content of acroterin, and any dilutions thereof, should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required. | 5 ctive Deter etector Te | 103755R02H ctor (Scan mode). mp. = 220°C. An t our technical dep | 5000 . Column: Vo salyst: Pedro F partment if fur | 97 col (60m X Rentas. NO7 ther informs | 0.5 0.25mm ID X 1 TE: Due to the ii ation is required | 0.05166 1.5µm film thicknu nstability of acrol | 0.05180 ess). Oven Profi | 5013.7 lite: Temp. 1 = 3 all solutions of | 52.6 35°C (Time 1 = acrolein, and an | 107-02-8 10min.), Temp. ny dilutions there | 0.1 ppm . 2=200°C (True 2 = reof, should be used in | Orl- 8.75 min.) amediately | orl-rat 46mg/kg | |
| Abundance | TIC: [B | ISB2]7 | TIC: [BSB2]79005.D | | | | Abundance | 57 27 | Scan | 232 (8.927 | min): [BSł | Scan 232 (8.927 min): [BSB2]79005.D | | | |
| 250000 8.93 | | | | | | | 6000 | | | | | | | | |
| 200000 | | | Ì | 0/// | | | 5000 | Q | 56 | ~ | | | | | |
| 150000 | | | | | | | 40000 | Q | | | | | | | |
| | | | | | | | 30000 | Q | | | | | | | |
| 100000 | | | | | | | 20000 | Q | | | | | | | |
| 50000 | | | | | | | 10000 | | 37 | | | | | | |
| Time> ⁰ 10.0 | 10.00 15.00 20.00 25.00 | 30.0(| 30.00 35.00 40.00 45.00 | .00 45.00 | 50.00 55.00 | 55.00 60.0 | 0<~~ 10 | 0 20 30 | 44 40 50 | 65 75 85 60 70 80 9 | 85 0 90 100 | 5 119 158 169 90 100 110 120 130 140 150 160 170 | 1 140 150 1 | 158 169 160 170 | |
| | • The cer • Standar • Standar • All Star • Uncerta NIST 7 | rtified va urds are p urds are c undards, a ainty Ref Technical | The certified value is the concentration calculated from gravimetric and volumetric me Standards are prepared gravimetrically using balances that are calibrated with weight Standards are certified (H -) 0.5% of the stated value, unless otherwise stated. All Standards, after opening ampule should be stored with case tight and under appro Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidetines for Evaluating and NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | tration calcul etrically usin 6 of the state pule, should B.N. and Ku Government | ated from a balances t g balances t i value, uni t value, uni yat, C.E., "u | travimetric and hat are calibra ess otherwise s ith caps tight a Guidelines for 1 ffice, Washing | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Shandards are prepared gravinetrically using balances that are calibrated with weights traceable to NIST (see above). Shandards are certified (++) 0.5% of the stated value, unless otherwise stated. All Standards, after opening ampule, should be stored with capt tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., 'Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | asurements unli traceable to Ni prfate laborator Expressing the l | as otherwise s ST (see above y conditions. Jucertainty of | ated.). NIST Measur | ement Result, ' | - | | | |
| | | | | | | | | | | | | | | | |

Part # 91980 Lot # 021225

1 of 1

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| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | ndards, Inc. dards.com | A. | A | | | Certified | Certified Reference Material CRM こ い イ | nce Materia | I CRM | | | | httr ∧ | NAB ISO 1 NR-1539 Ce Ss://Absolu | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|--|--|---|---|---|---|--|--|---|--|--|----------------------------------|--|--|
| CERTIFIED WEIGHT REPORT | HEPORI Part Number: Lot Number: Description: | | 91980 021225 Acrolein | | | | Solvent(s): Lots Water 072324(| 02 (1 0723240 | - 78 | Formulated By: | ed By: | Shent Chevel Prashant Chauhan | han | 021225 DATE | |
| f Nominal Weight(s) showr | Expiration Date: 031225 Recommended Storage: Refrigerat Nominal Concentration (<i>ug/ml</i>): 5000 NIST Test ID#: 6UTB Weicht(s) shown below were combined and diluted to (mL): | d dilute | 031225 Refrigerate (4 °C) 5000 6UTB ed to (mL): | 1 °C) 10.0 | 5E-05 0.001 | Balance Uncer Flask Uncertai | A A A A A A A A A A A A A A A A A A A | х - | | Reviewed By | d By: | ke Nerza Pedro L. Rentas | A | 021225 DATE | |
| Compound | | RM# | i | Nominal Conc (µg/mL) | | | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/m | Expanded Actual Uncertainty Conc (µg/mL) (H-) (µg/mL) | | SDS Information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDS | ation Attached (A) | pg.) LD50 | |
| 1. Acrolein Method: GC Rate = 4°Cri Long term st | bit 5 103755R02H 5000 97 0.5 0.05186 0.05180 5013.7 52.6 107-02-8 0.1 ppm 6 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (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.) Content of acroterin, and any dilutions thereof. should be used immediately Long term storage is not recommended. Please contact our technical department if further information is required. | 5 ctive Deter etector Te | 103755R02H ctor (Scan mode). mp. = 220°C. An t our technical dep | 5000 . Column: Vo salyst: Pedro F partment if fur | 97 col (60m X Rentas. NO7 ther informs | 0.5 0.25mm ID X 1 TE: Due to the ii ation is required | 0.05166 | 0.05180 ess). Oven Prof | 5013.7 lie: Temp. 1 = 3 all solutions of | 52.6 35°C (Time 1 = acrolein, and an | 107-02-8 10min.), Temp. ny dilutions there | $\frac{0.1 \text{ ppm}}{2200^{\circ} \text{C} (\text{Time } 2 \neq 0)}$ | orl- 8.75 min.) imediately | orl-rat 46mg/kg | |
| Abundance | TIC: [B | ISB2]7 | TIC: [BSB2]79005.D | | | | Abundance | 27 27 | Scan | 232 (8.927 | min): [BSf | Scan 232 (8.927 min): [BSB2]79005.D |] | | |
| 250000 8.93 | | | | | | | 6000 | | | | | | | | |
| 20000 | | | Ì | 0/// | | | 5000 | Q | 56 | 10 | | | | | |
| 150000 | | | | | | | 40000 | Q | | | | | | | |
| | | | | | | | 30000 | Q | | | | | | | |
| 100000 | | | | | | | 20000 | Q | | | | | | | |
| 50000 | | | | | | | 10000 | | 37 | | | | | | |
| Time> ⁰ 10.0 | 10.00 15.00 20.00 25.00 | 30.0(| 30.00 35.00 40.00 45.00 | .00 45.00 | 50.00 55.00 | 55.00 60.0 | 0<~~ 10 | 0 20 30 | 44 40 50 | 65 75 85 60 70 80 9 | 85 0 90 100 | 5 119 158 169 90 100 110 120 130 140 150 160 170 | 140 150 1 | 158 169 160 170 | |
| | • The cer • Standar • Standar • All Star • Uncerta NIST 7 | rtified va urds are p urds are c undards, a ainty Ref Technical | The certified value is the concentration calculated from gravimetric and volumetric me Standards are prepared gravimetrically using balances that are calibrated with weight Standards are certified (H -) 0.5% of the stated value, unless otherwise stated. All Standards, after opening ampule should be stored with case tight and under appro Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidetines for Evaluating and NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | tration calcul etrically usin 6 of the state pule, should B.N. and Ku Government | ated from a balances t g balances t i value, uni t value, uni yat, C.E., "u | travimetric and hat are calibra ess otherwise s ith caps tight a Guidelines for 1 filee, Washing | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Shandards are prepared gravinetrically using balances that are calibrated with weights traceable to NIST (see above). Shandards are certified (++) 0.5% of the stated value, unless otherwise stated. All Standards, after opening ampule, should be stored with capt tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., 'Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | surrements und traceable to N Prfate laborator Expressing the | ess otherwise s IST (see above y conditions. Uncertainty of |).). 'NIST Measur | ement Result,' | | | | |
| | | | | | | | | | | | | | | | |

Part # 91980 Lot # 021225

1 of 1

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| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | | G | Sertified I | Certified Reference Material CRM テッ・イ | Material | CRM | | | | ANAB I: AR-153 https://Ab | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|--|---|---|--|--|---|--|--|-------------------------------------|--|---------------------------------|--|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | ber: ber: tion: | 91980 021325 Acrolein | | | 2 | Vater 07 | 2 14 Lott | t x | Formulated By: | ind By: | Anthony Markoney | 03 | 1325 DATE |
| Expiration Date: Recommended Storage: Nominal Concentration (µg/mL): | ate: age: nL): | 031325 Refrigerate (4 °C) 5000 | (4 °C) | a L E | | トロナフ | T co | 1.0 | | Je . | 4 Herto | 20 | 325 |
| NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot Compound Rw# Number | ID#: ned and dilu RM# | 6U1B Jted to (mL): Lot Number | 10.0 Nominal Conc (ug/mL) | | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Purity Uncertainty (%) Purity | ny Target Weight(g) | Actual Weight(g) | Actual Conc (µg/ml. | Expanded By Expanded Actual Uncertainty (Conc (ug/mt.) (+/-) (ug/mt.) | ଳା | Pedro L. Herntas SDS information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDE | | DATE |
| 1. 5 103755V10F 5000 97 0.5 0.05166 0.05178 5011.8 52.6 107-02-8 0.1 ppm c Method: GC0NSD-1. Detector: Mass Selective Detector (Sean mode). Columni Vocol (60m X 0.25mm ID X 1.5mm flln thickness). Over Profile: Temp. 1 = 35°C (Time 1 = 10min). Temp. 2=20°C (Time 2 = 8.75 min) | 5 ss Selective De | 103755V10F etector (Scan mode | 5000 ie). Columni: Voc | 97 201 (60m X () | 0.5 1.25mm ID X 1. | 0.05166 Sym film thickness | 0.05178 | 5011.8 e: Temp. 1 = 3 | 52.6 35°C (Time 1 = | 107-02-8 10min.), Temp. | 0.1 ppm 2=200°C (Time 2 = 8.7 | orl-rat 46mg/kg | <u> </u> |
| Long term storage is not recommended. Please contact our technical department if further information is required. To TIC: IBSB2179005.D | Inded. Please contact our techn TIC: [BSB2]79005.D | ract our technical | department if furt | ther informat | ion is required. | internet in Annapas | | Scan | 332 (8.927 | Scan 232 (8.927 min): [BSB2]79005.D | 179005.D | (rooter top | |
| Abundance | | | | | | Abundance | 27 | 3 | | | | | |
| 250000 8.93 | | 1 | 2 | | | 6000 | 6 | | | | | | |
| 200000 | | / | 0// | | | 50000 | 6 | 56 | (5 | | | | |
| 150000 | | | | | | 40000 | 6 | | | | | | |
| | | | | | | 30000 | _ | | | | | | |
| 100000 | | | | | | 2000 | <u> </u> | | | | | | |
| 50000 | | | | | | 10000 | | 37 | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 | 25.00 30. | 00 35.00 4 | 0.00 45.00 | 50.00 | 55.00 60.0(| 0 <z)(<="" td="" ш=""><td>20 30</td><td>44 40 50 (</td><td>65 75 8 60 70 80</td><td>öo</td><td>5 119 150 150 160 170 150 160 170</td><td>158 169 0 150 160 170</td><td></td></z> | 20 30 | 44 40 50 (| 65 75 8 60 70 80 | öo | 5 119 150 150 160 170 150 160 170 | 158 169 0 150 160 170 | |
| | The certified v Standards are Standards are All Standards, Uncertainty R NIST Technic | The certified value is the concentration calculated from gravimetric Standards are prepared gravimetrically using balances that are call standards are certified (++) 0.5% of the stated value, unless otherwis All Standards, after topening annule, should be stored with caps dg Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wash | mtration calcula metrically using 1% of the stated mpule, should be r, B.N. and Kuya S. Government F | ted from gri balances tha value, unles s stored with th, C.E., "Gi Yrinting Offi | avimetric and it are calibrate s otherwise sta o caps tight and utdelines for E- ce, Washingto | 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 after openling annule, should be stored with caps tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluation and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | urements unless aceable to NIS late laboratory pressing the Ur | s otherwise st T (see above). conditions. ucertainty of 1 | ated. NIST Measure | ement Result," | | | |

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1 of 1

Part # 91980 Lot # 021325

l

| ection VIII. EXPOSURE CON | CONTROLS/PERSONAL PROTECT | NO | |
|--|---|--|--|
| recautions for safe handling torage Conditions | Use ventilation Keep away from s | Avoid inhalation of vapour or mist. ources of ignition. No smoking. Prevent the build up of electr dry and well-ventilated place. Containers which are opened m e. | |
| BONA DNILUANDLING AND | AD STORAGE | | |
| igi Precautions Pr Pr | ignition. Vapours accumulate to form exp Prevent further leakage or spillage if safe | | |
| ection VI. ACCIDENTAL REL | RELEASE MEASURES | | |
| uitable extinguishing media rotective equipment for fire lazardous Decomposition product | Wear self contained breathing app | foam, dry chemical or carbon dioxide. varatus for fire fighting if necessary. | |
| Section V. FIREFIGHTING ME | SARUSAAM | | |
| eneral advice Contact W | Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph | a sheet to the doctor in attendance.Move to safe area. 5 breathing, give artificial respiration. Consult a physician. /sician. at least 15 minutes and consult a physician. | |
| USAENDED USE: REFERENC USAEM IV. FIRST AID MEASU | | | |
| Section III - Composition Components (Specific Chemics Vater | mical Identity; Common المهود)) | CAS#: 7732-18-5 | (lɕnoiîqo) % 79 < |
| 9302,332 If on skin, we Signal Word: | entilated area n, wash with soap and water ford: DANGER | H315 Causes skin and eye irritatic P280 Use gloves, eye protection/f P305,351,338 If in eyes, remove contacts, | |
| | GHS Classification in acco | rdance with 29 CFR 1910 (OSHA HCS) | |
| section II - Hazards Identifica | ification | | |
| A Anufacturer's Name A Address 4. | W II CAL STANDARD DISSOLVED IN W ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514 | ATER Emergency Telephone USA & CANADA Emergency Telephone International Date Prepared\Pevised | 1-362-535-5053 1-352-323-3500 1-362-535-5053 |
| section I Product and Compa | noitsoititnebl ynsqm | | |
| | Safety Data Sheet (SDS) | GHS/OSHB Compliant | |
| Absolute Standards Inc. | | smden, CT 06518-0585 PO Box 5585 | 7162-182-203-2972 723-203-2922 |

Melting Point

Specific Gravity (H2O = 1)

100°C

mqq 008 :AWT

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

F

Eye protection.

Vapor Pressure (mm Hg)

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

CAS#: 7732-18-5

Boiling Point

Vater

Eye irritation Causes skin irritation. LD50 Dermal - Guinea pig ΨN ΑN LC50 Inhalation - Rat LD50 Oral - Rat ΑN Section XI. TOXICOLOGICAL INFORMATION Hazardous decomposition products - No data available biove of elensieM ΑN Conditions to avoid ΨN

ΨN Possibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

Section X. STABILITY AND REACTIVITY

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

| | | | Completely miscible | Solubility in Water |
|-----|------------------|------|---------------------|------------------------------------|
| AN | (F = etate = 1) | ΨN | | |
| | Evaporation rate | | | <pre>(t = AIA) (tisned rods)</pre> |
| 2.0 | | WNI. | | |

| aldiosim vlatalomo? ateW ni vtilidulo2 | | | |
|--|----|---------------------|-----|
| | ΑN | (Butyl Acetate = 1) | ΨN |
| (t = AIA) viened rodsv | | Evaporation rate | |
| | AN | | 0°C |

Section XII. ECOLOGICAL INFORMATION

NOITAMROANI TROGENART .VIX noitoe2 Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water

Not dangerous goods

(SU) TOA

EC60

09DT

Proper shipping name: Water Not dangerous goods ATAI

Section XV. REGULATORY INFORMATION

Section XIII. DISPOSAL CONSIDERATIONS

ΨN ΑN

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interact with other substances. BBSOLUTE STANDARDS INC. warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of interaction with other chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of use or interaction with other substances. BBSOLUTE STANDARDS INC warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of meets the specifications of the label. ABSOLUTE STANDARDS INC potential dangers of the potential dangers of meets and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of the potent including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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, see,) 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 see, and Celobing. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clobing trained in chemical intended appropriate precautions of this chemical for his or her particular application. Depending on usage, protective clobing

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | | G | Sertified I | Certified Reference Material CRM テッ・イ | Material | CRM | | | | ANAB I: AR-153 https://Ab | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|--|---|---|--|--|---|--|--|-------------------------------------|--|---------------------------------|--|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | ber: ber: tion: | 91980 021325 Acrolein | | | 2 | Vater 07 | 2 14 Lott | t x | Formulated By: | ind By: | Anthony Markoney | 03 | 1325 DATE |
| Expiration Date: Recommended Storage: Nominal Concentration (µg/mL): | ate: age: nL): | 031325 Refrigerate (4 °C) 5000 | (4 °C) | a L E | | トロナフ | T co | 1.0 | | Je . | 4 Herto | 20 | 325 |
| NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot Compound Rw# Number | ID#: ned and dilu RM# | 6U1B Jted to (mL): Lot Number | 10.0 Nominal Conc (ug/mL) | | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Purity Uncertainty (%) Purity | ny Target Weight(g) | Actual Weight(g) | Actual Conc (µg/ml. | Expanded By Expanded Actual Uncertainty (Conc (ug/mt.) (+/-) (ug/mt.) | ଳା | Pedro L. Herntas SDS information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDE | | DATE |
| 1. 5 103755V10F 5000 97 0.5 0.05166 0.05178 5011.8 52.6 107-02-8 0.1 ppm c Method: GC0NSD-1. Detector: Mass Selective Detector (Sean mode). Columni Vocol (60m X 0.25mm ID X 1.5mm flln thickness). Over Profile: Temp. 1 = 35°C (Time 1 = 10min). Temp. 2=20°C (Time 2 = 8.75 min) | 5 ss Selective De | 103755V10F etector (Scan mode | 5000 ie). Columni Voc | 97 201 (60m X () | 0.5 1.25mm ID X 1. | 0.05166 Sym film thickness | 0.05178 | 5011.8 e: Temp. 1 = 3 | 52.6 35°C (Time 1 = | 107-02-8 10min.), Temp. | 0.1 ppm 2=200°C (Time 2 = 8.7 | orl-rat 46mg/kg | <u> </u> |
| Long term storage is not recommended. Please contact our technical department if further information is required. To TIC: IBSB2179005.D | Inded. Please contact our techn TIC: [BSB2]79005.D | ract our technical | department if furt | ther informat | ion is required. | increase in Annouse | | Scan | 332 (8.927 | Scan 232 (8.927 min): [BSB2]79005.D | 179005.D | Crons the | |
| Abundance | | | | | | Abundance | 27 | 3 | | | | | |
| 250000 8.93 | | 1 | 2 | | | 6000 | 6 | | | | | | |
| 200000 | | / | 0// | | | 50000 | 6 | 56 | (5 | | | | |
| 150000 | | | | | | 40000 | 6 | | | | | | |
| | | | | | | 30000 | _ | | | | | | |
| 100000 | | | | | | 2000 | <u> </u> | | | | | | |
| 50000 | | | | | | 10000 | | 37 | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 | 25.00 30. | 00 35.00 4 | 0.00 45.00 | 50.00 | 55.00 60.0(| 0 <z)(<="" td="" ш=""><td>20 30</td><td>44 40 50 (</td><td>65 75 8 60 70 80</td><td>öo</td><td>5 119 150 150 160 170 100 110 120 130 140 150 160 170</td><td>158 169 0 150 160 170</td><td></td></z> | 20 30 | 44 40 50 (| 65 75 8 60 70 80 | öo | 5 119 150 150 160 170 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | |
| | The certified v Standards are Standards are All Standards, Uncertainty R NIST Technic | The certified value is the concentration calculated from gravimetric Standards are prepared gravimetrically using balances that are call standards are certified (++) 0.5% of the stated value, unless otherwis All Standards, after topening annule, should be stored with caps dg Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wash | mtration calcula metrically using 1% of the stated mpule, should be r, B.N. and Kuya S. Government F | ted from gri balances tha value, unles s stored with th, C.E., "Gi Yrinting Offi | avimetric and it are calibrate s otherwise sta o caps tight and utdelines for E- ce, Washingto | 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 after openling annule, should be stored with caps tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluation and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | urements unless aceable to NIS late laboratory pressing the Ur | s otherwise st T (see above). conditions. ucertainty of 1 | ated. NIST Measure | ement Result," | | | |

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1 of 1

Part # 91980 Lot # 021325

l

| ection VIII. EXPOSURE CON | CONTROLS/PERSONAL PROTECT | NO | |
|--|---|--|--|
| recautions for safe handling torage Conditions | Use ventilation Keep away from s | Avoid inhalation of vapour or mist. ources of ignition. No smoking. Prevent the build up of electr dry and well-ventilated place. Containers which are opened m e. | |
| BONA DNILUANAH .IIV noitoe | AD STORAGE | | |
| igi Precautions Pr Pr | ignition. Vapours accumulate to form exp Prevent further leakage or spillage if safe | | |
| ection VI. ACCIDENTAL REL | RELEASE MEASURES | | |
| uitable extinguishing media rotective equipment for fire lazardous Decomposition product | Wear self contained breathing app | foam, dry chemical or carbon dioxide. varatus for fire fighting if necessary. | |
| Section V. FIREFIGHTING ME | SARUSAAM | | |
| eneral advice Contact W | Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph | a sheet to the doctor in attendance.Move to safe area. 5 breathing, give artificial respiration. Consult a physician. /sician. at least 15 minutes and consult a physician. | |
| USAENDED USE: REFERENC USAEM IV. FIRST AID MEASU | | | |
| Section III - Composition Components (Specific Chemics Vater | mical Identity; Common المهود)) | CAS#: 7732-18-5 | (lɕnoiîqo) % 79 < |
| 9302,332 If on skin, we Signal Word: | entilated area n, wash with soap and water ford: DANGER | H315 Causes skin and eye irritatic P280 Use gloves, eye protection/f P305,351,338 If in eyes, remove contacts, | |
| | GHS Classification in acco | rdance with 29 CFR 1910 (OSHA HCS) | |
| section II - Hazards Identifica | ification | | |
| A Anufacturer's Name A Address 4. | W II CAL STANDARD DISSOLVED IN W ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514 | ATER Emergency Telephone USA & CANADA Emergency Telephone International Date Prepared\Pevised | 1-362-535-5053 1-352-323-3500 1-362-535-5053 |
| section I Product and Compa | noitsoititnebl ynsqm | | |
| | Safety Data Sheet (SDS) | GHS/OSHB Compliant | |
| Absolute Standards Inc. | | smden, CT 06518-0585 PO Box 5585 | 7162-182-203-2972 723-203-2922 |

Melting Point

Specific Gravity (H2O = 1)

100°C

mqq 008 :AWT

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

F

Eye protection.

Vapor Pressure (mm Hg)

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

CAS#: 7732-18-5

Boiling Point

Vater

Eye irritation Causes skin irritation. LD50 Dermal - Guinea pig ΨN ΑN LC50 Inhalation - Rat LD50 Oral - Rat ΑN Section XI. TOXICOLOGICAL INFORMATION Hazardous decomposition products - No data available biove of elensieM ΑN Conditions to avoid ΨN

ΨN Possibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

Section X. STABILITY AND REACTIVITY

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

| | | | Completely miscible | Solubility in Water |
|-----|------------------|------|---------------------|------------------------------------|
| AN | (F = etate = 1) | ΨN | | |
| | Evaporation rate | | | <pre>(t = AIA) (tisned rods)</pre> |
| 2.0 | | WNI. | | |

| aldiosim vlatalomo? ateW ni vtilidulo2 | | | |
|--|----|---------------------|-----|
| | ΑN | (Butyl Acetate = 1) | ΨN |
| (t = AIA) viened rodsv | | Evaporation rate | |
| | AN | | 0°C |

Section XII. ECOLOGICAL INFORMATION

NOITAMROANI TROGENART .VIX noitoe2 Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water

Not dangerous goods

(SU) TOA

EC60

09DT

Proper shipping name: Water Not dangerous goods ATAI

Section XV. REGULATORY INFORMATION

Section XIII. DISPOSAL CONSIDERATIONS

ΨN ΑN

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interact with other substances. BBSOLUTE STANDARDS INC. warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of interaction with other chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of use or interaction with other substances. BBSOLUTE STANDARDS INC warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of meets the specifications of the label. ABSOLUTE STANDARDS INC potential dangers of the potential dangers of meets and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of the potent including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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, see,) 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 see, and Celobing. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clobing trained in chemical intended appropriate precautions of this chemical for his or her particular application. Depending on usage, protective clobing

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | | J | Sertified I | Certified Reference Material CRM テッ・イ | Material | CRM | | | | ANAB I: AR-153 https://Ab | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|--|---|---|--|--|---|--|--|-------------------------------------|--|---------------------------------|--|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | ber: ber: tion: | 91980 021325 Acrolein | | | 2 | Vater 07 | 2 14 Lott | t x | Formulated By: | ind By: | Anthony Markoney | 03 | 1325 DATE |
| Expiration Date: Recommended Storage: Nominal Concentration (µg/mL): | ate: age: nL): | 031325 Refrigerate (4 °C) 5000 | (4 °C) | a L | | トロナフ | T co | 1.0 | | Je . | 4 Herto | 20 | 325 |
| NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot Compound Rw# Number | ID#: ned and dilu RM# | 6U1B Jted to (mL): Lot Number | 10.0 Nominal Conc (ug/mL) | | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Purity Uncertainty (%) Purity | ny Target Weight(g) | Actual Weight(g) | Actual Conc (µg/ml. | Expanded By Expanded Actual Uncertainty (Conc (ug/mt.) (+/-) (ug/mt.) | ଳା | Pedro L. Herntas SDS information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDE | | DATE |
| 1. 5 103755V10F 5000 97 0.5 0.05166 0.05178 5011.8 52.6 107-02-8 0.1 ppm c Method: GC0NSD-1. Detector: Mass Selective Detector (Sean mode). Columni Vocol (60m X 0.25mm ID X 1.5mm flln thickness). Over Profile: Temp. 1 = 35°C (Time 1 = 10min). Temp. 2=20°C (Time 2 = 8.75 min) | 5 ss Selective De | 103755V10F etector (Scan mode | 5000 ie). Columni: Voc | 97 201 (60m X () | 0.5 1.25mm ID X 1. | 0.05166 Sym film thickness | 0.05178 | 5011.8 e: Temp. 1 = 3 | 52.6 35°C (Time 1 = | 107-02-8 10min.), Temp. | 0.1 ppm 2=200°C (Time 2 = 8.7 | orl-rat 46mg/kg | <u> </u> |
| Long term storage is not recommended. Please contact our technical department if further information is required. To TIC: IBSB2179005.D | Inded. Please contact our techn TIC: [BSB2]79005.D | ract our technical | department if furt | ther informat | ion is required. | increase in Annouse | | Scan | 332 (8.927 | Scan 232 (8.927 min): [BSB2]79005.D | 179005.D | Crons the | |
| Abundance | | | | | | Abundance | 27 | 3 | | | | | |
| 250000 8.93 | | 1 | 2 | | | 6000 | 6 | | | | | | |
| 200000 | | / | 0// | | | 50000 | 6 | 56 | (5 | | | | |
| 150000 | | | | | | 40000 | 6 | | | | | | |
| | | | | | | 30000 | _ | | | | | | |
| 100000 | | | | | | 2000 | <u> </u> | | | | | | |
| 50000 | | | | | | 10000 | | 37 | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 | 25.00 30. | 00 35.00 4 | 0.00 45.00 | 50.00 | 55.00 60.0(| 0 <z)(<="" td="" ш=""><td>20 30</td><td>44 40 50 (</td><td>65 75 8 60 70 80</td><td>öo</td><td>5 119 150 150 160 170 100 110 120 130 140 150 160 170</td><td>158 169 0 150 160 170</td><td></td></z> | 20 30 | 44 40 50 (| 65 75 8 60 70 80 | öo | 5 119 150 150 160 170 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | |
| | The certified v Standards are Standards are All Standards, Uncertainty R NIST Technic | The certified value is the concentration calculated from gravimetric Standards are prepared gravimetrically using balances that are call standards are certified (++) 0.5% of the stated value, unless otherwis All Standards, after topening annule, should be stored with caps dg Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wash | mtration calcula metrically using 1% of the stated mpule, should be r, B.N. and Kuya S. Government F | ted from gri balances tha value, unles s stored with th, C.E., "Gi Yrinting Offi | avimetric and it are calibrate s otherwise sta o caps tight and utdelines for E- ce, Washingto | 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 after openling annule, should be stored with caps tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluation and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | urements unless aceable to NIS late laboratory pressing the Ur | s otherwise st T (see above). conditions. ucertainty of 1 | ated. NIST Measure | ement Result," | | | |

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1 of 1

Part # 91980 Lot # 021325

l

| ection VIII. EXPOSURE CON | CONTROLS/PERSONAL PROTECT | NO | |
|--|---|--|--|
| recautions for safe handling torage Conditions | Use ventilation Keep away from s | Avoid inhalation of vapour or mist. ources of ignition. No smoking. Prevent the build up of electr dry and well-ventilated place. Containers which are opened m e. | |
| BONA DNILUANAH .IIV noitoe | AD STORAGE | | |
| igi Precautions Pr Pr | ignition. Vapours accumulate to form exp Prevent further leakage or spillage if safe | | |
| ection VI. ACCIDENTAL REL | RELEASE MEASURES | | |
| uitable extinguishing media rotective equipment for fire lazardous Decomposition product | Wear self contained breathing app | foam, dry chemical or carbon dioxide. varatus for fire fighting if necessary. | |
| Section V. FIREFIGHTING ME | SARUSAAM | | |
| eneral advice Contact W | Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph | a sheet to the doctor in attendance.Move to safe area. 5 breathing, give artificial respiration. Consult a physician. /sician. at least 15 minutes and consult a physician. | |
| USAENDED USE: REFERENC USAEM IV. FIRST AID MEASU | | | |
| Section III - Composition Components (Specific Chemics Vater | mical Identity; Common المهود)) | CAS#: 7732-18-5 | (lɕnoiîqo) % 79 < |
| 9302,332 If on skin, we Signal Word: | entilated area n, wash with soap and water ford: DANGER | H315 Causes skin and eye irritatic P280 Use gloves, eye protection/f P305,351,338 If in eyes, remove contacts, | |
| | GHS Classification in acco | rdance with 29 CFR 1910 (OSHA HCS) | |
| section II - Hazards Identifica | ification | | |
| A Anufacturer's Name A Address 4. | W II CAL STANDARD DISSOLVED IN W ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514 | ATER Emergency Telephone USA & CANADA Emergency Telephone International Date Prepared\Pevised | 1-362-535-5053 1-352-323-3500 1-362-535-5053 |
| section I Product and Compa | noitsoititnebl ynsqm | | |
| | Safety Data Sheet (SDS) | GHS/OSHB Compliant | |
| Absolute Standards Inc. | | smden, CT 06518-0585 PO Box 5585 | 7162-182-203-2972 723-203-2922 |

Melting Point

Specific Gravity (H2O = 1)

100°C

mqq 008 :AWT

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

F

Eye protection.

Vapor Pressure (mm Hg)

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

CAS#: 7732-18-5

Boiling Point

Vater

Eye irritation Causes skin irritation. LD50 Dermal - Guinea pig ΨN ΑN LC50 Inhalation - Rat LD50 Oral - Rat ΑN Section XI. TOXICOLOGICAL INFORMATION Hazardous decomposition products - No data available biove of elensieM ΑN Conditions to avoid ΨN

ΨN Possibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

Section X. STABILITY AND REACTIVITY

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

| | | | Completely miscible | Solubility in Water |
|-----|------------------|------|---------------------|------------------------------------|
| AN | (F = etate = 1) | ΨN | | |
| | Evaporation rate | | | <pre>(t = AIA) (tisned rods)</pre> |
| 2.0 | | WNI. | | |

| aldiosim vlatalomo? ateW ni vtilidulo2 | | | |
|--|----|---------------------|-----|
| | ΑN | (Butyl Acetate = 1) | ΨN |
| (t = AIA) viened rodsv | | Evaporation rate | |
| | AN | | 0°C |

Section XII. ECOLOGICAL INFORMATION

NOITAMROANI TROGENART .VIX noitoe2 Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water

Not dangerous goods

(SU) TOA

EC60

09DT

Proper shipping name: Water Not dangerous goods ATAI

Section XV. REGULATORY INFORMATION

Section XIII. DISPOSAL CONSIDERATIONS

ΨN ΑN

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interact with other substances. BBSOLUTE STANDARDS INC. warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of interaction with other chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of use or interaction with other substances. BBSOLUTE STANDARDS INC warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of meets the specifications of the label. ABSOLUTE STANDARDS INC potential dangers of the potential dangers of meets and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of the potent including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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, see,) 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 see, and Celobing. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clobing trained in chemical intended appropriate precautions of this chemical for his or her particular application. Depending on usage, protective clobing

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | | J | Sertified I | Certified Reference Material CRM テッ・イ | Material | CRM | | | | ANAB I: AR-153 https://Ab | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|---|--|---|---|---|--|--|---|--|--|-------------------------------------|--|---------------------------------|--|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | ber: ber: tion: | 91980 021325 Acrolein | | | 2 | Vater 07 | 2 14 Lott | t x | Formulated By: | ind By: | Anthony Markoney | 03 | 1325 DATE |
| Expiration Date: Recommended Storage: Nominal Concentration (µg/mL): | ate: age: nL): | 031325 Refrigerate (4 °C) 5000 | (4 °C) | a L E | | トロナフ | T co | 1.0 | | Je . | 4 Herto | 20 | 325 |
| NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): Lot Compound Rw# Number | ID#: ned and dilu RM# | 6U1B Jted to (mL): Lot Number | 10.0 Nominal Conc (ug/mL) | | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty Purity Uncertainty (%) Purity | ny Target Weight(g) | Actual Weight(g) | Actual Conc (µg/ml. | Expanded By Expanded Actual Uncertainty (Conc (ug/mt.) (+/-) (ug/mt.) | ଳା | Pedro L. Herntas SDS information (Solvent Safety Info. On Attached pg.) CAS# OSHA PEL (TWA) LDE | | DATE |
| 1. 5 103755V10F 5000 97 0.5 0.05166 0.05178 5011.8 52.6 107-02-8 0.1 ppm c Method: GC0NSD-1. Detector: Mass Selective Detector (Sean mode). Columni Vocol (60m X 0.25mm ID X 1.5mm flln thickness). Over Profile: Temp. 1 = 35°C (Time 1 = 10min). Temp. 2=20°C (Time 2 = 8.75 min) | 5 ss Selective De | 103755V10F etector (Scan mode | 5000 ie). Columni: Voc | 97 201 (60m X () | 0.5 1.25mm ID X 1. | 0.05166 Sym film thickness | 0.05178 | 5011.8 e: Temp. 1 = 3 | 52.6 35°C (Time 1 = | 107-02-8 10min.), Temp. | 0.1 ppm 2=200°C (Time 2 = 8.7 | orl-rat 46mg/kg | <u> </u> |
| Long term storage is not recommended. Please contact our technical department if further information is required. To TIC: IBSB2179005.D | Inded. Please contact our techn TIC: [BSB2]79005.D | ract our technical | department if furt | ther informat | ion is required. | internet in Annapas | | Scan 2 | 332 (8.927 | Scan 232 (8.927 min): [BSB2]79005.D | 179005.D | (rooter top | |
| Abundance | | | | | | Abundance | 27 | 3 | | | | | |
| 250000 ^{8.93} | | 1 | 2 | | | 6000 | 6 | | | | | | |
| 200000 | | / | 0// | | | 50000 | 6 | 56 | (5 | | | | |
| 150000 | | | | | | 40000 | 6 | | | | | | |
| | | | | | | 30000 | _ | | | | | | |
| 100000 | | | | | | 2000 | <u> </u> | | | | | | |
| 50000 | | | | | | 10000 | | 37 | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 | 25.00 30. | 00 35.00 4 | 0.00 45.00 | 50.00 | 55.00 60.0(| 0 <z)(<="" td="" ш=""><td>20 30</td><td>44 40 50 (</td><td>65 75 8 60 70 80</td><td>öo</td><td>5 119 150 150 160 170 100 110 120 130 140 150 160 170</td><td>158 169 0 150 160 170</td><td></td></z> | 20 30 | 44 40 50 (| 65 75 8 60 70 80 | öo | 5 119 150 150 160 170 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | |
| | The certified v Standards are Standards are All Standards, Uncertainty R NIST Technic | The certified value is the concentration calculated from gravimetric Standards are prepared gravimetrically using balances that are call standards are certified (<i>A</i>+) 0.5% of the stated value, unless otherwis All Standards, after topening annule, should be stored with caps dg Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wash | mtration calcula metrically using 1% of the stated mpule, should be r, B.N. and Kuys S. Government F | ted from gri balances tha value, unles s stored with th, C.E., "Gi Yrinting Offi | avimetric and it are calibrate s otherwise sta o caps tight and uidelines for E- ce, Washingto | 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 after openling annule, should be stored with caps tight and under appropriate laboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluation and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | urements unless aceable to NIS late laboratory pressing the Ur | s otherwise st T (see above). conditions. ucertainty of 1 | ated. NIST Measure | ement Result," | | | |

Printed: 2/13/2025, 4:52:12 PM

1 of 1

Part # 91980 Lot # 021325

l

| ection VIII. EXPOSURE CON | CONTROLS/PERSONAL PROTECT | NO | |
|--|---|--|--|
| recautions for safe handling torage Conditions | Use ventilation Keep away from s | Avoid inhalation of vapour or mist. ources of ignition. No smoking. Prevent the build up of electr dry and well-ventilated place. Containers which are opened m e. | |
| BONA DNILUANAH .IIV noitoe | AD STORAGE | | |
| igi Precautions Pr Pr | ignition. Vapours accumulate to form exp Prevent further leakage or spillage if safe | | |
| ection VI. ACCIDENTAL REL | RELEASE MEASURES | | |
| uitable extinguishing media rotective equipment for fire lazardous Decomposition product | Wear self contained breathing app | foam, dry chemical or carbon dioxide. varatus for fire fighting if necessary. | |
| Section V. FIREFIGHTING ME | SARUSAAM | | |
| eneral advice Contact W | Consult a physician. Show this safety dat If inhaled, move person into fresh air. If n Wash with soap and water. Consult a ph | a sheet to the doctor in attendance.Move to safe area. 5 breathing, give artificial respiration. Consult a physician. /sician. at least 15 minutes and consult a physician. | |
| USAENDED USE: REFERENC USAEM IV. FIRST AID MEASU | | | |
| Section III - Composition Components (Specific Chemics Vater | mical Identity; Common المهود)) | CAS#: 7732-18-5 | (lɕnoiîqo) % 79 < |
| 9302,332 If on skin, we Signal Word: | entilated area n, wash with soap and water ford: DANGER | H315 Causes skin and eye irritatic P280 Use gloves, eye protection/f P305,351,338 If in eyes, remove contacts, | |
| | GHS Classification in acco | rdance with 29 CFR 1910 (OSHA HCS) | |
| section II - Hazards Identifica | ification | | |
| A Anufacturer's Name A Address 4. | W II CAL STANDARD DISSOLVED IN W ABSOLUTE STANDARDS INC 44 Rossotto Dr. Hamden CT, 06514 | ATER Emergency Telephone USA & CANADA Emergency Telephone International Date Prepared\Pevised | 1-362-535-5053 1-352-323-3500 1-362-535-5053 |
| section I Product and Compa | noitsoititnebl ynsqm | | |
| | Safety Data Sheet (SDS) | GHS/OSHB Compliant | |
| Absolute Standards Inc. | | smden, CT 06518-0585 PO Box 5585 | 7162-182-203-2972 723-203-2922 |

Melting Point

Specific Gravity (H2O = 1)

100°C

mqq 008 :AWT

Personal protective equipment Respiratory protection Handle with gloves. Gloves must be inspected prior to use. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

F

Eye protection.

Vapor Pressure (mm Hg)

Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS

CAS#: 7732-18-5

Boiling Point

Vater

Eye irritation Causes skin irritation. LD50 Dermal - Guinea pig ΨN ΑN LC50 Inhalation - Rat LD50 Oral - Rat ΑN Section XI. TOXICOLOGICAL INFORMATION Hazardous decomposition products - No data available biove of elensieM ΑN Conditions to avoid ΨN

ΨN Possibility of hazardous reactions Stable under recommended storage conditions. Chemical stability

Section X. STABILITY AND REACTIVITY

CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. Appearance and Odor

| | | | Completely miscible | Solubility in Water |
|-----|------------------|-------|---------------------|------------------------------------|
| AN | (F = etate = 1) | ΨN | | |
| | Evaporation rate | | | <pre>(t = AIA) (tisned rods)</pre> |
| 2.0 | | WNI . | | |

| aldiosim vlatalomo? ateW ni vtilidulo2 | | | |
|--|----|---------------------|-----|
| | ΑN | (Butyl Acetate = 1) | ΨN |
| (f = AIA) viened rodsv | | Evaporation rate | |
| | AN | | 0°C |

Section XII. ECOLOGICAL INFORMATION

NOITAMROANI TROGENART .VIX noitoe2 Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water

Not dangerous goods

(SU) TOA

EC60

09DT

Proper shipping name: Water Not dangerous goods ATAI

Section XV. REGULATORY INFORMATION

Section XIII. DISPOSAL CONSIDERATIONS

ΨN ΑN

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. APPLICATION. The user should recognize that this product can cause severe injury or death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If This chemical may interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interact with other substances. BBSOLUTE STANDARDS INC. warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of interaction with other chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of use or interaction with other substances. BBSOLUTE STANDARDS INC warmants that the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of meets the specifications of the label. ABSOLUTE STANDARDS INC potential dangers of the potential dangers of meets and the chemical meets the specifications set forth on the label. ABSOLUTE STANDARDS INC potential dangers of the potent including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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, see,) 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 see, and Celobing. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clobing trained in chemical intended appropriate precautions of this chemical for his or her particular application. Depending on usage, protective clobing www.absolutestandards.com

Certified Reference Material CRM



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

| CER | TIFIED WEIGHT REPORT | | | | | | | | | Øshussiteh. | 8.45 | | | | | | |
|------------|--|--------------------|---------------------|----------------|------------------------|--------------------|---------|---------------|-------------|-------------------------|-------------------|-----------|------------------|-------------------------|---------------------|---|---|
| | Part Number: Lot Number: | | | | | | | | | Solvent(s): Methenol | Lolf EG359-USQ | 12 | | | and the second | in the hur | |
| | | | ai VOA Megami | 20 | | | | | | | | | | | . Jn | | 021524 |
| | | | ponents | | | | | | | | | | | Formulate | ed By: | Mario Luis | DATE |
| | Expiration Date: Recommended Storage: | | 10 903 | | | | | | | | | | | | 1 | | |
| | Nominal Concentration (ug/mL): | | (0.0) | | | | | | | | | | | | Jed. | to pleator | 021524 |
| | NIST Test ID#: | | | | 5E-05 | Balance Uncertain | nty | | | | | | | Reviewed | By: | Pedro L. Rentas | DATE |
| | Weight(s) shown below were combined a | and dilute | ed to (mL): | 100.0 | 0.021 | Flash Uncertainty | 1 | | | | | | | | | 0100 Information | |
| | | | | | 1-101-1 | 1222 | Nominal | the side of | Purity | Uncertainty | Target | Actual | Actual | Expanded Uncertainty | (Solve | SDS Information Int Safety Info. On Attach | ed pg.) |
| | Compound | (RM#) Part Numb | Lot or Number | Dil. Factor | Initial Viol. (ml.) | Conc.(ug/mL) | | Purity (%) | Uncertainty | | Weight(g) | Weight(g) | Conc (ug/mL) | | | OSHA PEL (TWA) | L050 |
| | Compound | | | | | | | | | | | | | | | | |
| 1. | Acetonitrie | (0324) | 021644 | NA | NA | NA | 2000 | 99.99 | 0.2 | NA | 0.20007 | 0.20022 | 2001.5 | 8.1 | 75-05-8 | 40 ppm (70mg/m3/8H) | orf-rat 2450mg/kg |
| 2, | Allyl chloride (3-Chloropropene) | (0325) | 102396 | NA | NA | NA | 2000 | 99 | 0.2 | NA | 0.20207 | 0.20222 | 2001.5 | 8.2 | 107-05-1 75-15-0 | 1 ppm (3mg/m3/8H) 4 ppm (12mg/m3) (skin) | orl-ret 700mg/kg orl-ret 1200mg/kg |
| 3. | Carbon disulphide | (0060) (1196) | MKCR8561 14718EF | NA | NA | NA | 2000 | 99.99 95 | 0.2 | NA NA | 0.20007 | 0.21060 | 2001.3 | 8.5 | 1478-11-5 | N/A | N/A |
| 4. | cis-1,4-Dichloro-2-butene trans-1,4-Dichloro-2-butene | (0486) | MKBP6041V | NA | NA | NA | 2000 | 96.5 | 0.2 | NA | 0.20731 | 0.20734 | 2000.3 | 8.4 | 110-57-6 | NA | N/A |
| 6. | Diethyl other | (0153) | IK1BCAS0000 | NA | NA | NA | 2000 | 99.9 | 0.2 | NA | 0.20025 | 0.20042 | 2001.7 | 8.1 | 80-29-7 | NA | N/A |
| 7. | Ethyl methacrylate | (0381) | 06126PX | NA | NA | NA | 2000 | 99 | 0.2 | NA | 0.20207 | 0.20231 | 2002.4 | 8.2 | 97-63-2 | N/A | orl-rat 14800mg/kg |
| 8. | lodomethane | (0489) | SHBF8718V | NA | NA | NA | 2000 | 99.5 | 0.2 | NA NA | 0.20106 | 0.20118 | 2001.2 2001.4 | 8.1 | 74-88-4 78-83-1 | 5 ppm(26mg/m3/6H)(skin) 50 ppm (150mg/m3/6H) | orl-rat 75mg/kg orl-rat 2460mg/kg |
| 9. | 2-Methyl-1-propanol | (0445) | 15241EB | NA | NA | NA | 2000 | 99.5 99 | 0.2 | NA | 0.20108 | 0.20209 | 2000.2 | 8.2 | 126-98-7 | 1 ppm (3mg/m3/8H)(sidn) | orl-rat 120mg/kg |
| 10. 11. | Methacrylonitrile Methyl acrylate | (0442) (1075) | 00427ET SHBK0679 | NA | NA | NA | 2000 | 99.9 | 0.2 | NA | 0.20025 | 0.20042 | 2001.7 | 8.1 | 95-33-3 | 10 ppm(35mg/m3/8H)(sidn) | ord-net 277mg/kg |
| 12. | Methyl methacrylate | (0404) | MKBW5137V | NA | NA | NA | 2000 | 99.9 | 0.2 | NA | 0.20025 | 0.20030 | 2000.5 | 8.1 | 80-62-6 | 100 ppm (410mg/m3/8H) | orl-rat 7872mg/kg |
| 13. | Nitrobenzene | (0228) | 01213TV | NA | NA | NA | 2000 | 89 | 0.2 | NA | 0.20207 | 0.20230 | 2002.3 | 8.2 | 98-95-3 | 1 ppm (Smg/m3/8H)(skin) | ori-tal 750mg/kg |
| 14. | 2-Nitropropane | (0461) | 14002JX | NA | NA | NA | 2000 | 97.3 | 0.2 | NA | 0.20560 | 0.20670 | 2001.0 | 8.3 | 79-46-9 76-01-7 | 10 ppm (35mg/m3/8H) N/A | orl-rat 720mg/kg N/A |
| 15. | Pentachloroethane | (0450) (0474) | HGA01 18930 | NA | NA | NA | 2000 | 98 | 0.2 | NA | 0.20207 | 0.20210 | 2000.3 | 8.2 | 78-13-1 | 1000 ppm (7600mg/m3/6H) | orl-rat 43g/kg |
| 16. 17. | 1,1,2-Trichlorotrilluoroethane Bromodichloromethane | 35171 | 101623 | 0.05 | 6.00 | 40001.7 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 22.9 | 75-27-4 | NA | orl-rat 916mg/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 | orl-rat 648mg/kg |
| 19. | cie-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-Dichlorosthene | 35171 | 101623 | 0.05 | 5.00 | 40002.4 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 23.0 | 156-60-5 | N/A 500 mm | orl-rat 1235mg/kg orl-rat 820mg/kg |
| 21. | Methylene chloride | 35171 | 101823 | 0.05 | 5.00 | 40002.8 | 2000 | NA NA | NA | 0.017 | NA | NA | 1999.6 | 20.4 | 75-09-2 75-35-4 | 500 ppm 1 ppm (4mg/m3/8H) | ori-rat 200mg/kg |
| 22. 23. | 1,1-Dichloroethene Bromoferm | 32251 95321 | 102023 | 0.10 | 10.00 | 20001.6 20003.2 | 2000 | NA | NA | 0.042 | NA | NA | 1999.8 | 20.5 | 75-25-2 | 0.5 ppm (5mg/m3) (skin) | orl-ret 933mg/kg |
| 24. | Carbon tetrachloride | 95321 | 020724 | 0.10 | 10.00 | 20003.4 | 2000 | NA | NA | 0.042 | NA | NA | 1909.B | 20.4 | 56-23-6 | 2 ppm (12.6mg/m3/8H) | ori-rat 2350mg/kg |
| 25. | Chloroform | 95321 | 020724 | 0.10 | 10.00 | 20024.0 | 2000 | NA | NA | 0.042 | NA | NA | 2001.9 | 20.5 | 67-66-3 | 50 ppm (240mg/m3) (CL) | phpm809 tar-ho |
| 26. | Dibromomethane | 95321 | 020724 | 0.10 | 10.00 | 20002.9 | 2000 | NA | NA | 0.042 | NA | NA | 1990.8 | 20.5 | 74-95-3 | N/A | orl-rat 106mg/kg |
| 27. | 1,1-Dichioroethane | 95321 | 020724 | 0.10 | 10.00 | 20003.4 | 2000 | NA NA | NA | 0.042 | NA | NA | 1999.8 | 20.5 | 75-34-3 | 100 ppm N/A | orl-rat 725mg/kg N/A |
| | 2,2-Dichloropropane | 95321 95321 | 020724 | 0.10 | 10.00 | 20003.4 | 2000 | NA | NA | 0.042 | NA | NA | 2019.6 | 20.6 | 127-18-4 | 25 ppm (170mg/m3/8H)(final) | orl-tet 2629mg/kg |
| 29. 30. | Tetrachloroethene 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 | 360 ppm (1900mg/m3/6H) | orl-rat 10300mg/kg |
| | 1,2-Dibromo-3-chiloropropane | 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 | orl-rat 170mg/kg |
| 32. | 1,2-Dibromoethane | 36161 | 112322 | 0.05 | 5.00 | 40024.8 | 2000 | NA | NA | 0.017 | NA | NA | 2000.7 | 22.9 | 108-83-4 | 20 ppm (8H) | orf-nit 108mg/kg |
| | 1,2-Dichloroethane | 35161 | 112322 | 0.05 | 5.00 | 40018.0 | 2000 | NA NA | NA | 0.017 | NA | NA | 2000.4 2002.0 | 22.9 | 107-08-2 78-87-5 | 50 ppm (8H) 75 ppm (350mg/m3/8H) | ori-rat 670mg/kg ori-rat 1947mg/kg |
| | 1,2-Dichloropropane | 35161 35161 | 112322 | 0.05 | 5.00 | 40051.0 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 | 22.9 | 142-28-9 | N/A | Unr-mus 3600mg/kg |
| | 1,3-Dichloropropane 1,1-Dichloropropene | 35161 | 112322 | 0.05 | 5.00 | 40012.1 | 2000 | NA | NA | 0.017 | NA | NA | 2000.1 | 29.7 | 583-58-6 | NA | NA |
| | 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. | trane-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 orl-rat 82mg/kg |
| 39. | Hexachloro-1,3-butadiene | 35161 | 112322 | 0.05 | 5.00 | 40021.9 | 2000 | NA | NA | 0.017 | NA | NA | 2000.6 | 29.7 22.9 | 87-68-3 630-20-6 | 0.02 ppm (0.24mg/m3/8H) N/A | cri-rat 670mg/kg |
| 40. | 1,1,2-Tetrachioroethane | 35161 | 112322 | 0.05 | 5.00 | 40011.9 | 2000 | NA | NA | 0.017 | NA | NA | 1999.9 | 22.9 | 79-34-5 | 5 ppm (35mg/m3/9H)(skin) | orl-rat 800mg/kg |
| | 1.1.2-Trichloroethane | 35161 | 112322 | 0.05 | 5.00 | 40008.6 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 | 23.0 | 79-00-5 | 10 ppm (45mg/m3/8H)(skin) | orl-rat 836mg/kg |
| 43. | Trichlorosthene | 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) | orl-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 71-43-2 | 10 ppm (60mg/m3/8H) | orl-rat 149.0mg/kg orl-rat 4894mg/kg |
| 45. | Benzene | 35162 | 050823 | 0.05 | 5.00 | 40005.0 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 108-86-1 | 1 ppm N/A | ori-rat 2009mg/kg |
| 46. | Bromobenzene n-Butyl benzene | 35162 35162 | 050823 | 0.05 | 5.00 | 40006.9 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 104-51-8 | N/A | N/A |
| | Ethyl benzene | 35162 | 050823 | 0.05 | 5.00 | 40004.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 100-41-4 | 100 ppm (435mg/m3/8H) | orl-rat>2000mg/kg |
| | p-isopropyl toluene | 35162 | 050823 | 0.05 | 5.00 | 40005.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 | 22.9 | 99-87-8 | NA | orl-rat 4750mg/kg |
| 50. | Naphihalene | 35162 | 050823 | 0.05 | 6,00 | 40006.2 | 2000 | NA | NA | 0.017 | NA | NA NA | 1999.8 | 22.9 | 91-20-3 100-42-5 | 10 ppm (50mg/m3/8H) 100 ppm | orl-rat 490mg/kg orl-rat 5000mg/kg |
| | Styrene | 35162 | 050823 | 0.05 | 5.00 | 40004.8 40006.2 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 | 22.9 | 108-68-3 | 200 ppm | orl-rat 5000mg/kg |
| | Toluene 1,2,3-Trichlorobenzene | 35162 35162 | 050823 | 0.05 | 5.00 | 40008.2 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 87-61-6 | NA | ipr-mus 1390mg/kg |
| | 1,2,4-Trichiorobenzene | 35162 | 050823 | 0.05 | 5.00 | 40006.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 | 22.9 | 120-62-1 | 5 ppm (CL) (40mg/m3) | ori-nat 756mg/kg |
| 1.2.4 | 1,2,4-Trimethylbenzene | 35162 | 050823 | 0.05 | 5.00 | 40001.6 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 23.0 | 95-63-6 | NA | ori-rat 5g/kg |
| | 1,3,5-Trimethylbenzene | 35162 | 050B23 | 0.05 | 5.00 | 40006.7 | 2000 | NA | NA | 0.017 | NA | NA | 1999.8 1999.8 | 22.9 | 108-67-8 | N/A 100 ppm (435mg/m3/8H) | orl-rat 5000mg/kg orl-rat 5g/kg |
| | m-Xylene | 35162 | 050823 | 0.05 | 5.00 | 40005.8 40001.2 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 22.9 | 98-06-6 | N/A | N/A |
| | tert-Butyl benzene sec-Butyl benzene | 35163 35163 | 101923 | 0.05 | 5.00 | 40001.2 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 22.9 | 135-98-8 | N/A | ort-rat 2240mg/kg |
| | Chlorobanzene | 35163 | 101923 | 0.05 | 5.00 | 40003.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 108-90-7 | 75 ppm (350mg/m3/8H) | ori-rat 2290mg/kg |
| | 2-Chiorololuene | 35163 | 101923 | 0.05 | 5.00 | 40000.3 | 2000 | NA | NA | 0.017 | NA | NA | 1999.5 | 22.9 | 95-49-8 | 60 ppm (250mg/m3/84-6) | ort-rat 3900mg/kg |
| | 4-Chlorotoluene | 35163 | 101923 | 0.05 | 5.00 | 40003.3 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 22.9 | 106-43-4 95-50-1 | N/A 50 ppm (300mg/m3) (CL) | orl-rat 2100mg/kg orl-rat 500mg/kg |
| | 1,2-Dichlorobenzene | 35163 | 101923 | 0.05 | 5.00 | 40003.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 1999.6 | 22.9 | 541-78-1 | SUppm (Scompma) (CL) N/A | ipr-mus 1062mg/kg |
| | 1,3-Dichlorobenzene 1,4-Dichlorobenzene | 35163 35163 | 101923 | 0.05 | 5.00 | 40001.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.6 | 22.9 | 106-46-7 | 75 ppm (450mg/m3/8H) | orl-rat 600mg/kg |
| | Isopropylbenzene | 35163 | 101923 | 0.05 | 5.00 | 40000.B | 2000 | NA | NA | 0.017 | NA | NA | 1999.5 | 22.9 | 98-82-8 | 50 ppm (245mg/m3/8H) | orl-rat 1400mg/kg |
| | n-Propylbenzene | 35163 | 101923 | 0.05 | 5.00 | 40003.4 | 2000 | NA | NA | 0.017 | NA | NA | 1999.7 | 23.0 | 109-65-1 | N/A | ort-rat 6040mg/kg |
| 68. | o-Xylena | 35163 | 101923 | 0.05 | 5.00 | 40040.8 | 2000 | NA | NA | 0.017 | NA | NA | 2001.5 | 23.0 | 95-47-6 | 100 ppm (435mg/m3/6H) | pr-mus 1384mg/kg orl-net 5g/kg |
| 69. | p-Xylene | 35163 | 101923 | 0.05 | 5.00 | 40000.8 | 2000 | NA | NA | 0.017 | NA | NA | 1999.5 | 22.9 | 108-42-3 | 100 ppm (435mg/m3/8H) | Million |

Cite carrillo value is the concenterwise celetated from gravitatorie and volumetrie measurements unless otherwise similal.
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| Run 17, "P95317 L021 | i24 I2000µg/mL in MeOHI" | Peak 2 | Name |
|-------------------------------|---|--------|--|
| HARIERS I ADDIE POPI | ma moodeline er endante | 3 | Ether 1,1,2-Trichloro-1,2,2-Inlibiorpethana |
| | | 3 | 1,1-Dichloroethene |
| Dum Longila: 00.00 min. 2 | 5000 nainte at 10 nainte canand | * | Acetonitrile |
| Hun Lengin. 60.00 min, 3 | 5998 points at 10 points/second. 44 at 10:04:27 AM. | 5 | Indomethane |
| Created: Sat. Feb 17, 20 | 4 at 10:04:27 AM. | 6 | Allyi shloride |
| Compled: Companes *02 | 624-GC5M1", Method "GC5-M1". | 7 | Carbon disulfide/Mathylone chloride |
| | | 8 | trans-1,Z-Dichloroethens |
| Analyzed using Method " | GC5-M1". | 9 | 1,1-Dichlorosthane |
| | | 10 | 2,2-Dichloropropane |
| | | 11 | 63-1,2-Dichloroethene |
| Comments | | 12 | Hethecrylonitrile/Hethyl acrylate/Chloroft |
| | | 13 | Isobutanol/1,1,1-Trichloroethane |
| GC5-M1 Analysis by Car | dice Warren | 14 | 1,1-Dichisropropene |
| | | 15 | Carison tetrachloride |
| CONTRACTO 260-A0001 IC | 5 meter X 0.53mm X 3.0µm film thickness | 16 | Benzene/1,2-Dichloroethane |
| Flow rates Total flow=29 | DmL/min., Helium (carrier)=10mL/min., nin., Hydogen(make-up)=40mL/min., Air(make-up)=230mL/min. *C (Time 1=10 min.), Temp 2=200°C (Time 2=8.75 min.), | 17 | Trictionoethene |
| Linking (makes and _ 16ml | the demonstration with Aland Imin Airfrantes with Oldent Imin | 18 | 1,2-Dichloropropaite |
| rienum(make-up)=romu | ин., пуслден(таке-up)≔илт.лпп., Ан(таке-up)=∠элтслип. | 19 | Hsinyi methacrylate |
| Oven Profile: Termo 1=3 | "C (Time 1=10 min) Termo 2=200"C (Time 2=8.75 min) | 20 | Bromodichioremethene |
| The Allerty Total | | 21 | Dibromomethane/2-Nitropropane |
| Hate = 4 G/min., 10tal ru | time=60 min. Injector temp.=200°C, FID Temp.=200°C. | 22 | cis-1,3-Dichioropropone |
| FID Signal = Edaq Chanr | | 23 | Toluane |
| | | 24 | Ethyl methecrylete/trans-1,3-Dickloropro; |
| Standard injection = 0.5μ | _, Hange=3 | 25 | 1,1,2-Trichloroethane |
| | | 26 | Tetrachioraethene/1,3-Dichloropropene |
| × | | 27 | Dibromochionomethane |
| 1 | | 28 | 1,2-Dipromoethane |
| | | 19 | Chiorobenzene |
| 4000000 | | 30 | Ethylbonzene/1,1,1,2-Retrachlonoethane |
| 1000000- | | 31 | m-Nytene/p-Xylene |
| 1 | | 32 | e-Xviene |
| | | 33 | Styrene |
| 1 1 | | 34 | isopropylbeneene/Bromoform |
| | | 35 | cis-1,4-Dichloro-2-butene |
| 800000- | | 36 | 1,1,2,2-Tetrachioroethene |
| over v | | 37 | 1,2,3-Intchloropropane |
| | | 38 | n-Propy/benzene |
| | | 39 | trans-1,4-Dichloro-2-butane |
| (I | in the second | -40 | Breinobenzene |
| | | -42 | 1,3,5-Trimethyibeneene |
| 600000- | | 42 | 2-Chiorotoluene |
| | | 43 | 4-Childrotoluene |
| 3 | | 44 | tert-Bodylbenzenie |
| | | 45 | 1,2,4-Trimethylbenzene |
| | 2 77 | 46 | Perstachioroethene |
| 110/00/00 | D | 42 | sec-Butylbenzens |
| 400000- | | 48 | p-laopropyko/uene |
| | | 49 | 1.3-Dichierobenzene |
| | | \$0 | L.4-Dichlorobenzone |
| 1 | | 51 | n-Butylbenzene |
| | | 52 | 1,2-Dichlorobenzana |
| | | 53 | 1,2-Oloromo+3-chloropropens |
| 200000- | | 54 | Nitrobencene |
| | | 55 | 1,2.4-Trictionsbenzesve |
| | | rsiek. | Hexactivorobutaciana |
| 1 1 | | 57 | Naphthalene |
| | N TRU, J & AU, APU, AND I DAYARS, UL III ALAMII BIRUDU A. A. DAVA | 58 | 1,2,3-michtonobenzene |
| | LA MALE IL THE AGE LINE A LIVE I A HILL IL HALINI IDINULL. OF LATE | | |
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-**Certified Reference Material CRM** ¢,



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

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

Certified Reference Material CRM

10



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

Absolute Standards Inc.

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

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

Section IX - Physical/Chemical Characteristics

PO Box 5585 Hamden, CT 06518-0585

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

Solubility in Water COMPLETE

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

Section X. STABILITY AND REACTIVITY

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

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

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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



www.absolutestandards.com

-**Certified Reference Material CRM** ¢,



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

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

Certified Reference Material CRM

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 contac.)
 0,077

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

Absolute Standards Inc.

Safety Data Sheet (SDS) GHS/OSHA Compliant

Section I Product and Company Identification

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

Section IX - Physical/Chemical Characteristics

PO Box 5585 Hamden, CT 06518-0585

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

Solubility in Water COMPLETE

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

Section X. STABILITY AND REACTIVITY

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

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

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

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Section XI. TOXICOLOGICAL INFORMATION

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

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certifie 200 | iffied Re | Certified Reference Material CRM ンピュー つろ (1 色 / とり | aterial C 「 こ | MA. | | | | ANAE AR-1 https:/// | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com | scredited Number ards.com |
|--|---|---|---|---|---|---|---|--|--|--|---|--|---------------------------------|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | 91980 031725 Acrolein | | | Sol | Solvent(s): Water 07 | Lot# 0723240 | | 7 | an | Con Con | | 031725 | |
| Expiration Date: 041725 Recommended Storage: Refrigerate Nominal Concentration (µg/mL): 5000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to fml): | 041725 Refrigerate (4 °C) 5000 6UTB Iuted to (ml.) | (C) 10 0 | 5E-05 Balance Uncertainty 0.001 Enable Forecondition | Balance Uncertainty | | 1890 | | Formulated by: | sy: | Lawrence Barry | | DATE 031725 DATE | |
| Compound | | Nominat Conc (ug/mL) | | | Target / Weight(g) W | Actual Weight(g) Co | Actual (| Expanded Uncertainty (+/-) (µg/mL) | (Solvent S cAs# | SDS Information (Solvent Safety Info. On Attached pg.) CAS# 0SHA PEL (TWA) LDS | on Attached pg.)) LD50 | 0 | |
| 1. Acrolein 5 1037555V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 0.1 ppm 0 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60n X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35% (Time 1 = 10min.), Temp. 2=20% C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200% Detector Temp. = 220% C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. | 103755V10F Detector (Scan mode). r Temp. = 220°C. Ana itact our technical dep | 5000 Column: Voco lyst: Pedro Re rrment if furth | 97 0 1 (60m X 0.25mm stas. NOTE: Due er information is | 0.5 0.0 nm ID X 1.5µm the to the instabil is required. | 0.05166 0. In thickness). C | 0.05170). Oven Profile: T | 5004.1 emp.1 = 35°C | 52.5 (Time 1 = 10 ⁿ lein, and any di | 107-02-8 min.), Temp. 2= lifutions thereof | 0.1 ppm 200°C (Time 2 = 8.7 , should be used imm | orl-rat 46mg/kg 5 min.) coliately | By/Bus | |
| Abundance | 2]79005.D | | | At | Abundance | 27 | Scan 232 | . (8.927 mi | Scan 232 (8.927 min): [BSB2]79005.D | 79005.D | | | |
| 250000 8.93 | | | | | 60000 | a ven | | | | | | | |
| 200000 | ì | °//// | | | 5000 | | 50 | | | | | | |
| 150000 | | | | | 40000 | | | | | | | | |
| 100000 | | | | | 30000 | | | | | | | | |
| | | | | | 20000 | | | | | | | | |
| 50000 | | | | | 10000 | 37 | | | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 | 0.00 35.00 40.00 | 45.00 | 50.00 55.00 | 0.00 | m/z>0 20 | 30 4(| 4 6 50 60 | 65 75 85 70 80 \$ | 5 90 100 1 | 5 119 150 150 160 170 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | 59 70 | |
| The certific Standards a Standards a All Standard Uncertainty NIST Techn | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimericing balances that are calibrated with weights traceable to NIST (see above). Scandards are careford (+/-) 0.5% of the stated values otherwise stated. All Standards, after opening ampule, should be stored with caps fight and under appropriate laboratory conditions. All Standards, after opening ampule, should be stored with caps fight 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). | tion calculate (cally using ba & the stared va le, should be s N. and Kuyat, overnment Pri | d from gravimet dances that are 4 the, unless other tored with capa 1 C.E., "Guidelin initing Office, Wi | rzic and volum calibrated wit rwise stated. tight and und ues for Evalua schington, DC | etric measurem h weights tracea er appropriate h iing aud Expres | ents unless oth ble to NIST (s aboratory com ing the Uncer | terwise stated. ee above). ditions. tainty of NISI | Measuremen | ri Result," | | | | |

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1 of 1

Part # 91980 Lot # 031725

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7101-182-203 :5nor9

| General advice If inhaled In case of skin cont In case of eye conta If swallowed | If inhaled, move person into fresh air. If a p tast Wash with soap and water. Consult a p | at least 15 minutes and consult a physician. | |
|--|--|--|--------------------------------|
| | SERUSAEM DIA T | | |
| | Weight Report For Other Analytes Pro BEFERENCE MATERIAL | sent At Trace Quantities. | |
| Components (Spe Water | ecific Chemical Identity; Common Name(s)) | CAS#: 7732-18-5 | (lsnoiiqo) % 79 < |
| moD - III noitoe2 | noifieoqu | | |
| P302,332 | СНS Classification in acc Use in ventilated area If on skin, wash with soap and water Signal Word: DANGER | ordance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritat P280 Use gloves, eye protection P305,351,338 If in eyes, remove contacts | ace sheild |
| Section II - Haza | ards Identification | | |
| Address | 44 Rossotto Dr. Hamden CT, 06514 | Emergency Telephone International Date Prepared/Revised | 1-362-323-3600 13025 |
| IDENTITY Manufacturer's Na | ANALYTICAL STANDARD DISSOLVED IN V Same ABSOLUTE STANDARDS INC | ATER Emergency Telephone USA & CANADA | 1-800-535-5053 |
| Section I Produc | ct and Company Identification | | |
| | Safety Data Sheet (SDS) | thsilgmoD AHSO/SHD | |
| | | | |

Section V. FIREFIGHTING MEASURES

| Protective equipment for fire | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary. Carbon oxides |
|-------------------------------|--|

SERION VI. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

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

Section VII. HANDLING AND STORAGE

| Storage Conditions |
|-------------------------------|
| |
| Precautions for safe handling |
| 1 |

| | L PROTECTION | ANO2A39/2JOATNO: | Section VIII. EXPOSURE C |
|-----------------|--|------------------------|-------------------------------|
| | mqq 003 :AWT | CAS#: 7732-18-5 | Water |
| Eye protection. | Handle with gloves. Gloves must be inspected prior to use. | Respiratory protection | Personal protective equipment |

| | SO | Section IX - PHYSICAL/CHEMICAL CHARACTERIST |
|------------------|----------------------------|---|
| $v_{\rm F} = 0c$ | | Boiling Point |
| L (1 = 02 | 100°C specific Gravity (H2 | אווויס ד פווויס |
| | Melting Point | Vapor Pressure (mm Hg) |

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
|-----------------|---|--|
| | | |
| | eldsiss available | Hazardous decomposition products - |
| | AN | biove of algorithms biove biove of algorithms biove biological biological biological biological biological biove b |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| | Stable under recommended atorage conditions. | Chemical stability |
| | | |
| | ΥΠΥΤΟΑΞ | Section X. STABILITY AND R |
| | | |
| | LEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. | Appearance and Odor C |
| | | |
| | sompletely miscible | Solubility in Water C |
| AN | (f = 9tst95A lytuB) AN | |
| | Evaporation rate | Vapor Density (AIR = 1) |
| 0°C | AN | |
| | | |
| | | |
| FAX: 203-281- | Hamden, CT 06518-0585 | |
| Phone: 203-281- | PO Box 5585 | Absolute Standards Inc. |
| | | |

Section

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
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| | | |
| | eldelieve steb oV | Hazardous decomposition products - I |
| | AN | Materials to avoid |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| noitibnoo egerote bebnen | Stable under recomm | Chemical stability |
| | | |

| | Causes skin irritation. |
|----|--------------------------|
| ΑN | LD50 Dermal - Guinea pig |
| ΨN | LC50 Inhalation - Rat |
| AN | LD50 Oral - Rat |
| | |

| Eye irritation | |
|--------------------------|----|
| Causes skin irritation. | |
| LD50 Dermal - Guinea pig | ΨN |
| LC50 Inhalation - Rat | ΨN |
| | |

| Section XII. ECOLOGICAL INFORMATIO |
|------------------------------------|
| |
| ແດງສາມາຊາດ |

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| OITAMAOHUI | ECOLOGICAL | Section XII. | |
|------------|------------|--------------|--|
| | | | |
| | | | |

ΨN EC20 ΨN LC50

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOO

Section XIV. TRANSPORT INFORMATION

| Proper shipping name: Water | |
|-----------------------------|--|
| Not dangerous goods | |
| ATAI | |
| | |

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 OTHER WARRATTES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR This obtained any interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interaction with other substances. ABSOLUTE STANDARDS INC, warmants that the chemical may experiment and the label. ABSOLUTE STANDARDS INC DISCLAMS ANY including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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 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. sec) and Global Harmonized System (GHS). This document is intended only as a guide to the sppropriate precautionary frame framework in the intended only as a guide to the sppropriate framework in the material burght with the previous of the United States of the states of the intended prevised by a geroon remaining of intendent and the prevised by a geroon remained in the intendent of the intendent states of the

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certifie 200 | iffied Re | Certified Reference Material CRM ンピュー つろ (1 色 / とり | aterial C 「 こ | MA. | | | | ANAE AR-1 https:/// | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com | scredited Number ards.com |
|--|--|---|---|---|---|---|---|--|--|--|---|--|---------------------------------|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | 91980 031725 Acrolein | | | Sol | Solvent(s): Water 07 | Lot# 0723240 | | 7 | an | Con Con | | 031725 | |
| Expiration Date: 041725 Recommended Storage: Refrigerate Nominal Concentration (µg/mL): 5000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to fml): | 041725 Refrigerate (4 °C) 5000 6UTB Iuted to (ml.)* | (C) 10 0 | 5E-05 Balance Uncertainty 0.001 Enable Forecondition | Balance Uncertainty | | 1890 | | Formulated by: | sy: | Lawrence Barry | | DATE 031725 DATE | |
| Compound | | Nominat Conc (ug/mL) | | | Target / Weight(g) W | Actual Weight(g) Co | Actual (| Expanded Uncertainty (+/-) (µg/mL) | (Solvent S cAs# | SDS Information (Solvent Safety Info. On Attached pg.) CAS# 0SHA PEL (TWA) LDS | on Attached pg.)) LD50 | 0 | |
| 1. Acrolein 5 1037555V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 0.1 ppm 0 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60n X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35% (Time 1 = 10min.), Temp. 2=20% C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200% Detector Temp. = 220% C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. | 103755V10F Detector (Scan mode). r Temp. = 220°C. Ana itact our technical dep | 5000 Column: Voco lyst: Pedro Re rrment if furth | 97 0 1 (60m X 0.25mm stas. NOTE: Due er information is | 0.5 0.0 nm ID X 1.5µm the to the instabil is required. | 0.05166 0. In thickness). C | 0.05170). Oven Profile: T | 5004.1 emp.1 = 35°C | 52.5 (Time 1 = 10 ⁿ lein, and any di | 107-02-8 min.), Temp. 2= lifutions thereof | 0.1 ppm 200°C (Time 2 = 8.7 , should be used imm | orl-rat 46mg/kg 5 min.) coliately | By/Bus | |
| Abundance | 2]79005.D | | | At | Abundance | 27 | Scan 232 | . (8.927 mi | Scan 232 (8.927 min): [BSB2]79005.D | 79005.D | | | |
| 250000 8.93 | | | | | 60000 | a ven | | | | | | | |
| 200000 | ì | °//// | | | 5000 | | 50 | | | | | | |
| 150000 | | | | | 40000 | | | | | | | | |
| 100000 | | | | | 30000 | | | | | | | | |
| | | | | | 20000 | | | | | | | | |
| 50000 | | | | | 10000 | 37 | | | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 | 0.00 35.00 40.00 | 45.00 | 50.00 55.00 | 0.00 | m/z>0 20 | 30 4(| 4 6 50 60 | 65 75 85 70 80 \$ | 5 90 100 1 | 5 119 158 169 90 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | 59 70 | |
| The certific Standards a Standards a All Standard Uncertainty NIST Techn | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimericing balances that are calibrated with weights traceable to NIST (see above). Scandards are careford (+/-) 0.5% of the stated values otherwise stated. All Standards, after opening ampule, should be stored with cape fight and under appropriate laboratory conditions. All Standards, after opening ampule, should be stored with cape fight 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). | tion calculate (cally using ba & the stared va le, should be s N. and Kuyat, overnment Pri | d from gravimet dances that are 4 the, unless other tored with capa 1 C.E., "Guidelin initing Office, Wi | rzic and volum calibrated wit rwise stated. tight and und ues for Evalua schington, DC | etric measurem h weights tracea er appropriate h iing aud Expres | ents unless oth ble to NIST (s aboratory com ing the Uncer | terwise stated. ee above). ditions. tainty of NISI | Measuremen | ri Result," | | | | |

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1 of 1

Part # 91980 Lot # 031725

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Absolute Standards Inc.

PO Box 5585

7101-182-203 :5nor9

| General advice If inhaled In case of skin cont In case of eye conta If swallowed | If inhaled, move person into fresh air. If a p tast Wash with soap and water. Consult a p | at least 15 minutes and consult a physician. | |
|--|--|--|--------------------------------|
| | SERUSAEM DIA T | | |
| | Weight Report For Other Analytes Pro BEFERENCE MATERIAL | sent At Trace Quantities. | |
| Components (Spe Water | ecific Chemical Identity; Common Name(s)) | CAS#: 7732-18-5 | (lsnoiiqo) % 79 < |
| moD - III noitoe2 | noifieoqu | | |
| P302,332 | СНS Classification in acc Use in ventilated area If on skin, wash with soap and water Signal Word: DANGER | ordance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritat P280 Use gloves, eye protection P305,351,338 If in eyes, remove contacts | ace sheild |
| Section II - Haza | ards Identification | | |
| Address | 44 Rossotto Dr. Hamden CT, 06514 | Emergency Telephone International Date Prepared/Revised | 1-362-323-3600 13025 |
| IDENTITY Manufacturer's Na | ANALYTICAL STANDARD DISSOLVED IN V Same ABSOLUTE STANDARDS INC | ATER Emergency Telephone USA & CANADA | 1-800-535-5053 |
| Section I Produc | ct and Company Identification | | |
| | Safety Data Sheet (SDS) | thsilgmoD AHSO/SHD | |
| | | | |

Section V. FIREFIGHTING MEASURES

| Protective equipment for fire | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary. Carbon oxides |
|-------------------------------|--|

SERION VI. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

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

Section VII. HANDLING AND STORAGE

| Storage Conditions |
|-------------------------------|
| |
| Precautions for safe handling |
| 1 |

| | L PROTECTION | ANO2A39/2JOATNO: | Section VIII. EXPOSURE C |
|-----------------|--|------------------------|-------------------------------|
| | mqq 003 :AWT | CAS#: 7732-18-5 | Water |
| Eye protection. | Handle with gloves. Gloves must be inspected prior to use. | Respiratory protection | Personal protective equipment |

| | SO | Section IX - PHYSICAL/CHEMICAL CHARACTERIST |
|------------------|----------------------------|---|
| $v_{\rm F} = 0c$ | | Boiling Point |
| L (1 = 02 | 100°C specific Gravity (H2 | אווויס ד פווויס |
| | Melting Point | Vapor Pressure (mm Hg) |

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
|-----------------|---|--|
| | | |
| | eldsiss available | Hazardous decomposition products - |
| | AN | biove of algorithms biove biove of algorithms biove biological biological biological biological biological biove biological biologica Biological biological biologica |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| | Stable under recommended atorage conditions. | Chemical stability |
| | | |
| | ΥΠΥΤΟΑΞ | Section X. STABILITY AND R |
| | | |
| | LEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. | Appearance and Odor C |
| | | |
| | sompletely miscible | Solubility in Water C |
| AN | (f = 9tst95A lytuB) AN | |
| | Evaporation rate | Vapor Density (AIR = 1) |
| 0°C | AN | |
| | | |
| | | |
| FAX: 203-281- | Hamden, CT 06518-0585 | |
| Phone: 203-281- | PO Box 5585 | Absolute Standards Inc. |
| | | |

Section

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
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| | | |
| | eldelieve steb oV | Hazardous decomposition products - I |
| | AN | Materials to avoid |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| noitibnoo egerote bebnen | Stable under recomm | Chemical stability |
| | | |

| | Causes skin irritation. |
|----|--------------------------|
| ΑN | LD50 Dermal - Guinea pig |
| ΨN | LC50 Inhalation - Rat |
| AN | LD50 Oral - Rat |
| | |

| Eye irritation | |
|--------------------------|----|
| Causes skin irritation. | |
| LD50 Dermal - Guinea pig | ΨN |
| LC50 Inhalation - Rat | ΨN |
| | |

| Section XII. ECOLOGICAL INFORMATIO |
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| OITAMAOHUI | ECOLOGICAL | Section XII. | |
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| | | | |

ΨN EC20 ΨN LC50

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOO

Section XIV. TRANSPORT INFORMATION

| Proper shipping name: Water | |
|-----------------------------|--|
| Not dangerous goods | |
| ATAI | |
| | |

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 OTHER WARRATTES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR This obtained any interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interaction with other substances. ABSOLUTE STANDARDS INC, warmants that the chemical may experiment and the label. ABSOLUTE STANDARDS INC DISCLAMS ANY including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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 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. sec) and Global Harmonized System (GHS). This document is intended only as a guide to the sppropriate precautionary frame framework in the intended only as a guide to the sppropriate framework in the material burght with the previous of the United States of the states of the intended prevised by a geroon remaining of intendent and the prevised by a geroon remained in the intendent of the intendent states of the

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certifie 200 | tified Re | Certified Reference Material CRM ととと つろ (1 色 / とう | aterial C 「 こ | MA. | | | | ANAE AR-1 https:/// | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com | scredited Number ards.com |
|--|--|---|--|--|---|---|---|--|--|--|---|--|---------------------------------|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | 91980 031725 Acrolein | | | NOS 2 | Solvent(s): Water 07 | Lot# 0723240 | | 7 | an | Con Con | | 031725 | |
| Expiration Date: 041725 Recommended Storage: Refrigerate Nominal Concentration (µg/mL): 5000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (m1). | 041725 Refrigerate (4 °C) 5000 6UTB Iuted to (ml.)* | (C) | 5E-05 Balance Uncertainty | Balance Uncertainty | | 1890 | | Formulated by: | sol in | Lawrence Barry | | DATE 031725 DATE | |
| Compound | | Nominat Conc (ug/mL) | | | Target / Weight(g) W | Actual Weight(g) Co | Actual (| Expanded Uncertainty (+/-) (µg/mL) | (Solvent S cAs# | SDS Information (Solvent Safety Info. On Attached pg.) CAS# 0SHA PEL (TWA) LDS | on Attached pg.)) LD50 | 0 | |
| 1. Acrolein 5 1037555V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 0.1 ppm 0 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60n X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35% (Time 1 = 10min.), Temp. 2=20% C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200% Detector Temp. = 220% C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. | 103755V10F Detector (Scan mode). r Temp. = 220°C. Ana itact our technical dep | 5000 Column: Voco lyst: Pedro Re rrment if furth | 97 0 I (60m X 0.25mn stas. NOTE: Due er information is | 0.5 0.1 nm ID X 1.5µm the to the instabil is required. | 0.05166 0. In thickness). C | 0.05170). Oven Profile: T | 5004.1 emp.1 = 35°C | 52.5 (Time 1 = 10 ⁿ lein, and any di | 107-02-8 min.), Temp. 2= lifutions thereof | 0.1 ppm 200°C (Time 2 = 8.7 , should be used imm | orl-rat 46mg/kg 5 min.) coliately | By/Bus | |
| Abundance | 2]79005.D | | | At | Abundance | 27 | Scan 232 | . (8.927 mi | Scan 232 (8.927 min): [BSB2]79005.D | 79005.D | | | |
| 250000 8.93 | | | | | 60000 | a ven | | | | | | | |
| 200000 | ì | °//// | | | 5000 | | 50 | | | | | | |
| 150000 | | | | | 40000 | | | | | | | | |
| 100000 | | | | | 30000 | | | | | | | | |
| | | | | | 20000 | | | | | | | | |
| 50000 | | | | | 10000 | 37 | | | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 | 00 35.00 40.00 | 45.00 | 50.00 55.00 | 0.00 | m/z>0 20 | 30 4(| 4 6 50 60 | 65 75 85 70 80 \$ | 5 90 100 1 | 5 119 150 150 160 170 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | 59 70 | |
| The certific Standards a Standards a All Standard Uncertainty NIST Techn | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimericing balances that are calibrated with weights traceable to NIST (see above). Scandards are careford (+/-) 0.5% of the stated values otherwise stated. All Standards, after opening ampule, should be stored with caps fight and under appropriate laboratory conditions. All Standards, after opening ampule, should be stored with caps fight 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). | tion calculate (cally using ba & the stared va le, should be s N. and Kuyat, overnment Pri | d from gravimet dances that are (thre, unless other tored with caps) .C.E., "Guidelin initing Office, Wi | tric and volum calibrated wit rwise stated. tight and und us for Evalua ashington, DC | etric measurem h weights tracea er appropriate h iing aud Expres | ents unless oth ble to NIST (s aboratory com ing the Uncer | terwise stated. ee above). ditions. tainty of NISI | Measuremen | ri Result," | | | | |

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1 of 1

Part # 91980 Lot # 031725

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PO Box 5585

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| General advice If inhaled In case of skin cont In case of eye conta If swallowed | If inhaled, move person into fresh air. If a p tast Wash with soap and water. Consult a p | at least 15 minutes and consult a physician. | |
|--|--|--|--------------------------------|
| | SERUSAEM DIA T | | |
| | Weight Report For Other Analytes Pro BEFERENCE MATERIAL | sent At Trace Quantities. | |
| Components (Spe Water | ecific Chemical Identity; Common Name(s)) | CAS#: 7732-18-5 | (lsnoiiqo) % 79 < |
| moD - III noitoe2 | noifieoqu | | |
| P302,332 | СНS Classification in acc Use in ventilated area If on skin, wash with soap and water Signal Word: DANGER | ordance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritat P280 Use gloves, eye protection P305,351,338 If in eyes, remove contacts | ace sheild |
| Section II - Haza | ards Identification | | |
| Address | 44 Rossotto Dr. Hamden CT, 06514 | Emergency Telephone International Date Prepared/Revised | 1-362-323-3600 13025 |
| IDENTITY Manufacturer's Na | ANALYTICAL STANDARD DISSOLVED IN V Same ABSOLUTE STANDARDS INC | ATER Emergency Telephone USA & CANADA | 1-800-535-5053 |
| Section I Produc | ct and Company Identification | | |
| | Safety Data Sheet (SDS) | thsilgmoD AHSO/SHD | |
| | | | |

Section V. FIREFIGHTING MEASURES

| Protective equipment for fire | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary. Carbon oxides | | |
|-------------------------------|--|--|--|

SERION VI. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

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

Section VII. HANDLING AND STORAGE

| Storage Conditions |
|-------------------------------|
| |
| Precautions for safe handling |
| 1 |

| | L PROTECTION | ANO2A39/2JOATNO: | Section VIII. EXPOSURE C |
|-----------------|--|------------------------|-------------------------------|
| | mqq 003 :AWT | CAS#: 7732-18-5 | Water |
| Eye protection. | Handle with gloves. Gloves must be inspected prior to use. | Respiratory protection | Personal protective equipment |

| Section IX - PHYSICAL/CHEMICAL CHARACTERISTICS | | | |
|--|----------------------------|------------------------|--|
| $v_{\rm F} = 0c$ | | Boiling Point | |
| L (1 = 02 | 100°C specific Gravity (H2 | אווויס ד פווויס | |
| | Melting Point | Vapor Pressure (mm Hg) | |

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
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| | | |
| | eldsiss available | Hazardous decomposition products - |
| | AN | biove of algorithms biove biove of algorithms biove biological biological biological biological biological biove biological biologic |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| | Stable under recommended atorage conditions. | Chemical stability |
| | | |
| | ΥΠΥΤΟΑΞ | Section X. STABILITY AND R |
| | | |
| Designce and Odor CLEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. | | |
| | | |
| | sompletely miscible | Solubility in Water C |
| AN | (f = 9tst95A lytuB) AN | |
| | Evaporation rate | Vapor Density (AIR = 1) |
| 0°C | AN | |
| | | |
| | | |
| FAX: 203-281- | Hamden, CT 06518-0585 | |
| Phone: 203-281- | PO Box 5585 | Absolute Standards Inc. |
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| VOITAMBOANI JAC | | Section XI. TOXICOLOGICAL |
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| | | |
| | eldelieve steb oV | Hazardous decomposition products - I |
| | AN | Materials to avoid |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| noitibnoo egerote bebnen | Stable under recomm | Chemical stability |
| | | |

| | Causes skin irritation. |
|----|--------------------------|
| ΑN | LD50 Dermal - Guinea pig |
| ΨN | LC50 Inhalation - Rat |
| AN | LD50 Oral - Rat |
| | |

| Eye irritation | |
|--------------------------|----|
| Causes skin irritation. | |
| LD50 Dermal - Guinea pig | ΨN |
| LC50 Inhalation - Rat | ΨN |
| | |

| Section XII. ECOLOGICAL INFORMATIO |
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ΨN EC20 ΨN LC50

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOO

Section XIV. TRANSPORT INFORMATION

| Proper shipping name: Water | |
|-----------------------------|--|
| Not dangerous goods | |
| ATAI | |
| | |

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 OTHER WARRATTES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR This obtained any interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interaction with other substances. ABSOLUTE STANDARDS INC, warmants that the chemical may experiment and the label. ABSOLUTE STANDARDS INC DISCLAMS ANY including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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 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. sec) and Global Harmonized System (GHS). This document is intended only as a guide to the sppropriate precautionary frame framework in the intended only as a guide to the sppropriate framework in the material burght with the previous of the United States of the states of the intended prevised by a geroon remaining of intendent and the prevised by a geroon remained in the intendent of the intendent states of the

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certifie 200 | iffied Re | Certified Reference Material CRM ンセニー つろ (1 色 / 2 リ | aterial C 「 こ | MA. | | | | ANAE AR-1 https:/// | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com | scredited Number ards.com |
|--|--|---|---|---|--|---|---|--|--|--|---|--|---------------------------------|
| CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | 91980 031725 Acrolein | | | Sol | Solvent(s): Water 07 | Lot# 0723240 | | 7 | an | Con Con | | 031725 | |
| Expiration Date: 041725 Recommended Storage: Refrigerate Nominal Concentration (µg/mL): 5000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to fml): | 041725 Refrigerate (4 °C) 5000 6UTB Iuted to (ml.) | (C) 10 0 | 5E-05 Balance Uncertainty 0.001 Enable Forecondition | Balance Uncertainty | | 1890 | | Formulated by: | sy: | Lawrence Barry | | DATE 031725 DATE | |
| Compound | | Nominat Conc (ug/mL) | | | Target / Weight(g) W | Actual Weight(g) Co | Actual (| Expanded Uncertainty (+/-) (µg/mL) | (Solvent S cAs# | SDS Information (Solvent Safety Info. On Attached pg.) CAS# 0SHA PEL (TWA) LDS | on Attached pg.)) LD50 | 0 | |
| 1. Acrolein 5 1037555V10F 5000 97 0.5 0.05166 0.05170 5004.1 52.5 107-02-8 0.1 ppm 0 Method: GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Column: Vocol (60n X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35% (Time 1 = 10min.), Temp. 2=20% C (Time 2 = 8.75 min.) Rate = 4°C/min., Injector Temp. = 200% Detector Temp. = 220% C. Analyst: Pedro Renas. NOTE: Due to the instability of acrolein in 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. | 103755V10F Detector (Scan mode). r Temp. = 220°C. Ana itact our technical dep | 5000 Column: Voco lyst: Pedro Re rrment if furth | 97 0 1 (60m X 0.25mm stas. NOTE: Due er information is | 0.5 0.0 nm ID X 1.5µm the to the instabil is required. | 0.05166 0. In thickness). C | 0.05170). Oven Profile: T | 5004.1 emp.1 = 35°C | 52.5 (Time 1 = 10 ⁿ lein, and any di | 107-02-8 min.), Temp. 2= lifutions thereof | 0.1 ppm 200°C (Time 2 = 8.7 , should be used imm | orl-rat 46mg/kg 5 min.) coliately | By/Bus | |
| Abundance | 2]79005.D | | | At | Abundance | 27 | Scan 232 | . (8.927 mi | Scan 232 (8.927 min): [BSB2]79005.D | 79005.D | | | |
| 250000 8.93 | | | | | 60000 | a ven | | | | | | | |
| 200000 | ì | °//// | | | 5000 | | 50 | | | | | | |
| 150000 | | | | | 40000 | | | | | | | | |
| 100000 | | | | | 30000 | | | | | | | | |
| | | | | | 20000 | | | | | | | | |
| 50000 | | | | | 10000 | 37 | | | | | | | |
| Time>0 10.00 15.00 20.00 25.00 30.00 | 00 35.00 40.00 | 45.00 | 50.00 55.00 | 0.00 | m/z>0 20 | 30 4(| 4 6 50 60 | 65 75 85 70 80 \$ | 5 90 100 1 | 5 119 158 169 90 100 110 120 130 140 150 160 170 | 158 169 0 150 160 170 | 59 70 | |
| The certific Standards a Standards a All Standard Uncertainty NIST Techn | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Standards are prepared gravimericing balances that are calibrated with weights traceable to NIST (see above). Scandards are careford (+/-) 0.5% of the stated values otherwise stated. All Standards, after opening ampule, should be stored with caps fight and under appropriate laboratory conditions. All Standards, after opening ampule, should be stored with caps fight 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). | tion calculate (cally using ba & the stared va le, should be s N. and Kuyat, overnment Pri | d from gravimet dances that are 4 the, unless other tored with capa 1 C.E., "Guidelin initing Office, Wi | rzic and volum calibrated wit rwise stated. tight and und ues for Evalua schington, DC | etric measurem h weights tracea er appropriate h ing aud Expres | ents unless oth ble to NIST (s aboratory com ing the Uncer | terwise stated. ee above). ditions. tainty of NISI | Measuremen | ri Result," | | | | |

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1 of 1

Part # 91980 Lot # 031725

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PO Box 5585

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| General advice If inhaled In case of skin cont In case of eye conta If swallowed | If inhaled, move person into fresh air. If a p tast Wash with soap and water. Consult a p | at least 15 minutes and consult a physician. | |
|--|--|--|--------------------------------|
| | SERUSAEM DIA T | | |
| | Weight Report For Other Analytes Pro BEFERENCE MATERIAL | sent At Trace Quantities. | |
| Components (Spe Water | ecific Chemical Identity; Common Name(s)) | CAS#: 7732-18-5 | (lsnoiiqo) % 79 < |
| moD - III noitoe2 | noifieoqu | | |
| P302,332 | СНS Classification in acc Use in ventilated area If on skin, wash with soap and water Signal Word: DANGER | ordance with 29 CFR 1910 (OSHA HCS) H315 Causes skin and eye irritat P280 Use gloves, eye protection P305,351,338 If in eyes, remove contacts | ace sheild |
| Section II - Haza | ards Identification | | |
| Address | 44 Rossotto Dr. Hamden CT, 06514 | Emergency Telephone International Date Prepared/Revised | 1-362-323-3600 13025 |
| IDENTITY Manufacturer's Na | ANALYTICAL STANDARD DISSOLVED IN V Same ABSOLUTE STANDARDS INC | ATER Emergency Telephone USA & CANADA | 1-800-535-5053 |
| Section I Produc | ct and Company Identification | | |
| | Safety Data Sheet (SDS) | thsilgmoD AHSO/SHD | |
| | | | |

Section V. FIREFIGHTING MEASURES

| Protective equipment for fire | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Wear self contained breathing apparatus for fire fighting if necessary. Carbon oxides |
|-------------------------------|--|

SERION VI. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling the product.

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

Section VII. HANDLING AND STORAGE

| Storage Conditions |
|-------------------------------|
| |
| Precautions for safe handling |
| 1 |

| | L PROTECTION | ANO2A39/2JOATNO: | Section VIII. EXPOSURE C |
|-----------------|--|------------------------|-------------------------------|
| | mqq 003 :AWT | CAS#: 7732-18-5 | Water |
| Eye protection. | Handle with gloves. Gloves must be inspected prior to use. | Respiratory protection | Personal protective equipment |

| | SO | Section IX - PHYSICAL/CHEMICAL CHARACTERIST |
|------------------|----------------------------|---|
| $v_{\rm F} = 0c$ | | Boiling Point |
| L (1 = 02 | 100°C specific Gravity (H2 | אווויס ד פווויס |
| | Melting Point | Vapor Pressure (mm Hg) |

| | NOITAMAOANI | Section XI. TOXICOLOGICAL |
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| | | |
| | eldsiss available | Hazardous decomposition products - |
| | AN | biove of algorithms biove biove of algorithms biove biological biological biological biological biological biove biological biologica Biological biological biologica |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| | Stable under recommended atorage conditions. | Chemical stability |
| | | |
| | ΥΠΥΤΟΑΞ | Section X. STABILITY AND R |
| | | |
| | LEAR, COLORLESS LIQUID WITH SLIGHT CHEMICAL ODOR. | Appearance and Odor C |
| | | |
| | sompletely miscible | Solubility in Water C |
| AN | (f = 9tst95A lytuB) AN | |
| | Evaporation rate | Vapor Density (AIR = 1) |
| 0°C | AN | |
| | | |
| | | |
| FAX: 203-281- | Hamden, CT 06518-0585 | |
| Phone: 203-281- | PO Box 5585 | Absolute Standards Inc. |
| | | |

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| | eldelieve steb oV | Hazardous decomposition products - I |
| | AN | Materials to avoid |
| | AN | Conditions to avoid |
| | AN | Possibility of hazardous reactions |
| noitibnoo egerote bebnen | Stable under recomm | Chemical stability |
| | | |

| | Causes skin irritation. |
|----|--------------------------|
| ΑN | LD50 Dermal - Guinea pig |
| ΨN | LC50 Inhalation - Rat |
| AN | LD50 Oral - Rat |
| | |

| Eye irritation | |
|--------------------------|----|
| Causes skin irritation. | |
| LD50 Dermal - Guinea pig | ΨN |
| LC50 Inhalation - Rat | ΨN |
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| Section XII. ECOLOGICAL INFORMATIO |
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ΨN EC20 ΨN LC50

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Proper shipping name: Water Not dangerous goods

(SU) TOO

Section XIV. TRANSPORT INFORMATION

| Proper shipping name: Water | |
|-----------------------------|--|
| Not dangerous goods | |
| ATAI | |
| | |

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

you have any questions, please call Technical Service at 1-203-281-2917 for assistance. PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Absolute Standards Inc. will periodically revise this Material Safety Data Sheet. If 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 OTHER WARRATTES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR This obtained any interact with other substances. Since the potential uses are so varied, ABSOLUTE STANDARDS INC. cannot warm of all the potential dangers of use or interaction with other chemical may interaction with other substances. ABSOLUTE STANDARDS INC, warmants that the chemical may experiment and the label. ABSOLUTE STANDARDS INC DISCLAMS ANY including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/funces. Exposure to this product may have serious adverse health effects. 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 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. sec) and Global Harmonized System (GHS). This document is intended only as a guide to the sppropriate precautionary frame framework in the intended only as a guide to the sppropriate framework in the material burght with the previous of the United States of the states of the intended prevised by a geroon remaining of intendent and the prevised by a geroon remained in the intendent of the intendent states of the

| Absolute Standards, 800-368-1131 www.absolutestandards.com | Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certified | Certified Reference Material CRM | e Material C | I CRM | 2 119 | to the second se | | ANAB ISO 1 AR-1539 Ce https://Absolut | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|--|---|--|---|---|--|---|--|---|--|--|---|--|
| CERTIFIED WEIGHT REPORT | HT REPORI Part Number: Lot Number: Description: | 91980 091424 Acrolein | | | Solve | Lots 072324 | | | Justine | Harden K | | |
| Nomi Weight(s) shc | Expiration Date: 101424 Recommended Storage: Refrigerate Nominal Concentration (<i>ug/mL</i>): 5000 NIST Test ID#; 6UTB Weight(s) shown below were combined and diluted to (mL): | 101424 Refrigerate (4 °C) 5000 6UTB d diluted to (mL): | 10.0 | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty | ertainty ainty | | | Formulated By: | N N | Justin Dippold | 091424 DATE 091424 DATE | |
| Compound | L | Lot RM# Number | Nominat Conc (µg/mL) | Purity Uncertainty (%) Purity | ty Target Weight(g) | Actual Weight(g) | Expanded Actual Uncertainty Conc (µg/mL) (+/-) (µg/mL) | | Solvent Safety CAS# 0SH | SDS Information (Solvent Safety info. On Attached pg.) CAS# 05HA PEL (TWA) UDS | hed pg.) LDS0 | |
| 1. Acrolein Method: Rate = 4 ^o Lone tern | oil 5 103755V10F 5000 97 0.5 0.05166 0.05175 5008.9 52.5 107-02-8 0.1 ppm o Mathed GC6MSD-1. Detector: Mass Selective Detector (Scan mode). Columns: Vocol (60m X 0.25mm ID X 1.5µm film thickness). Oven Profile: Temp. 1 = 35°C (Time 1 = 10min.). Temp. 2=20°C (Time 2 = 8.75 min.) 0 Lone term strater is not recommended for comment of the mode. NOTE: Due to the instability of acrolein in solutions of acrolein. and any dilutions thereaf, femult have a immediated. 2=8.75 min.) | 5 103755V10F we Detector (Scan mode) ector Temp. = 220°C. An | 5000). Column: Vocol (nalyst: Pedro Rent | 97 0.5 (60m X 0.25mm ID) as. NOTE: Due to th | 0.05166 X 1.5µm film thicknown in the context of acrol | 0.05175 css). Oven Profile cia in solution, all | 5008.9 le: Temp. 1 = 35°C. Il solutions of acrol | 52.5 10 (Time 1 = 10min lein, and any dilut | 107-02-8 0 nin.), Temp. 2–200°C (littions thereof, should | 0.1 ppm (Time 2 = 8.75 min.) (he need inversely | -La | |
| Abundance | TIC: [BS | TIC: [BSB2]79005.D | partners n surber | unotmation is requ | Abundance | φ | Scan 232 | (8.927 min) | Scan 232 (8.927 min): [BSB2]79005.D | D. | | |
| 250000 8.93 | 33 | · | | | 6000 | 27 0 | | | | | | |
| 200000 | | Ì | 0//// | | 5000 | 0 | 50 | | | | | |
| 15000 | | | | | 40000 | 0 | | | | | | |
| 10000 | | | | | 30000 | 0 | | | | | | |
| | | | | | 2000 | 0 | | | | | | |
| 50000 | | | | | 10000 | 0 37 | ~ | | | | | |
| Time>0 10 | 10.00 15.00 20.00 25.00 30.00 35.00 | 30.00 35.00 40. | 00 45.00 50 | 40.00 45.00 50.00 55.00 60.00 | 0,000 m/z>0 | 20 30 | 44 65 7 40 50 60 70 | 80 80 | 119 100 110 120 | 130 140 150 | 158 169 160 170 | |
| | The certification Shandards: Shandards: All Shandards: Uncertainty NIST Tech | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Shandards are prepared gravimetrically using hadances that are calibrated with weights traceable to MIST (see above). Shandards are certified (++) 0.5% of the stated value, unless otherwise stated. All Shandards, after opening ampule, should be stored with eags tight stated. All Shandards, after opening ampule, should be stored with cass tight and under appropriate taboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | ation calculated f rically using bala of the stated value ule, should be stor .N. and Kuyat, C. | rom gravimetric au nocs that are calibr e, unless otherwise: red with caps tight, E, "Guidelines for ing Office, Washing | d volumetric means aled with weights th stated. In under appropri- tind under appropri- tion, DC, (1994). | arements unless (aceable to NIST afe laboratory ex pressing the Une | otherwise stated. (see above), onditions. certainty of NIST) | Measurement R | esstafe ^a | | | |
| | | | | | | | | | | | | |

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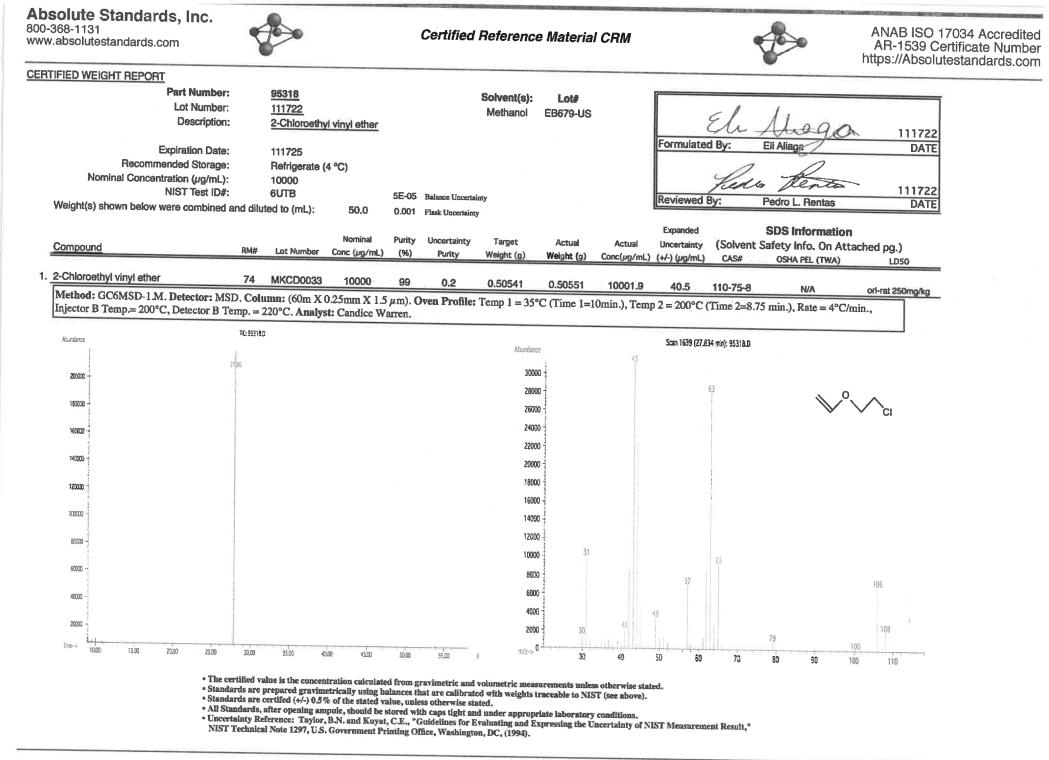
Lot # 091424 Part # 91980

| Absolute Standards, 800-368-1131 www.absolutestandards.com | Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | | Certified | Certified Reference Material CRM | e Material C | I CRM | 2 119 | to the second se | | ANAB ISO 1 AR-1539 Ce https://Absolut | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|--|---|--|---|---|--|---|--|---|--|--|---|--|
| CERTIFIED WEIGHT REPORT | HT REPORI Part Number: Lot Number: Description: | 91980 091424 Acrolein | | | Solve | Lots 072324 | | | Justine | Harden K | | |
| Nomi Weight(s) shc | Expiration Date: 101424 Recommended Storage: Refrigerate Nominal Concentration (<i>ug/mL</i>): 5000 NIST Test ID#; 6UTB Weight(s) shown below were combined and diluted to (mL): | 101424 Refrigerate (4 °C) 5000 6UTB d diluted to (mL): | 10.0 | 5E-05 Balance Uncertainty 0.001 Flask Uncertainty | ertainty ainty | | | Formulated By: | N N | Justin Dippold | 091424 DATE 091424 DATE | |
| Compound | L | Lot RM# Number | Nominat Conc (µg/mL) | Purity Uncertainty (%) Purity | ty Target Weight(g) | Actual Weight(g) | Expanded Actual Uncertainty Conc (µg/mL) (+/-) (µg/mL) | | Solvent Safety CAS# 0SH | SDS Information (Solvent Safety info. On Attached pg.) CAS# 05HA PEL (TWA) UDS | hed pg.) LDS0 | |
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| Abundance | TIC: [BS | TIC: [BSB2]79005.D | partners n sunner | unotmation is requ | Abundance | φ | Scan 232 | (8.927 min) | Scan 232 (8.927 min): [BSB2]79005.D | D. | | |
| 250000 8.93 | 33 | · | | | 6000 | 27 0 | | | | | | |
| 200000 | | Ì | 0//// | | 5000 | 0 | 50 | | | | | |
| 15000 | | | | | 40000 | 0 | | | | | | |
| 10000 | | | | | 30000 | 0 | | | | | | |
| | | | | | 2000 | 0 | | | | | | |
| 50000 | | | | | 10000 | 0 37 | ~ | | | | | |
| Time>0 10 | 10.00 15.00 20.00 25.00 30.00 35.00 | 30.00 35.00 40. | 00 45.00 50 | 40.00 45.00 50.00 55.00 60.00 | 0,00 m/z>0 | 20 30 | 44 65 7 40 50 60 70 | 80 80 | 119 100 110 120 | 130 140 150 | 158 169 1 160 170 | |
| | The certification Shandards: Shandards: All Shandards: Uncertainty NIST Tech | The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated. Shandards are prepared gravimetrically using hadances that are calibrated with weights traceable to MIST (see above). Shandards are certified (++) 0.5% of the stated value, unless otherwise stated. All Shandards, after opening ampule, should be stored with eags tight stated. All Shandards, after opening ampule, should be stored with cass tight and under appropriate taboratory conditions. Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994). | ation calculated f rically using bala of the stated value ule, should be stor .N. and Kuyat, C. | rom gravimetric au nocs that are calibr e, unless otherwise: red with caps tight, E, "Guidelines for ing Office, Washing | d volumetric means aled with weights th stated. In under appropri- tind under appropri- tion, DC, (1994). | arements unless (aceable to NIST afe laboratory ex pressing the Une | otherwise stated. (see above), onditions. certainty of NIST) | Measurement R | esstafe ^a | | | |
| | | | | | | | | | | | | |

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1 of 1

Lot # 091424 Part # 91980



| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | Certified Reference Material CRM | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|--|---|---|--|
| CERTIFIED WEIGHT REPORT 95318 Part Number: 95318 Lot Number: 120524 Description: 2-Chloroet Expiration Date: 120527 Recommended Storage: Refrigerat Nominal Concentration (<i>ug/mL</i>): 10000 Neight(s) shown below were combined and diluted to (mL): Uted to (mL): Compound RM# Lot Number | 95318 120524 2-Chloroethyl vinyl ether 120527 Refrigerate (4 °C) 10000 6UTB 10000 6UTB 30.0 M# Lot Number Conc (vg/mt) | 2.6.1 1.1 $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14.5$ | Formulated By: Prashant Chaufuan 120524 Formulated By: Prashant Chaufuan DATE Reviewed By: Pedro L. Rentas DATE Expanded SDS Information Uncertainty (Solvent Safety Info. On Attached pg.) (++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99 Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 μ m). Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren. | 74 MKCD0033 10000 . Column: (60m X 0.25mm X 1.5 np. = 220°C. Analyst: Candice W | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00 Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren. | 40.5 110-75-8 N/A ort-rat 250mg/kg ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., |
| Abordance 222000 160000 140000 100000 60000 60000 60000 100000 15.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 | MG 553162 | Abordance 20005 20005 20005 20005 20005 16000 16000 16000 16000 200 200 | |
| The ce Stands Stands Stands All Sta Uncert NUST' | The certified value is the concentration calculated from gravimetri standards are prepend gravinetrically using balances that are cal standards are recrifted (<i>H</i>.) 0.3% of the stated value, unless otherw . All Standards, after opening ampule, should be stored with caps fig of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wasl | 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 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). | tated.). NIST Measurement Result," |

Constant Con

Safety Data Sheet (SDS)

GHS/OSHA Compliant

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

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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

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

Section XI. TOXICOLOGICAL INFORMATION

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

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

Section XVI. Misc. INFORMATION

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

| Absolute Standards, Inc. 800-368-1131 www.absolutestandards.com | | Certified Reference Material CRM | ANAB ISO 17034 Accredited AR-1539 Certificate Number https://Absolutestandards.com |
|--|--|---|--|
| CERTIFIED WEIGHT REPORT 95318 Part Number: 95318 Lot Number: 120524 Description: 2-Chloroet Expiration Date: 120527 Recommended Storage: Refrigerat Nominal Concentration (<i>ug/mL</i>): 10000 Neight(s) shown below were combined and diluted to (mL): Uted to (mL): Compound RM# Lot Number | 95318 120524 2-Chloroethyl vinyl ether 120527 Refrigerate (4 °C) 10000 6UTB 10000 6UTB 30.0 M# Lot Number Conc (vg/mt) | 2.6.1 1.1 $2.6Solvent(s): LotsMethanol EJ143-US1.14.520 t^{2}1.14.520 t^{2}1.14$ | Formulated By: Prashant Chaufuan 120524 Formulated By: Prashant Chaufuan DATE Reviewed By: Pedro L. Rentas DATE Expanded SDS Information Uncertainty (Solvent Safety Info. On Attached pg.) (++) (ug/mL) Case OstA PEL (TWA) LD50 |
| 1. 2-Chloroethyl vinyl ether 74 MKCD0033 10000 99 Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 μ m). Injector B Temp = 200°C, Detector B Temp. = 220°C. Analyst: Candice Warren. | 74 MKCD0033 10000 . Column: (60m X 0.25mm X 1.5 np. = 220°C. Analyst: Candice W | 2-Chloroethyl viryl ether 74 MKCD0033 10000 99 0.2 0.50536 0.50550 10002.9 40.5 110-75-8 NA 00 Method: GC6MSD-1 M. Detector: MSD. Column: (60m X 0.25mm X 1.5 µm). Oven Profile: Temp 1 = 35°C (Time 1=10min.), Temp 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., Injector B Temp = 200°C, Detector B Temp = 220°C. Analyst: Candice Warren. | 40.5 110-75-8 N/A ort-rat 250mg/kg ap 2 = 200°C (Time 2=8.75 min.), Rate = 4°C/min., |
| Abordance 222000 160000 140000 100000 60000 60000 60000 100000 15.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 | MG 553162 | Abordance 20005 20005 20005 20005 20005 16000 16000 16000 16000 200 200 | |
| The ce Stands Stands Stands All Sta Uncert NUST' | The certified value is the concentration calculated from gravimetri standards are prepend gravinetrically using balances that are cal smalards are precrifted (<i>H</i>-1) 0.3% of the stated value, unless otherw - All Standards, after opening ampule, should be stored with caps fig of Uncertainty Reference: Taylor, B.N. and Kuyat, C.B., "Guidelines NIST Technical Note 1297, U.S. Government Printing Office, Wasl | 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 are certified (+/-) 0.5% of the stated value, unless otherwise stated. All Standards, after opening ampule, should be stored with cass 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). | tated.). NIST Measurement Result," |

Constant Con

Safety Data Sheet (SDS)

GHS/OSHA Compliant

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

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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

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

Contraction of the

Safety Data Sheet (SDS)

GHS/OSHA Compliant

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

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

Appearance and Odor

CLEAR, COLORLESS LIQUID WITH CHARACTERISTIC PUNGENT ODOR.

Section X. STABILITY AND REACTIVITY

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

Section XI. TOXICOLOGICAL INFORMATION

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

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

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

Section XIII. DISPOSAL CONSIDERATIONS

Dispose with normal Laboratory Solvent Waste.

Section XIV. TRANSPORT INFORMATION

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

Section XV. REGULATORY INFORMATION

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

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

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

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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

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CERTIFIED REFERENCE MATERIAL

4 V

Certificate of Analysis



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

www.restek.com



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

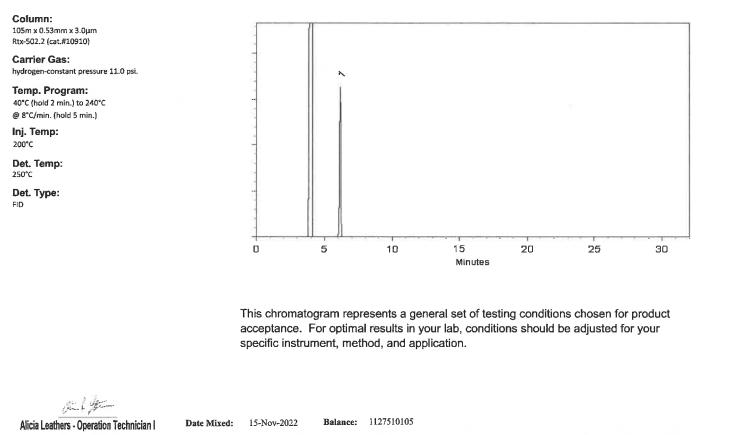
| Catalog No. : | 30470 | Lot No.: | A0191703 | | |
|-------------------|---|----------|---------------|--|--|
| Description : | tert-Butanol Standard | | | | |
| | tert-Butanol Std 50,000µg/mL, P&T Methanol, 1mL/ampul | | | | |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL | | |
| Expiration Date : | November 30, 2025 | Storage: | 0°C or colder | | |
| | | Ship: | Ambient | | |

CERTIFIED VALUES

| Elution Order | Compound | | Grav. Conc. (weight/volume) | | Expanded U (95% C.L.; K | | |
|------------------|---|--------------------|--------------------------------|-----|--------------------------------------|-------------------------|---------------------------------------|
| 1 | tert-Butanol (TBA) CAS # 75-65-0 Purity 99% | (Lot 101619K21F-1) | 50,122.0 μg/mL | +/- | 293.4753 1,073.6797 1,104.8612 | μg/mL μg/mL μg/mL | Gravimetric Unstressed Stressed |
| Solvent: | P&T Methanol | | | | | | |

CAS# 67-56-1

Purity 99%



Spale & Barrisk

Jennifer Pollino - Operations Tech III - ARM QC

Date Passed: 17-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 combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

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

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

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

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

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

Manufacturing Notes:

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

Handling Notes:

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



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



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, 1mL/ampul | 500μg/mL, P&T Methanol, |
| Container Size : | 2 mL | Pkg Amt: _ > 1 mL |
| Expiration Date : | November 30, 2027 | Storage: 0°C or colder |
| | | Ship: Ambient |

CERTIFIED VALUES

| Elution 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.

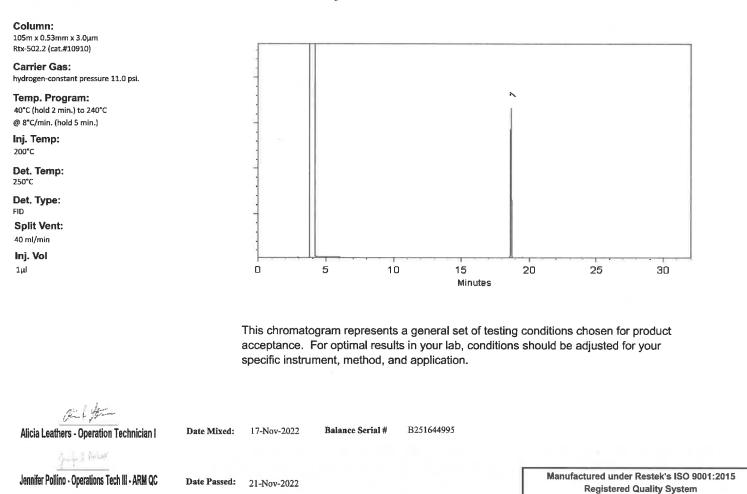
 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%



Quality Confirmation Test





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
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 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

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

CERTIFIED VALUES

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

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

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



Quality Confirmation Test





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:

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

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

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

Manufacturing Notes:

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

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



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

CERTIFIED VALUES

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

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

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







Expiration Notes:

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- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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

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

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

Manufacturing Notes:

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

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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.: | A0193887 | |
|-------------------|--|-------------------------|---------------|--|
| Description : | VOA Calibration Mix #1 | | | |
| | VOA Calibration Mix #1 5,00 1mL/ampul | 00µg/mL, P&T Methanol/W | ater(90:10), | |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL | |
| Expiration Date : | April 30, 2026 | Storage: | 0°C or colder | |
| | | Ship: | Ambient | |

CERTIFIED VALUES

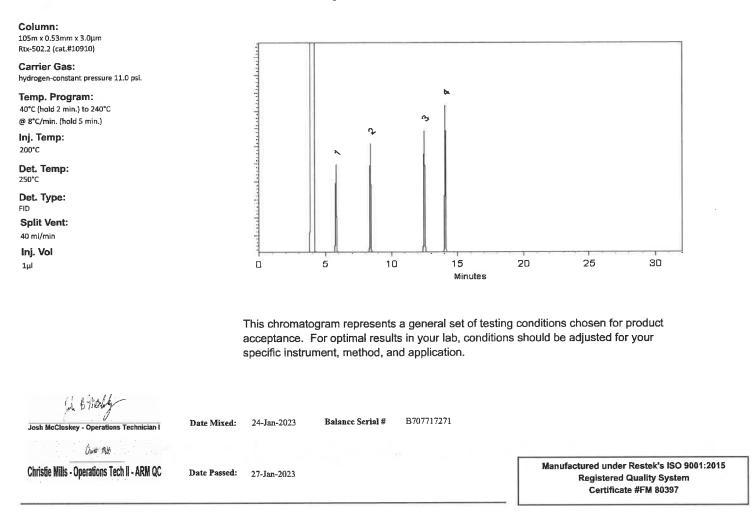
| Elution Order | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1 | Acetone | 67-64-1 | SHBP8774 | 99% | 5,006.5 μg/mL | +/- 173.0015 |
| 2 | 2-Butanone (MEK) | 78-93-3 | SHBN9536 | 99% | 5,008.5 μg/mL | +/- 173.0706 |
| 3 | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP4724 | 99% | 5,000.3 µg/mL | +/- 172.7884 |
| 4 | 2-Hexanone | 591-78-6 | MKCQ6663 | 99% | 5,001.7 μg/mL | +/- 172.8345 |

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

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

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







Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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 recommended condition found in the storage field.

Purity Notes:

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Certified Uncertainty Value Notes:

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

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| Catalog No. : | 30006 | _ Lot No.: | A0193887 | |
|-------------------|--|-------------------------|---------------|--|
| Description : | VOA Calibration Mix #1 | | | |
| | VOA Calibration Mix #1 5,00 1mL/ampul | 00µg/mL, P&T Methanol/W | ater(90:10), | |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL | |
| Expiration Date : | April 30, 2026 | Storage: | 0°C or colder | |
| | | Ship: | Ambient | |

CERTIFIED VALUES

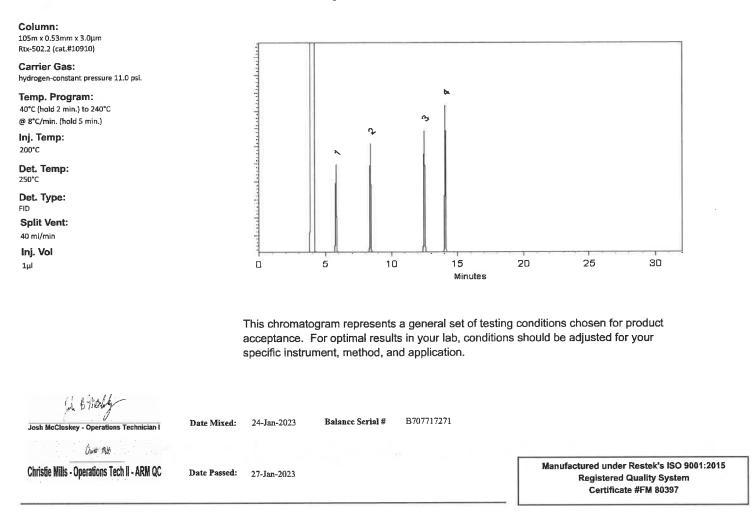
| Elution Order | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|------------------|-----------------------------|----------|----------|--------|--------------------------------|--|
| 1 | Acetone | 67-64-1 | SHBP8774 | 99% | 5,006.5 μg/mL | +/- 173.0015 |
| 2 | 2-Butanone (MEK) | 78-93-3 | SHBN9536 | 99% | 5,008.5 μg/mL | +/- 173.0706 |
| 3 | 4-Methyl-2-pentanone (MIBK) | 108-10-1 | SHBP4724 | 99% | 5,000.3 µg/mL | +/- 172.7884 |
| 4 | 2-Hexanone | 591-78-6 | MKCQ6663 | 99% | 5,001.7 μg/mL | +/- 172.8345 |

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

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

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







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

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| Catalog No. : | 30042 | Lot No.: | A0194279 | |
|----------------------|---------------------------------|---------------------|---------------|--|
| Description : | 502.2 Calibration Mix #1 | | | |
| | 502.2 Calibration Mix #1 2,000µ | g/mL, P&T Methanol, | ImL/ampul | |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL | |
| Expiration Date : | October 31, 2029 | Storage: | 0°C or colder | |
| | | Ship: | Ambient | |

CERTIFIED VALUES

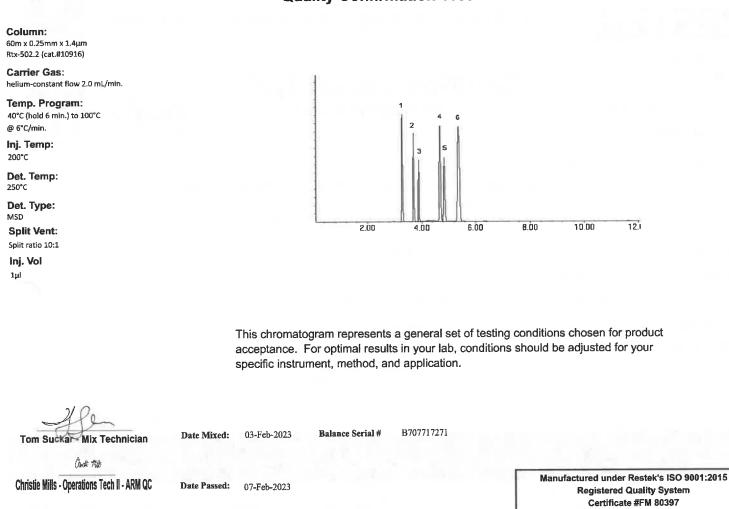
| Elution Order | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|------------------|----------------------------------|---------|-----------------|--------|--------------------------------|--|
| 1 | Dichlorodifluoromethane (CFC-12) | 75-71-8 | 00012554 | 99% | 2,001.5 µg/mL | +/- 112.7231 |
| 2 | Chloromethane (methyl chloride) | 74-87-3 | SHBK6571 | 99% | 2,001.2 μg/mL | +/- 112.5863 |
| 3 | Vinyl chloride | 75-01-4 | 00015559 | 99% | 2,001.4 μg/mL | +/- 112.6561 |
| 4 | Bromomethane (methyl bromide) | 74-83-9 | 101604 | 99% | 2,006.4 µg/mL | +/- 112.8262 |
| 5 | Chloroethane (ethyl chloride) | 75-00-3 | 107-401039114-1 | 99% | 2,001.9 µg/mL | +/- 112.5897 |
| 6 | Trichlorofluoromethane (CFC-11) | 75-69-4 | MKCL8411 | 99% | 2,000.8 μg/mL | +/- 112.6473 |

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

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

Purity 99%





Expiration Notes:

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 parent compound in solution.
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Certified Uncertainty Value Notes:

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

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Manufacturing Notes:

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ISO/IEC 17 025 Acared Testing Laboratory Certificate #3222.02

Certificate of Analysis

gravimetric

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

CERTIFIED VALUES

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

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

Darker 7. Bu

Date Mixed:

Balance: 1127510105

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

Russ Bookhamer - Operations Technician I

11-Apr-2023



Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
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| Catalog No. : | 30489 | Lot No.: | <u>A0205013</u> |
|----------------------|-----------------------------------|------------------|-----------------|
| 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 : | June 30, 2025 | Storage: | -20°C or colder |
| Handling: | This product is photosensitive. | Ship: | On Ice |

CERTIFIED VALUES

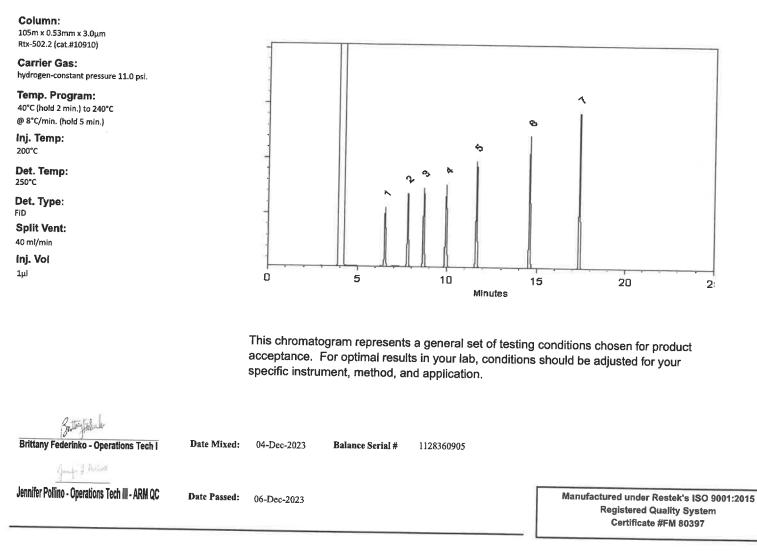
| Elution Order | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty (95% C.L.; K=2) |
|------------------|-------------------|----------|-------------|--------|--------------------------------|--|
| 1 | Methyl acetate | 79-20-9 | SHBP3100 | 99% | 2,012.7 μg/mL | +/- 69.5670 |
| 2 | Vinyl acetate | 108-05-4 | RP231030CTH | 98% | 2,017.5 μg/mL | +/- 69.7338 |
| 3 | Ethyl acetate | 141-78-6 | SHBQ9682 | 99% | 2,020.0 μg/mL | +/- 69.8205 |
| 4 | Isopropyl acetate | 108-21-4 | BCCG7069 | 99% | 2,018.7 μg/mL | +/- 69.7744 |
| 5 | Propyl acetate | 109-60-4 | KLOBM | 99% | 2,012.0 μg/mL | +/- 69.5439 |
| 6 | Butyl acetate | 123-86-4 | SHBP6314 | | 2,020.0 μg/mL | +/- 69.8205 |
| 7 | Amyl acetate | 628-63-7 | 41325/1 | | 2,019.5 μg/mL | +/- 69.8046 |

Solvent: P&T Methanol CAS # 67-56-1 Purity 99% * Expanded Uncertainty displayed in same units as Grav. Conc.

Tech Tips:

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

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



Expiration Notes:

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Purity Notes:

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Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



www.restek.com

CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

chromatographic plus





FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

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

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

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

Tech Tips:

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

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

Quality Confirmation Test

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

Certificate #FM 80397

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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

Certificate of Analysis

chromatographic plus





FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

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

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

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

Tech Tips:

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

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

Quality Confirmation Test

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

Certificate #FM 80397

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through
 the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability
 information, with the knowledge/understanding that open product stability is subject to the specific handling and
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 ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861,
 which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

gravimetric





www.restek.com

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

VALUES CERTIFIED

Ship: Ambient

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

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



Expiration Notes:

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

Purity Notes:

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

Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes: • The uncertainties are determined i

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

$$U_{combined}$$
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k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

Manufacturing Notes:

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

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



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

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

CERTIFIED VALUES

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

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

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

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

-



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



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

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

CERTIFIED VALUES

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

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

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

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

-



Expiration Notes:

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

Purity Notes:

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 correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
 parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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

CERTIFIED VALUES

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

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

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

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

-



Expiration Notes:

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

Purity Notes:

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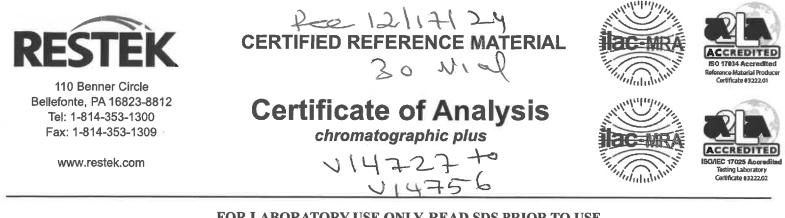
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FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

| Elution 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%

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

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

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

@ 6°C/min. Inj. Temp: 200°C

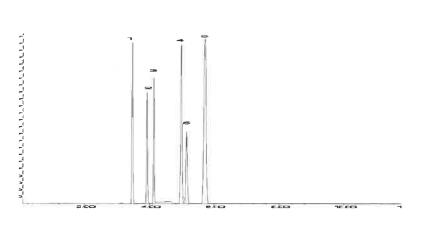
Det. Temp: 250°C

Det. Type:

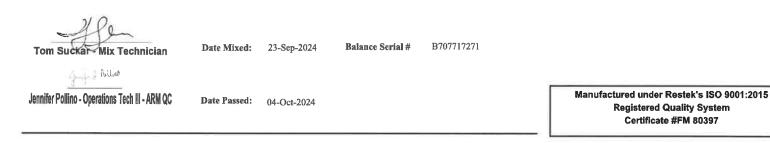
MSD Split Vent:

Split ratio 10:1 Inj. Vol

1µl



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



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

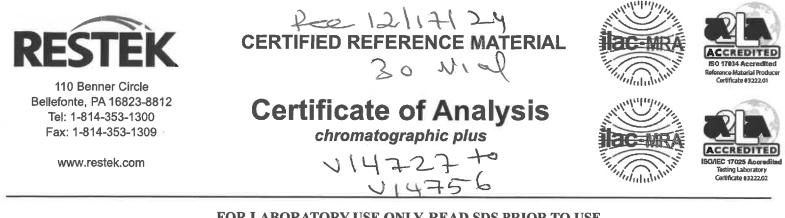
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

Manufacturing Notes:

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

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



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

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

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

CERTIFIED VALUES

| Elution 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%

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

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

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

@ 6°C/min. Inj. Temp: 200°C

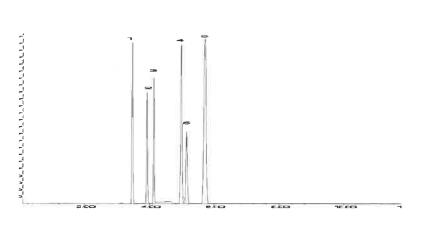
Det. Temp: 250°C

Det. Type:

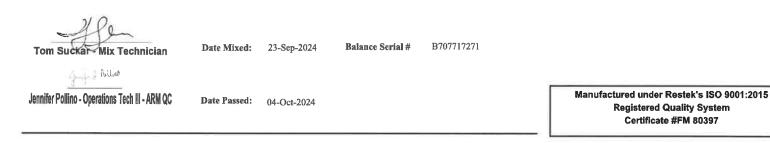
MSD Split Vent:

Split ratio 10:1 Inj. Vol

1µl



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



Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

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

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

Manufacturing Notes:

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

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



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. : | 30470 | Lot No.: | A0217535 |
|----------------------|------------------------------|-------------------------|---------------|
| Description : | tert-Butanol Standard | | |
| | tert-Butanol Std 50,000µg/ml | L, P&T Methanol, 1mL/an | npul |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL |
| Expiration Date : | October 31, 2027 | Storage: | 0°C or colder |
| | | Ship: | Ambient |

CERTIFIED VALUES

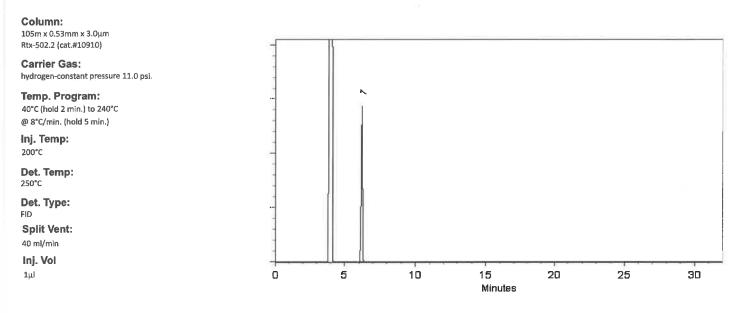
| Elution Order | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|------------------|--------------------|---------|------------|--------|--------------------------------|--|
| 1 | tert-Butanol (TBA) | 75-65-0 | SHBQ8002-1 | 99% | 50,007.5 μg/mL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

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

 Solvent:
 P&T Methanol

 CAS #
 67-56-1

 Purity
 99%



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.

WOLF Aaron Enyart - Operations Tech I

Date Mixed: 07-Oct-2024

Balance Serial #

B251644995

Sittery Falend

Brittany Federinko - Operations Tech I

Date Passed: 09-Oct-2024 Manufactured under Restek's ISO 9001:2015 **Registered Quality System** Certificate #FM 80397

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

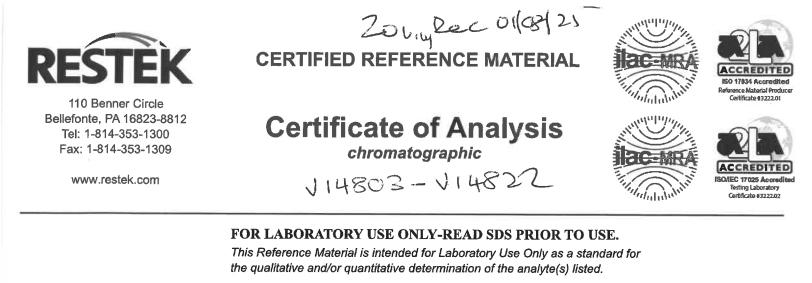
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

Manufacturing Notes:

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

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



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

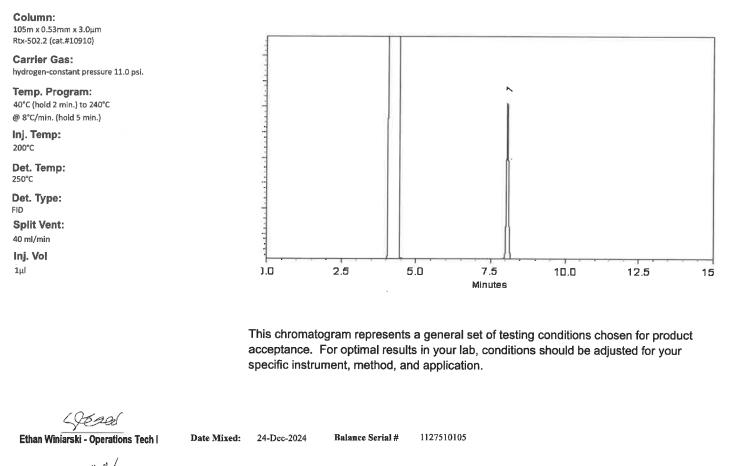
CERTIFIED VALUES

| Elution 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 | Uncertaint | y displayed in same | units as Grav. Conc. |

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

Tech Tips:

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



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

02-Jan-2025

Date Passed:

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

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

Expiration Notes:

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

Purity Notes:

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

Certified Uncertainty Value Notes:

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

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

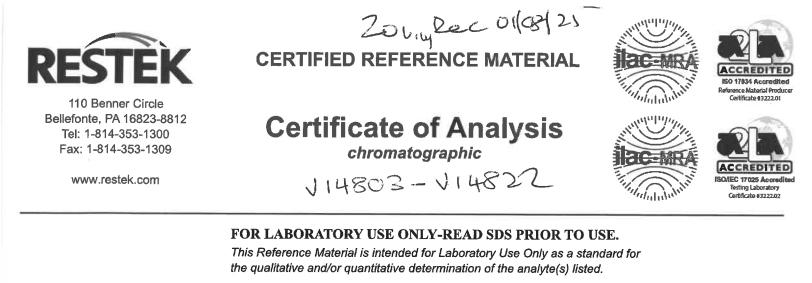
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

Manufacturing Notes:

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

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



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

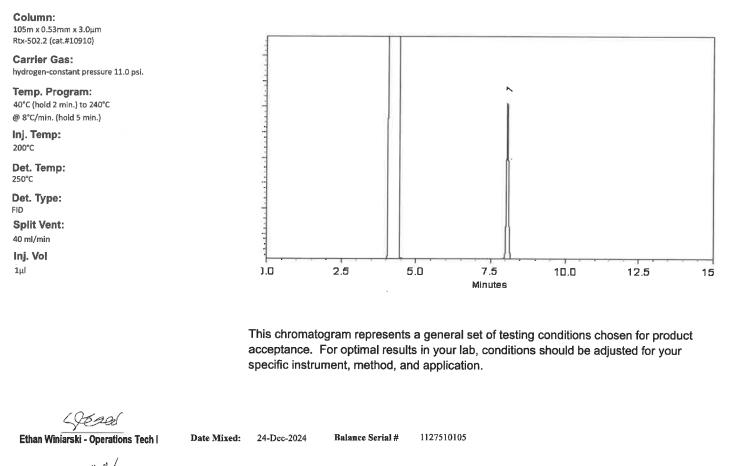
CERTIFIED VALUES

| Elution 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 | Uncertaint | y displayed in same | units as Grav. Conc. |

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

Tech Tips:

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



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

02-Jan-2025

Date Passed:

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

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

Expiration Notes:

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

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/µECD, GC/MS, LC/MS, RI, and/or melting point.
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 correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the
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- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

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

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

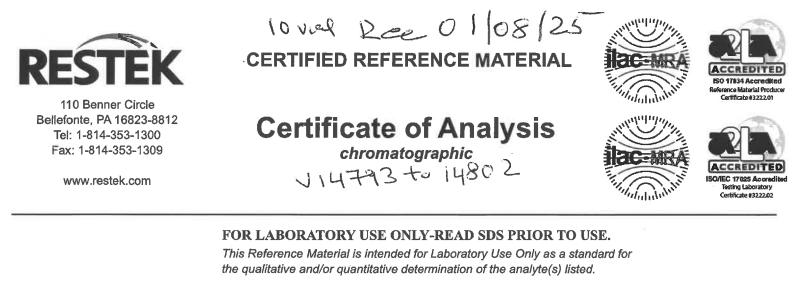
k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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

Manufacturing Notes:

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

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



| Catalog No. : | 555408-FL | Lot No.: | A0220563 |
|----------------------|------------------------------------|-------------------|------------------|
| Description : | Custom Vinyl Acetate Standard | | |
| | Custom Vinyl Acetate Standard 8,00 | 00µg/mL, P&T Meth | nanol, 1mL/ampul |
| Container Size : | 2 mL | Pkg Amt: | > 1 mL |
| Expiration Date : | June 30, 2026 | Storage: | -20°C or colder |
| Handling: | This product is photosensitive. | Ship: | On Ice |

CERTIFIED VALUES

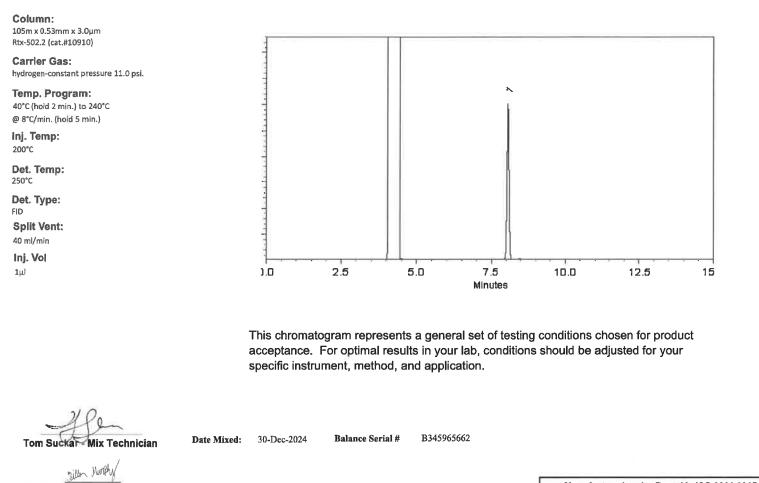
| Elution Order | | Compound | CAS # | Lot # | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|------------------|---------------|----------|----------|-------------|--------|--------------------------------|--|
| 1 | Vinyl acetate | | 108-05-4 | RD240423RSR | 99% | 8,060.0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

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

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

Tech Tips:

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



Dillan Murphy - Operations Technician I

Date Passed: 02-Jan-2025

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

Expiration Notes:

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

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

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

Manufacturing Notes:

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

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

| Absolute 800-368-1131 | Absolute Standards, Inc. 800-368-1131 | 4 | | | ertified 1 | Referenc | Certified Reference Material CDM | DBM | | | - | ANAB IS(| ANAB ISO 17034 Accredited |
|------------------------------|---|--|---|---|---|--|--|---|--|---------------------------------|--|------------------------|---|
| www.absoli | www.absolutestandards.com | 5 | | , | | | | | | | 5 | AR-1539 https://Abs | AR-1539 Certificate Number https://Absolutestandards.com |
| CERTIFIED V | CERTIFIED WEIGHT REPORT Part Number: Lot Number: Description: | 70046 070122 Bromochloromethane | omethane | | | Solvent: Methanol | Lot# EC592-US | | | Hebriel | & Welling | | |
| Nr Weight(| Expiration Date: 070127 Recommended Storage: Refrigeration Nominal Concentration (µg/mL): 1000 NIST Test ID#: 6UTB Weight(s) shown below were combined and diluted to (mL): | 070127 Refrigerate (4 °C) 1000 6UTB d diluted to (mL): | (4 °C) 25.0 | 5E-05 0.0002 | Balance Uncertainty Flask Uncertainty | tainty | | | Formulated By: | in the second | dr , brie | | 0/0122 DATE 070122 DATE |
| Compound | | Lot RM# Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | CA | SDS Information (Solvent Safety Info. On Attached pg.) S# OSHA PEI (TWA) | on ttached pg.) | |
| 1. Bromoc Metho Candic | Bromochloromethane 46 AY01 1000 99 0.2 0.02530 0.02540 1004.1 5.7 74-97-5 200 ppm (1050mg/m3/8H) Method GC6MSD-1.M: Column : (60m X 0.25mm X 1.5 μ m) Temp 1 = 35°C (10min.), Temp 2 = 200°C (8.75 min.), Rate = 4°C/min., Injector B = 200°C, Detector B = 220°C, Analyst: | 46 AY01 X 0.25mm X 1.5 μ | 1000 tm) Temp 1 = 3 | 99 5°C (10r | 0.2 ain.), Temp (| 0.02530 2 = 200°C (8 | 0.02540 .75 min.), Rate | 1004.1 : = 4°C/min | 5.7 . Injector B | 74-97-5 = 200°C, Dete | 200 ppm (1050mg/m3/8H) ector B = 220°C. Analys | ort-rat | 5y/6 |
| Abundance | | TIC: 70046.D | | | | Abun | abundance | | Scan 1136 | Scan 1136 (19.943 min): 70046.D | | | |
| | 1992 | | | | | ñ | 30000 - | 0 4 | | | | | |
| 100000 | | | | | | 2 | 25000 - | | | | ⊠O ⊥ | L L | |
| 80000 | | | | | | 2(| 20000 | - () | | | .O | - | |
| 60000 | | | | | | 1 | 15000 - | | | | | 133 123 | |
| 40000 | | | | | | 01 | 10000 | and and a | | | | | |
| 20000 | | | | | | 10 | 2000 - | | | 62 | 6 | | |
| Time->0 + | 1000 15.00 20.00 25.00 | 30.00 35.00 4 | 40.00 45.00 | 50.00 | 55.00 60.00 | | m/2>0 - 37 30 40 | 20 | 63 60 70 | 80 | 114 0 100 110 | 120 130 | 140 |
| | The c Stand Stand Stand All St Unset NIST T | 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 retrifted (4+) 0.5% of the stated value, unless otherwise stated. All standards are retrifted (2+). All standards are retrifted (2+). O and state opening ampule, should be stored with exps fight and under appropriate taboratory 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). | arcentration calcula avimetrically using angule, should b g ampule, should b ylor, B.N. and Kuy S.S. Government P. | tted from balances value, un e stored v at, C.E., ' | gravimetric an that are calibry less otherwise : tith caps tight <i>i</i> Guidelines for fice, Washingtu | d volumetric n tted with weigh itated. und under app Evaluating an n, DC, (1994). | neasurements unl his traceable to N ropriate laborator d Expressing the | ess otherwise : LST (see above or conditions, Uncertainty of | stated. .). f NIST Measu | rement Result," | | | |

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1 of 1

Part # 70046 Lot # 070122

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis

Avantor



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

Certificate of Analysis

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

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

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

James Techie

Jamie Ethier Vice President Global Quality

Methanol ULTRA RESI-ANALYZED For Purge and Trap Analysis





N14883 N14884

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

Certificate of Analysis

| Test | Specification | Result |
|---|---------------|----------|
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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

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Jamie Ethier Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700 Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700 Page 1 of 1