

Method Detection Limit Summary Sheet

SOP: Modified TO-17 SOP135
Target List: FTOH/FOSA
Valid Date: 10/3/2022

Tube: CAMSCO PFCA/PFAS
Analyst: DB

MDL Spike: 2.0 uL of #3318-24-0.05

Units : nanograms

| Analyte | Spike Amt (ng) | tq100310 MDL 1 | tq100311 MDL 2 | tq100312 MDL 3 | tq100408 MDL 4 | tq100409 MDL 5 | tq100509 MDL 6 | tq100510 MDL 7 | tq100511 MDL 8 | Average | t= SD | 2.998 MDL _s | Ratio Avg/MDL _s |
|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|----------|---------------------------|-------------------------------|
| 4:2 FTOH | 0.10 | 0.0962 | 0.0939 | 0.102 | 0.0904 | 0.093 | 0.0944 | 0.0979 | 0.0913 | 0.0949 | 0.0038 | 0.011 | 8.41 |
| 5:2sFTOH | 0.10 | 0.0994 | 0.0833 | 0.1011 | 0.088 | 0.1032 | 0.1129 | 0.0972 | 0.0901 | 0.0969 | 0.0095 | 0.028 | 3.41 |
| 7:2s FTOH | 0.10 | 0.088 | 0.0962 | 0.0804 | 0.0873 | 0.0977 | 0.1023 | 0.0989 | 0.0957 | 0.0933 | 0.0073 | 0.022 | 4.24 |
| 6:2 FTOH | 0.10 | 0.0905 | 0.1424 | 0.095 | 0.0912 | 0.1058 | 0.1184 | 0.0983 | 0.0997 | 0.1052 | 0.0175 | 0.053 | 2.00 |
| 8:2 FTOH | 0.10 | 0.069 | 0.1105 | 0.1079 | 0.099 | 0.0825 | 0.1148 | 0.1123 | 0.0832 | 0.0974 | 0.0171 | 0.051 | 1.90 |
| 10:2 FTOH | 0.10 | 0.1011 | 0.1034 | 0.1021 | 0.0852 | 0.1009 | 0.1105 | 0.1011 | 0.116 | 0.1025 | 0.0089 | 0.027 | 3.85 |
| 12:2 FTOH | 0.10 | 0.1132 | 0.0946 | 0.1058 | 0.0843 | 0.094 | 0.0899 | 0.0973 | 0.11 | 0.0986 | 0.0101 | 0.030 | 3.26 |
| n-MeFOSA | 0.10 | 0.1199 | 0.1126 | 0.1209 | 0.0961 | 0.0894 | 0.1041 | 0.1063 | 0.1341 | 0.1104 | 0.0145 | 0.043 | 2.54 |
| n-EtFOSA | 0.10 | 0.1265 | 0.1081 | 0.1143 | 0.0978 | 0.0932 | 0.1125 | 0.1057 | 0.1242 | 0.1103 | 0.0117 | 0.035 | 3.16 |

MDL Blank

| Analyte | tq100307 BLK1 | tq100308 BLK2 | tq100309 BLK3 | tq100405 BLK4 | tq100406 BLK5 | tq100407 BLK6 | tq100506 BLK7 | tq100507 BLK8 | tq100508 BLK9 | Average | t= SD | 2.896 MDL | MDL _b |
|-----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---------|----------|--------------|------------------|
| 4:2 FTOH | ND | ND | 0.0016 | ND | ND | ND | 0.0011 | 0.0012 | ND | NA | NA | NA | 0.0016 |
| 5:2sFTOH | 0.0021 | 0.0042 | ND | ND | ND | 0.0024 | ND | ND | 0.0032 | NA | NA | NA | 0.0042 |
| 7:2s FTOH | 0.0013 | 0.001 | ND | ND | 0.0018 | ND | ND | ND | 0.001 | NA | NA | NA | 0.0018 |
| 6:2 FTOH | 0.0203 | 0.078 | 0.0675 | 0.0192 | 0.075 | 0.038 | 0.0156 | 0.0708 | 0.0321 | 0.04628 | 0.02622 | 0.0759 | 0.122 |
| 8:2 FTOH | 0.0118 | 0.0085 | 0.0059 | 0.0191 | 0.0144 | 0.0035 | 0.0065 | 0.0084 | 0.0055 | 0.00929 | 0.00497 | 0.0144 | 0.024 |
| 10:2 FTOH | 0.0171 | 0.0078 | 0.0048 | 0.0111 | 0.0133 | ND | 0.0197 | ND | 0.0095 | NA | NA | NA | 0.0197 |
| 12:2 FTOH | 0.0089 | 0.0062 | 0.0075 | 0.0073 | 0.0112 | 0.002 | 0.0092 | 0.0054 | ND | NA | NA | NA | 0.0112 |
| n-MeFOSA | ND | ND | 0.0065 | 0.0037 | ND | 0.0069 | 0.0076 | ND | 0.0024 | NA | NA | NA | 0.0076 |
| n-EtFOSA | 0.0012 | 0.0017 | 0.0014 | 0.0028 | 0.0018 | 0.002 | 0.0051 | 0.0035 | 0.0026 | 0.00246 | 0.00123 | 0.0036 | 0.0060 |

| Analyte | Units = nanograms | | | Reportable | |
|-----------|-------------------|------------------|---------|------------|------|
| | MDL _s | MDL _b | Raw MDL | MDL | RL |
| 4:2 FTOH | 0.011 | 0.0016 | 0.011 | 0.040 | 0.10 |
| 5:2sFTOH | 0.028 | 0.0042 | 0.028 | 0.040 | 0.10 |
| 7:2s FTOH | 0.022 | 0.0018 | 0.022 | 0.040 | 0.10 |
| 6:2 FTOH | 0.053 | 0.122 | 0.122 | 0.150 | 0.20 |
| 8:2 FTOH | 0.051 | 0.024 | 0.051 | 0.080 | 0.10 |
| 10:2 FTOH | 0.027 | 0.020 | 0.027 | 0.050 | 0.10 |
| 12:2 FTOH | 0.030 | 0.011 | 0.030 | 0.050 | 0.10 |
| n-MeFOSA | 0.043 | 0.008 | 0.043 | 0.050 | 0.10 |
| n-EtFOSA | 0.035 | 0.006 | 0.035 | 0.050 | 0.10 |

MDL Verification File = tq0120607 (Aliquot 1.6 uL of 3318-65-0.05 = 0.08 ng)

TQ-1 MRM MDL FTOH's CASE NARRATIVE

A Method Detection Limit Study for the TO17 Fluorotelomer alcohols and FOSA's MRM method was analyzed 10/03/22, 10/04/22 and 10/05/22. The interface was a Markes TD.

0.1ng MDL: 2.0 µl of a 0.05 ng standard, 2.0 µl of the surrogate standard and 2.0 µl of the Internal Standard were injected directly onto the sampling end of the tube. The tube was then flushed with N₂ for 5 min. at an approximate flow of 80 mL/min.

- Standard ID: # 3318-24-0.05 (0.05 ng)
- Surrogate Standard ID: #3257-146-0.5A (1.0 ng)
- Internal Standard ID: #3257-74-0.5C (1.0 ng)

NOTES:

1. An MDL verification was analyzed on 12/06/22. Standard #3318-65-0.05 (0.05 ng); File TQ120607; A 1.6 µl aliquot yielded a concentration of 0.08 ng.
2. The MDL spike recovery was calculated for all the MDL points. All recoveries were within $\pm 50\%$.

The MDL values for the following compounds were taken from the MDL BLANK:
6:2 FTOH (0.12 ng)

MDL Expires 10/03/23.

| Name | Group | TS | RT | Transition | Avg Conc. | Std Dev. | Avg Conc./Std Dev. | Conc. RSD | MDL | LOQ | LOD | Noise | S/N | Avg Height | Avg. Resp | Resp. RSD | MDL Blank |
|--------------|-------|----|--------|---------------|-----------|----------|--------------------|-----------|--------|--------|--------|-------|-----|------------|-----------|-----------|-----------|
| 4.2-FTOH | | 4 | 11.825 | 244.0 > 127.0 | 0.0349 | 0.0038 | 25.11 | 4.0 | 0.0113 | 0.0378 | 0.0113 | = | | 934 | 3154 | 6.2 | |
| 5.2a-FTOH | | 4 | 11.882 | 293.0 > 69.0 | 0.0369 | 0.0035 | 10.20 | 9.8 | 0.0285 | 0.0950 | 0.0285 | = | | 421 | 1350 | 10.1 | |
| 6.2-FTOH | | 5 | 13.217 | 344.0 > 127.0 | 0.1052 | 0.0176 | 5.99 | 16.7 | 0.0526 | 0.1755 | 0.0527 | = | | 1559 | 6446 | 18.2 | 0.1222 |
| 7.2a-FTOH | | 5 | 13.183 | 399.0 > 69.0 | 0.0933 | 0.0074 | 12.69 | 7.9 | 0.0220 | 0.0735 | 0.0221 | = | | 687 | 2698 | 6.4 | |
| 8.2-FTOH | | 6 | 14.413 | 444.0 > 127.0 | 0.0974 | 0.0171 | 5.70 | 17.5 | 0.0512 | 0.1707 | 0.0512 | = | | 479 | 1639 | 17.5 | 0.0237 |
| 8.2-FTOH-C13 | | 6 | 14.412 | 446.0 > 128.0 | 1.0161 | 0.0308 | 33.09 | 3.0 | 0.0922 | 0.3076 | 0.0923 | = | | 6331 | 21493 | 4.3 | |
| 10.2-FTOH | | 7 | 15.482 | 544.0 > 127.0 | 0.1125 | 0.0289 | 11.53 | 8.7 | 0.0267 | 0.0899 | 0.0267 | = | | 193 | 645 | 8.3 | 0.020 |
| 12.2-FTOH | | 8 | 16.458 | 605.0 > 69.0 | 0.0386 | 0.0101 | 9.76 | 10.3 | 0.0303 | 0.1011 | 0.0303 | = | | 707 | 2271 | 11.3 | 0.011 |
| NEFOSA | | 9 | 18.931 | 448.0 > 69.0 | 0.1103 | 0.0116 | 9.47 | 10.6 | 0.0349 | 0.1164 | 0.0349 | = | | 2114 | 8210 | 11.4 | 0.008 |
| NMeFOSA | | 9 | 18.662 | 448.0 > 69.0 | 0.1104 | 0.0145 | 7.62 | 13.1 | 0.0435 | 0.1449 | 0.0435 | = | | 486 | 1878 | 13.6 | 0.014 |

Spike mbl TA-1 FTOH's & FOSA's mkm Markles
2.0ml #3318-24-0.05 → 0.1mg

Batch: De Mass Hunter/GCMS 11/data/

$$\bar{X} = 0.041$$

| Name | Group | TS | RT | Transition | Avg Conc. | Std. Dev. | Avg Conc./Std. Dev. | Conc. RSD | MDL | LOQ | LOD | Noise | S/N | Avg Height | Avg Resp | Resp. RSD | MDL (mg) |
|--------------|-------|----|--------|---------------|-----------|-----------|---------------------|-----------|--------|--------|--------|-------|-----|------------|----------|-----------|----------|
| 5.2a FTOH | | 4 | 11.882 | 298.0 > 69.0 | 0.0030 | 0.0009 | 3.14 | 31.8 | 0.0043 | 0.0084 | 0.0028 | - | - | 10 | 37 | 242 | 0.002 |
| 6.2 FTOH | | 5 | 13.217 | 344.0 > 127.0 | 0.0463 | 0.0262 | 1.76 | 56.7 | 0.0759 | 0.2622 | 0.0787 | - | - | 696 | 2476 | 56.4 | 0.004 |
| 7.2a FTOH | | 5 | 13.183 | 399.0 > 69.0 | 0.0013 | 0.0004 | 3.31 | 30.2 | 0.0018 | 0.0039 | 0.0012 | - | - | 10 | 34 | 27.8 | 0.002 |
| 8.2 FTOH | | 6 | 14.413 | 444.0 > 127.0 | 0.0033 | 0.0050 | 1.87 | 53.4 | 0.0144 | 0.0497 | 0.0149 | - | - | 42 | 138 | 53.2 | 0.0037 |
| 8.2 FTOH-C13 | | 6 | 14.412 | 446.0 > 128.0 | 1.1535 | 0.0841 | 13.71 | 7.3 | 0.2437 | 0.8413 | 0.2524 | - | - | 6374 | 21366 | 5.1 | 0.020 |
| 10.2 FTOH | | 7 | 15.482 | 544.0 > 127.0 | 0.0119 | 0.0052 | 2.28 | 43.9 | 0.0164 | 0.0523 | 0.0157 | - | - | 20 | 67 | 43.6 | 0.011 |
| 12.2 FTOH | | 8 | 16.458 | 605.0 > 69.0 | 0.0072 | 0.0028 | 2.58 | 38.8 | 0.0084 | 0.0279 | 0.0084 | - | - | 41 | 146 | 40.1 | 0.008 |
| NEFOSA | | 9 | 18.931 | 448.0 > 69.0 | 0.0024 | 0.0012 | 1.97 | 50.7 | 0.0036 | 0.0124 | 0.0037 | - | - | 39 | 157 | 47.9 | 0.005 |
| NMeFOSA | | 9 | 18.662 | 448.0 > 69.0 | 0.0054 | 0.0023 | 2.41 | 41.5 | 0.0085 | 0.0226 | 0.0088 | - | - | 19 | 81 | 40.7 | 0.007 |

0013-5-13

DB
11/9/22

Blank MDL MRM TQ-1 Markers

Batch: D:\Mass Hunter\GCMS\1\data\040CT22\MDL MARKES. batch