# Target Reporting Limits1,2

# for LC-MS/MS Analysis of Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 1633

| **Chemical Name/ Abbreviation(s)** | **GeoTracker PARLABEL** | **Chemical Abstracts Service (CAS) No.**  | **Aqueous: Non-Drinking Water (ng/L)** | **Solid****(ng/g)** |
| --- | --- | --- | --- | --- |
| **Perfluoroalkyl carboxylic acids (12)** |  |  |  |  |
|  Perfluorobutanoic acid (PFBA) | PFBTA | 375-22-4 | 8.0 | 0.8 |
|  Perfluoropentanoiic acid (PFPeA) | PFPA | 2706-90-3 | 4.0 | 0.4 |
|  Perfluorohexanoic acid (PFHxA) | PFHA | 307-24-4 | 2.0 | 0.2 |
|  Perfluoroheptanoic acid (PFHpA) | PFHPA | 375-85-9 | 2.0 | 0.2 |
|  Perfluorooctanoic acid (PFOA) | PFOA | 335-67-1 | 2.0 | 0.2 |
|  Perfluorononanoic acid (PFNA) | PFNA | 375-95-1 | 2.0 | 0.2 |
|  Perfluorodecanoic acid (PFDA) | PFNDCA | 335-76-2 | 2.0 | 0.2 |
|  Perfluoroundecanoic acid (PFUnDA, PFUda, PFUnA) | PFUNDCA | 2058-94-8 | 2.0 | 0.2 |
|  Perfluorododecanoic acid (PFDoDA, PFDoA) | PFDOA | 307-55-1 | 2.0 | 0.2 |
|  Perfluorotridecanoic acid (PFTrDA) | PFTRIDA | 72629-94-8 | 2.0 | 0.2 |
|  Perfluorotetradecanoic acid (PFTeDA, PFTA) | PFTEDA | 376-06-7 | 2.0 | 0.2 |
|  Perfluorohexadecanoic Acid (PFHxDA)3 | PFHXDA | 67905-19-5 | 3.7 | 0.4 |
| **Perfluoroalkyl sulfonic acids (8)** |  |  |  |  |
|  Perfluorobutane sulfonic acid (PFBS) | PFBSA | 375-73-5 | 2.0 | 0.2 |
|  Perfluoropentane sulfonoic acid (PFPeS) | PFPES | 2706-91-4 | 2.0 | 0.2 |
|  Perfluorohexane sulfonic acid (PFHxS) | PFHXSA | 355-46-4 | 2.0 | 0.2 |
|  Perfluoroheptane sulfonic acid (PFHpS) | PFHPSA | 375-92-8 | 2.0 | 0.2 |
|  Perfluorooctane sulfonic acid (PFOS) | PFOS | 1763-23-1 | 2.0 | 0.3 |
|  Perfluorononane sulfonic acid (PFNS) | PFNS | 68259-12-1 | 2.0 | 0.2 |
|  Perfluorodecane sulfonic acid (PFDS) | PFDSA | 335-77-3 | 2.0 | 0.2 |
| Perfluorododecanesulfonic acid (PFDoS) | PFDOS | 79780-39-5 | 2.0 | 0.2 |
| **Fluorotelomer sulfonic acids (3)** |  |  |  |  |
|  4:2 Fluorotelomer sulfonic acid (4:2 FTS) | 4:2FTS | 757124-72-4 | 8.0 | 0.8 |
|  6:2 Fluorotelomer sulfonic acid (6:2 FTS) | 6:2FTS | 27619-97-2 | 10 | 1.0 |
|  8:2 Fluorotelomer sulfonic acid (8:2 FTS) | 8:2FTS | 39108-34-4 | 10 | 1.0 |
| **Perfluorooctane sulfonamides (3)** |  |  |  |  |
|  Perfluorooctanesulfonamide (PFOSA, PFOSAm, FOSA) | PFOSA | 754-91-6 | 5.4 | 0.2 |
|  N-Methyl perfluorooctane sulfonamide (MeFOSA, MeFOSAm) | MEFOSA | 31506-32-8 | 2.7 | 0.3 |
|  N-Ethyl perfluorooctane sulfonamide (EtFOSA, EtFOSAm) | ETFOSA | 4151-50-2 | 2.7 | 0.3 |
| **Perfluorooctane sulfonamidoacetic acids (2)** |  |  |  |  |
|  N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | NMEFOSAA | 2355-31-9 | 2.0 | 0.2 |
|  N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA) | NETFOSAA | 2991-50-6 | 2.0 | 0.2 |
| **Perfluorooctane sulfonamide ethanols (2)** |  |  |  |  |
|  N-Methyl perfluorooctane sulfonamide ethanol (MeFOSE) | MEFOSE | 24448-09-7 | 20 | 2.0 |
|  N-Ethyl perfluorooctane sulfonamide ethanol (EtFOSE) | ETFOSE | 1691-99-2 | 20 | 2.0 |
| **Per- and Polyfluoroether carboxylic acids (5)** |  |  |  |  |
|  Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) | HFPA-DA | 13252-13-6 | 8.0 | 0.8 |
|  4,8-Dioxa-3H-perfluorononanoic acid (ADONA) | ADONA | 919005-14-4 | 8.0 | 0.8 |
|  Perfluoro-3-methoxypropanoic acid (PFMPA) | PFMPA | 377-73-1 | 4.0 | 0.4 |
|  Perfluoro-4-methoxybutanoic acid (PFMBA) | PFMBA | 863090-89-5 | 4.0 | 0.4 |
|  Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) | NFDHA | 151772-58-6 | 4.0 | 0.4 |
| **Ether sulfonic acids (3)** |  |  |  |  |
|  9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9-Cl-PF3ONS) | 9ClPF3ONS | 756426-58-1 | 9.2 | 0.8 |
|  11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid(11-Cl-PF3OUdS) | 11ClPF3OUdS | 763051-92-9 | 9.2 | 0.8 |
|  Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA) | PFEESA | 113507-82-7 | 4.0 | 0.4 |
| **Fluorotelomer carboxylic acids (3)** |  |  |  |  |
|  2H,2H,3H,3H-Perfluorohexanoic acid (3:3 FTCA) | 3:3FTCA | 356-02-5 | 15 | 2.6 |
|  2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA) | 5:3FTCA | 914637-49-3 | 50 | 5.0 |
|  2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA) | 7:3FTCA | 812-70-4 | 50 | 5.0 |

**Abbreviations**:

ng/L = nanogram per liter ng/g = nanogram per gram

**Notes**:

* The laboratory must use data qualifiers when necessary. These data qualifiers must be included in the analytical electronic data format (EDF) submittal into GeoTracker. Refer to GeoTracker’s [data dictionary](https://www.waterboards.ca.gov/ust/electronic_submittal/docs/edf_data_dict_2001.pdf) for the valid values for data qualifiers. A quick search option for data qualifiers (EDF/LNOTE), and other fields within the EDF submittal is available [here](http://geotracker.waterboards.ca.gov/searchvvl.asp).
* Analytical results will be reported down to the laboratory’s method detection limit into GeoTracker. Reporting estimated values (values between the reporting limit and the MDL) is provided in GeoTracker EDF Guidance Letter Number 002 *Reporting of Estimated Results in EDF* (https://geotracker.waterboards.ca.gov/regulators/library/5878544449/EDF\_Letter\_No.\_002\_rev3\_2023-08-11.pdf).
1. These are the target reporting limits for any California Water Board data and represent the highest reporting limits acceptable without qualification for reporting purposes. If a laboratory's reporting limit is lower than the target reporting limits listed, then the laboratory should report data using the laboratory's reporting limit.
2. The target reporting limits for landfill leachates and biosolids may be unreasonable due to the matrix effects and the potential need for smaller sample sizes. Therefore, the California Water Board expects reporting limits for leachates and biosolids may be higher than for other aqueous samples and solid samples. Laboratories analyzing leachates and/or biosolids must determine limits of quantification for those matrices.
3. Perfluorohexadecanoic Acid (PFHxDA) is not in the validated list in EPA Method 1633. Laboratories analyzing this compound must still follow all Quality Assurance and Quality Control criteria in the method and as defined in the laboratory’s Standard Operating Procedure.