



## PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS) RECOMMENDED MINIMUM LABORATORY ANALYTE LISTS

Below are the minimum laboratory PFAS analyte lists for analysis of fish, deer, and other animals, drinking water, groundwater, surface water, soil, wastewater effluent, and landfill leachate samples collected by Michigan's Departments of Environment, Great Lakes, and Energy, Health and Human Services, Agriculture and Rural Development, and Natural Resources. The recommended minimum analyte lists for groundwater, surface water, and wastewater are found in the U.S. EPA Method 8327 and U.S. EPA Method 1633 columns. The minimum analyte list for the testing of fish, deer and other animals is marked by the fish icon.

These minimum analyte lists were developed based on the potential for these chemicals to be found in Michigan, the availability of the chemical standards used for testing, and the ability of available laboratories to test for these PFAS compounds. These lists include PFAS that can be tested for in drinking water using United States Environmental Protection Agency (U.S. EPA) Method 533 or 537.1, which are the only methods appropriate when analyzing drinking water samples. Other testing methodologies may be used to test for PFAS in other media (not drinking water).
















U.S. EPA Methods 8327 and 1633 have undergone multi-laboratory validation. Method 8327 has been published under the Resource Conservation and Recovery Act (RCRA) program and is used by the EGLE laboratory to test surface water, groundwater, and wastewater. Method 1633 has also undergone multi-laboratory validation as part of the Clean Water Act (CWA) method approval process. Method 1633 was published and when promulgated in 40 CFR Part 136, only this or other methods listed in 40 CFR Part 136 will be allowed for testing conducted under the CWA, including National Pollutant Discharge Elimination System (NPDES) permits. Until U.S. EPA Method 1633 is published and promulgated, other testing methodology may be utilized such as U.S. EPA Method 8327, ASTM Method D7979, D8421 or methods approved for use under U.S. EPA's Alternate Test Procedures program.

This list is not exhaustive of PFAS found in Michigan's environment.










The fish icon (🐟) indicates compounds that are also currently being tested in fish tissue by the Department of Health and Human Services Laboratory.

Acronym / Analyte Name	Molecular Formula	CAS Number	EGLE Lab Drinking Water		EGLE Lab Groundwater, Surface Water, Wastewater	EGLE Lab Aqueous, Soil, Sediment, Biosolids, Tissue, Landfill Leachate	🐟
			U.S. EPA Method 537.1 Rev 2.0	U.S. EPA Method 533	U.S. EPA Method 8327	U.S. EPA Method 1633	
<b>PFTeDA</b> Perfluorotetradecanoic acid	C <sub>13</sub> F <sub>27</sub> COOH	376-06-7	X		X	X	🐟
<b>PFTrDA</b> Perfluorotridecanoic acid	C <sub>12</sub> F <sub>25</sub> COOH	72629-94-8	X		X	X	🐟
<b>PFDoA</b> Perfluorododecanoic acid	C <sub>11</sub> F <sub>23</sub> COOH	307-55-1	X	X	X	X	🐟
<b>PFUnA</b> Perfluoroundecanoic acid	C <sub>10</sub> F <sub>21</sub> COOH	2058-94-8	X	X	X	X	🐟














**Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)  
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			U.S. EPA Method 537.1 Rev 2.0	U.S. EPA Method 533	U.S. EPA Method 8327	U.S. EPA Method 1633	
<b>PFDA</b> Perfluorodecanoic acid	C <sub>9</sub> F <sub>19</sub> COOH	335-76-2	X	X	X	X	
<b>PFNA</b> Perfluorononanoic acid	C <sub>8</sub> F <sub>17</sub> COOH	375-95-1	X	X	X	X	
<b>PFOA</b> Perfluorooctanoic acid	C <sub>7</sub> F <sub>15</sub> COOH	335-67-1	X	X	X	X	
<b>PFHpA</b> Perfluoroheptanoic acid	C <sub>6</sub> F <sub>13</sub> COOH	375-85-9	X	X	X	X	
<b>PFHxA</b> Perfluorohexanoic acid	C <sub>5</sub> F <sub>11</sub> COOH	307-24-4	X	X	X	X	
<b>PFPeA</b> Perfluoropentanoic acid	C <sub>4</sub> F <sub>9</sub> COOH	2706-90-3		X	X	X	
<b>PFBA</b> Perfluorobutanoic acid	C <sub>3</sub> F <sub>7</sub> COOH	375-22-4		X	X	X	
<b>PFDoS</b> Perfluorododecansulfonic acid	C <sub>10</sub> HF <sub>21</sub> O <sub>3</sub> S	79780-39-5				X	
<b>PFDS</b> Perfluorodecanesulfonic acid	C <sub>10</sub> F <sub>21</sub> SO <sub>3</sub> H	335-77-3			X	X	
<b>PFNS</b> Perfluorononanesulfonic acid	C <sub>9</sub> F <sub>19</sub> SO <sub>3</sub> H	68259-12-1			X	X	
<b>PFOS</b> Perfluorooctanesulfonic acid	C <sub>8</sub> F <sub>17</sub> SO <sub>3</sub> H	1763-23-1	X	X	X	X	
<b>PFHpS</b> Perfluoroheptanesulfonic acid	C <sub>7</sub> F <sub>15</sub> SO <sub>3</sub> H	375-92-8		X	X	X	
<b>PFHxS</b> Perfluorohexanesulfonic acid	C <sub>6</sub> F <sub>13</sub> SO <sub>3</sub> H	355-46-4	X	X	X	X	
<b>PFPeS</b> Perfluoropentanesulfonic acid	C <sub>5</sub> F <sub>11</sub> SO <sub>3</sub> H	2706-91-4		X	X	X	
<b>PFBS</b> Perfluorobutanesulfonic acid	C <sub>4</sub> F <sub>9</sub> SO <sub>3</sub> H	375-73-5	X	X	X	X	

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			U.S. EPA Method 537.1 Rev 2.0	U.S. EPA Method 533	U.S. EPA Method 8327	U.S. EPA Method 1633	
<b>PFOSA</b> Perfluorooctanesulfonamide	C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> NH <sub>2</sub>	754-91-6			X	X	
<b>8:2 FTS</b> Fluorotelomer sulfonic acid 8:2	C <sub>8</sub> F <sub>17</sub> CH <sub>2</sub> CH <sub>2</sub> SO <sub>3</sub>	39108-34-4		X	X	X	
<b>6:2 FTS</b> Fluorotelomer sulfonic acid 6:2	C <sub>6</sub> F <sub>13</sub> CH <sub>2</sub> CH <sub>2</sub> SO <sub>3</sub>	27619-97-2		X	X	X	
<b>4:2 FTS</b> Fluorotelomer sulfonic acid 4:2	C <sub>4</sub> F <sub>9</sub> CH <sub>2</sub> CH <sub>2</sub> SO <sub>3</sub>	757124-72-4		X	X	X	
<b>NEtFOSAA</b> 2-(N-Ethylperfluorooctanesulfonamido)acetic acid	C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> N(C <sub>2</sub> H <sub>5</sub> )CH <sub>2</sub> COOH	2991-50-6	X		X	X	
<b>NMeFOSAA</b> 2-(N-Methylperfluorooctanesulfonamido)acetic acid	C <sub>8</sub> F <sub>17</sub> SO <sub>2</sub> N(CH <sub>3</sub> )CHCOOH	2355-31-9	X		X	X	
<b>NMeFOSA</b> N-methyl perfluorooctanesulfonamide	C <sub>9</sub> H <sub>4</sub> F <sub>17</sub> NO <sub>2</sub> S	31506-32-8				X	
<b>NEtFOSA</b> N-ethyl perfluorooctanesulfonamide	C <sub>10</sub> H <sub>6</sub> F <sub>17</sub> NO <sub>2</sub> S	4151-50-2				X	
<b>NMeFOSE</b> N-methyl perfluorooctanesulfonamidoethanol	C <sub>11</sub> H <sub>8</sub> F <sub>17</sub> NO <sub>3</sub> S	24448-09-7				X	
<b>NEtFOSE</b> N-ethyl perfluorooctanesulfonamidoethanol	C <sub>12</sub> H <sub>10</sub> F <sub>17</sub> NO <sub>3</sub> S	1691-99-2				X	
<b>HFPO-DA</b> Hexafluoropropylene oxide dimer acid	C <sub>6</sub> HF <sub>11</sub> O <sub>3</sub>	13252-13-6	X	X	X	X	
<b>11Cl-PF3OUdS</b> 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	C <sub>10</sub> HF <sub>20</sub> ClSO <sub>4</sub>	763051-92-9	X	X	X	X	
<b>9Cl-PF3ONS</b> 9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	C <sub>8</sub> HF <sub>16</sub> ClSO <sub>4</sub>	756426-58-1	X	X	X	X	

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			U.S. EPA Method 537.1 Rev 2.0	U.S. EPA Method 533	U.S. EPA Method 8327	U.S. EPA Method 1633	
<b>ADONA</b> 4,8-dioxa-3H-perfluorononanoic acid	C <sub>7</sub> H <sub>2</sub> F <sub>12</sub> O <sub>4</sub>	919005-14-4	X	X	X	X	
<b>PFPs</b> Perfluoropropanesulfonic acid	C <sub>3</sub> HF <sub>7</sub> O <sub>3</sub> S	423-41-6				X*	
<b>PFPa</b> Perfluoropropanoic acid	C <sub>3</sub> HF <sub>5</sub> O <sub>2</sub>	422-64-0				X*	
<b>NFDHA</b> Nonafluoro-3,6-dioxaheptanoic acid	C <sub>5</sub> HF <sub>9</sub> O <sub>4</sub>	151772-58-6		X		X	
<b>PFEESA</b> Perfluoro(2-ethoxyethane)sulfonic acid	C <sub>4</sub> HF <sub>9</sub> O <sub>4</sub> S	113507-82-7		X		X	
<b>PFMPA</b> Perfluoro-3-methoxypropanoic acid	C <sub>4</sub> HF <sub>7</sub> O <sub>3</sub>	377-73-1		X		X	
<b>PFMBA</b> Perfluoro-4-methoxybutanoic acid	C <sub>5</sub> HF <sub>9</sub> O <sub>3</sub>	863090-89-5		X		X	
<b>3:3 FTCA</b> 2H,2H,3H,3H-Perfluorohexanoic acid	C <sub>6</sub> H <sub>5</sub> F <sub>7</sub> O <sub>2</sub>	356-02-5			X	X	
<b>5:3 FTCA</b> 2H,2H,3H,3H-Perfluorooctanoic acid	C <sub>8</sub> H <sub>5</sub> F <sub>11</sub> O <sub>2</sub>	914637-49-3			X	X	
<b>7:3 FTCA</b> 2H,2H,3H,3H-Perfluorodecanoic acid	C <sub>10</sub> H <sub>5</sub> F <sub>15</sub> O <sub>2</sub>	812-70-4			X	X	
<b>PFECHS</b> Perfluoro-4-ethylcyclohexanesulfonic Acid	C <sub>8</sub> HF <sub>15</sub> O <sub>3</sub> S	133201-07-7			X	X*	
<b>PFBSA</b> Perfluorobutylsulfonamide	C <sub>4</sub> H <sub>2</sub> F <sub>9</sub> NO <sub>2</sub> S	30334-69-1			X	X*	
<b>PFHxSA</b> Perfluorohexanesulfonamide	C <sub>6</sub> H <sub>2</sub> F <sub>13</sub> NO <sub>2</sub> S	41997-13-1			X	X*	

\*Analyte is not part of U.S. EPA Method 1633, but EGLE lab includes this compound additionally as part of the 1633 analysis. U.S. EPA Method 1633 is a “performance-based” method, meaning modifications may be made without EPA approval provided all method performance criteria are met. This includes the addition of analytes if they meet method performance criteria.

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## Laboratories Providing PFAS Analytical Services

*(The list that turns up in the search results from the following links does not constitute an endorsement of those firms on the list, nor is it a statement against any firm not on the list. Additionally, the capacity of the labs to provide services consistent with EGLE's recommendations above has not been verified and these details should be addressed prior to contracting with the laboratories below.)*

The National Environmental Laboratory Accreditation Management System has a list of laboratories approved under various certification programs. Using US EPA Method 537.1 for PFAS in drinking water for example, type in 537.1 in the Method box to get a list of approved laboratories: <https://lams.nelac-institute.org/Search>.

Another list of PFAS Drinking Water laboratories may be accessed at: [PFAS Response - Laboratories Offering Home Testing \(michigan.gov\)](#)

The **United States Department of Defense, Environmental Laboratory Accreditation Program (US DoD ELAP)** maintains a list of labs for the determination of PFAS in various environmental media other than drinking water on the Defense Environmental Network Information Exchange (DENIX) server: <http://www.denix.osd.mil/edqw/accreditation/accreditedlabs/>

## Contact Information

**Questions regarding PFAS in general, contact:**

**EGLE Environmental Assistance Center**

(800) 662-9278

**MDHHS General Information**

(517) 373-3740

**Questions regarding laboratory information, contact:**

**EGLE Laboratory Services**

(517) 335-8184

**MDHHS Chemistry & Toxicology Division**

(517) 335-9490