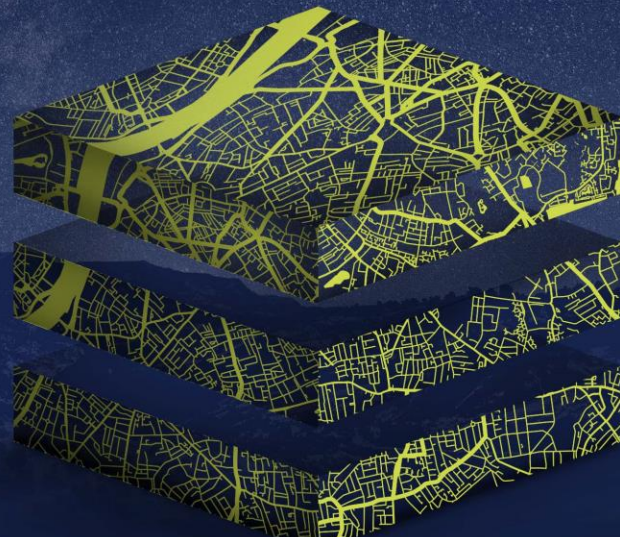




Identifying PFAS Handlers in Environmental Due Diligence Records Searches

Melanie Veltman
Director, Research & Data



Agenda

- Due diligence records searches – CSA Standard
- Efforts to research and obtain listings of PFAS sites
- Identifying PFAS handlers in existing data
 - ⑩ Substance/chemical of concern
 - ⑩ Lists of PFAS substances
 - ⑩ NAICS code

CSA Standard Z768-01

Z768-01 (R2022)

Phase I environmental site assessment

SKU: 2415093 | Published by CSA Group | Publication Year 2001 | Reaffirmed in 2022 | 44 pages

Product Details

Preface/Scope | Editions | Updates

Preface

This is the second edition of CSA Standard Z768, *Phase I Environmental Site Assessment* (Phase I ESA). It supersedes the first edition published in 1994. This Standard has been developed to assist clients and assessors in planning, implementing, and interpreting the results of Phase I ESAs.

ASTM Standard E 1527 was an important source for this CSA Standard. As well, information and concepts from Technical Committee members, stakeholders, and other published sources have been incorporated in an attempt to account for the substantial regulatory differences between the US and Canada. It is worth noting that in the US, the ESA standard-setting process was intended to permit a user to satisfy one of the requirements to qualify for the "innocent landowner defense" against liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). In Canada, the development of guidelines and standards has been influenced by clients' needs to make informed decisions concerning potentially contaminated sites.



Z768-01

Phase I environmental site assessment



CSA Standard Z768-01 (R2022)

- No mention of specifically of PFAS in the CSA Standard
- Phase I and environmental due diligence practitioners can benefit from knowing if there is PFAS use or potential PFAS use on-site or adjacent

CSA Standard Z768-01 – Records Review

- *"The records review should be the first activity in a Phase I ESA and, as a result, should provide the assessor with knowledge of a range of possibilities with respect to contamination" (section 7.1.1)*
- *"Property-use information includes ... contaminated site and property-use registries, where available" (section 7.1.6.2)*
- *"The assessor shall obtain information ... that pertain[s] to activities that may impact the condition of the property (eg, hazardous waste storage, treatment, and disposal, or other potential sources of contamination)" (section 7.1.6.7)*

ASTM 1527-21 lists PFAS as a Non-Scope Consideration

*"emerging
contaminant"*

X6.10 *Substances Not Defined as Hazardous Substances*—As defined in 3.2.36 of this practice, *hazardous substance* means “those substances defined as a *hazardous substance* pursuant to CERCLA 42 U.S.C. § 9601(14), as interpreted by EPA regulations and the courts.” There are some substances that non-*environmental professionals* and others may assume to be *hazardous substances* that are not defined (or not yet defined) as *hazardous substances* under CERCLA through interpretation by EPA regulations and the courts. These substances may include: (1) some substances that occur naturally or through biological digestion (for example, methane), and (2) substances about which human understanding is evolving (for example, per- and polyfluoroalkyl substances, also known as “PFAS”). These and any other “emerging contaminants,” where they are not identified as a *hazardous substance* by CERCLA, as interpreted by EPA regulations and the courts, are not included in the scope of this practice. Some of these substances may be considered a “*hazardous substance*” (or equivalent) under applicable state laws. In those instances, where a *Phase I Environmental Site Assessment* is performed to satisfy both federal and state requirements, or as directed by the *user* of the *report*, it is permissible to include analysis and/or discussion of these substances in the same manner as any other Non-Scope Consideration. If and when such emerging contaminants are defined to be a *hazardous substance* under CERCLA, as interpreted by EPA regulations and the courts, such substances shall be evaluated within the scope of this practice.

PFAS Currently a Non-Scope Consideration

- **September 2022:** EPA proposed a rule to designate two PFAS — perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), and their salts and structural isomers — as **hazardous substances under CERCLA**^[1]
- *"PFAS contamination would not be considered a Recognized Environmental Condition (REC) under Phase I report, however, the potential for PFAS impacts can be considered a non-scope Business Environmental Risk (BER)."* ^[2]

[1] Advanced Notice of Proposed Rulemaking on Potential Future Designations of Per- and Polyfluoroalkyl Substances (PFAS) as CERCLA Hazardous Substances, April 2023, accessed online: <https://www.epa.gov/superfund/advanced-notice-proposed-rulemaking-potential-future-designations-and-polyfluoroalkyl>

[2] Jirgal, Mark. PFAS Chemicals and Environmental Due Diligence, February 18, 2022, accessed online: <https://vertexeng.com/insights/pfas-chemicals-environmental-due-diligence/>

Research efforts for listings of PFAS sites

- Federal
- Alberta

- Limited by regulatory landscape

Request for Federal List of PFAS Sites

Request to Environment and Climate Change Canada for PFAS Sites Listing, September 2019

Does the Chemicals Management Division have a list of sites where PFAS/PFOS or a PFOS or PFAS-containing material is currently or ever has been: **manufactured, used, stored, disposed of, or released?** Or, are you able to direct me to any other resources for locations of PFAS/PFOS use/storage/releases/contamination?

I hope you're able to help or forward my questions to a colleague who can.

Response from Environment and Climate Change Canada, September 2019

I would direct you to the [Federal Contaminated Sites Inventory](#) (FCSI) to find information on known and suspected federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations. The FCSI does not list individual contaminants, however you can find PFAS-contaminated federal sites listed under the category of inorganic contaminants. **This list provides the best information available at this time.**

Physical Science Officer, Federal Contaminated Sites Action Plan Secretariat
Environment and Climate Change Canada / Government of Canada

Search for Federal Lists of PFAS Sites

https://www.canada.ca/en/transport-canada/news/2017/09/transport_canadatoconductenvironmentalsamplingattheboundaryoftra.html

Government of Canada / Gouvernement du Canada

Search Canada.ca

MENU

Canada.ca > Transport Canada

Transport Canada to conduct environmental sampling at the boundary of transferred airport properties

From: [Transport Canada](#)

News Release

September 28, 2017 - Ottawa - Transport Canada

Transport Canada takes the health of Canadians and the environment seriously and is proactively reaching out to select airports it previously owned to request permission to test for offsite per- and polyfluoroalkyl substances (PFAS) concentrations surrounding fire training areas.

PFAS are chemicals which have been used widely in products, including firefighting foams which were historically used for training purposes at some airports owned by Transport Canada. The potential environmental and health risks were not known at the time and are currently still being studied.

The Government of Canada is taking action as a precautionary measure to better understand the impacts of PFAS and to protect the health of Canadians and the environment.

Sampling for the presence of any offsite PFAS concentrations surrounding fire training areas at selected transferred airports will lead to an increased level of understanding of how these substances react in areas adjacent to the airport lands. Transport Canada will share all results with the transferred airport operators and will offer guidance on possible next steps.

https://www.canada.ca/en/transport-canada/news/2017/09/transport_canadatoconductenvironmentalsamplingattheboundaryoftra.html

Search for Federal Lists of PFAS Sites

Response from Transport Canada: Refer to the Federal Contaminated Sites Inventory

Thank you for contacting Transport Canada regarding the news release from September 28, 2017 indicating that Transport Canada is undertaking an initiative to sample for PFAS at airports and fire training areas. The department has been sampling for PFAS at airports and in many cases work is still ongoing. Unfortunately, we do not have the sampling locations and results summarized in tabular form in one document.

Information regarding Transport Canada airports where PFAS sampling has been conducted can be found on the [Federal Contaminated Sites Inventory](#). Using a keyword search of “PFAS” will produce a list of the majority of the sites; however, it is also recommended to search on the keyword phrase “fire training area” to ensure all sites are captured.

[Federal Contaminated Sites Inventory_\(tbs-sct.gc.ca\)](#)

Heather Osborne
Manager, Environmental Programs
Transport Canada/Government of Canada



Regulatory landscape limits data availability

This DRAFT report on the state of PFAS is a long way from a list of sites where PFAS is used/processed/released.

Takeaway: PFAS will be addressed as a class of substances

Federal Government is proposing a precautionary, class-based approach where future measures will apply to all substances under the PFAS class, as opposed to regulating only specific varieties of PFAS substances [1]

[1] <https://mcmillan.ca/insights/environment-canadas-state-of-pfas-report-insights-into-the-future-regulation-of-forever-chemicals/>

DRAFT State of Per- and Polyfluoroalkyl Substances (PFAS) Report

Environment and Climate Change Canada
Health Canada

May 2023

Identifying PFAS Handlers in Other Data

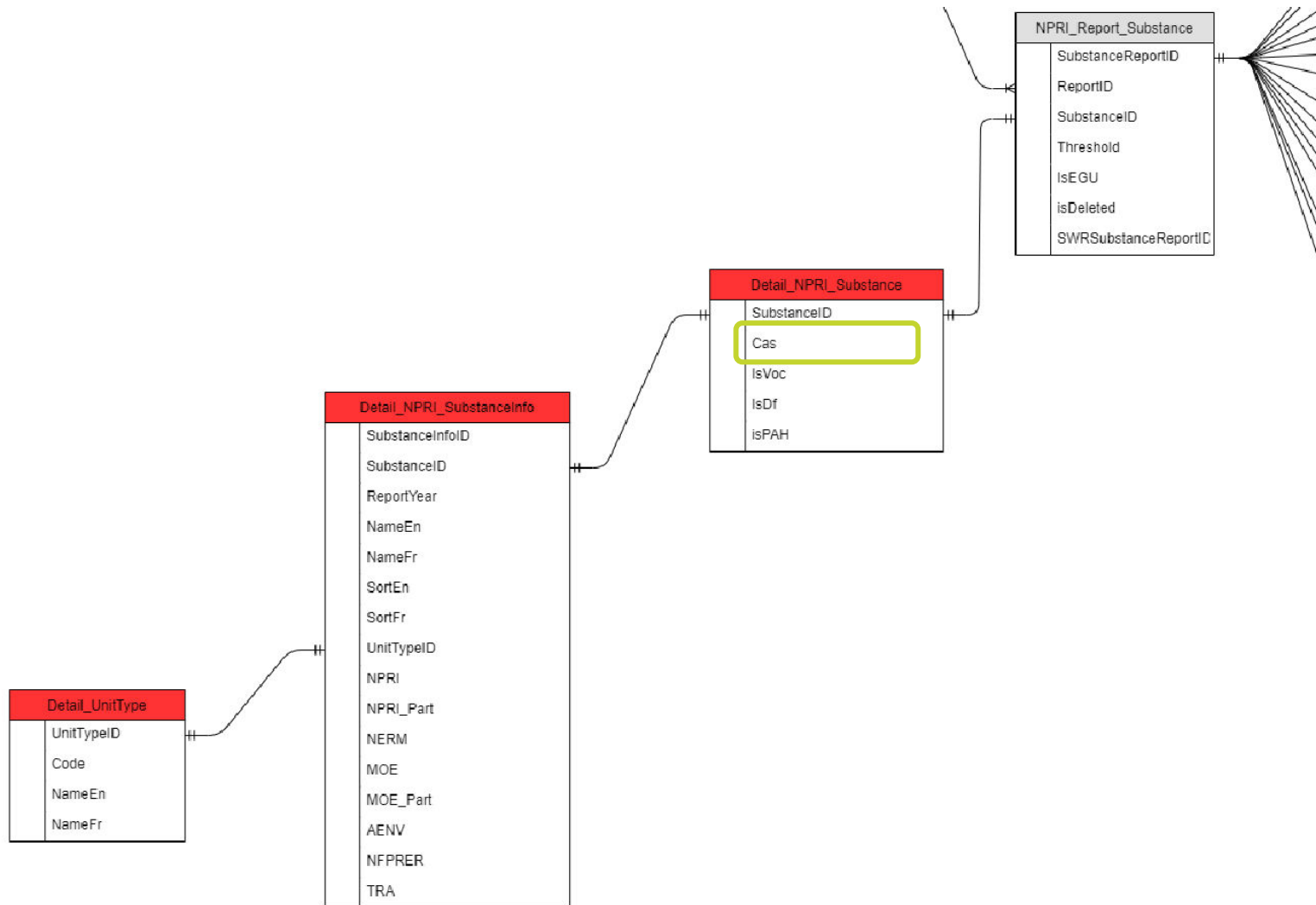
Strategy:

Cross-reference substances/chemical of concern against various lists of PFAS substances (i.e., a class of substances)

Ideal:

Substance/chemical information is provided as CAS Number

NPRI Substances have CAS Number



Lists of PFAS Substances


OECD Global Database of Per- and Polyfluoroalkyl Substances (PFASs)

- Includes Canadian Domestic Substances List (DSL) PFAS


US Environmental Protection Agency (US EPA)

- PFAS Master List of PFAS Substances
- PFAS Structures in DSSTox (update August 2022)

OECD Global Database

 **OECD**
BETTER POLICIES FOR BETTER LIVES

[Toward a New Comprehensive Global Database of Per- and Polyfluoroalkyl Substances \(PFASs\)](#)



The OECD developed a new list of Per- and Polyfluoroalkyl Substances (PFASs) based on a comprehensive analysis of information available in the public domain. In total, 4730 PFAS-related CAS numbers have been identified and categorised in this study, including several new groups of PFASs that fulfil the common definition of PFASs (i.e. they contain at least one perfluoroalkyl moiety) but have not yet been commonly regarded as PFASs. This list is an update from a list published by the OECD in 2007.

This work has been conducted under the OECD/UN Environment Global PFC Group in support of the Strategic Approach to International Chemicals Management (SAICM) and shifting to safer alternatives for PFASs.

This list can be used in conjunction with the methodology report that details the major findings with respect to the total numbers and types of PFASs identified, the limitations, gaps and challenges identified in the development of the new list, and opportunities for improving the future understanding of PFASs

[Read the Summary Report](#)

Content of the spreadsheets

| | |
|---------------------------------|---|
| 1_sources | Sources of information that have been used to compile this database |
| 2_structure_categories | Information on individual structure categories used in the spreadsheets and supplementary information |
| 3_overview_with_CAS | Overview table of PFASs |
| 4_0_us_epa_tsca | Associated information of those PFASs contained in this database and in the US EPA TSCA Inventory |
| 4_1_us_epa_iur_1986_2002 | Associated information of those PFASs contained in this database and in the US EPA IUR Inventory reported between 1986 and 2002 |
| 4_2_us_epa_iur_2006 | Associated information of those PFASs contained in this database and in the US EPA IUR Inventory reported in 2006 |
| 4_3_us_epa_cdr_2012 | Associated information of those PFASs contained in this database and in the US EPA CDR Inventory reported in 2012 |
| 4_4_us_epa_cdr_2016 | Associated information of those PFASs contained in this database and in the US EPA CDR Inventory reported in 2016 |
| 5_ca_dsl | Associated information of those PFASs contained in this database and in the Canadian DSL |
| 6_eu_reach_registered | Associated information of those PFASs contained in this database and in the EU Registered Substances Dossiers |

[0_cover](#) | [1_sources](#) | [2_structure_categories](#) | [3_overview_with_CAS](#) | [4_0_us_epa_tsca](#) | [4_1_us_epa_iur_1986_2002](#) | [4_2_us_epa_iur_2006](#) | [4_3_us_epa_c ...](#)

Canadian Domestic Substances List (DSL)

| | A | B | C |
|-----|--------------|--|---------------------|
| 1 | CAS_No | Chemical_Name | CEPA_Categorization |
| 182 | 9002-84-0 | Ethene, tetrafluoro-, homopolymer | No |
| 183 | 9011-17-0 | 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene | No |
| 184 | 94313-84-5 | Carbamic acid, [5-[[[2-[[[(heptadecafluorooctyl) sulfonyl]methylamino]ethoxy]carbonyl]amino]-2-methylphenyl]-, 9-octadecenyl ester, (| No |
| 185 | 95370-51-7 | Carbamic acid, [2-(sulfothio)ethyl]-, C-(γ - ω -perfluoro-C6-9-alkyl) esters, monosodium salts | No |
| 186 | 98999-57-6 | Sulfonamides, C7_8-alkane, perfluoro, N-methyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl], polymers with 2-ethoxyethyl acrylate, glycidyl me | NULL |
| 187 | 177473-71-1 | Siloxanes and Silicones, di-Me, vinyl group-terminated, polymers with 4-bromo-3,3,4,4-tetrafluoro-1-butene, 1,1-difluoroethene, 1,1,2,3 | NULL |
| 188 | 328389-91-9 | Propanoic Acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymers with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-Trimethylcyclohexane | NULL |
| 189 | 163702-06-5 | Propane, 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoro- | NULL |
| 190 | 1224429-82-6 | Phosphoric acid, mixed esters with polyethylene glycol and 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluoro-1-octanol, ammonium salts | NULL |
| 191 | 178233-67-5 | Hexahydroperfluoro-C6-C12 alkyl acrylate, polymer with lauryl acrylate and acryloyl-butylurethane | NULL |
| 192 | 200013-65-6 | Diphosphoric acid, polymers with ethoxylated reduced Me esters of reduced polymd. oxidized tetrafluoroethylene | NULL |
| 193 | 92265-81-1 | Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-ethoxyethyl 2-propenoate, 2-[[heptade | NULL |
| 194 | 163702-05-4 | Butane, 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro- | NULL |
| 195 | 756-13-8 | 3-Pentanone, 1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)- | NULL |
| 196 | 1158951-86-0 | 2-Propenoic acid, 2-methyl-, polymer with 2-hydroxyethyl 2-methyl-2-propenoate, α -(1-oxo-2-propen-1-yl)- ω -hydroxypoly (oxy-1,2-eth | NULL |
| 197 | 148878-17-5 | 2-Propenoic acid, 2-methyl-, C2-18-alkyl esters, polymers with a-fluoro-w-[2-[(1-oxo-2-propenyl)oxy]ethyl]poly(difluoromethylene) an | NULL |
| 198 | 321657-92-5 | 1-Propene, 1,1,2,3,3,3-hexafluoro-, telomer with 2,2-dichloro-1,1,1-trifluoroethane and 1,1-difluoroethene | NULL |
| 199 | 74499-71-1 | 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene, 1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]propane and tetrafluoroether | NULL |
| 200 | 35560-16-8 | 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with ethene and tetrafluoroethene | NULL |
| 201 | 68182-34-3 | 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene, 1,1,1,2,2,3,3-heptafluoro-3-[(trifluoroethenyl)oxy]propane and tetr | NULL |
| 202 | 163702-08-7 | Propane, 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoro- | NULL |
| 203 | 69991-62-4 | Ethene, tetrafluoro-, oxidized, polymd., reduced | NULL |
| 204 | 89461-13-2 | Butanol, (ethenyloxy)-, polymer with chlorotrifluoroethene and (ethenyloxy)cyclohexane | NULL |
| 205 | 163702-07-6 | Butane, 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy- | NULL |
| 206 | 71487-20-2 | 2-Propenoic acid, 2-methyl-, methyl ester, polymer with ethenylbenzene, 2-[[heptadecafluorooctyl)sulfonyl]methylamino]ethyl 2-propen | NULL |
| 207 | 1206450-10-3 | 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1-ethenyl-2-pyrrolidinone, 2-propenoic acid and 3,3,4,4,5,5,6,6,7,7,8,8,8 | NULL |
| 208 | 1407491-30-8 | Siloxanes and Silicones, 3-aminopropyl Me, di-Me, Me 3-mercaptopropyl, polymers with stearyl acrylate, 3,3,4,4,5,5,6,6,7,7,8,8,8-trideca | NULL |
| 209 | 1012783-71-9 | 2-Propenoic acid, 2-hydroxyethyl ester, telomer with 2-mercaptoethanol, α -(1-oxo-2-propen-1-yl)- ω -hydroxypoly(oxy-1,2-ethanediyl), α | NULL |
| 210 | | | |
| 211 | | | |

EPA Master List of PFAS Chemicals

PFAS Master List of PFAS Substances

Search for chemical by systematic name, synonym, CAS number, DTXSID or InChIKey

Identifier substring search

List Details

Description: PFASMASTER is a consolidated list of PFAS substances spanning and bounded by the below lists of current interest to researchers and regulators worldwide. For all available lists on the dashboard view [these search results](#).

Per- and polyfluorinated alkyl substances (PFAS) represent a growing, increasingly diverse inventory of chemicals of interest to the general public, scientific researchers, and regulatory agencies world-wide. Accompanying data-gathering, testing, and environmental monitoring exercises, in turn, have led to the publication and sharing of various lists of PFAS chemicals, some exceeding several thousand substances. A major effort was undertaken by EPA researchers within the National Center for Computational Toxicology to curate and structure-annotate several public lists in DSSTox. The below list of registered PFAS lists, from within and outside EPA, encompass PFAS of potential interest based on environmental occurrence (through literature reports and analytical detection) and manufacturing process data, as well as lists of PFAS chemicals procured for testing within EPA research programs. The consolidated list contains a number of PFAS CAS-name substances, with a subset represented with defined chemical structures. There is no precisely clear definition of what constitutes a PFAS substance given the inclusion of partially fluorinated substances, polymers, and ill-defined reaction products on these various lists. Hence, PFASMASTER serves as a consolidated list of substances spanning and bounded by the below lists, defining a practical boundary of PFAS chemical space (within DSSTox) of current interest to researchers and regulators worldwide. This PFAS Master List will continue to expand as component lists grow. (Last Updated: August 10th 2021)

https://comptox.epa.gov/dashboard/chemical_lists/EPAPFASRL is an EPA research list of PFAS compiled from various internal, literature and public sources.

https://comptox.epa.gov/dashboard/chemical_lists/EPAPFASINV is a complete list of DMSO-solubilized PFAS in EPA's ToxCast inventory.

https://comptox.epa.gov/dashboard/chemical_lists/EPAPFAS75S1 list is a prioritized subset of this larger chemical inventory.

https://comptox.epa.gov/dashboard/chemical_lists/EPAPFASINSOL is a list of chemicals procured, but found to be insoluble in DMSO above 5mM.

https://comptox.epa.gov/dashboard/chemical_lists/PFASOECD is a list of PFAS chemicals in the OECD New Comprehensive Global Database.

https://comptox.epa.gov/dashboard/chemical_lists/PFASKEMI is a list of PFAS chemicals from a KEMI Swedish Chemicals Agency Report (provided by Stellan Fischer).

https://comptox.epa.gov/dashboard/chemical_lists/PFASRIER is a list of PFAS compiled by a community effort in 2015.

https://comptox.epa.gov/dashboard/chemical_lists/EPAPFASCAT is a list of structure-based Markush PFAS categories (capabilities under development).

https://comptox.epa.gov/dashboard/chemical_lists/PFASSTRUCT is a list of all PFAS structures containing a specific defined substructures.

https://comptox.epa.gov/dashboard/chemical_lists/PFASDEV1 is a list of PFAS chemicals without explicit structures - polymers and other UVCB chemicals.

US EPA Master List of PFAS Chemicals

PFASMASTER is a consolidated list of PFAS substances spanning and bounded by the 10 lists contained therein

- Includes OECD Global Database of PFAS
- Includes US EPA PFAS structures (an older version of structures)

EPA PFAS structures in DSSTox

CompTox Chemicals Dashboard v2.2.1 Home Search Lists About Tools Submit Comments Search all data

PFAS|EPA: PFAS structures in DSSTox (update August 2022)

Search for chemical by systematic name, synonym, CAS number, DTXSID or InChIKey

Identifier substring search


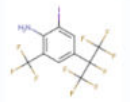

List Details

Description: List consists of all records with a structure assigned, and using a combination of a set of substructural filters and percent of fluorine in the molecular formula ignoring all hydrogen atoms. For example, for a compound with the molecular formula C6HF9O6, the percent of fluorine excluding hydrogen contained in the formula would be $9F / (6C + 9F + 6O) = 42\%$. A threshold of 30% fluorine without hydrogen allows for inclusion of some of the complex highly fluorinated structures. The combination of the set of substructural filters ([visible here](#), where the heteroatom Q can be B, O, N, P, S, or Si) are designed to be simple, reproducible and transparent, yet general enough to encompass the largest set of structures having sufficient levels of fluorination to potentially impart PFAS-type properties. The combination of substructural filters and threshold of percentage of fluorination were identified in the development of the manuscript "A Proposed approach to defining per- and polyfluoroalkyl substances (PFAS) based on molecular structure and formula" by Gaines et al.

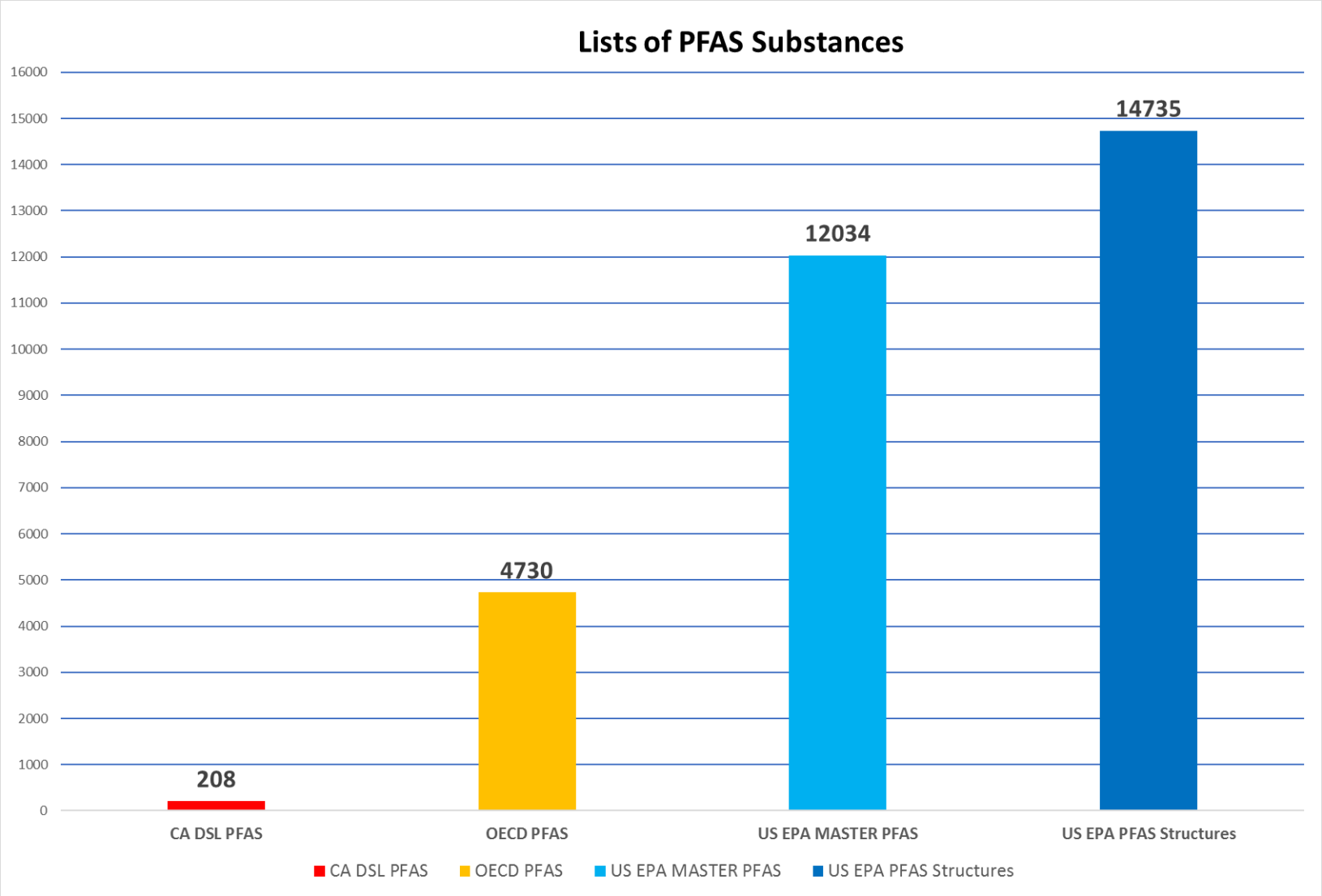
Number of Chemicals: 14735

Search Results SEND 14735 TO BATCH SEARCH FILTER COPY URL EXPORT PREFERRED VIEW

Showing 14735 of 14735 chemicals

| | | | | | ToxCast | | | | | | | | | |
|--------------------------|---|----------------|--|--------------|-------------|-------------|----------|-------------|-----------|-------------|-------------|------------|---------------|-----------------|
| <input type="checkbox"/> | Structure | DTXSID ↓↑ | Preferred Name ↓↑ | CASRN ↓↑ | QC Level ↓↑ | # Active ↓↑ | Total ↓↑ | % Active ↓↑ | #CPDat ↓↑ | #Sources ↓↑ | #PubChem ↓↑ | #PubMed ↓↑ | Mono. Mass ↓↑ | Mol. Formula ↓↑ |
| <input type="checkbox"/> |  | DTXSID10892594 | 8:2 Fluorotelomer sulfonate, hydroxy... | 1513864-19-1 | 1 | - | 17 | - | 2 | - | - | - | 612.085955 | C16H19F17NO2 |
| <input type="checkbox"/> |  | DTXSID40896368 | 4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)phenol | 1207315-39-6 | 5 | - | 21 | - | 8 | - | - | - | 454.922880 | C10H4F10O |
| <input type="checkbox"/> |  | DTXSID01033141 | Perfluoro-N-heptanesulfonate | 1639369-04-2 | 2 | - | 10 | - | - | - | - | - | 1567.794543 | C74HF52LN2 |

How do these lists of PFAS substances compare to one another?



How do these lists of PFAS substances compare to one another?

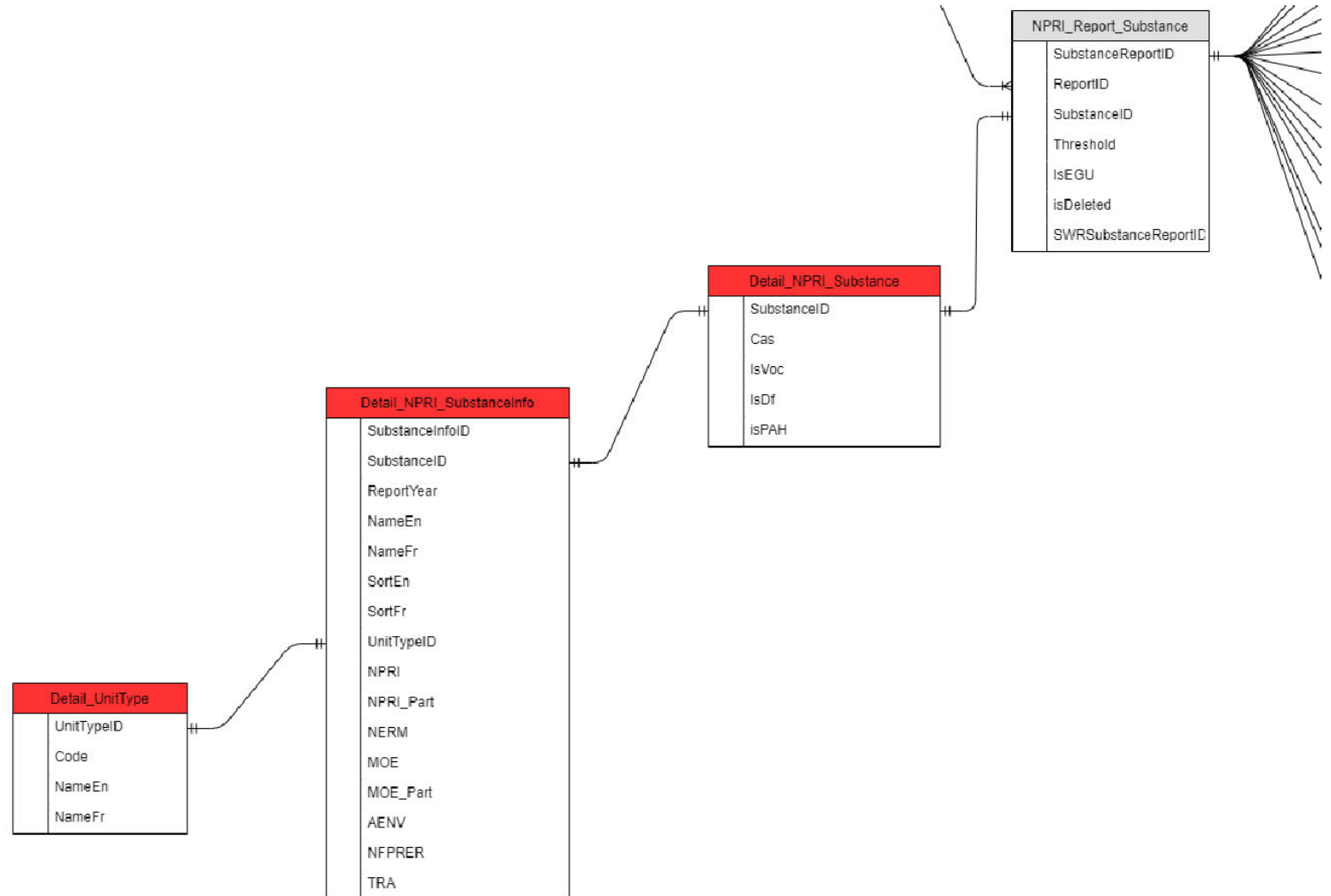
56 OECD (3 CA DSL)
not in the EPA lists



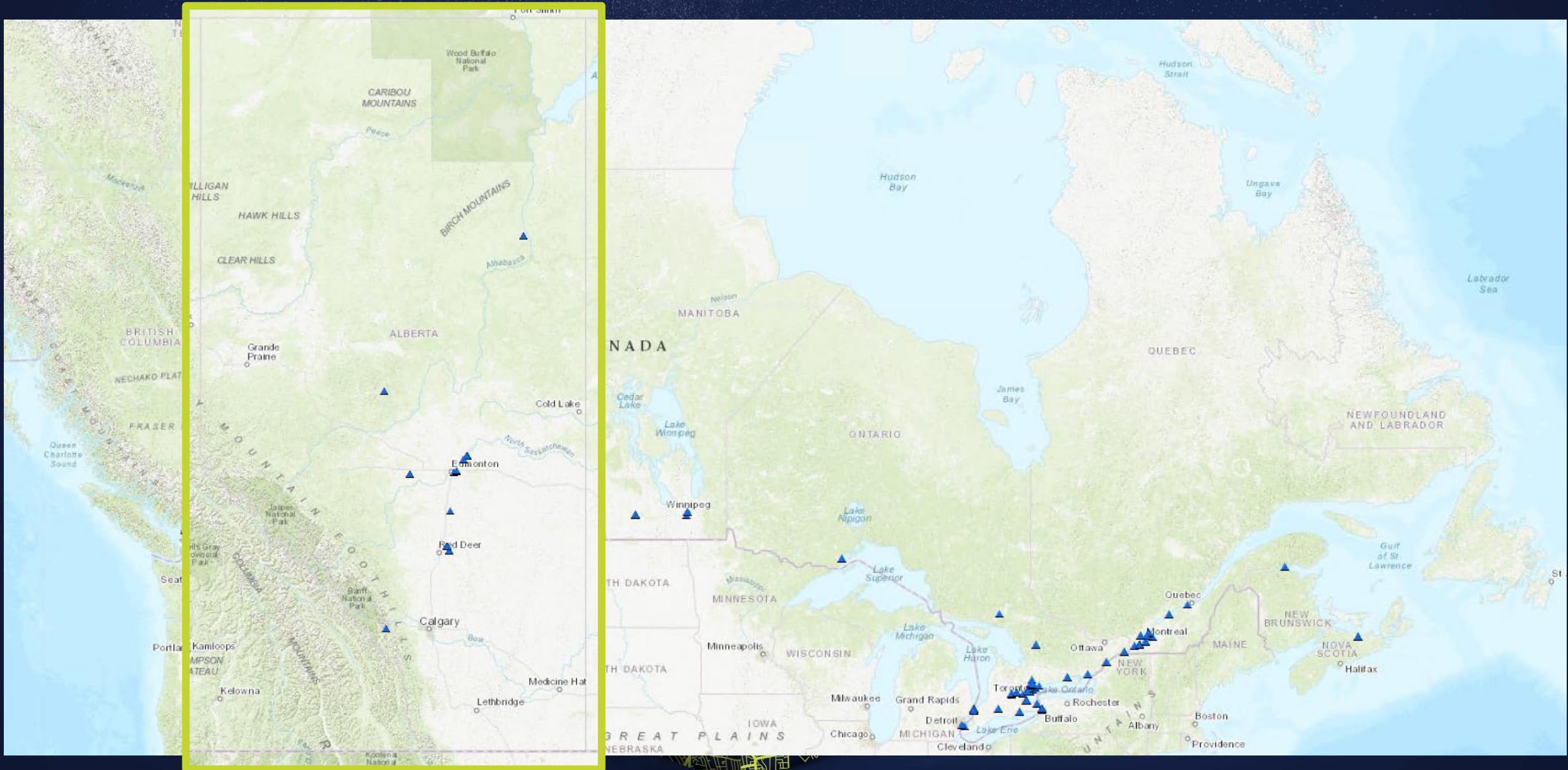
Cross-referencing NPRI Substances

**Total of 320
distinct substances in
the NPRI Substances
data**

**7 of them are found
among the various
PFAS lists**



PFCH records in ERIS Data



Map Satellite

Enter address or coordinates here

Map Key : 2

1 Record

Dir: W Dist(m): 0

CHEST FREEZERS BUSINESS UNIT
5 ARTHUR ST S, 5 ARTHUR STREET
SOUTH

PFCH

Report Content

1

(NPRI ID) with mobile plants and/or more than one facility location, substances listed above may or may not be specific facilities/mobile locations. The list of substances additionally includes those which have been included with an unknown quantity or a quantity of 0. For specific details about substance quantities, years, release methods, the reader is referred to the facility report: <https://pollution-waste.canada.ca/national-release-inventory-fromYear=1993&toYear=2022&name=10573>

PFAS Substances Summary

| | |
|---------------|---------|
| CAS No: | 75-45-6 |
| NPRI: | TRUE |
| Is VOC?: | FALSE |
| Is DF?: | FALSE |
| Is PAH?: | FALSE |
| Name English: | HCFC-22 |
| Name French: | HCFC-22 |
| Sort English: | HCFC-22 |
| Sort French: | HCFC-22 |

Canadian DSL PFAS:

OECD PFAS:

EPA PFAS Master List:

EPA PFAS Structures: CAS No exists in the US EPA list of PFAS structures (encompassing the largest set of structures having sufficient data to potentially impart PFAS-type properties)

PFAS Search Terms



| | |
|---------------------------------|-------------------------|
| PFOS | Perfluorooctanoate |
| PFAS | Pentadecafluorooctanoic |
| PFC | Heptadecafluoro |
| PFOA | octanesulfonic |
| GenX | Perfluorooctanesulfonic |
| Teflon | Perfluorononanoic |
| Fluoropolymers | PFNA |
| Perfluorooctanoic | Fluorosurfactant |
| HFPO | Perfluorononanoate |
| Hexafluoropropylene | Heptadecafluorononanoic |
| PFBS | PFAA |
| Perfluoroalkyl | FRD-903 |
| Perfluorooctane | C2805 |
| Fluorotelomer | C2806 |
| PFCA | AFFF |
| Perfluorinated carboxylic acids | PFO |
| Perfluorocaprylic | PFHpA |
| FC-143 | PFHxS |

Cross-referencing substances

We develop our PFAS Search terms from PFAS contaminated sites data

Example PFAS records from Spills data

| Chemical value in the Spills data records | matching term |
|---|---------------|
| Universal Gold 13AR AFFF NMS 420, Chemguard Ultraguard 3% AR-AFFF | AFFF; AR-AFFF |
| ARFF(300 gal), AFFF 3%(210 gal), Chemguard AR-AFF 3%(75 gal) | AFFF |
| FireAde and T-Storm AR-AFFF, Non-PCB Transformer Oil | AR-AFFF |
| National Foam Gold (PFAS Fire fighting foam) | PFAS |
| Williams Brand Thunderstorm 1X3 (PFAS Foam) | PFAS |
| Chamguard C306-MS-C 3% AFFF Concentrate | AFFF |
| 3% AFFF solution (firefighting foam) | AFFF |
| PFAS Chemicals (Firefighting Foam) | PFAS |
| ANSULITE 3% AFFF FREEZE PROTECTANT | AFFF |
| AFFF Class B Firefighting Foam | AFFF |
| 3% ansulite AFFF AFC-5-A | AFFF |
| AFFF Fire fighting foam | AFFF |
| Unknown brand PFAS Foam | PFAS |
| Chemguard 3%X3% AR-AFFF | AR-AFFF |
| Chemguard 3%/6% AR-AFFF | AR-AFFF |

Cross-referencing substances

| Substances in AER Incidents and Spills data | | | |
|---|-----------------------------|-----------------------------|--------------------------|
| Acid | Dilbit | Heavy Metals | Produced Sand |
| Acid Gas | Diluent | Hydrogen | Propane |
| Air | Drilling Mud (HC Based) | Hydrotest Fluids (Methanol) | Rags (Oily) |
| Ammonia | Drilling Mud (Water Based) | KCL | Salt (Inorganic) |
| Bitumen Slurry | Emulsifiers | Kerosene | Salt/Produced Water |
| Boiler Blowdown Water | Ethane | Leachate | Sewage |
| Brackish Water | Frac Oil | Lime sludge | Solvent |
| Butanes | Frac Sand | Liquid Petroleum Gas | Steam |
| Carbon Dioxide | Frac Water | Liquid Waste | Steam Condensate |
| Cement | Fresh Water | Lubricants | Sulphur |
| Chemicals | Fuel Gas | Methane | Sulphur Dioxide |
| Chlorides | Gas Production (Marketable) | Methanol | Sweetening Agent |
| Chlorine | Gas Production (Raw) | Molton Sulphur | Synthetic Crude Oil |
| Condensate | Gasoline | Naptha | Tailings |
| Contaminated Surface Water | Gel Chem | Nitrogen | Total Hydrocarbons (THC) |
| Corrosion Inhibited Water | Glycol | Oily Sludge | Transformer Oil |
| Corrosion Inhibitor | Gypsum | Ozone Depleting Substance | Used Oil |
| Crude Bitumen | Gypsum Slurry | Pentanes Plus | Waste |
| Crude Oil | H2S | Polymer | |
| Diesel Oil | Heating Oil | Process Water | |

Cross-referencing NAICS codes

US EPA identifies PFAS Industry Sectors by cross-referencing NAICS codes in Enforcement and Compliance History (ECHO) data against a list of NAICS for Potential PFAS-Handling Industry Sectors based on literature reviews and field investigations by several EPA offices^[3]

EPA Disclaimer: inclusion of a facility [in the Industry Sectors data] does not indicate that PFAS are being manufactured, processed, used, or released by the facility.

It is important to note that listed facilities potentially handle PFAS based on their industrial profile. EPA has not confirmed whether each individual facility on the list actually handles PFAS.

[3] PFAS Analytic Tools Users' Guide (PDF)
<https://echo.epa.gov/system/files/2022-10/PFASAnalyticToolsUserGuideOCT2022.pdf>

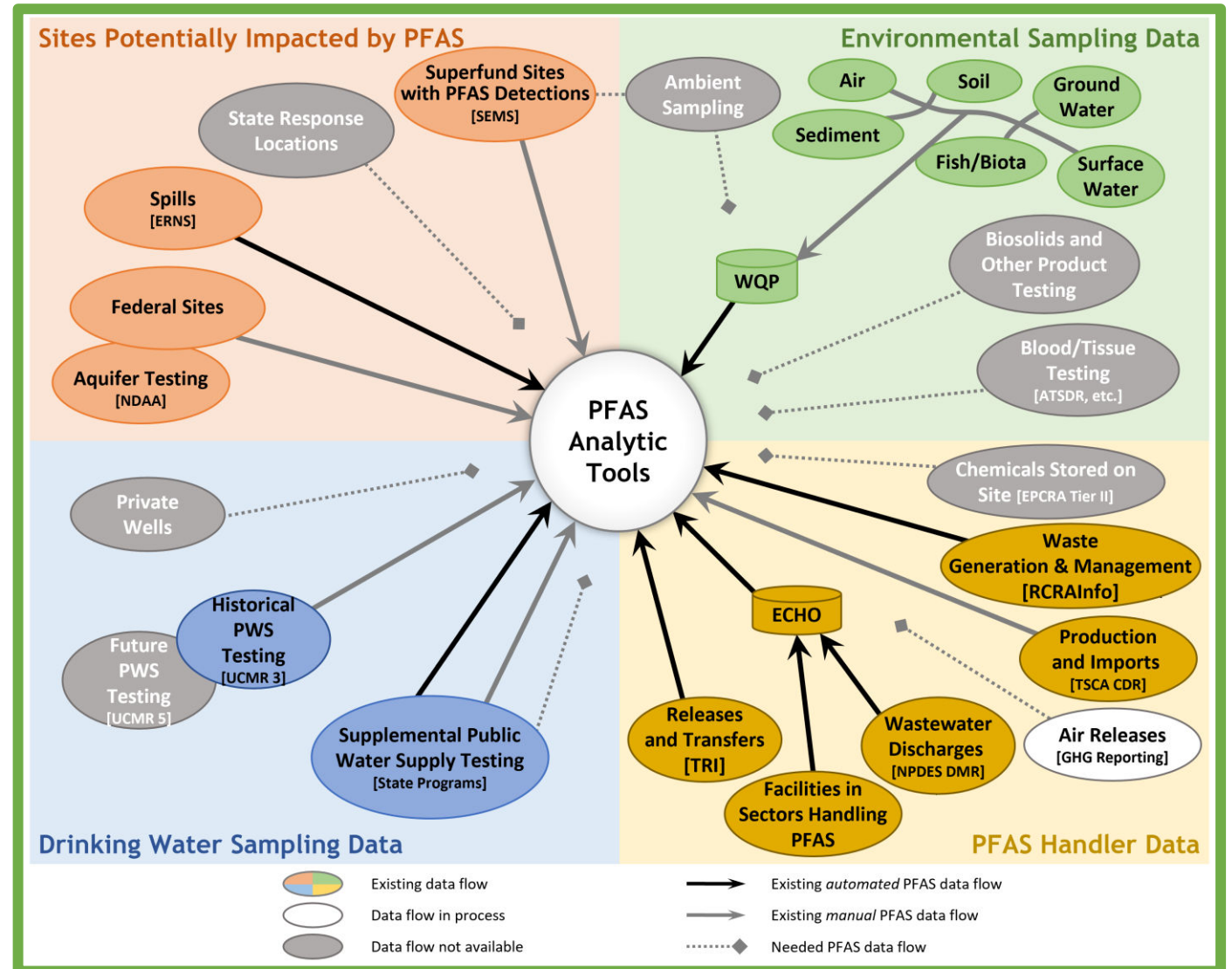


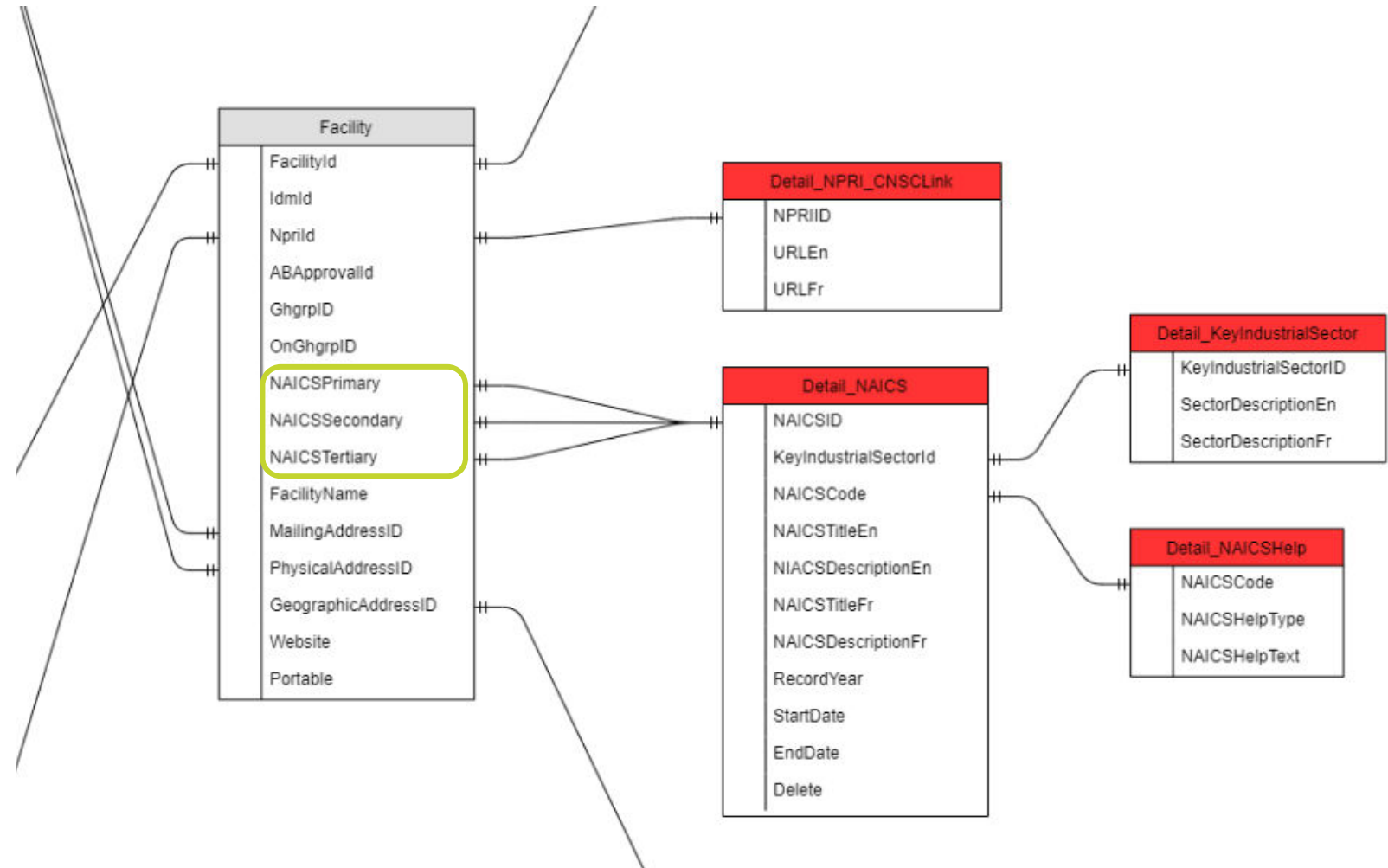
Image source: <https://echo.epa.gov/trends/pfas-tools>

Cross-referencing NPRI NAICS codes

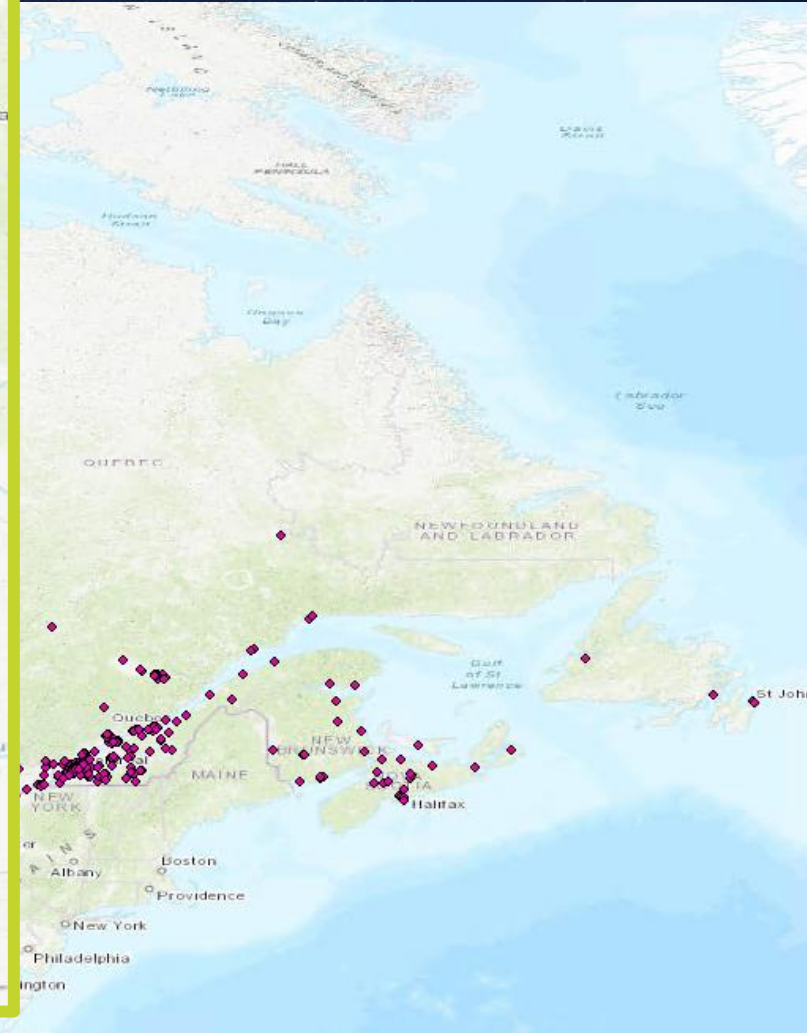
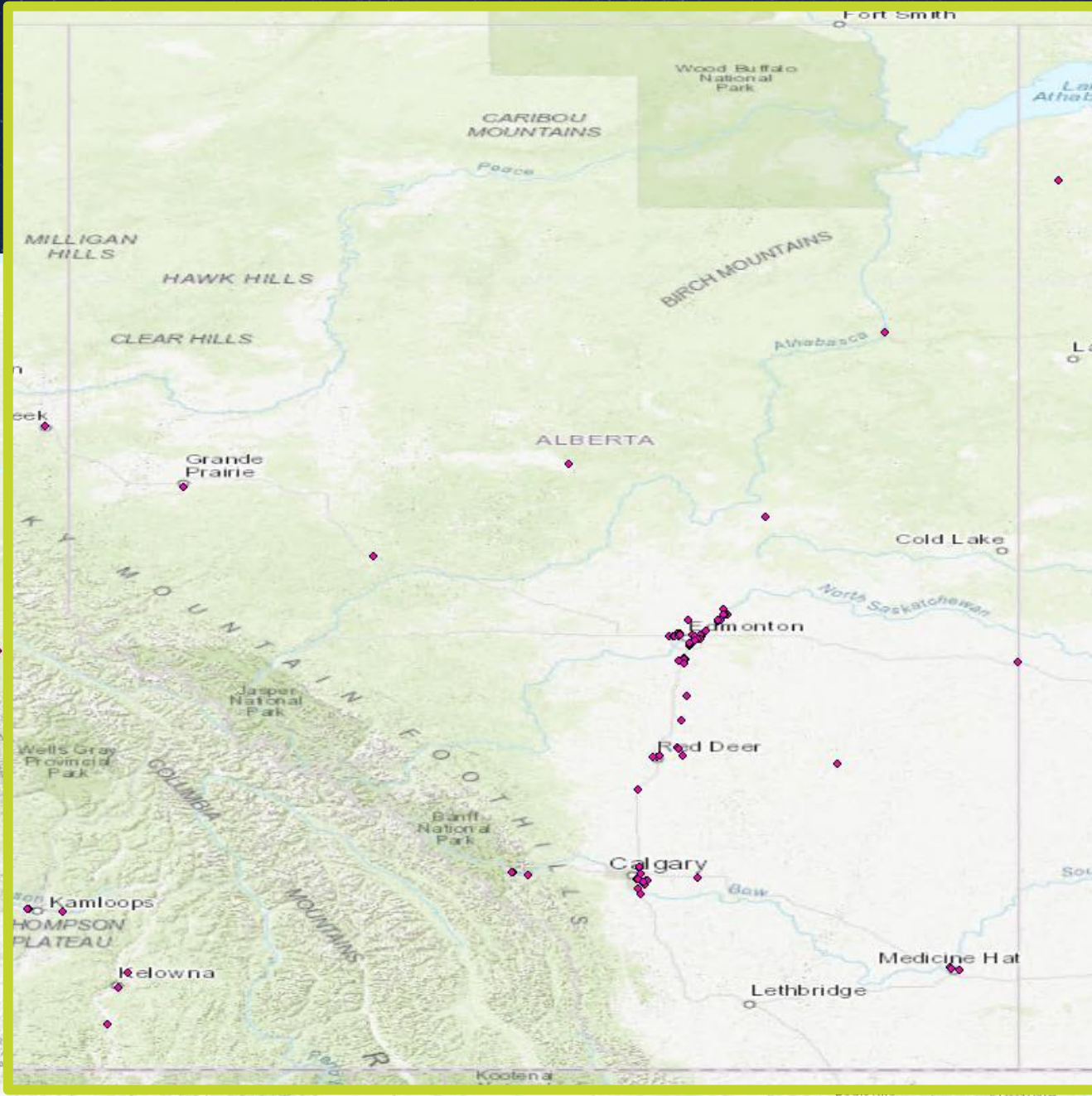
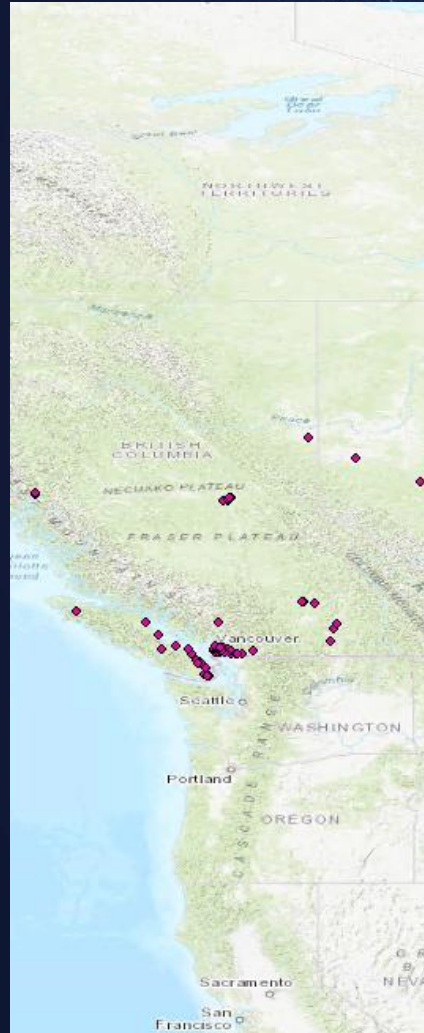
Total of 425 distinct NAICS codes in the NPRI Facility data

91 distinct NAICS codes in the US EPA list of Potential PFAS-Handling Industry Sectors

32 NAICS codes in the NPRI Facility data are in the list of Potential PFAS-Handling Industry Sectors



PFHA



Quick Search

Company Name

Showing Results: 1 to 30 of 293

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

| Company Name |
|---|
| BALZAC SOUTHERN ALBERTA REFINERY SITE - 2ND EXTENSION |
| BALZAC SOUTHERN ALBERTA REFINERY SITE - 3RD EXTENSION |
| Becker Refinery |
| BONNYVILLE OIL REFINERIES LTD |
| BONNYVILLE OIL REFINERIES LTD |
| BONNYVILLE OIL REFINERIES LTD |
| BONNYVILLE OIL REFINERIES LTD |
| Bonnyville Oil Refineries Ltd. |
| Bonnyville Oil Refineries Ltd. |
| Bonnyville Oil Refineries Ltd. |
| Bonnyville Oil Refineries Ltd. 0B83 |

Site Detail

| | | | |
|------------------------|--|-------------|------------|
| Last Name: | Leflar | Fax: | 4032243650 |
| Company Name: | | | |
| Description En: | Public Contact | | |
| Description Fr: | Responsable des renseignements au public | | |
| Position: | Gen. Manager Refining & Supply | | |
| Language: | | | |
| Email: | | | |

NPRI Report

| | | | |
|-----------------------|----------------|-------------------------|-------|
| Report ID: | 4200 | New Reporter: | FALSE |
| Report Year: | 1994 | No of Employees: | 33 |
| Company ID: | 102031 | Is Compressor: | FALSE |
| SWR Report ID: | 19940000001881 | Is NPRI Part 4: | FALSE |
| Repor Type ID: | 1 | Is Battery: | FALSE |

Company

| | |
|-----------------------|---|
| DUNS No: | 0 |
| Company Name: | Parkland Refining Ltd., Bowden Refinery |
| Trade Name En: | |
| Trade Name Fr: | |
| Website: | |

| | | |
|---------------------------|---|------|
| SOURCE NAME | Potential PFAS Handlers from NPRI | PFHA |
| SOURCE DESCRIPTION | <p>The National Pollutant Release Inventory (NPRI) is Canada's public inventory of releases, disposals, and transfers, tracking over 320 pollutants. Per - and polyfluoroalkyl substances (PFAS) are a group of over 4,700 human-made substances for which adverse environmental and health effects have been observed. This list of potential PFAS handlers includes those NPRI facilities that reported business activity (NAICS code) included in the US Environmental Protection Agency (US EPA) list of Potential PFAS-Handling Industry Sectors, further described as operating in industry sectors where literature reviews indicate that PFAS may be handled and/or released. Inclusion of a facility in this listing does not indicate that PFAS are being manufactured, processed, used, or released by the facility - these are facilities that potentially handle PFAS based on their industrial profile.</p> | |

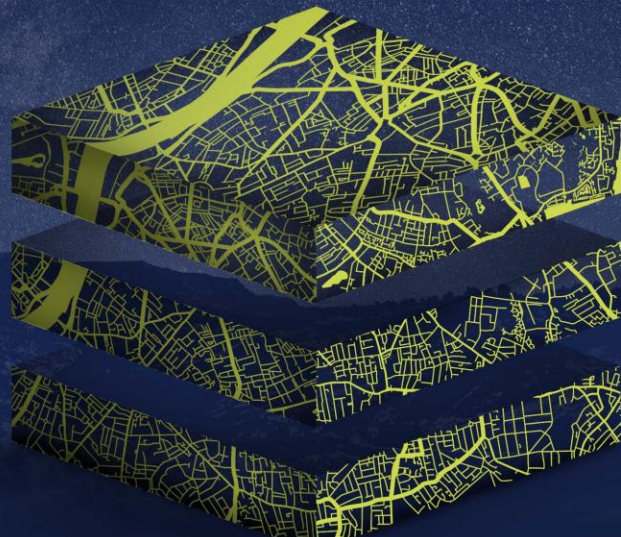
More possibilities for PFAS sites

Provincial spills data (Contaminant name)

Firefighter Training centres, Airport polygons

New Substances Notification Forms data for chemicals and polymers

...discussion



Thank you

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Director, Research & Data

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