



# **PRIO – a tool for substitution**

How to identify  
>10 000 PFAS

Olof Johansson, PhD

Development of legislation and other instruments

# www.kemi.se/prioguiden/english/start

The screenshot shows the top navigation bar of the KEMI PRIO website. It includes the KEMI logo (Swedish Chemicals Agency), the PRIO title 'PRIO - a tool for substitution', and a 'Listen På svenska' button. Below the navigation bar is a horizontal menu with five circular icons: 'START' (molecular structure), 'INVENTORY' (list), 'SEARCH' (magnifying glass), 'PRIORITISE' (scales), and 'SUBSTITUTE' (double arrows). The main content area features a heading 'Keep one step ahead with PRIO' followed by a paragraph explaining the tool's purpose. Below this is a section titled 'About PRIO' with a list of links: 'Background - PRIO', 'PRIO criteria for phase-out substances and priority risk-reduction substances', 'What substances are in PRIO?', 'How to search in PRIO', 'Substance groups', 'Substances in chemical products', 'Substances in materials', 'Substances in articles', and 'Analyse chemicals risks in your business'. At the bottom left of the main content area is an image of two hands holding a globe with a tree on it.

- One step ahead with PRIO
- A help for businesses to find and replace hazardous substances in chemical products and articles



## Guide

- ▶ Inventory
- ▶ Search
- ▶ Prioritise
- ▶ Substitute



## Database > 16 600 hazardous substances – nearly 11 000 PFAS

- ▶ Criteria for hazardous properties for human health and the environment
- ▶ Two priority levels:
  1. Phase-out substances
  2. Priority risk-reduction substances

# PRIO criteria

## Phase-out substances

- **Carcinogenic** (Carc. 1A or 1B)
- **Mutagenic** (Muta. 1A or 1B)
- **Toxic to reproduction** (Repr. 1A or 1B)
- **Fluorinated greenhouse gases** (F-gases)
- **Endocrine disrupting** (ED HH 1 or ED ENV 1)
- **Strongly allergenic** (Resp. Sens. 1 or Skin Sens. 1A)
- **Ozone depleting** (Ozone 1)
- **Persistent, bioaccumulative and toxic** (PBT)
- **Very persistent and very bioaccumulative** (vPvB)
- **Persistent, mobile and toxic** (PMT)
- **Very persistent and very mobile** (vPvM)
- **Particularly hazardous metals** (Cd, Hg, Pb)
- **PFAS, Particularly persistent substances**

## Priority risk-reduction substances

- **Allergenic** (Skin Sens. 1 or 1B)
- **Carcinogenic** (Carc. 2)
- **Mutagenic** (Muta. 2)
- **Toxic to reproduction** (Repr. 2 or Lact.)
- **Env hazardous long-term effects** (Aquatic chronic 1 or 4)
- **Very high acute toxicity** (Acute Tox. 1 or 2 or STOT SE 1)
- **Potential endocrine disrupting** (ED HH 2 or ED ENV 2)
- **Potential PBT/vPvB**
- **Specific target organ toxicity after repeated exposure** (STOT RE 1)

# PFAS definition in PRIO

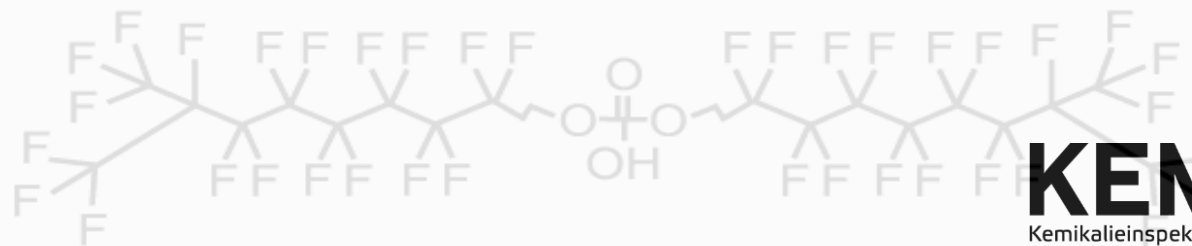
Short-chain



PFASs are defined as fluorinated substances that contain at least one **fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it)**, i.e. with a few noted exceptions, any chemical with at least a perfluorinated methyl group ( $-\text{CF}_3$ ) or a perfluorinated methylene group ( $-\text{CF}_2-$ ) is a PFAS.

OECD, 2021

Branched





# Sources for PFAS in PRIO

- OECD 2018 PFAS list
- US EPA PFAS Master list
- (Stockholm Convention)
- (Montreal Protocol)
- (Reach Candidate List)
- (CLP Regulation)

The PRIO database is regularly updated with new information sources.

# Search for PFAS and other substances in PRIO

## Standard

Chemical name  
CAS number/EC number

## Batch

CAS number/EC number

## Advanced

Criteria  
Product type  
Limit the search  
Material

Reference  
Substance groups  
Priority level

Standard

Batch

Advanced

CAS number, EC number or chemical name

Clear search

Search



Search tips

**Combine selection:**  AND  OR

Criteria



Material



Substance groups



Product type



Reference



Priority level



Limit the search



**KEMI** | **PRIO** - a tool for substitution  
 Swedish Chemicals Agency Listen På svenska

START INVENTORY **SEARCH** PRIORITISE SUBSTITUTE

Standard Batch **Advanced**

CAS number, EC number or chemical name  Clear search **Search** Search tips

Combine selection:  AND  OR

Criteria (1 chosen) + Material + Substance groups (1 chosen) +  
 Product type + Reference (1 chosen) + Priority level +  
 Limit the search +

[Export the entire database to Excel](#) [Latest changes to the database](#) [Export the search result to Excel](#) The database was updated 2024-05-21

Search is showing 1 - 21 of 58 results

Sort: Substance name CAS-nr EG-nr **Priority level** Criteria

**+** **Substance name:** Tricosafluorododecanoic acid  
 CAS-nr: 307-55-1 EG-nr: 206-203-2

**+** **Priority level:** Phase-out substance: PFAS, Particularly persistent substances

**+** **Criteria:** PBT/vPvB / PFAS, Particularly persistent substances

**+** **Substance name:** Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)  
 CAS-nr: 425670-70-8 EG-nr: -

**+** **Priority level:** Phase-out substance: PFAS, Particularly persistent substances

**+** **Criteria:** PBT/vPvB / PFAS, Particularly persistent substances

# Advanced search

## Combine selection

Perform broad or specific searches

Examples:

- PBT/vPvB + Reach Candidate List + PFAS + "AND"
- Substance group: *Perfluorohexanesulfonic acid (PFHxS) and its derivatives*

**KEMI** | **PRIO** - a tool for substitution  
 Swedish Chemicals Agency Listen På svenska

START INVENTORY **SEARCH** PRIORITISE SUBSTITUTE

Standard Batch **Advanced**

CAS number, EC number or chemical name  Clear search **Search** Search tips

Combine selection:  AND  OR

Criteria (1 chosen) + Material + Substance groups (1 chosen) +  
 Product type + Reference (1 chosen) + Priority level +  
 Limit the search +

[Export the entire database to Excel](#) [Latest changes to the database](#) [Export the search result to Excel](#) The database was updated 2024-05-21

Search is showing 1 - 21 of 58 results

Sort: Substance name CAS-nr EG-nr **Priority level** Criteria

**Substance name:** Tricosafluorododecanoic acid  
 CAS-nr: 307-55-1 EG-nr: 206-203-2

**Alternative names:** C12HF23O2 / Perfluordodekansyra / Perfluorododecanoic acid / PFDoDA

**Reference:** PFAS, ChemSec SIN List / PFAS, OECD 2018 / PFAS, US EPA Master List / REACH Re

**Substance group:** PFAS

**Materials:**

Occurrence in materials: Plastics - Fluoro plastic (e.g. PTFE) / Paper, paperboard

Source: Danish Environmental Protection Agency (report 132/2014) / Swedish Chemicals Agency (report 3/23) / Swedish Chemicals Agency (report 5/21)

Expanded information  
 – single substances  
 factsheets

# Advanced search

## Combine selection

Perform broad or specific searches

Examples:

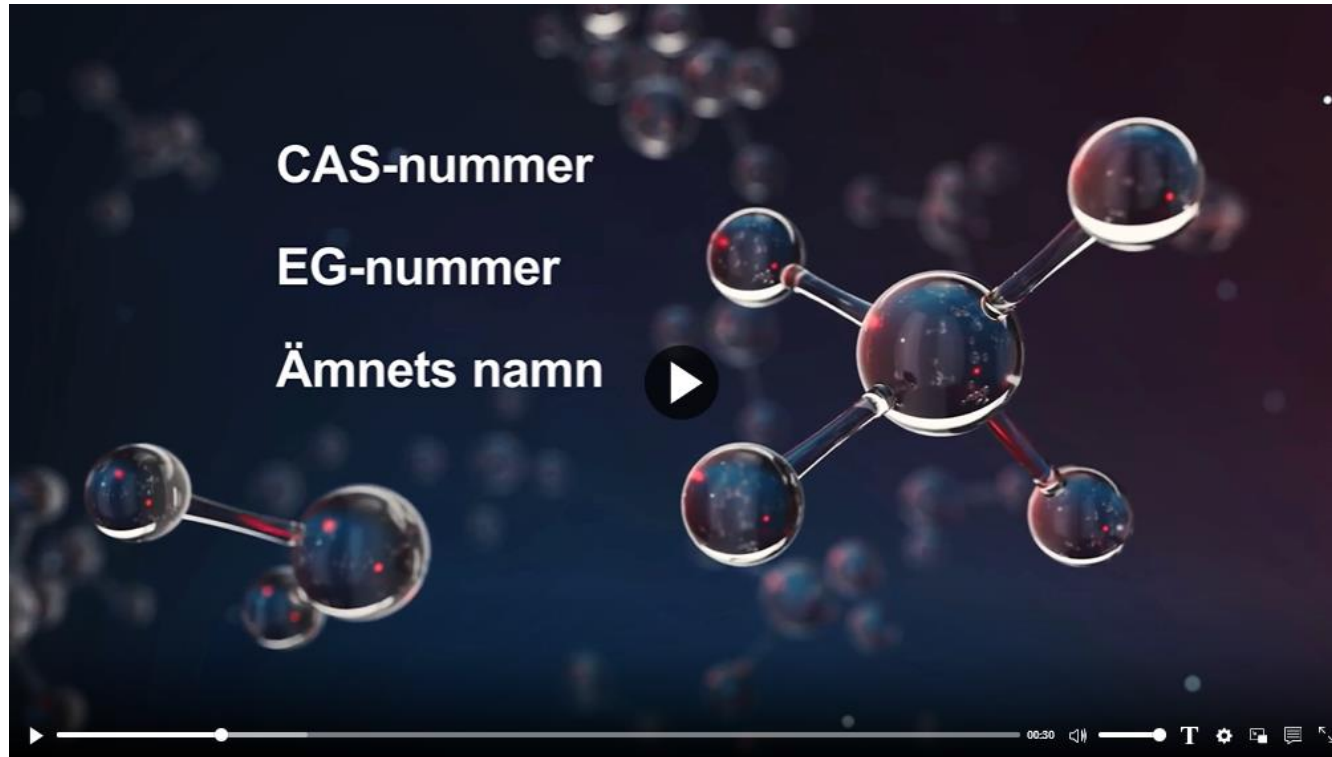
- PBT/vPvB + Reach Candidate List + PFAS + "AND"
- Substance group: *Perfluorohexanesulfonic acid (PFHxS) and its derivatives*



# Take home messages

- An easy-to-use free tool to identify and prioritise hazardous substances for substitution
- A database with >10 000 PFAS that fulfil the OECD definition
- Broad or specific PFAS searches depending on needs
- Summary factsheets of single PFAS
- Overview of selected regulatory groups of PFAS

# Video tutorials for PRIO



How to search the PRIO database (in Swedish only)

[www.kemi.se/prioguiden/sok](http://www.kemi.se/prioguiden/sok)

**Thank you!**

**KEMI**

Kemikalieinspektionen  
Swedish Chemicals Agency