

**CALL FOR EVIDENCE
SUPPORTING AN ANALYSIS
OF RESTRICTION OPTIONS
FOR PFAS**

**Fluoropolymers Product Group
PlasticsEurope**

13 November 2020

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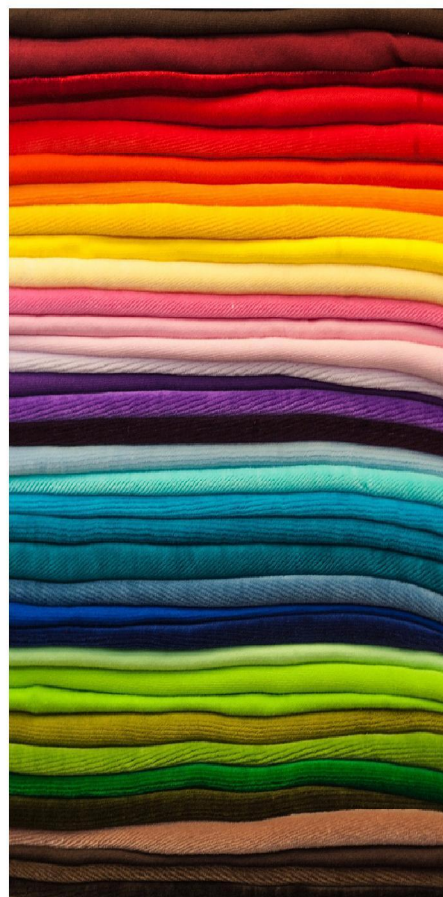
The Fluoropolymers Product Group

The Fluoropolymers Product Group represents Europe's leading fluoropolymer producers and experts.

As the voice of the industry across Europe, it advocates for a balanced regulatory environment based on scientific facts to ensure that European industries remain competitive and sustainable.

Part of PlasticsEurope, the group's members are 3M, AGC, Arkema, Chemours, Daikin Chemicals, W. L. Gore & Associates and Solvay.

PlasticsEurope
ASSOCIATION OF PLASTICS MANUFACTURERS
Fluoropolymers Product Group



Fluoropolymers

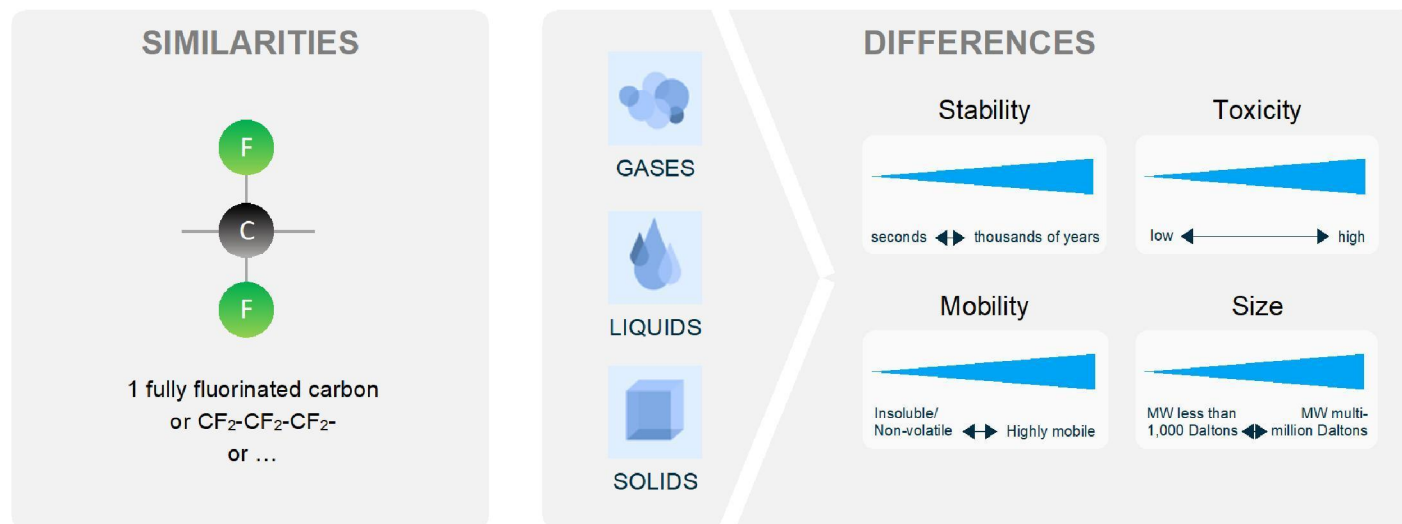
Why fluoropolymers are critical to EU competitiveness and innovation

Fluoropolymers are used in a wide range of applications and processes. For example:

- They are core components of high-voltage interrupters in wind turbines and used for electrical insulation in photovoltaic panels.
- In transportation, they contribute to engine efficiency and emission control. Electric vehicles are enabled by high performance insulators: fluoropolymers in lithium batteries and hydrogen fuel cells.
- In electronics, fluoropolymers are critical to the semiconductor manufacturing process (photolithography).
- Medical applications: Fluoropolymers enable excellent performance and long lifetimes in medical equipment such as surgically implantable medical devices (vascular grafts, heart patches) and catheters.



PFAS have many different properties



PFAS: Are they all the Same?

C-H COMPOUNDS

A big universe
of very different substances



SOLID
Polyethylene
 $\text{H}(\text{CH}_2\text{CH}_2)_x\text{H}$



LIQUID
Ethyl Alcohol
 $\text{CH}_3\text{CH}_2\text{OH}$



GAS
Propane
 $\text{CH}_3\text{CH}_2\text{CH}_3$



We would never group them together and say
“they are the same”, because **they are NOT the same**

C-F COMPOUNDS

FLUOROCARBONS — Also a **big universe**
of very different substances



SOLID
A
Fluoropolymer
 $\text{H}(\text{CH}_2\text{CH}_2)_x\text{H}$

6:2
Fluorotelomer
Alcohol

LIQUID
A Fluorotelomer
 $\text{C}_6\text{F}_{13}\text{CH}_2\text{CH}_2\text{OH}$



GAS
A Refrigerant
 $\text{CF}_3\text{CH}_2\text{F}$



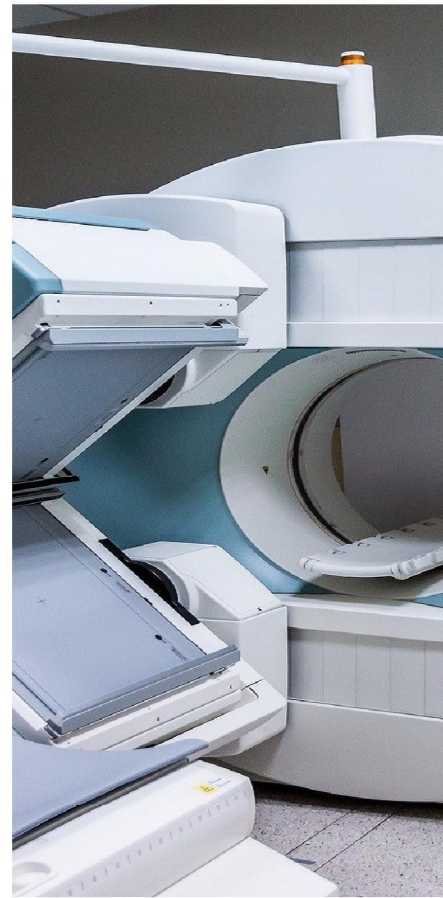
We should **not** group them together,
because **they are not “the same”**

Fluoropolymers

Fluoropolymers are polymers with fluorine atoms directly attached to their carbon backbone.

They are virtually chemically inert, non-wetting, non-stick, and highly resistant to temperature, fire & weather.

They ensure safety, reliability and performance in numerous technologies, industrial processes & everyday applications and help contribute to the achievement of UN SDGs and the EU Green Deal.



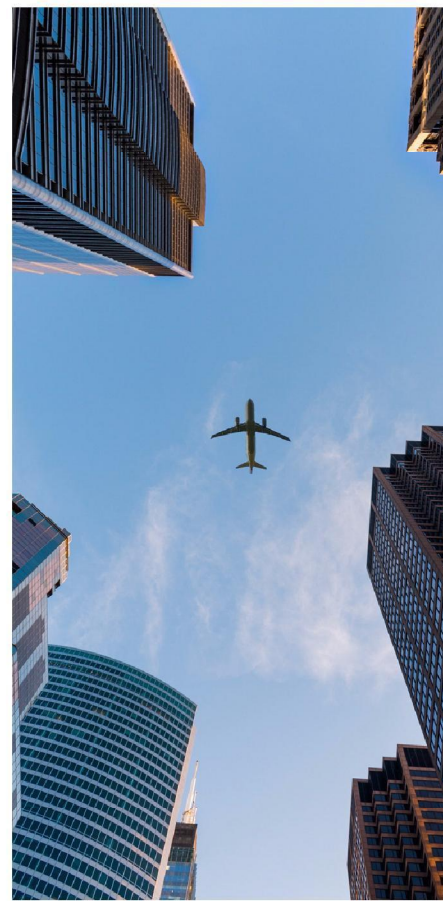
Fluoropolymers are Different to Other PFAS

Per- and polyfluoroalkyl substances (PFAS) are a huge and diverse group of chemical compounds consisting of approximately 4,700 individual substances.

Despite their chemical structure fluoropolymers are different to other PFAS and have specific toxicological and environmental profiles.

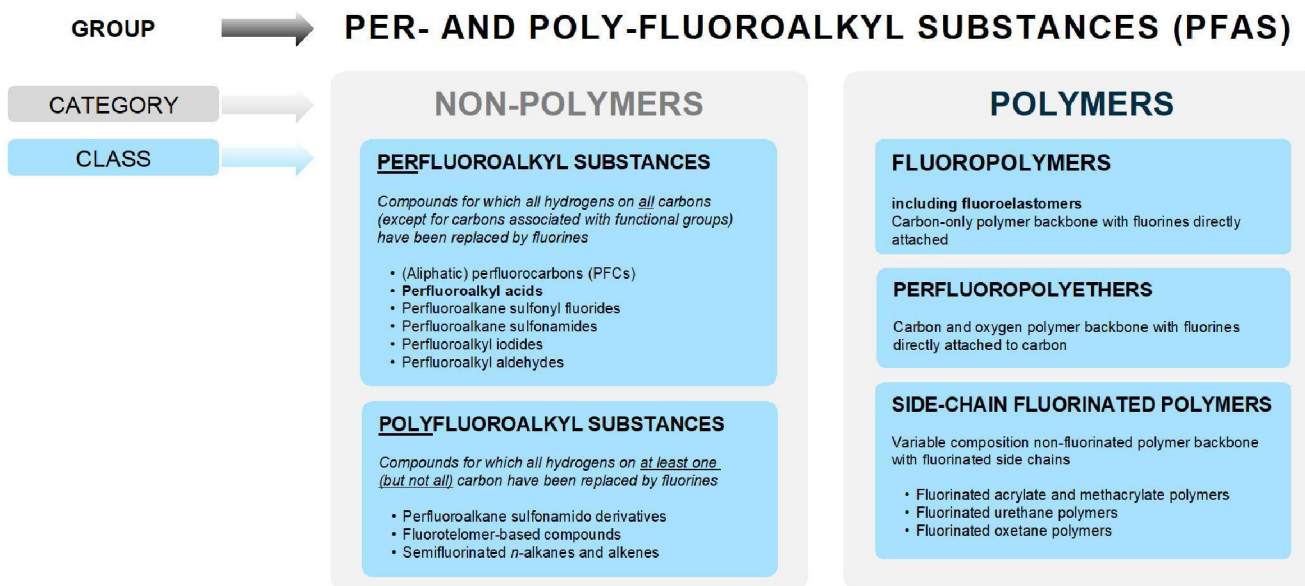
They are high molecular weight polymers with unique physicochemical properties that constitute a distinct class within PFAS.

Fluoropolymers that meet the OECD Polymer of Low Concern criteria are non-toxic, bio-compatible, non-soluble and immobile molecules and they are deemed to have insignificant environmental and human health impacts.



PFAS Terminology and Classification

OPEN ACCESS:
<http://dx.doi.org/10.1002/ieam.258>



Grouping Based on Established Criteria

Grouping for regulatory purposes may be a cost and time efficient way forward.

However, it could wrongly treat all PFAS collectively without prior scientific examination of their differentiation.

It is not scientifically justified to classify inert solids, salts, liquids and gases in a single class, where properties like vapour pressure, environmental partitioning, hydrophobicity/lipophilicity, aqueous solubility and hazard itself, as well as surface and material properties vary greatly.

Grouping based on well established criteria such as long-chain vs short-chains, polymeric vs. non-polymeric substances is necessary for regulatory measures to be scientifically sound.



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Association of Plastics Manufacturers
Fluoropolymers Product Group

