

# PFAS 101

**PFAS = Perfluoroalkyl and polyfluoroalkyl substances**

Perfluoro = Compounds for which all hydrogens on all carbons have been replaced by fluorines (with the exemption of carbons in functional groups).

Polyfluoro = Compounds for which all hydrogens on at least one, but not all, carbons have been replaced by fluorines.

# PFAS 101

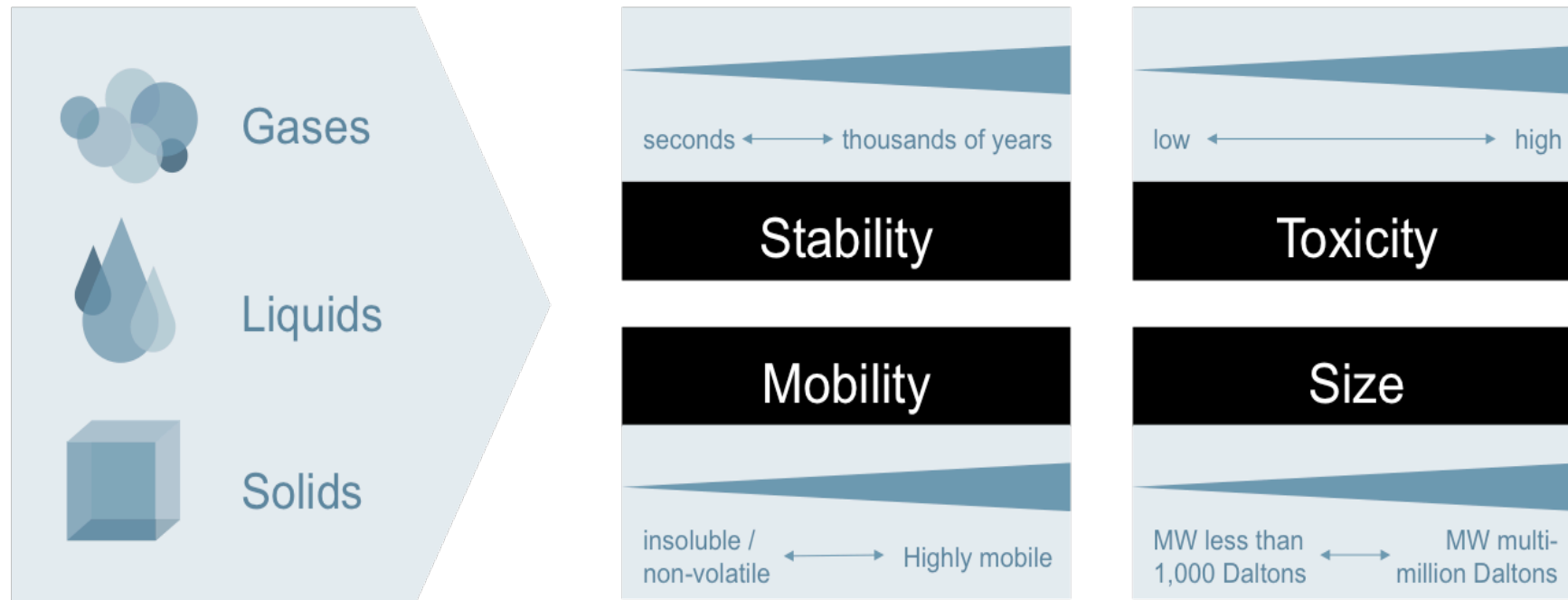
## Why are we talking about PFAS?

- PFOS and PFOA are two “long chain PFAS” found globally in the environment.
- A need to identify how they came to be in the environment, including the substances that break down in the environment to form them (the precursors).
- The PFAS terminology was created to help define the group of relevant substances and establish a common lexicon.

Clear, Specific and Descriptive


# The term “PFAS” includes many different substances with very different properties

## Differences



# Hydrocarbons: C-H Substances

## A Big Universe of Very Different Substances

<b>SOLID</b>		<b>LIQUID</b>		<b>GAS</b>	
	Polyethylene		Ethyl Alcohol		Propane
	$\text{H}(\text{CH}_2\text{CH}_2)_x\text{H}$		$\text{CH}_3\text{CH}_2\text{OH}$		$\text{CH}_3\text{CH}_2\text{CH}_3$

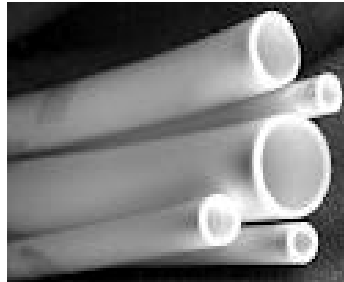
We would never group them together and say, “They are the same,” because they are NOT the same.

# Fluorocarbons: C-F Substances

## Fluorocarbons – Also a Big Universe of Very Different Substances

### Fluorocarbons: C-F Substances

**SOLID**



Polytetrafluoroethylene

PTFE  $F(CF_2CF_2)_nF$

6:2 Fluorotelomer

**LIQUID**

Alcohol

$C_6F_{13}CH_2CH_2OH$

**GAS**



HFC-134a

$CF_3CH_2F$

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

## Perfluoroalkyl and Polyfluoroalkyl Substances in the Environment: Terminology, Classification, and Origins

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

