



# PFAS (PER- AND POLYFLUOROALKYL SUBSTANCES)

February 2023



# TODAY'S BRIEFING

- Per- and polyfluoroalkyl substances (PFAS)
  - What is it?
  - Why is it important?
  - Next steps



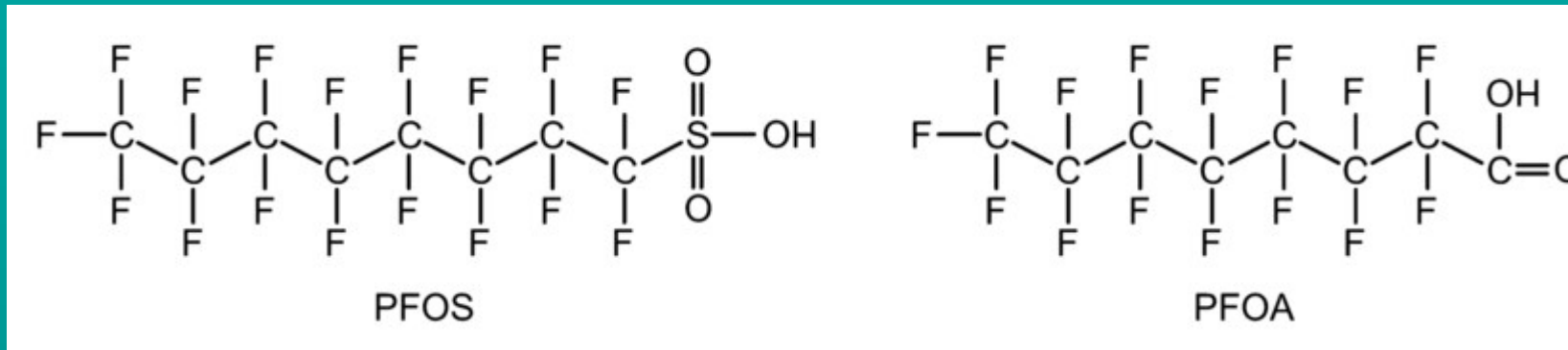
# WHAT IS PFAS?

- Per- and polyfluoroalkyl substances (PFAS) are a family of chemicals used since the 1940s to make nonstick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, and firefighting foams used to extinguish fuel fires.
- PFAS are water soluble and can seep into surface soils.
- PFAS can leach into groundwater or surface water and can contaminate drinking water.
- PFAS are persistent in the environment and do not easily break down.



# PFAS – CONT.

- PFAS (Per- and polyfluoroalkyl substances) are chemical compounds that contain multiple fluorine atoms.
- Many different types of PFAS compounds (5, 6, and 8 carbon PFAS)



Perfluorooctane Sulfonate (PFOS)

Perfluorooctanoic Acid (PFOA)

Carbon-Fluorine bond is very strong

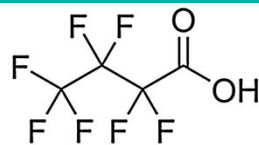


## PFAS – CONT.

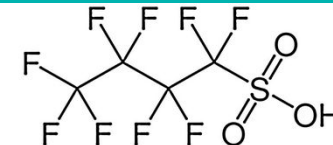
- A growing body of science has found that there are potential adverse health impacts associated with PFAS exposure, including liver damage, thyroid disease, decreased fertility, high cholesterol, obesity, hormone suppression and cancer.
- These chemicals can easily migrate into the air, dust, food, soil and water. People can also be exposed to them through food packaging and industrial exposure.



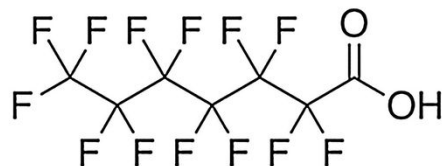
# MANY DIFFERENT KINDS OF PFAS



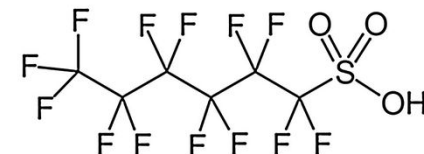
Perfluorobutanoic acid (PFBA)



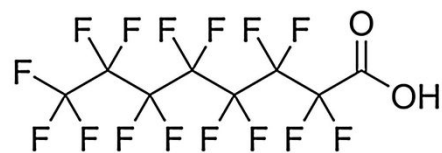
Perfluorobutane sulfonic acid (PFBS)



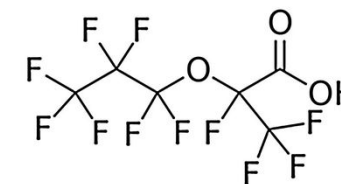
Perfluoroheptanoic acid (PFHpA)



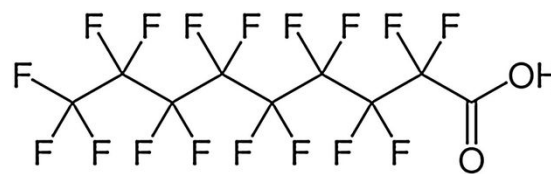
Perfluorohexane sulfonic acid (PFHxS)



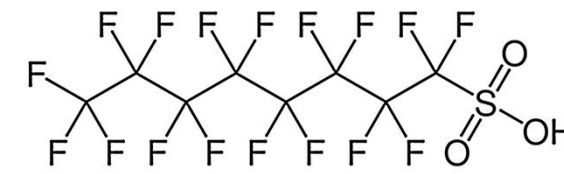
Perfluorooctanoic acid (PFOA)



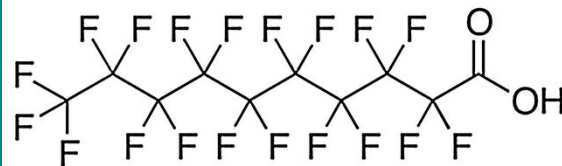
Hexafluoropropylene oxide dimer acid (HFPO-DA or GenX)



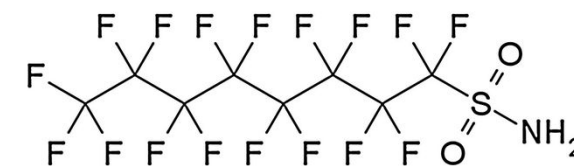
Perfluorononanoic acid (PFNA)



Perfluorooctane sulfonic acid (PFOS)



Perfluorodecanoic acid (PFDA)



Perfluorooctanesulfonamide (PFOSA)

# AQUEOUS FILM FORMING FOAM

- Aqueous Film Forming Foam (AFFF)
  - Fire suppressant used to extinguish flammable liquid fires such as fuel fires.
  - It suppresses the flammable liquid vapor and suffocates the fire
- There are two types of AFFF
  - Class A foams – paper, wood, trash
  - Class B foams – fuel fires



# NEXT STEPS

- EPA set interim health advisories for PFOA and PFOS. Additional review and regulatory action underway.
- EPA regulations requires all water utilities to test for PFAS starting in January 2023.
- BWS has been testing our water sources since 2020. To date confirmed PFAS in three water sources. Testing continues.

