

PFAS in Serum: Biomonitoring for First Responders

I What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that have been widely used since the 1940s in industrial and commercial products for their oil- and water-repellent properties, resistance to heat, and ability to reduce friction. They are commonly found in non-stick cookware, textiles, food packaging, and firefighting foams, particularly aqueous film-forming foams (AFFF) used in fire suppression.

I Why Monitor PFAS in Serum?

Due to their environmental persistence and widespread use, PFAS compounds have accumulated in air, water, soil – and even human blood. Studies have detected PFAS in the serum of people around the world, and mounting evidence links certain compounds to adverse health effects, including:

- Increased cholesterol levels
- Thyroid hormone disruption
- Liver enzyme changes
- Immune system effects
- Increased risk of some cancers

Firefighters and other first responders are considered high-risk populations due to occupational exposure through firefighting foams, contaminated gear, and environmental contact at fire scenes.

| Key PFAS Compounds of Concern in Human Serum

Several PFAS compounds are commonly monitored in biomonitoring studies. These include:

Compound Name	Abbreviation	CAS#
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorohexane sulfonate	PFHxS	355-46-4
Perfluorononanoic acid	PFNA	375-95-1
Perfluorooctane sulfonate	PFOS	1763-23-1
Perfluorooctanoic acid	PFOA	335-67-1

| Our Capabilities at AGAT Laboratories

AGAT Laboratories has developed and validated a PFAS in serum method tailored for biomonitoring applications, specifically addressing the needs of high-exposure groups such as firefighters. Serum testing reflects the bioavailable fraction of PFAS circulating in the bloodstream and is considered a practical and informative matrix for exposure studies.

AGAT analyzes for PFAS in serum, covering all 40 compounds listed under US EPA Method 1633A, allowing for a broader and more detailed analysis as PFAS regulations and compound lists evolve.

Ongoing Collaboration with Fire Departments

In collaboration with the Calgary Fire Department, AGAT is conducting a focused biomonitoring study analyzing PFAS levels in serum samples from both firefighters and accelerant detection canines. The goal is to better understand occupational PFAS exposure and help guide future health and safety strategies.

This research is part of a larger North American initiative to explore PFAS exposure across various professions, ensuring the health and well-being of those who serve on the front lines.

Why It Matters to Fire Chiefs

- Understand and manage occupational exposure risks within your fire department
- Support the health monitoring of your teams through data-driven biomonitoring
- Stay ahead of evolving PFAS regulations and public health expectations

Let's work together to protect firefighter health.

Contact us today at info@agatlabs.com to learn more about PFAS testing and our ongoing research partnerships.