

PFAS TESTING

Ensure compliance and safety
across all sectors



**IMPACT
NOW**
for sustainability

SGS

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for sustainability

Long valued for their unique properties, per- and polyfluoroalkyl substances (PFAS) are a diverse group of chemicals, useful for their oil and water repellant properties, that are now recognized as persistent, toxic and harmful to human health.

They are toxic to reproduction (reprotoxic) and can cause a wide range of conditions, from cancer and thyroid disease to impaired fertility and decreased immune response.

SGS offers a comprehensive suite of PFAS testing services for all industries. With state-of-the-art laboratories and expert teams providing precise, reliable testing, we are the global leader in PFAS testing, delivering solutions that help businesses meet regulatory requirements while protecting public health.

When you need to be sure, SGS is your trusted partner.

What are PFAS?

According to the Organization for Economic Co-operation and Development (OECD) definition, PFAS contain at least one perfluorinated methyl group (-CF₃) or perfluorinated methylene group (-CF₂-). In the US, they are defined as containing at least two CF₃/CF₂ chains.

PFAS are used in the manufacture of a wide variety of products, from cosmetics and electronics to firefighting foams and non-stick cookware, because they are chemically inert, resistant to high temperatures and have exceptional water, oil and grease repellent qualities.

However, this diverse and expanding group of more than 10,000 synthetic chemicals is now recognized as harmful to human health and the planet. They are also persistent in the environment, leading to the term 'forever chemicals.'

Governments around the world are beginning to respond to this threat through legislation.



45%

of US drinking-water
estimated
to contain PFAS

(US Geological Survey, 2023)

Consumer products testing

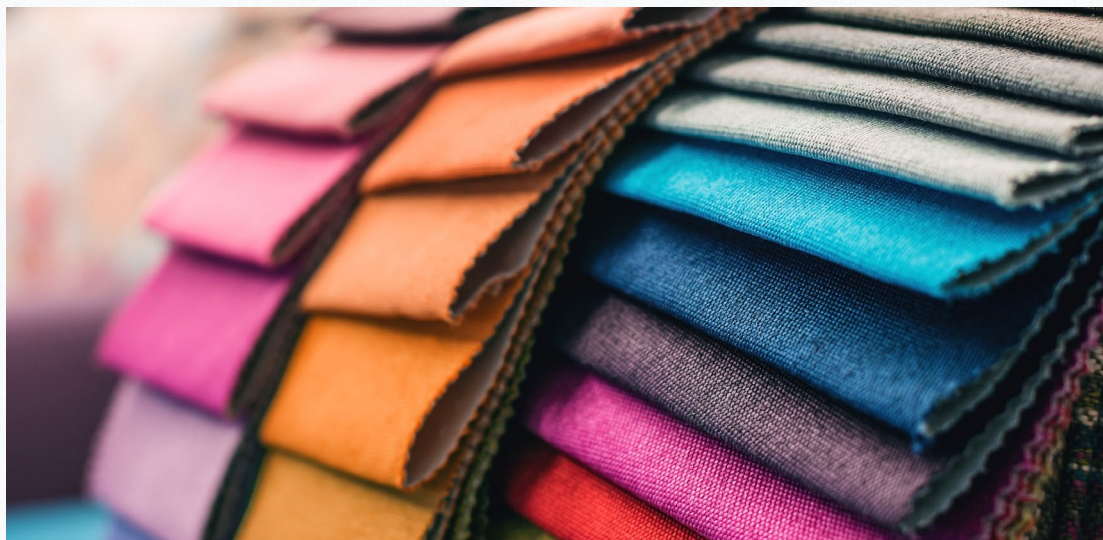
We offer comprehensive PFAS testing solutions for the full range of consumer products – from stain-resistant fabrics and carpet treatments to cosmetics, packaging and non-stick cookware.

Tailored to the needs of your product and market, our services ensure conformity with the latest requirements enforced by international treaties, such as the Stockholm Convention, and global legislation, such as EU Regulations 1907/2006 (REACH), 2019/1021 (POP) and 10/2011 (Food Contact Plastics) and US state-specific restrictions, including California Proposition 65, Minnesota HF 2310 and Maine's Title 38, Chapter 16.

Trusted testing

Analytical test methods include:

- Total fluorine screening: combustion technique followed by ion-chromatography (IC) with reference to EN 14582
- Total organic fluorine screening (TOF): aqueous solution pretreatment and combustion technique followed by ion chromatography (IC) with reference to EN 14582
- PFAS target analysis: solvent extraction followed by detection via GC-MS or LC-MS/MS



Electronics testing

PFAS are widely used throughout the electronics industry due to their key properties of flame retardancy, chemical inertness, hydrophobicity and dielectric strength.

During manufacturing, they can be found in heat transfer fluids, cleaning products, solvents and lubricants, dielectric fluids, testing compounds, piezoelectric ceramic filters, pulsed plasma nano-coatings and packaging. They also have multiple applications in the semiconductor industry.

Find PFAS in:

Smartphones and tablets

Flat panel and liquid crystal displays (LCD)

Acoustical equipment

Solar panels

Lithium-ion batteries

Plastic enclosures

Printed circuit boards

Capacitors

Wiring and cables

Adhesives, inks, paints and coatings

Trusted testing

Meet PFAS legislative requirements, protect the environment and build consumer trust with our comprehensive compliance solutions:

- Assessment of raw materials using one of four methodologies, depending on product and risk level:
 - Targeted PFAS quantitative analysis – ensure compliance with REACH and POP regulations
 - Total fluorine (TF) and total organic fluorine (TOF) – a preliminary check for low-risk raw materials
 - Non-targeted PFAS-screening analysis – screening for PFAS substances to stay ahead of U.S. TSCA 8(a)(7) reporting requirements, and beyond
- Fluoropolymer composition analysis – unlock the name and composition of fluoropolymer, a subset of PFAS
- Finished product verification: evaluate the risks associated with different materials in the finished product and valid finished products for PFAS compliance at a lower cost and higher efficiency

Client-centric approach

Our one-stop-shop approach to PFAS testing, delivered via a network of state-of-the-art laboratories, helps electronics manufacturers stay ahead of global regulations. Our clients maintain product compliance and protect their market position through early identification and mitigation of PFAS risks.

>330

global species
now contaminated
with PFAS

(EWG, 2023)

Environmental testing

PFAS disperse easily and resist degradation, posing a significant threat to the environment and humans.

SGS has been acknowledged as best practice leader in environmental PFAS testing for over 20 years. The US Environmental Protection Agency (EPA) selected us to develop and validate EPA 1633 – the reference method for PFAS testing of non-potable water, soil and biota.

Our state-of-the-art testing facilities cover a wide range of matrices, including drinking water, wastewater, stormwater, process water, surface water, stack emissions, ambient air, indoor air, solid waste and animal and human tissue, making us the first choice for organizations looking to foster a positive relationship with the environment.

Targeted analysis

We offer a broad selection of targeted analysis solutions, including EPA 537.1 and EPA 533 for drinking water, EPA 1633 for all other matrices, and screening methods including EPA 8327, ASTM D8421 and ASTM D8535. These methods are ideal for regulatory compliance, environmental site assessments and critical litigation support.

Totals and precursors

Beyond the specific PFAS measured, assessment of unknown PFAS is critical to understanding the total PFAS liability. We provide several totals approaches including Adsorbable Organic Fluorine (AOF) by EPA 1621, extractable organic fluorine (EOF) and total fluorine screening using combustion chromatography for water, soils, tissue, products and more.

Combined with our 1633-aligned **Total Oxidizer Precursor (TOP) assay**, which detects precursors that can transform into PFAS of regulatory interest such as PFOS/PFOA under specific environmental conditions, these methods offer accurate detection of PFAS contamination, essential for risk assessments and remediation projects.

Specialized services

Specialized services include extended PFAS monitoring covering up to 90 PFAS and growing, forensics and fingerprinting, and method development and validation. We customize solutions to meet individual customer, regulatory, product and matrix requirements, ensuring the delivery of relevant data to drive informed decision-making on PFAS in the environment.



PROTECTING CONSUMERS

We supported a pivotal study in New Jersey measuring PFAS in water, soil and fish that contributed towards fish consumption advisories that protect at-risk consumers.

PROTECTING THE MILITARY

We investigated drinking water sources at multiple US military sites to ensure service men and women were protected from harmful PFAS.

UNDERSTANDING WASTE

We supported the San Francisco Estuary Institute and BACWA with target analysis and TOP assay to help them understand the impact of waste.

STUDYING LANDFILLS

We used target analysis and TOP assay to characterize known and unknown PFAS and enhance leachate monitoring at the state of Washington's municipal landfill sites.

Food & beverage testing



Since the introduction of new PFAS limits, SGS has been instrumental in helping us maintain compliance. Their insights and reliable testing have enabled us to navigate these challenges with confidence.”

A leading food manufacturer

PFAS enter the food supply chain through either bioaccumulation in soil and water, or through food production, packaging and consumer products (drinking straws, disposable cups, paper packaging). Their presence is causing serious concern over their impact on human health.

Trusted testing

Our comprehensive range of PFAS testing services for food, feed, water and food contact materials ensures compliance with the latest global regulatory requirements, including those in the European Drinking Water Directive and guidelines issued by the US Food and Drug Administration (FDA) and European Food Safety Authority (EFSA).

We use advanced methods such as LC-MS/MS and GC-MS to detect and quantify PFAS at trace levels. Our solutions are validated to identify a wide variety of PFAS, including PFOA, PFOS, PFNA and PFHxS residues of regulatory interest, and meet all necessary sensitivity prerequisites.



PFAS STUDY OF FRUIT JUICES AND NECTARS

The EU has set limits for four PFAS compounds – PFOS, PFOA, PFNA and PFHxS – in eggs, meat, and fish, with guideline values for fruit, vegetables, wild mushrooms, milk and infant formula. While no specific guidelines exist for fruit juices, manufacturers should refer to the values for fruits and vegetables.

Using a methodology developed by the SGS Institut Fresenius, we analyzed eight fruit juices, nectars and smoothies for the four PFAS compounds, using low limits of determination of between 0.2 and 1 ng/kg. Only one sample – a green smoothie with

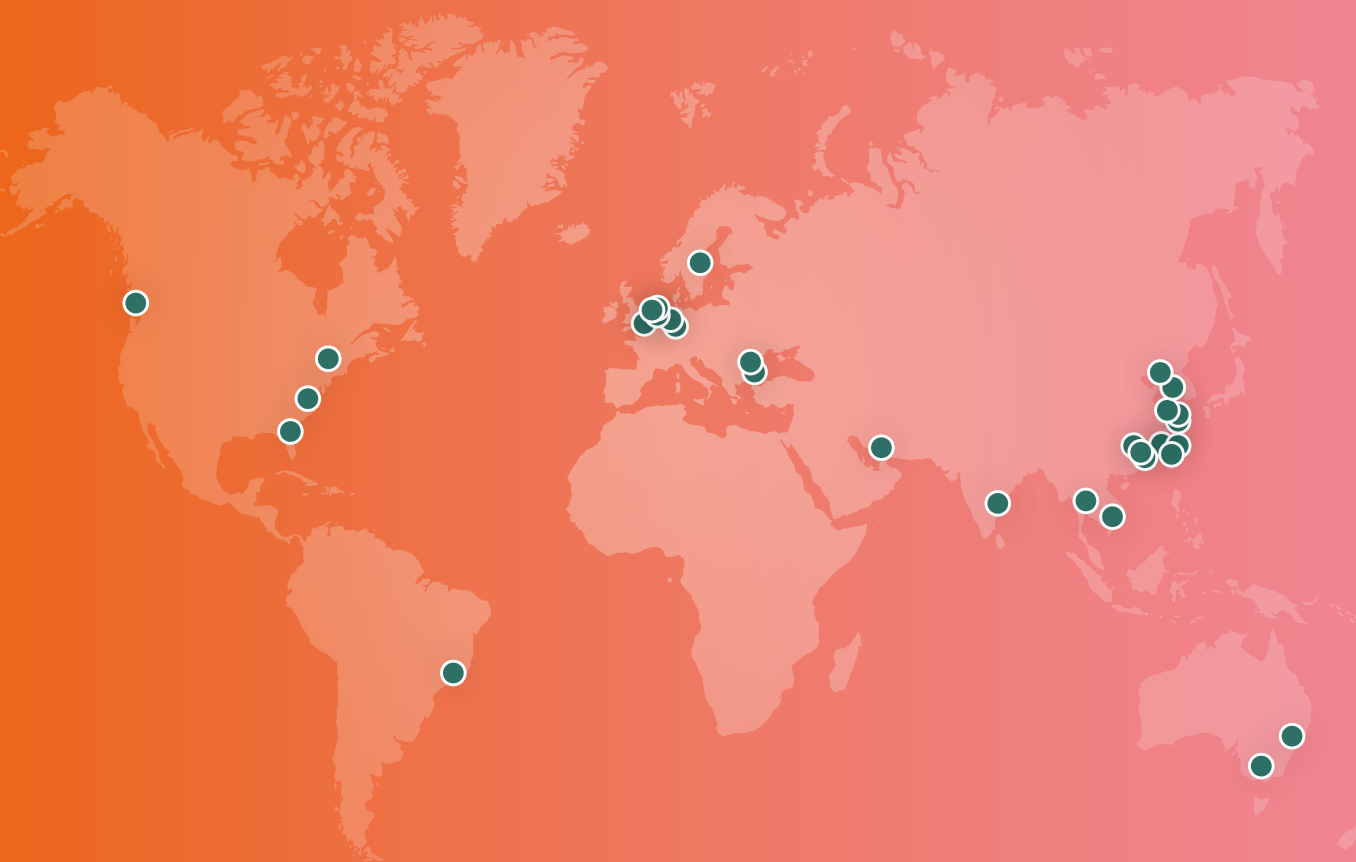
vegetables – showed detectable PFAS levels. All other samples were below guideline thresholds. This contrasts with a previous industry study, where 29% of ready-to-eat products exceeded EU guidelines for at least one PFAS compound.

Why choose SGS?

We are the world's leading testing, inspection and certification company with a global network of more than 2,600 laboratories and a team of over 99,600 experts. Recognized as the industry leader in PFAS testing, our tailored solutions meet the specific needs of each industry, ensuring products are safe, compliant and ready for international markets.

Key advantages

- **Rapid turnaround** – in a hurry? Certain PFAS projects can be completed in as little as one or two days
- **Global network** – wherever you are, we have a state-of-the-art laboratory nearby
- **Innovation** – from EPA 1633 to advanced non-targeted screening, our cutting-edge solutions provide reliable and accurate results



Contact us

For more information or to discuss your specific testing needs, please visit our PFAS testing services page or contact us directly:

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When you need to be sure

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