I&E INDUSTRIES & ENVIRONMENT

Environmental Testing

Expert Laboratory analysis delivering defensible data and sophisticated analytical techniques across a wide range of matrices

SAFER
GREENER
SMARTER

SGS

Analyse the environmental emissions you generate and monitor your impact reductions

No resource is more precious than the environment we live in and today businesses are not only held accountable for their impact on our environment, but customers increasingly seek partners that demonstrate clear commitment to upholding and staying ahead of today's environmental standards.

ENVIRONMENTAL TESTING

Nowhere is the commitment more evident than by engaging robust analytical services that will validate achieved standards and set strong benchmarks that signal the environment as a clear priority. Our mission at SGS Environmental Laboratories is to make sure this process is effective and reliable, so that your business can operate both competitively and responsibly.

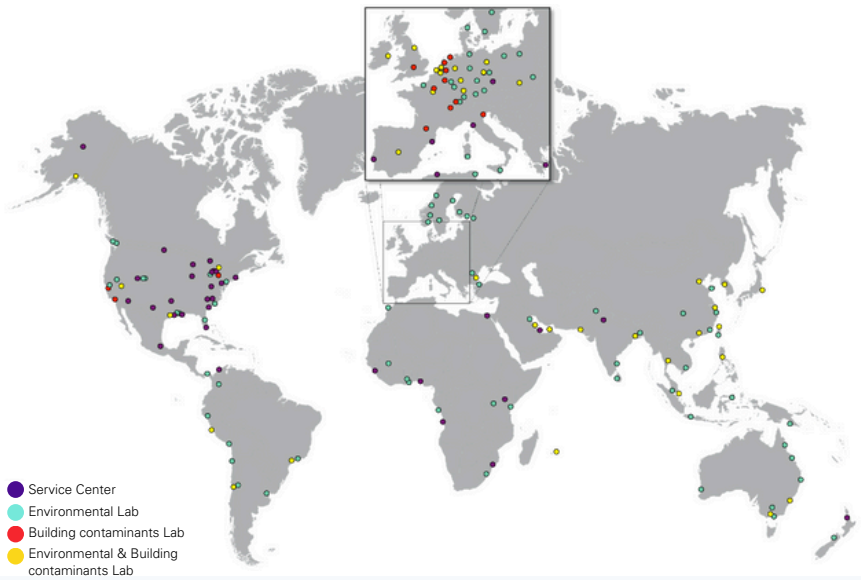
With more than 125 environmental laboratories in the world, SGS offers the largest network for environmental analysis in the market. We pride ourselves on providing a unique level of laboratory services that make your business run more efficiently and help you keep ahead of environmental trends and upcoming regulations.

SUSTAINABILITY AT THE CORE OF SGS

We use our scale and expertise to enable a more responsible, balanced, and sustainable future. As sustainability leaders, we are committed to promoting best-in-class practices in our sector and beyond.

OUR GLOBAL SERVICES

Wherever you are in the world, in whatever industry, you can rely on our international teams of experts to provide specialized solutions to make your business faster, simpler and more efficient. Our global expertise means that you are assured of receiving the right services to the right compliance standards, in one country or on multiple continents.



- Largest network of environmental specialists globally
- Physical presence in 70+ countries
- Over 50 years offering environmental testing services
- +6,000 environmental specialists, biologists, and chemists in our laboratories
- Quality assured

Routine testing

SGS's facilities are equipped with state-of-the-art equipment and instrumentation suited for routine environmental analytical applications: Volatile organics by Gas Chromatography/Mass Spectrometry (GC/MS); Volatile organics by gas chromatography (GC); Semi volatile organics by GC/MS and GC; Metals by inductively coupled argon plasma (ICP) and ICP/MS; Various wet chemistry applications. Whatever the sample matrix you need, we have a comprehensive, high quality testing solution to provide you with accurate data to inform your decision making

Our facilities are equipped with state-of-the-art equipment and instrumentation to ensure that we meet our client's requirements and be at the forefront of testing for environmental applications. We feature top-tier instrumentation such as GC/MS-MS, LC-MS/MS, GC/HRMS, UPLC/MS-MS, UPLC/TOF, UPLC/QTOF, GCxGC/MS, GC/MS, ICP-SF-MS, ICP-QMS, GC/ECD, GC/NPD, GC/FID, ICP/OES, EA-GC-IRMS, and many more. Whatever the sample matrix you need, we have a comprehensive, high quality testing solution to provide you with accurate data to inform your decision making.

MATRICES

AIR
- Emissions
- Ambient air
- Soil gas
- Indoor air

BUILDING MATERIALS
- Bulk construction materials
- Insulation products
- Furniture
- Paints & Carpets

SOIL & SEDIMENT
- Polluted sites and soil
- Sediment and sludge
- Compost
- Acid Rock Damage (ARD)

SOLID LIQUID & WASTE
- Waste Characterization
- Soil recycling
- Asphalt

WATER
- Drinking water
- Groundwater
- Wastewater
- Surface water
- Process water
- Bathing and sea water
- Sewage water

APPLICATION

- Microbiology
- Wet chemistry
- Metals and inorganics
- Volatiles
- Semi-volatiles
- Hydrocarbons
- Radiochemistry
- Ecotoxicity

BUILDING MATERIAL CONTAMINANTS
- Asbestos & Fibers
- Lead & Heavy metals
- Mold & Fungi
- Legionella
- Formaldehyde
- Ash & Tar
- PCBs

QUALITY ASSURANCE

The SGS philosophy enables each facility to implement a quality policy using their unique operating style. This approach provides the autonomy needed to meet the requirements of the local regulatory jurisdictions using procedures that efficiently meet their operational objectives. All our environmental laboratories are accredited under either ISO 17025, NELAP, or any other local accreditation scheme required to operate under the highest level of quality. The Quality Assurance Officer monitors the program, provides feedback to local and corporate management, and assists with corrective action and training if needed.

Why choose SGS conventional laboratories?

- Experienced Chemists and Subject Matter Experts to support your projects
- As your financially sound partner, SGS can mitigate risk with our vast depth and resources
- Extensive regulatory program experience for precise methodology
- Largest and most complete roster of analytical capabilities in the world
- Global team of dedicated project managers with cross-border coordination

Specialty testing

We pioneer new methodologies and offer innovative solutions as part of our constant effort to support your environmental monitoring and problem solving. Through the most advanced technology, we offer a comprehensive range of specialist solutions, and our Centers of Excellence bring together our unique services in measurement innovation and give you the most accurate and actionable results.

PERSISTENT ORGANIC POLLUTANTS (POP) & CONTAMINANTS OF EMERGING CONCERN (CEC) TESTING

Through our global Centers of Excellence, we have developed unique ultra-trace competencies, applicable to all matrices, for the following contaminants:

- Pesticides testing at the lowest quantification levels available on the market and exceeding the EU Water Framework Directive requirements
- A comprehensive portfolio of low-level pharmaceutical residue testing in all environmental food and feed matrixes
- Low-level metal testing and compound speciation at ppq level
- Dioxins, furans, dioxin-like PCBs testing at the lowest level available on the market, including total compound speciation
- Other types of CEC, such as alkylphenols, bisphenols, flame retardants, phthalates…

AUTHENTICITY & ENVIRONMENTAL FORENSICS

Through the determination of the isotopic footprint of a sample, we can confirm the origin of a sample and state its authenticity. This revolutionary technology can be applied wherever the origin of a product must be ascertained, including determination of sources of pollution (e.g., oil spills), determination of water origin in geochemical studies, and food and drug authenticity.

EXPERTISE IN PFAS TESTING

Per- and polyfluoroalkyl substances (PFAS) are chemicals that, due to persistence in the environment, represent a significant threat to the ecosystem and human health. We are world leaders in the analysis of PFAS. PFASafe® is our innovative 3-step analysis that provides the most complete picture possible. Our services can be implemented with our innovative Total Oxidizable Precursor (TOPS) analysis for an even more precise measurement of the potential for environmental contamination.

- First network of laboratories with an overall PFAS research concept
- 20+ years PFAS expertise
- Techniques that test for all components, not just the traditional 40 to 60 known ones
- Soil, (drinking) water, ambient air, consumer products, food, human and animal tissues, …
- Development of short chained (<C4) PFAS testing capabilities

ENVIRONMENTAL DNA

E-DNA is the genetic material released by an organism into the environment. The sources are numerous and include skin and hair, body secretions, faeces, seeds, pollen. Unlike traditional methods, E-DNA sampling and analysis is non-invasive and highly sensitive and can detect rare and evasive species or organisms that are very small or difficult to identify visually. It is cost-effective and time efficient.

Our extraction methods enable the detection of low amounts of DNA and the profiling of thousands of species simultaneously from a single sample.

- State of the art Global Biosciences Center
- Tailored services including QuickScan, BioScan, FullScan, InsectScan
- World leader in tailored field sampling and sustainability reporting
- Logistics network ensuring samples travel quickly and in perfect condition

Why choose SGS specialty laboratories?

- We feature top-tier instrumentation such as GC/MS-MS, LC-MS/MS, GC/HRMS, UPLC/MS-MS, UPLC/TOF, UPLC/QTOF, GCxGC/MS, GC/MS, ICP-SF-MS, ICP-QMS, GC/ECD, GC/NPD, GC/FID, ICP/OES, EA-GC-IRMS, and many more
- Most extensive test list & lowest detection limits for hundreds of CEC and POP compounds (10ppb in AFFF)
- TOP Assay & PFAS Forensics: Branched & Linear Isomers
- State-of-the-art analysis eliminating interferences, even in complex matrices
- Over 45 years in the specialty business with PFAS expertise since 2004
- 4 labs across North America (Dayton, Sidney, Wilmington, Orlando), 1 lab in South America (Rio de Janeiro), 3 labs in Europe (Antwerp, Linkoping, Fellbach), 3 labs in APAC (Melbourne, Shanghai, Taipei) with Specialty capabilities
- Highly qualified unparalleled technical expertise.

Our added value

Responding to global drivers, our services add significant value to our customers and stakeholders, so they can add exponential value to theirs. We do this by empowering smarter long-term decision-making throughout entire supply chains.

MOBILE LABORATORIES

Allowing SGS to locate, equip, staff, and operate a mobile laboratory on your project site, no matter how remote, will ensure that you benefit from our full scope of capabilities. SGS mobile laboratories provide fast turnaround and the complete, accurate, assay data that you need to effectively run and optimize your operations.

METHOD DEVELOPMENT

Our industry-leading team of Ph.D. chemists and research scientists have decades of experience developing successful methods to solve our clients' unique needs. The quality of our analytical approach has been recognized by many key agencies and we bring this unique ability to deliver validated methods to our industry, government, and academic clients.

DATA SOLUTIONS

We are 100% committed to providing online access to data and, in fact, view this access as one of our key value-added services.

LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

A critical tool in the operation of our laboratories: virtually everything from sample receipts to sample disposal is tracked through the LIMS.

SGS CLIENT PORTAL

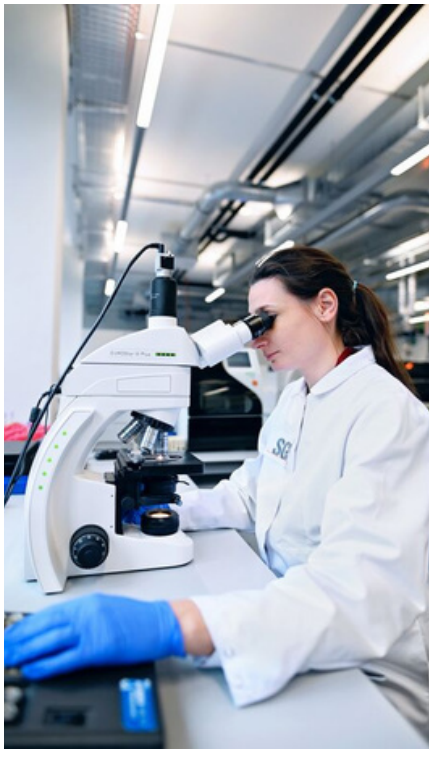
An exciting application allowing you to manage your projects and access your data any time, anywhere. Order sample containers and analyses, access data, receive project notifications, produce custom deliverables through our Electronic Data Deliverables (EDDs) and access to automated regulatory compliance analyses.

KEY ACCOUNT MANAGEMENT

We bring additional value to your projects with our dedicated Key Account Management team. From project start to finish, we're your partners, ready to assist and resolve any challenges along the way. With SGS, you're never alone on your path to success.

Present in every region around the globe we provide solutions for every stage in your project life cycle.

Our dedicated network of global and local offices are highly flexible and focused on meeting our customer's needs irrespective of the scale of the project.



Our expertise in action

CHANGING THE NATURE OF BUSINESS

When one waste incineration company's dioxin emissions exceeded legal levels, they approached SGS to analyze the problem immediately. The SGS Environmental Laboratory went one step further by identifying a process that ensured safety levels were assured, solving a significant issue for the company. By utilizing our' unique isotopic dilution methodology and analyzing the full range of dioxin compounds, the laboratory identified the critical causes that were leading to a complex dioxin generation phenomenon. As a result, the company modified a single, apparently non-significant step, which changed the emission levels of its entire industrial process. This outcome relied on SGS' ability to do much more than measure toxin levels, such as relying on SGS' expert consulting methods to solve problems down to even the smallest detail. In situations like this, we enable companies to respond, react and re-evaluate the nature of business in relation to any environmental issue.

EXTENSIVE EXPERIENCE AND ANALYTICAL TOOLS TO SUPPORT PFAS INVESTIGATIONS

SGS performs extensive research work that considerably affects overall scientific knowledge in the PFAS field. We provide defensible data to agencies with key information to develop governmental guidelines and regulations. Some highlights:

- Analytical support to Health Canada in population of Canada Epidemiology and baseline PFAS exposure programs – 2,000-3,000 serum samples per year using 40 compound EPA 1633 list.
- Support of PFAS investigations commencing 2006 for Chemical Management Plan Monitoring (CMP) and risk assessment investigations on the fate and occurrence of PFAS in specific environments for Environment and Climate Change Canada.
- Regional monitoring organizations represented govt., industry, and municipalities in the San Francisco Estuary commencing in 2007. Multiple programs and subsequent publications completed. Studies include characterization of PFAS levels in estuary waters and sediments, bait fish, prey fish, seals, avians, stormwater and urban run-off, and WWTPs discharging to the estuary.
- For the Minnesota Pollution Control Agency (MPCA), SGS worked since 2004 on investigations commencing with Metro East contamination and ground water plume. Programs completed or on-going include Metro East assessment and assessment of remedial measures, PFAS levels in fish, statewide PFAS studies in groundwater, lakes, and rivers and streams, development and implementation of high volume ambient air monitoring programs, PFAS in the chrome plating industry, PFAS in WWTPs, PFAS in landfill leachate and emission systems, various consumer products, terrestrial wildlife, and avian populations.
- For the Washington State Department of Ecology, SGS collaborated on studies related to PFAS in landfills (about 2,000 samples in 8 programs) which shed light on the presence and origins of PFAS in landfill leachate across multiple landfills in the Washington state.

DATA QUALITY AND PROTECTING DRINKING WATER

SGS has supported a federal contractor with a PFAS mitigation effort for the United States Air Force for the past 6 years. This project is assisting the USAF in protecting the residential drinking wells supply surrounding the military installation. This branch of military has strict guidelines and TAT. Through careful planning and communication, SGS is able to meet the data quality objectives. SGS has partnered with the consultant to assist with determining the best methodology to meet the EPA, state and USAF reporting criteria. SGS has analyzed over 26,000 samples since 2018. The project is funded for 10 years.

(ULTRA)SHORT-CHAIN PFAS

The monitoring of PFAS contamination is often based on the detection of different kinds of PFAS components of which the shortest one contains at least four carbon atoms. Nowadays it is clear that we are missing a big part of the pollution in this approach, namely the part of the (ultra)short-chain PFAS components. These components have less than four carbon atoms and cannot be determined in the same way as "regular" PFAS components due to their different properties. The SGS Institute of Applied Chromatography (SGS IAC) in Antwerp, Belgium developed and validated a method to analyse and quantify these (ultra)short-chain PFAS components in the microgram level in wastewater. This method includes TFA, 2233-TFPA, 2333-TFPA, PFBA, TMS, PFPES, PFPrS and PFBS.

PROTECTING OUR COASTLINES

For the last two years SGS has supported the Madeira government to biologically characterize a series of coastal spots for presence of microalgae & bacteria species, with the aim to maintain the quality of Bathing waters. The use of environmental DNA (e-DNA) technology allowed us to identify a staggering number of algae and micro-organisms and screen for any health risks and causative agents. As we only need a limited volume of water for this type of e-DNA analysis we could use drones to sample water along the largely inaccessible rocky shorelines.

More than a laboratory

In addition to our laboratory activity, we are constantly looking beyond customers' and society's expectations to deliver market leading services wherever they are needed. At SGS, we offer a portfolio of additional services that complement our laboratory testing offer and that add value to our customers, making SGS your one-stop-shop for all your environmental service needs.

INNOVATIVE SERVICES & SOLUTIONS

INDUSTRIAL HYGIENE & BUILT ENVIRONMENT

- Industrial hygiene risk assessment
- Indoor Air Quality
- Real-time monitoring using sensors
- Asbestos testing, surveys and inventories
- Noise and illumination management
- Radiation consultancy

MARINE SERVICES

- Inspections and compliance
- Sanitation, biofouling
- Wastewater analysis
- Engine emissions
- Hazardous materials
- Crew wellbeing

FIELD SERVICES

- Soil, Sediments & Solid Waste sampling
- Water sampling and monitoring
- Air, Noise, Vibration & Odor monitoring
- Flora, Fauna and Ecosystems sampling and monitoring
- Equipment rental

SAMPLE MANAGEMENT & LOGISTICS

- Global collect & packing
- Warehousing & storage
- Packing, labelling, documentation
- Worldwide distribution of samples

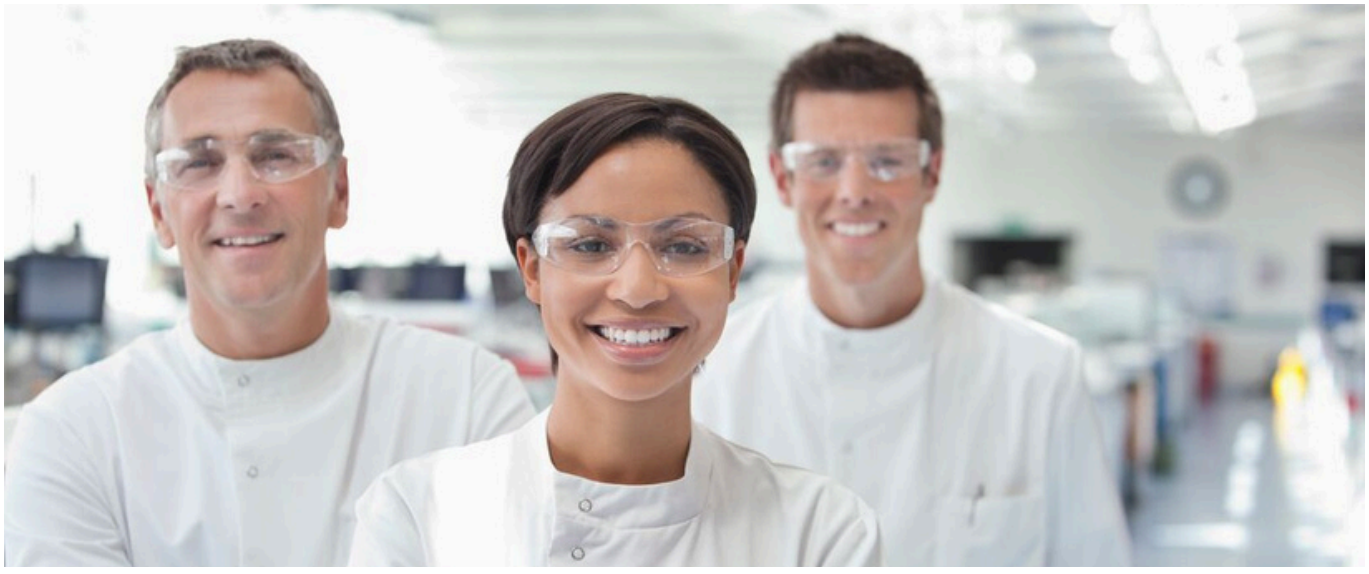
HEALTH & SAFETY

- Occupational health & safety
- Machinery, equipment, and operations inspections
- Construction safety
- Process safety
- Hazard analysis

Why choose SGS?

Our global network of offices and laboratories, alongside our dedicated team, allows us to respond to your needs, when and where they occur. Our reputation for independence, excellence and innovation has established us as the market leader in providing services that improve efficiency, reduce risk, and deliver competitive advantage for you. SGS is a one-stop shop for all your health, safety, and environmental related questions. Our global approach and local expertise allow us to support you and adapt our services to your needs. Whatever your requirements. More than a laboratory, SGS is your partner, for when you need to be sure.

To find out more about SGS Environmental Testing Services and the bespoke solutions we can offer you:
contact ehs@sgs.com or visit sgs.com/EHSTesting



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WHEN YOU NEED TO BE SURE