

ENVIRONMENTAL & OCCUPATIONAL HYGIENE



CAPABILITIES OVERVIEW





We are a partner & collaborator

ALS offers quality focused testing and proactively seeks to form long-term, mutually beneficial relationships. Our collaborative approach is driven by project and client managers, skilled and qualified client service teams, access to technical experts and a management team committed to exceptional service.

At ALS, we are using the power of testing to solve complex challenges.

With a passion for science, we serve clients with data-driven insights for a safer and healthier world.



We aim to relentlessly expand the way science is deployed across all areas of human endeavor.

Through science, assurance, and sustainability, our purpose is helping make the world a better place.



We are committed to the values of integrity, reliability, and innovation which ensure we deliver the highest level of quality work and customer service.





Accredited laboratory services for the environment

ALS operates a network of state-of-the-art laboratories and service locations across Europe, providing consistent, high-quality support to clients throughout the continent, regionally and globally. Our modern analytical laboratories are accredited to ISO/IEC 17025 and operate under ISO 45001 and ISO 14001 certified management systems for occupational health & safety and environmental management, together with all required national approvals and certifications. Our European laboratories deliver a comprehensive portfolio of services, including analytical chemistry, microbiology, radiology and a wide range of specialty testing—covering virtually any environmental analysis your organisation may require, from routine compliance monitoring to highly specialised investigations.

Our people

The most modern facilities and instrumentation are important for delivering high-quality analytical service. However, ALS would not become a market leader without highly qualified and motivated employees. That's why specialists from various areas related to the environment are working in ALS. Their further professional growth is ensured by regular qualification improvement through practical experience, internal and external training.

Our experts are able to propose tailor-made solutions to customers, whether they require a new analyte or an extremely low analyte concentration as we constantly focus on new method development. Our participation in some of the largest environmental projects in Europe, as well as the routine processing of over 12,000 samples per week, brings us a wealth of experience and knowledge that we pass on to our customers. Our goal is to meet and exceed the expectations of our partners, even within those most complex projects and tasks, and we are constantly working to improve and streamline all of our activities.

3000 analytical parameters or a complex service?

ALS laboratories provides routine and special services, starting from basic water analyses till the identification of causes of toxic effects on the environment. To determine more than 2200 parameters means a commitment for ALS to have the highest level of technical qualifications and knowledge of its own staff to provide customers with assurance that analytical data was obtained using state-of-the-art procedures and instrumentation equipment, while meeting the quality requirements. But that's not enough...



ALS offers more and our clients can expect:

- Project mobilisation assistance to cover the scope of services required
- Experience acquired by working with a wide range of clients and programs
- Technical resources to solve challenges
- Dedicated client service team at each location
- Open to clients' audits
- Phone line consulting, video conferencing
- Continuous updating of analyses when legislation changes
- Rapid turnaround to keep projects on schedule
- Providing of containers for sampling (water, soil, waste, emission/air)
- Storage and disposal of samples
- Samples collection
- Evaluation according to relevant legislation
- „Tailor-made“ trainings
- One-line result, result directly to mobile phone
- Customized Electronic Data Deliverable (EDD) formats and data transfer to client's database
- Client information protection, confidentiality
- Net of branches and drop-off points
- Consultancy and training in area of environmental and occupational health, industrial hygiene, environmental and occupational toxicology



Our clients

Our laboratories have the experience and expertise to support a variety of industries, including:

- Environmental consultancy and remediation companies
- Water distributors
- Water treatment plant operators
- Waste handling and processing companies
- Emission groups
- Building and infrastructure industry
- Government institutions and authorities
- Municipalities
- Production industry
- Wellness industry
- Agriculture, agro industry





Range of services

ALS provides analyses in all environmental samples according to the relevant current legislation as well as of many other parameters on client's demand. Accredited field testing, sampling and preparation of sampling material is an integral part of our service.

We provide complete solutions to both local and international clients. We routinely perform chemical, physical, microbiological testing, analysis of organic trace compounds, PFAS, POPs, contaminants testing for heavy metals and inorganic parameters, ecotoxicology and radiology testing etc.

Water

- Drinking water
- Hot water
- Bottled water
- Pool and bath water
- Ground water
- Raw and treated water
- Wastewater

Solid materials

- Soils and sediments
- Silicates
- Rocks
- Sludge
- Sand

Waste

- Landfill waste
- Waste for re-use on the terrain surface
- Evaluation of the dangerous properties H13 (H15) and H14
- Biowaste and industrial compost
- Waste oils, waste for incineration
- WEEE (Waste Electrical and Electronic Equipment)

Air

- Emission
- Immission, ambient air
- Soil gas
- Fly ash and slag
- Occupational health and safety

Alternative fuels

- Biofuels
- Biomass
- Waste derived oils
- Solid recovered fuels
- Refused derived fuels

Analyses for building purposes

- Raw materials and finished products
- Demolition waste

Industry

- Occupational health & toxicology
- Environmental toxicology
- AFFF (Aqueous Film-Forming Foam)
- Formulation

Field work

Our qualified team of samplers is equipped with the appropriate technology for accredited sampling and field measurements.

Sampling of:

- Drinking and hot water
- Wastewater
- Pool water
- Water from well
- Ground water
- Waste and solid material
- Ambient air

Preparation of:

- Sorption modules and solutions for emissions and immission sampling
- Passive sampling of water and air
- Passive water samplers for metals, persistent organic pollutants, volatile organic compounds, polar organic compounds



Analytical scope

ALS provides comprehensive scope of routine and specialty services, that range from routine water chemistry to determining the cause of toxicological impacts. Experts in chemistry, microbiology, toxicity, radiology, industrial hygiene, industrial processes, quality systems, data management, and information technology are ready to respond to all environmental challenges. Reliable data ensure compliance with the local or EU legislation requirements as well as the quality management systems of our demanding customers.

Routine testing capabilities include (but are not limited to):

Polyfluoroalkyl compounds (PFAS), including TOP assay	Organic acids C1-C7
Pesticide residues	Screening of VOC, SVOC
Pharmaceutical compounds	Trace and ultra-trace metals
Veterinary compounds	Hexavalent chromium, trivalent chromium
Narcotic and psychotropic substances	Uranium, platinum, palladium, rhodium
Estrogenic hormones	Low-level mercury
Endocrine disruptors	Ferrous/ferric iron
Phthalates	Speciated metals
Volatile organic compounds	AOX, EOX, TX
Semi-volatile compounds US EPA 8270	Cyanides, thiocyanate
Short and medium-chain polychlorinated alkanes (SCCP, MCCP)	DOC, TOC
Total petroleum hydrocarbons (TPH)	Humic matters
Volatile petroleum hydrocarbons (VPH)	Sulphides (H ₂ S, S ²⁻)
GRO / DRO / ORO	Oil and grease
Speciated hydrocarbons (aliphatics, aromatics)	Polar extractable compounds
Phenols, cresols	Surfactants (anionic, cationic, non-ionic)
Chlorophenols	Anions, oxyhalides
Alkylphenols and ethoxylates	Nitrogen forms, NH ₄ ⁺ , total nitrogen
Complexing agents	BOD-n, COD
Perchlorate	Chlorophyll
Haloacetic acids	Organic and inorganic phosphorus, phosphate
Epichlorhydrine, acrylamide	Total dissolved and total suspended solids
Benzotriazoles, benzothiazoles	Loss on ignition
Glycols	Sieve analysis, grain size, soil texture, permeability
Formaldehyde	Weeds in compost, biodegradability
Ethene, ethane, methane	Dust, PM ₁₀ / PM _{2.5} , respirable quartz in air
Leach preparation (single/double stage)	Monolithic tank tests
Percolation tests	
Explosive substances	
Asbestos	
Isotopes	
Specific extractions	
Persistent organic pollutants (POPs)	
Emerging environmental contaminants	
Artificial sweeteners	





Your Trusted PFAS Partner

Advanced Analytical Services

Ensuring Compliance, Safety and Environmental Responsibility

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals widely used in industrial applications and consumer products. Their persistence in the environment and potential health risks have led to increasing regulatory scrutiny, particularly in drinking water and firefighting foam residues.



Why choose ALS for PFAS testing?

• Best Practice Sampling Protocols

ALS ensures high-quality data from the outset, providing expert guidance on PFAS sampling techniques tailored to specific project needs and sample types.

• PFAS Method Development and Innovation

Our team continuously develops and refines analytical methods to meet evolving regulatory standards and emerging PFAS detection challenges.

• Regulatory Expertise and Clear Reporting

We simplify compliance by delivering accurate, easy-to-understand reporting that aligns with regional and international regulatory frameworks.

• Thought Leadership in PFAS Science

ALS actively contributes to the advancement of PFAS science by sharing insights, supporting research, and staying ahead of legislative developments.

Our Expertise

We offer state-of-the-art analytical services for the detection and quantification of PFAS in:

- Drinking/ground/surface/waste water
- Soil, sediment, sludge and biosolids
- AFFF-contaminated sites and products

Using LC-MS/MS, our laboratories provide:

- Ultra-trace level detection (ng range)
- Analysis of over 60 individual PFAS compounds
- Non-targeted PFAS analysis like TOPA

With increasing awareness of PFAS contamination and evolving regulatory demands, ALS understands that accurate, timely, and comprehensive testing is essential to protecting both public health and the environment. Backed by cutting-edge analytical technologies and a team of PFAS specialists, ALS delivers industry-leading PFAS testing services to the highest quality standards.

We collaborate closely with clients to ensure data is actionable and easy to interpret, offering expert guidance every step of the way.

Applications

- Site investigations and remediation planning
- Compliance monitoring for water utilities
- Environmental due diligence for industrial sites
- AFFF legacy contamination assessments
- Products compliance

Comprehensive and broad portfolio of PFAS methods

- Accredited Analyses of 70+ PFAS compounds
- Analyses aligned with European regulatory requirements
- Ultra-trace level detection of target compound

TOP Assay (Total Oxidisable Precursor)

The TOP Assay oxidises PFAS precursors into measurable PFAAs for LC-MS/MS, revealing hidden precursors, delivering a more complete PFAS profile, and supporting long-term risk and remediation planning.

Ultrashort PFAS & TFA Analysis (PFAS with ≤ 3 carbon atoms)

- Highly mobile, water-soluble and persistent, widely occurring in waters and difficult to remove with conventional treatment.
- TFA (trifluoroacetic acid): a major ultrashort PFAS and often one of the most frequently detected targets in water, early indicator for USC-PFAS presence.

Fluorotelomer Alcohols (FTOHs)

ALS offers dedicated analysis for 6:2 and 8:2 FTOHs, critical precursors to persistent perfluorocarboxylic acids (PFCAs). These volatile compounds can contribute significantly to PFAS in soil, water and air, transform into long-chain PFCAs, and require advanced testing to accurately assess contamination pathways.

Volatile PFAS in Air (EPA OTM-50, GC-MS/MS)

- New capability: Volatile PFAS in air testing using U.S. EPA OTM-50 with canister sampling and GC-MS/MS
- Designed for stack emissions: Targets volatile PFAS degradation intermediates (e.g., from waste incinerators) that are not well covered by other methods.

Special PFAS Analyses

- PFAS in biota (fish & shellfish): biomonitoring of persistent, bioaccumulative PFAS—tissue concentrations act as a direct indicator of environmental contamination levels.
- Passive sampling for PFAS in water (DGT): ALS uses DGT passive samplers to deliver reliable time-weighted average PFAS concentrations, supporting watershed-scale monitoring, source identification and temporal trend assessment in aquatic environments.
- Swab testing for PFAS & TOP Assay: validated triple-swab method for non-porous surfaces—supports monitoring of foam-exposed pipework, assessing decontamination effectiveness in fire suppression systems, and evaluating PFAS-impacted surfaces.
- PFAS & TOP Assay on Concrete: in-house handling and analysis of concrete slabs/cores for built environments including fire training grounds, industrial facilities, and contaminated infrastructure.





Analytical Capabilities

Persistent organic pollutants (POPs)

- Chlorinated Dioxins/Furans (PCDD/F)
- Brominated Dioxins/Furans (PBDD/F)
- Coplanar PCBs (dl-PCB)
- Indicator PCBs (PCB 7)
- Polybrominated diphenyl ethers (PBDE)
- Polybrominated biphenyls (PBB)
- Polychlorinated naphthalenes (PCNs)
- Organochlorine pesticides (OCP)
- Hexabromocyclododecane (HBCDD)
- Polycyclic Aromatic Hydrocarbons (PAH)

Asbestos / microscopy

- Asbestos analysis
- Other fibre identification
- Particle sizing & element identification
- SEM, PCM, PLM analysis

Identification Methods

FTIR

- Identification of unknown materials or contamination
- Verification of composition (e.g., plastics, oils, lubricants, adhesives, etc.)
- Verification of surface cleanliness (e.g., prior to coating/painting, or after washing/cleaning)
- Comparison against a standard / reference sample

SEM-EDS

- Elemental analysis and mapping: identification of elements (Be to U) and visualisation of their distribution within the sample
- Imaging and microstructure characterization: high-contrast imaging of surfaces, coatings/layers and defects; layer assessment (uniformity, adhesion/cohesion, application quality)
- Particle imaging analysis: particle detection, counting and classification by size; identification of failure features (cracks, inclusions, delamination)

GC-FID / GC-MS / GC-MS-HS

- GC-FID: Determination of the presence and concentration of organic compounds in the C10–C40 range, identification and profiling of non-polar hydrocarbons in solid, liquid and oily samples; indication of contamination type (oil vs fuel), incl. gasoline in diesel or fuel in oil. comparison of product composition (e.g., supplier/batch changes).
- GC-MS / GC-MS-HS (VOC): identification of individual organics in complex mixtures (library match), incl. contaminants (residual solvents, plasticisers, fragrances), odour source/trace impurities and aqueous samples.

Contaminants

- Pesticides (e.g., organochlorine, organophosphate, triazines, pyrethroids)
- Biocides and relevant metabolites
- Pharmaceuticals and personal care products (PPCPs)
- Hormones and other endocrine-active substances
- Drugs of abuse and associated biomarkers
- Industrial chemicals and plasticisers (e.g., bisphenols, phthalates)



Radiology

- Gross alpha activity
- Gross beta activity
- Total indicative dose
- Radon-222
- Tritium
- NORM/TENORM testing
- Carbon-14
- Artificial radionuclides:
 - Iodine-131
 - Americium-241
 - Cobalt-60
 - Cesium-134, 137
- Natural radionuclides:
 - Lead-210
 - Potassium-40
 - Thorium-227, 230, 232, 234
 - Radium-223, 226, 228
 - Polonium-210
 - Strontium-90
- Additional specific radionuclides:
 - From Beryllium-7 to Radium-224 through Manganese-54
- Emergency testing:
 - Zirconium-95
 - Iodine-132
 - Tellur-132
 - Ruthenium-103
 - Cesium-136
 - Lanthan-140

Microbiology / mycology

- Pathogenic microorganisms
- Moulds and yeasts
- Oil-degrading bacteria
- Heterotrophic bacteria
- Bioseston, abioseston, dead organisms
- Anaerobic bacteria
- Filamentous bacteria, micromycetes

Ecotoxicity

- Fish, Algae
- Daphnia magna
- Lesser duckweed
- Garden cress
- Lettuce
- Soil invertebrates
- Microtox (*Vibrio fischeri*)

Fuel, waste for burning

- Calorific value, ash content, emission factor
- Elemental and other composition (C, H, O, S, Cl, F, Br, metals and other trace elements)
- Alkali, flash point, density, water content





Specialties and Uniqueness

Asbestos

ALS has many years of experience in asbestos testing with hundreds of thousands of samples tested for asbestos. Specialized ALS laboratories provide testing services for the determination of asbestos presence and quantity in building materials, soil and air. These test results are used mainly by project designers, demolition and construction contractors, as well as investors and property owners.

- Qualitative determination of asbestos by polarized light optical microscope or scanning electron microscope SEM-EDS
- Quantitative determination of asbestos in the range of 0.01 - 1.00 % (w/w)
- Determination of the number of asbestos and mineral fibers in air by SEM / EDS



Identification Methods

Identification techniques such as SEM-EDS, GC-FID and GC-MS/GC-MS-HS provide rapid, defensible insight into material composition and contamination sources. SEM-EDS combines high-resolution imaging with elemental analysis, enabling microstructure and defect evaluation (e.g., cracks, inclusions, delamination), coating/layer assessment, particle characterisation, and elemental mapping across the sample. GC-FID is well suited to routine screening and quantification of non-polar organic mixtures, including hydrocarbon profiling in the C10–C40 range to help fingerprint contamination (e.g., oil vs fuel, cross-contamination). GC-MS (including headspace for VOCs) delivers confirmatory identification of individual organic compounds in complex matrices, supporting investigations of product/environmental contamination, residual solvents, plasticisers, fragrance components and odour sources.

Persistent Organic Pollutants (POPs)

The High-Resolution Mass Spectrometry (HRMS) Centre of Excellence is specifically designed to provide efficient service for the highly specialized analyses by HRMS with a central focus on strong communication between the field and the laboratory bench.

To provide a background assessment on soil and water, a biomonitoring on lichens, fish and aquatic animals, a long term study using semipermeable membrane devices (SPMD), a population check of blood, to support state emission monitoring programs, to assist economic operators on assessing the efficiency of a remediation technology, or to work for very contaminated hot spots, the HRMS laboratory has the necessary technologies and expertise on persistent Organic Pollutants (Stockholm Convention and new emerging contaminants). ALS is also working in cooperation with emission sampling teams, provides them not only with analytical support, but also supports them with sampling chemicals, traps including chemical blank testing and sampling standards as well. Filters, traps with cleaned XAD or PUF for sampling trains are also part of the regular services from ALS for this industry.

Pesticides

We run analytical methods capable of simultaneously determining many pesticide residues. These multiresidue methods can determine simultaneously pesticide substances that differ in their mode of action, usage, and chemical classification. The most used multiresidue methods can also detect many metabolites, impurities, and alteration products of pesticides. In ALS Laboratories we test more than 450 pesticides compounds detected by different instruments:

- LC/MS/MS
- GC/MS/MS
- GC/ECD

OCPs, OPPs, triazine, urea pesticides, polar pesticides, non-polar pesticides, quaternary ammonium pesticides, acidic pesticides, pyrethroids, glyphosate and its metabolites are some of the ALS capabilities.

Pharmaceutical, hormones and drugs

Medicinal products represent an extensive, chemically very diverse and constantly expanding group of substances. Over 1,000 active medicinal substances are registered in Europe and are distributed in the form of medicinal preparations. The occurrence of drugs in the environment has negative effects on living organisms. These substances are known to disrupt hormonal balance, increase the number of developmental abnormalities and increase mortality. Concerns are not only caused by individual toxicity, but also by the action of individual active substances and their metabolites in mixtures. We are talking about a cocktail effect that can be the cause of higher toxicity. Contamination of environmental waters with pharmaceuticals results in the occurrence of these pollutants in drinking water and endangers human health.

Medicines are biologically active substances by their very nature. Unfortunately, these properties are problematic from an environmental point of view, as they are associated with bioaccumulation and toxic effects on organisms in aquatic and terrestrial ecosystems.

Presence of pharmaceuticals, hormones and drugs in water is referred in Water Framework Directive, where list of monitored substances and acceptable safe concentrations are set.

ALS Laboratories use state-of-the-art instrumentation for proper analysis of these trace environmental contaminants. Currently, we offer a quantitative analysis of more than 100 pharmaceutical compounds of a wide range of medicinal effects.

Analyses are run on the latest models of triple-quadrupole LC-MS instruments, by which we are able to offer a sensitive, fast and accurate results. Limits of detection are dependent on the type of water matrix (drinking, ground, surface or waste), but with the majority of compounds we are able to go as low as to 0.01 µg/L.





Risk assessment using ecotoxicity

Ecotoxicological tests

Certain EU countries put in place ecotoxicological testing of waste, wastewater and specific chemicals. Ecotoxicity tests provide information on the intensity of adverse effects resulting from human influences and can produce data in the evaluation of the potential environmental impact of substances discharged into water or spread on land or into landfills. At ALS, aquatic and terrestrial organisms can be studied – bacteria (*Vibrio fischeri*), fish (*Poecilia reticulata*), algae (*Desmodesmus subspicatus*), water arthropod (*Daphnia magna* Straus), higher plant (*sinapis alba*, *lactuca sativa*), terrestrial arthropod (*Folsomia candida*), terrestrial annelidan (*Enchytraeus crypticus*) to mention but a few.

H14 and H15 properties of waste

The Hazardous Waste Directive (HWD, Council Directive 91/689/EC) provides a Framework for the hazard classification of waste. Among the hazardous properties, H14 and H15 can be determined in our laboratories. H14 refers to the property „Ecotoxic“, a waste that presents or may present immediate or delayed risks for one or more sectors of the environment. H15 concerns the waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics from H1 to H14. At ALS Environmental, the bioluminescent bacterial toxicity test is one of the most widely used assays to indicate for general toxicity. If local legislation permits, this is a fast-screening test to eliminate the possible suspicion on the H14 property of tested waste. If thorough ecotoxicity tests are required, our laboratories carry out a series of determinations on different organisms. This test gives an estimation of EC50, LC50, IC50 on 4 different organisms.

Radiology

Specialized department for radiochemistry and radiological analysis of ALS offers a comprehensive measurement program designed to monitor levels of radioactivity and both natural and artificial radioisotopes. To assess environmental radioactivity the measurement program includes measurements using various radioanalytical methods and mass spectrometric methods. The matrices measured include water, building materials, air, sewage sludge, dredged materials, soil, sediment, rocks and waste. Naturally Occurring Radioactive Materials (NORM) and Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) issues are addressed routinely in our radiology laboratory.



Scientific and research projects

The basic mission of the ALS Project Center is to provide project partners with expertise in the field of analytical services based on the rich and long-term experience of project team members, supported by diverse, reliable, and highly sensitive analytical equipment. The outputs of the project team are new validated analytical methods, the ability to report results in a short delivery time is a big advantage in project implementation. At the same time, we provide professional support in the processing of a large amount of measured data.



Scientific and research projects cover topics such as the use of bio decontamination ALS Laboratories use state-of-the-art instrumentation for proper analysis of these trace environmental contaminants (persistent chloroacetanilide pesticides, including their metabolites), minimization of the risks of pesticide action on non-target organisms and thus on human health, transfer of these substances between individual components of the environment and their negative impact on pollinators (bees, bumblebees, spiders, innovative technologies and their combinations for the treatment of municipal wastewater, including semi-operational verification, in order to contribute to the achievement of a good ecological state of water ecosystems (efficiency of pesticide, drug and microbial pollution removal), assessment and authorization of plant protection products, the sublethal effect of these compounds on soil organisms, monitoring of contamination of former mining area with focus on radiology parameters or set-up of protection zones in terms of air pollution.

Quality, accreditation, certification

ALS applies a multi-level approach to quality assurance in all laboratory and related processes. ALS accredited laboratories continuously verify the quality of analytical data, both internally and externally, with the aim of systematically covering all aspects of the analytical processes from sample receipt to test report submission.

All laboratories of the ALS group work in accordance with the requirements of ISO 17025 standards under the leadership of the quality manager, managing department quality of each of our laboratories. The group of employees of the quality department is responsible for:

- Creation and control of standard operating procedures and methods
- Tracking various global accreditations and registrations
- Carrying out regular routine audits of laboratories

ALS laboratories hold accreditations and certifications according to both national and international standards.

The credo of ALS laboratories is a commitment to maximum quality, service unity and innovation. ALS applies a unified global approach in the following areas:

- Quality and human resources management
- Occupational safety, health and environmental protection program
- Good manufacturing and laboratory practices

A progressive and proactive occupational safety and health (OHS&E) program in many cases exceeds today's requirements from local regulatory authorities.

European ALS locations

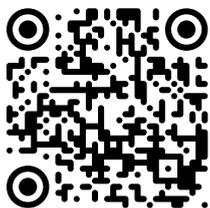
+ Hub & Spoke map overview

Laboratories & offices:

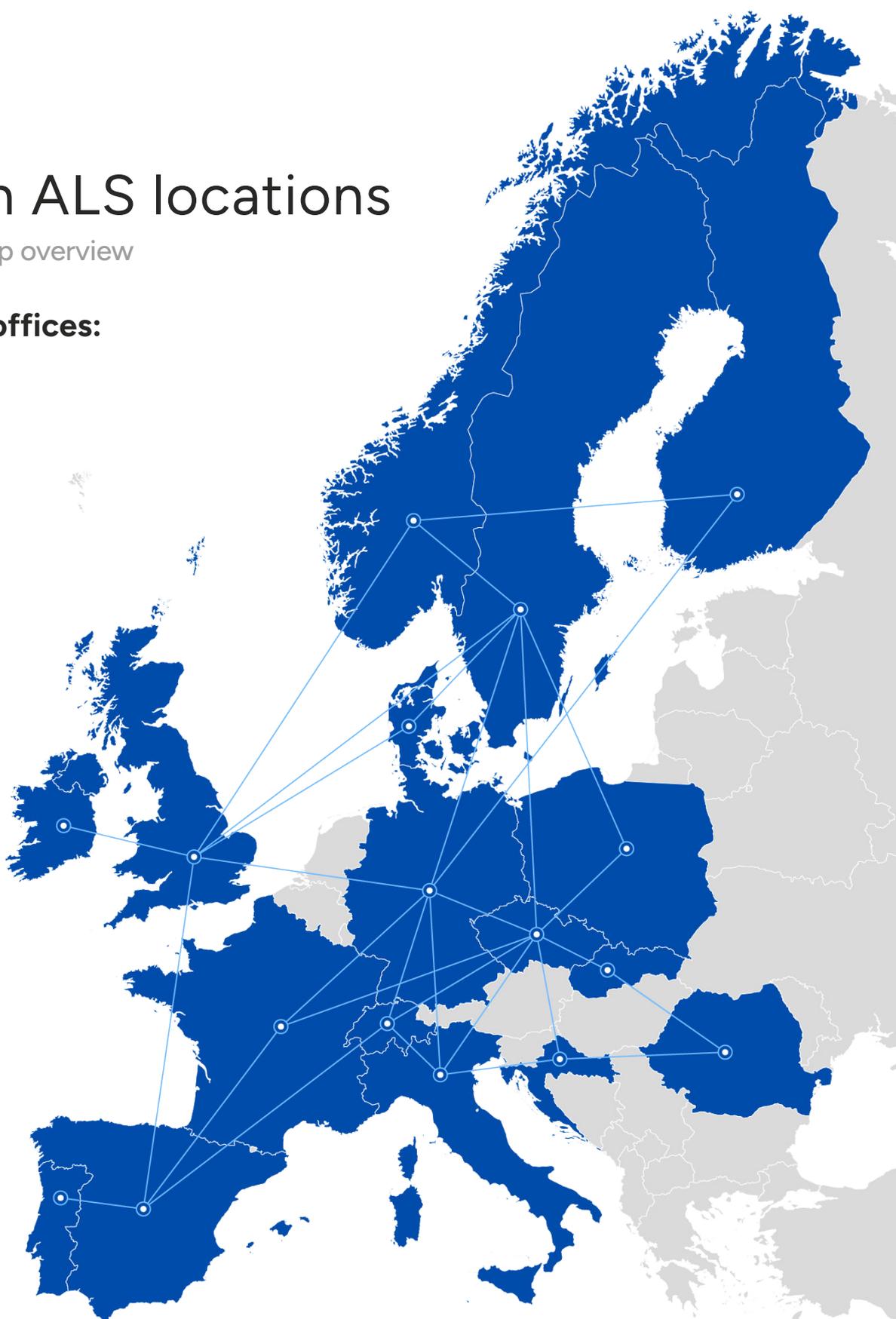
alphabetically

- › Croatia
- › Czech Republic
- › Denmark
- › Finland
- › France
- › Germany
- › Ireland
- › Italy
- › Norway
- › Poland
- › Portugal
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We offer a wide range of services in the field of chemical, radiological, microbiological and physical analyses covering the area of the environment, food, pharmaceuticals and oil & lubricants.

