



Accredited
Laboratory Services



FIELD ENVIRONMENTAL LABORATORIES

DEKONTA delivers and operates field environmental laboratories, assembled from one or more adjusted ISO containers.

As the clients' requirements differ significantly from project to project, the field laboratory equipment is modified according to the specific project needs and site conditions.

DEKONTA can supply field laboratories suitable for the following processes and their combinations:

- Sampling
- Chemical analysis
- Microbiological analysis
- Pilot-scale testing

The field laboratory is supplied completely equipped and ready for connection to electric power, water and sewer. Thus, it can be put into service immediately after delivery to the site.



SAMPLING LABORATORY

The field sampling laboratory is typically equipped with:

- ✓ Changing room
- ✓ Working table with a sink
- ✓ Sampling tools (such as samplers, augers, shovels, sampling pumps, etc.)
- ✓ Sample preparation equipment (such as laboratory crusher, sieves, quartering boxes, etc.)
- ✓ Sample storage and transportation equipment (sample containers, refrigerators, boxes, etc.)
- ✓ Field analyzers and instruments (e.g., pH meters, gas detectors, groundwater level meters, etc.)
- ✓ Air conditioning



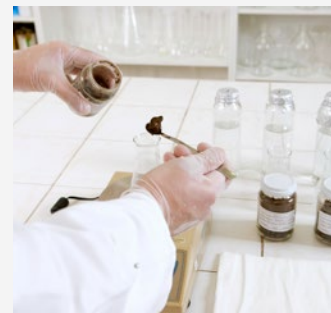
If requested, the sampling laboratory can be accompanied by a containerized sample storage. It provides additional space for storing samples, sampling equipment, sample containers, packaging material, personal protective equipment, decontamination and cleaning material and equipment, etc.

ANALYTICAL LABORATORY

The field analytical laboratory comprises both the standard equipment and project-specific analyzers.

The field sampling laboratory is typically equipped with:

- ✓ Laboratory table with a fume cupboard and a sink
- ✓ Common laboratory instruments (pH meters, thermometers, electronic scales, heating plates, drying oven, magnetic stirrers, etc.)
- ✓ Laboratory supplies, glassware and plastics
- ✓ Refrigerator
- ✓ Working table with PC
- ✓ Changing room
- ✓ Air conditioning



The project-specific analytical equipment is provided according to the requested scope of chemical analysis.

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 The most frequently supplied instruments are:

- **FT-IR SPECTROMETER** for analysis of total petroleum hydrocarbons (TPH) – low and medium concentration
- **EQUIPMENT FOR GRAVIMETRIC ANALYSIS** of samples with high TPH concentration
- User-friendly analyzer system for **ANALYSIS OF PETROLEUM HYDROCARBONS** in the range from C8-C44
- **GAS CHROMATOGRAPH** with mass spectrometer (GC-MS) for identification and quantitative analysis of a wide range of organic compounds (including petroleum hydrocarbons C10-C40, VOCs, PCBs, etc.)
- **XRF SPECTROMETER** for analysis of metals and other elements from Na(11) to U(92)
- **PCB/CHLORIDE ANALYZER** system for on-site analysis of PCBs and other chlorinated organic compounds in soil, water and transformer oil.
- **RAMAN SPECTROMETER** for identification of unknown substances.

Together with the supplied analyzer, also the necessary auxiliary material and equipment is provided in the field laboratory (such as sample extraction and sample purification equipment, reagents, standards, etc.).

MICROBIOLOGICAL LABORATORY

The microbiological laboratory serves for standard microbiological analyses or for preparing bacterial solutions used for on-site bioremediation. It is also equipped for basic microbiological and chemical analyses of treated soils and sludge. The container is usually divided into two separate parts – the clean microbiological one, and the technical one for production of higher amounts of bacteria.

The specific equipment typically comprises:

- ✓ Sterilization oven
- ✓ Autoclave
- ✓ Microbiological incubator
- ✓ Shaker
- ✓ Electronic colony counter
- ✓ Laboratory centrifuge
- ✓ Distilled water plant
- ✓ Refrigerator
- ✓ Gas bottle with burner
- ✓ Pipettes
- ✓ Digital scale
- ✓ Laboratory glassware
(tubes, pipettes, bakers, Petri dishes)



The technological part of the container can be equipped with a bioreactor of 1 m³ volume for bacteria cultivation. Micro-bubble aeration system, heating, air compressor and pumps are included.

PILOT-SCALE TESTING LABORATORY

The pilot-scale testing laboratory is used either (i) for on-site verification whether the tested process is suitable for full-scale application under the site-specific conditions, or (ii) for optimizing process parameters of a full-scale plant operated at the site (for example optimum dosing of reagents in the case that quality of the treated material is varying in time).

Usually, the testing laboratory is delivered as the appropriate pilot-scale equipment installed inside an ISO container.

Presently, DEKONTA has available containerized laboratories for pilot-scale testing of the following processes:

A. WASTE AND CONTAMINATED SOIL:

- Indirect thermal desorption
- Stabilization
- Mixing
- Chemical treatment
- Biotechnological treatment

B. SLUDGE, SEDIMENT AND SUSPENSION:

- Filter-press dewatering
- Three-phase separation (centrifuge)
- Separation in hydrocyclone
- Sedimentation
- Solidification

C. DUST AND FINE SOLIDS

- Pelletizing
- Humidification
- Solidification

D. WATER / WASTEWATER TREATMENT

- Desalination
- Reverse osmosis
- Stripping
- Adsorption
- Chemical treatment
- Photochemical oxidation
- Electrocoagulation

E. AIR TREATMENT

- Adsorption (activated carbon or other sorbents)
- Air scrubbing
- Catalytic oxidation
- Condensation
- Biofiltration



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