

Notes regarding sampling materials for the determination of volatile aromatic hydrocarbons and halogenated hydrocarbons (BTEX, LHKW) in solids and waters

Errors resulting from inappropriate sampling have a larger influence on the analysis results than errors occurring later in the laboratory. It is also evident that errors from sampling cannot be corrected retrospectively. This is especially true if highly volatile substances are to be quantified, or if they can alter through lack of conservation. Here, already during the planning phase, coordination between laboratory and sampler is required.

If questions arise from the following notes, contact with the laboratory as early as possible is recommended before taking the samples.

When sampling, pre-treating and processing samples for highly volatile substances, the aim must be to keep losses through evaporation as low as possible.

Sampling solid materials (soil, sludge, etc.):

For this sampling, the laboratory provides four specially prepared brown glass bottles (BRGF) and a screw top jar:

<u>Brown glass bottle "1" contains methanol:</u>	Sample
<u>Brown glass bottle "2" contains methanol:</u>	Parallel sample (repeat sample)
<u>Brown glass bottle "3" contains methanol:</u>	Background value of the sampling site
<u>Brown glass bottle "4" contains methanol:</u>	Background value of transport and storage
<u>Screw top glass, empty:</u>	Sample material for determining further parameters

The first two brown glass bottles (BRGF) are for taking the sample and the repeat sample, whereas BRGF "3" and "4" are for the determination of external influences. The screw top glass is for sampling material, which can be used for further analyses, e.g. for dry matter.

Before the actual sampling, after surveying the sample sites for assessment and for preparation of sampling, BRGF "1" to "3" are placed at the sampling point. BRGF "3" is then placed approx. 1 m away from the sampling point and is opened. Then, the sampling material (approx. 25 g), as fine grained as possible and if possible without larger accumulation of heterogeneous additions (roots, stones and foreign matter), is sampled from the undisturbed material, for instance, by using a soil sampler and then is transferred immediately and without breaking open the sample into BRGF "1" and "2". These are closed tightly immediately with their respective lids. Here, care must be taken not to get sample material in the thread and on the rim of the bottle, as this may cause losses due to leakage. If necessary, the rim must be cleaned before closing.

Following this, BRGF "3", which is placed away from the sampling site is closed tightly and transported in the same way as the other vessels, i.e. with the sample material in darkness and at < 10° C into the laboratory (cool box).

While doing this, care must be taken that the vessels filled with methanol are transported and stored upright (i.e. not tilted or upside down).

For the determination of the background value, BRGF "3" and BRGF "4", which is carried unopened throughout the entire measure, are used.

Sampling water

Sampling water of all types (waste, drinking, ground water, etc.) is a lot easier. Here, care must only be taken that the sample is transferred entirely without bubbles into the BRGF supplied by the laboratory. An aerator must be removed. For every sampling point, at least two BRGF must be filled. Transport must take place as described above (dark, chilled).

The basics:

For sampling, only teflon, metal and glass devices may be used. The time between sampling and start of the laboratory work must be kept as short as possible. If sampling tools or vessels are used that do not conform with the method, this must be stated in the sampling and analysis protocol and in the test report.

When a sample that does not conform to the requirements arrives in the laboratory, the sender will be notified by telephone of the possibility of wrong results caused by this. If the analysis should be carried out regardless, all deviations from the correct procedure must be stated in the test report.

¹ In the LUFA Nord-West laboratory, 25 ml of blank methanol is poured in and the bottle is closed so that no evaporation can take place. The bottles are weighed and the weight is noted. The lids are assigned to the bottles, please do not swap.