

# SAMPLING STANDARD - EN 1948

## Short guideline how to spike the sampling standard

ALS CR provides spiking of sampling train or provides sampling standard for emission sampling according to the required methodology

- Sampling standards according to the specific required methodology - EN 1948
- Vial ready to spike
- Single dose for easiness of use



## The sampling train can be spiked with the sampling standard as follows:



Sampling Method	Combination of spiked parts of the sampling train
Filter/condenser method	<ul style="list-style-type: none"> <li>• Filter(s)</li> <li>• Filter or solid adsorbents or liquid sorbent</li> <li>• Solid sorbent (PUF, XAD-2) or absorption liquid</li> <li>• Filter and Condensate flask</li> <li>• Condensate flask</li> </ul>
Dilution method	<ul style="list-style-type: none"> <li>• Filter</li> <li>• Filter and PUF</li> </ul>
Cooled probe method	<ul style="list-style-type: none"> <li>• Condensate flask</li> <li>• Filter</li> <li>• First absorber containing absorption liquid</li> <li>• First PUF sorbent</li> </ul>

## The sampling $^{13}\text{C}_{12}$ - labelled standards has the following composition:

Methodology	Labelled	Composition of the sampling standard	Application-on field
EN 1948	03	$^{13}\text{C}_{12}$ -1,2,3,7,8-PeCDF	Whole vial before sampling on the first sorption element
		$^{13}\text{C}_{12}$ -1,2,3,7,8,9-HxCDF	
		$^{13}\text{C}_{12}$ -1,2,3,4,7,8,9-HpCDF	

The sampling standard solution shall be at least 100  $\mu\text{L}$ .

Parts of the sampling train (filter, XAD2, PUF or any other sorption element) can be spiked in our laboratories prior to delivery.

## Application of the sampling standard

### 1. Addition to filter

- The full dose is uniformly and slowly distributed on the active surface of the filter to avoid any loss.
- Losses are most often due to seepage loss of the solution through the filter, or due to an incomplete spike of the full vial on the filter.

#### ALS recommends the following procedure:

- Place the flat filter on the neck of a glassware, which diameter is slightly smaller than the diameter of the filter
- Carefully distribute small doses (20-30µL ) of the solution on different parts of the filter using a micro syringe or an automatic pipette, so that the solution does not pass through the filter, does not leak on the glass or does not drop out of the filter.
- After application of the full volume, rinse the vial with a minimum of 200µL of dichloromethane, and distribute this amount the same way as you apply the standard on the filter with the same micro syringe or pipette.
  - ALS recommends to proceed the rinses by dichloromethane at least twice (2\*200µL dichloromethane)
- The filter is used for sampling not earlier than 2 hours after the sampling standard has been applied.
- Labelled filter may be stored for several days, protected from possible contamination (Petri dish, Aluminium foil, closed glassware)

### 2. Addition to solid sorbent

- The full dose is uniformly and slowly distributed on the surface and inside the solid sorbent (XAD-2 resp. PUF) to avoid any loss.
- After application of the full volume, rinse the vial with a minimum of 200 µL of dichloromethane, and distribute this amount the same way as you apply the standard on the sorbent with the same micro syringe or pipette.
  - ALS recommends to proceed the rinses by dichloromethane at least twice (2\*200µL dichloromethane). Losses are most often due to an incomplete spike of the full vial on the sorbent.

### 3. Addition to liquid absorption solution

- The full dose is carefully added by micro syringe or automatic pipette to the volume of absorption solution intended for sampling.
- After application of the full volume, rinse the vial with a minimum of 200 µL of dichloromethane, and add this amount the same way as you apply the standard on the sorbent with the same micro syringe or pipette.
  - ALS recommends to proceed the rinses by dichloromethane at least twice (2\*200µL dichloromethane). Losses are most often due to an incomplete spike of the full vial into the absorption solution.

### 4. Addition to condensation flask

- The full dose is carefully applied by micro syringe or automatic pipette inside the condensation flask to avoid spitting outside the flask.
- After application of the full volume, rinse the vial with a minimum of 200 µL of dichloromethane, and add this amount the same way as you apply the standard into the condensation flask with the same micro syringe or pipette.
  - ALS recommends to proceed the rinses by dichloromethane at least twice (2\*200µL dichloromethane). Losses are most often due to an incomplete spike of the full vial into the condensation flask.

#### General warning:

Loss of sampling standard during application reduce the values of recovery, which shall be according to the norm >50% for each of the three congeners in the standard.

If more doses of sampling standard are added during the sampling, each of them should be quantitatively applied. Information on number of doses and spiking locations of the standard shall be documented prior to analysis in the laboratory, so that the calculation of recoveries can be correctly carried out.

#### Ordering:

To benefit from this service, either fulfil the specific chain of custody or order on line at:

<http://sampling.alsglobal.eu>

**In case of any questions do not hesitate to contact us:**

ALS Czech Republic, s. r. o.  
Na Harfě 336/9  
Prague 9 - 190 00

www.alsglobal.eu  
email: customer.support@alsglobal.com  
tel: +420 226 226 228