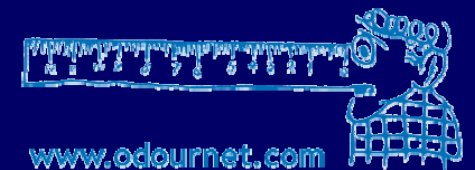


Developments in odour sampling in Europe

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Telltale blue drums



New German draft VDI/DIN 3880:2009

- Only available in German
- Comments until 30 April 2009
- Mainly German group of experts, but with participation from the Netherlands
- Can be considered as an important precursor for revising the EN13725 chapter on sampling

New German draft VDI/DIN 3880:2009

ICS 13.040.01	VDI-RICHTLINIEN	Januar 2009												
VEREIN DEUTSCHER INGENIEURE	Olfaktometrie Statische Probenahme	VDI 3880 Entwurf												
<p>Olfactometry – Static sampling</p> <p style="text-align: right;"><i>Einsprüche bis 2009-04-30</i></p> <ul style="list-style-type: none"> • vorzugsweise in Tabellenform als Datei per E-Mail an krdf@vdi.de Die Vorlage dieser Tabelle kann abgerufen werden unter http://www.vdi-richtlinien.de/einsprueche • in Papierform an Kommission Reinhaltung der Luft im VDI und DIN Postfach 10 11 39 40002 Düsseldorf 														
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Verein Deutscher Ingenieure, Düsseldorf 2009

– nicht gestattet

Main issues resolved

- Number of samples: generally, at least triplicates (section 4.7)
- Continuous sampling for a duration of at least 30 minutes (standard) (section 4.6)
- Sample storage > 6 hours.
For longer storage times, sample stability must be verified for each source, based on comparison of sets of 3 samples. The difference of the means must be less than a factor 1,5

Main issues resolved

- Avoid condensation by dynamic predilution
- Static predilution only allowed for $z \leq 3$
- Use probes and tubing once, for each separate source
- Bags: each batch of production (FEP or PET) must be tested ($n=3$)

Active area sources, with outward flow

- Active area sources:
 - specific flow $> 50 \text{ m}^3 \cdot \text{m}^{-2} \cdot \text{hr}^{-1}$
- Area sampling hoods for active sources (with flow):
 - Area approx. 1 m^2 , exit tube 14-20 cm diameter

Passive area sources, without outward flow

- Wind tunnels that have ‘proven to yield realistic results based on experience’
- For complex sources, such as refineries, field plume observations with reverse modelling is prescribed (VDI3940)

Passive area wind tunnels, example hood 1

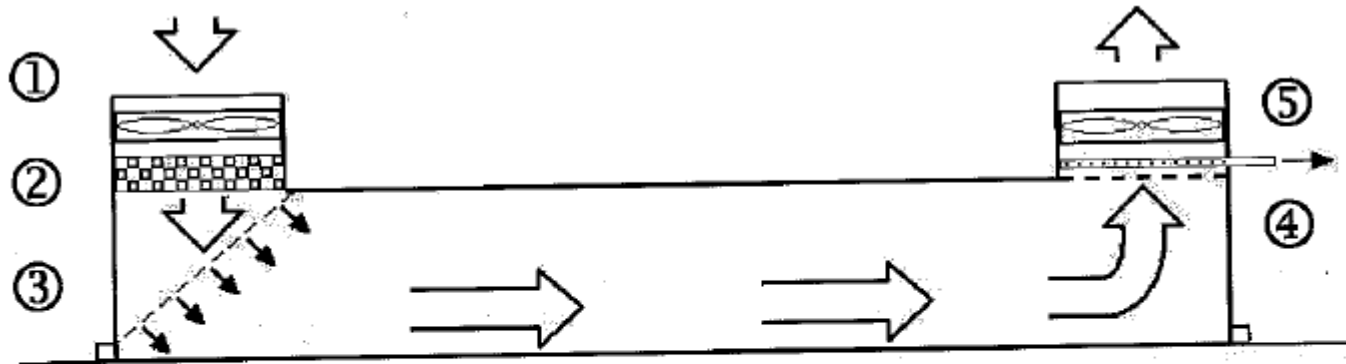


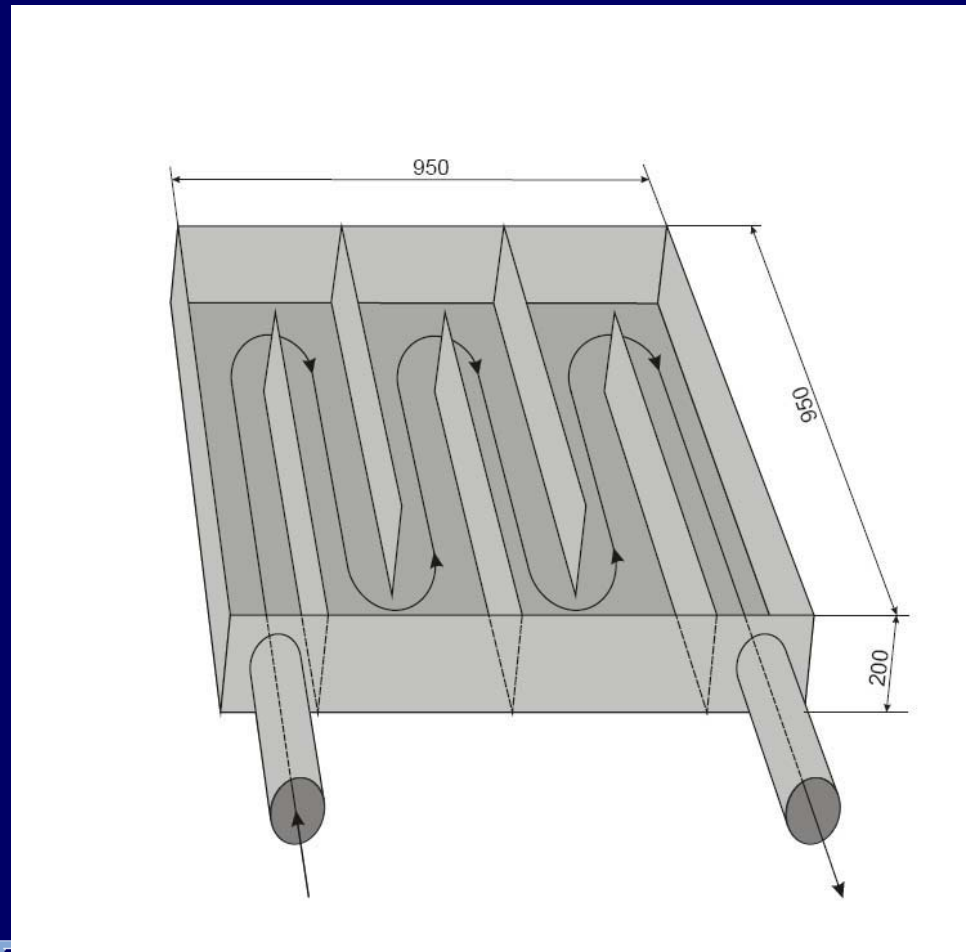
Bild 6. Durchströmte Haube 1 auf Passivquelle (Prinzipskizze)

- 1 Einlassventilator
- 2 Aktivkohlefilter
- 3 Deflektorblech
- 4 Probenahmeanschluss
- 5 Auslassventilator

Passive area wind tunnels, example hood 2



Passive area source wind tunnel, example hood 3



Main characteristics of wind tunnels

Tabelle 2. Beschreibung der drei erprobten Hauben und der angewendeten Probenahmebedingungen

	Haube 1 (Bild 6)	Haube 2 (Bild 7)	Haube 3 (Bild 8)
Breite der Gesamthaube in mm	500	500	950
Länge der Gesamthaube in mm	1000	1000	950
Breite des Strömungskanal in mm	500	125	157
Länge des Strömungskanal in mm	1000	4000	5700
Lichte Höhe in mm	130	130	157
Überströmte Fläche in m ²	0,5	0,5	0,9
Mittlere Überströmungsgeschwindigkeit in cm/s	2,1	6,5	30
Kontaktzeit der Luft über der Oberfläche in s	47	62	19
Flächenspezifische Belüftungsrate in m ³ /m ² h	10	7,6	30

Validation

- The three hoods were tested in a comparison test, on a wastewater treatment plant tank, where all samples were analysed by one lab
- Example wind tunnels were found to produce compatible results (not published yet, as far as I know)
- Other types of wind tunnels are allowed, as long as it is demonstrated that they produce comparable results

Additional issues

- The standard contains extensive information on how to estimate volume source emissions (buildings)
- The standard gives clear guidelines as to how much of an area source needs to be sampled to obtain a representative emission factor

Other developments

- There is a working group at AFNOR planning comparable comparisons with existing wind tunnels with the aim of drafting a standard.
- The national standards are likely to be the starting point for the revision of the clauses on sampling in EN13725

Knowledge gaps

- A validation of area sampling devices compared to open top atmospheric conditions, for low concentrations of volatile substances, is **STILL** lacking
- This type of experiment could also be invaluable in determining if a differentiated approach on wind speed corrected emission factors is relevant
- This is such an obvious PhD thesis subject!

And now back to
<http://www.stomponline.com/>

