

Sampling strategy:

EN689:1995 prEN689:2016

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European Directive 88/642/EEC Chemicals, physical and biological agents

This directive has given a big boost to
standardisation of workplace measurements
via CEN TC 137 (start October 1988)

WG 1: sampling strategy

WG 2: general requirements on methods
(e.g. EN 482)

WG 3: particulate matter (e.g. EN 481)

WG 4: terminology

EN 689:1995

measurement strategy

- Use of the word “compliance” was forbidden (!) (“conflict with regulation”)
- Participants with different agendas
- Systematic approach using annex of directive as a framework
- Two distinct phases: “first” assessment; periodic measurements

EN 689: 1995

Systematic approach

- Possible exposures: list of substances
- Workplace factors: sources, configuration of the workplace, processes, tasks/activities of workers, collective preventive measures
- Selection of workers for measurements
- Homogeneous exposure groups
- Stationary versus personal sampling
- Representative versus worst case measurements
- Conclusion
- Reporting: importance of contextual information

Annexes of EN 689:1995

- All annexes are informative
- Annex A: minimum of samples for a homogeneous working period
- Annex B: calculation of time weighted average
- Annex C: formal procedure to evaluate workers exposure within the occupational exposure assessment.
- Annex D: approach based on statistical principles

Annexes EN 689:1995

- Annex E: periodic measurements
- Annex F: selection of intervals between periodic measurements.
- Annex G: Statistical analysis of data: moving weight average; probability plot.

Fundamental remark

- Given a widespread reluctance towards workplace measurements the standard EN689:1995 was written with the focus on **efficiency. (reduction of number of measurements)**
- This approach can lead to a poor **efficacy**: obtain wrong conclusion: “working conditions are well controlled” (but in reality they are not!)

Reluctance towards measurements ?

- “Measurements are too expensive!”
- No expertise available
- “Measurements do not solve any problem”
- “What the eye does not see, the heart does not grieve over”. (report)
- Benefits for employers with measurements compared to employers with no measurements ? ($>$ $<$ accidents)
- Sanctions ?

Revision EN 689:1995

Start June 2013

Convenor: Raymond Vincent INRS

Secretariat: Florence Saillet AFNOR

Apart from ex-convenor, no “ancient warriors” from former CEN TC 137 WG 1

Context totally different than in 1988: existence of EN 689, no possible conflict with Directive (CAD very vague, not to say “wooly”) or with European Commission; knowledge and expertise on distribution of exposures has dramatically increased.

Inspiration first draft revision

- Existing EN 689
- BOHS-NVvA strategy
- French regulation

Important changes (main text)

- Screening test (5.5.2)
- Compliance test (5.5.3) with quantitative criteria (at least 70 % confidence whether less than 5 % of exposures in the SEG exceed the OELV). Test in Annex F.

Important changes (annexes)

- Simultaneous exposure to several chemical agents (Annex C)
- Exposure profile and sampling duration (Annex D):
replaces partly (reasonable) “worst case”
measurements.
- Setting the interval for periodic measurements (Annex I)

Some reflections

- The convenor, the secretary and the working group have prepared a nice piece of work which will be useful for the employers who want to demonstrate compliance with limit values using measurements .
- The 0,1 fraction of the OELV is an important decision factor in the procedure. With the lowering of the OELVs this required limit of quantification is sometimes ambitious even for one single substance.
- In most workplaces exposure occurs to more than one agent. While applying Annex C, how often an exposure below 0,1 OELV (for the mixture) will be achievable ?