

*The Revised European
Standard on Testing
Compliance with Occupational
Exposure Limits*

<https://db.tt/MXLY4wHo>

Members of CEN Working Group revising EN 689

Trevor Ogden – UK representative

Raymond Vincent - Chair

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Structure of the Workshop

Trevor Ogden

Background to the standard and relationship to legal requirements

Raymond Vincent

Structure and content of the standard; the compliance test

Discussion

Theo Scheffers

Technical problems and solutions

Discussion

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Exposure limits in the EU – what does the law say?

Chemical Agents Directive (1998), Article 6(5)

“where an occupational exposure limit value effectively established on the territory of a Member State has been exceeded, the employer shall immediately take steps, taking into account the nature of that limit, to remedy the situation by carrying out preventive and protective measures.”

It looks as if it's not actually an offence to exceed the limit, but as soon as the limit is exceeded, “the employer shall immediately take steps...”

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Exposure limits in the EU – what does the law say?

Carcinogens and Mutagens Directive (2004), Article 5(4)

“Exposure shall not exceed the limit value of a carcinogen as set out in Annex III.”

So it looks as if it *is* an offence to exceed a limit for carcinogens.

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Exposure limits in the UK – what does the law say?

COSHH Reg 7(7)

“ ...where there is exposure to a substance hazardous to health, control of that exposure shall only be treated as adequate if ... any workplace exposure limit approved for that substance is not exceeded”

So it looks as if it is an offence under COSHH to exceed a limit
(of course, that's not the only requirement for adequate control)

Guidance para 138:

“A WEL is the maximum concentration of an airborne substance averaged over a reference period to which employees may be exposed by inhalation”

European Law:

Chemical Agents Directive: as soon as the limit is exceeded, “the employer shall immediately take steps...”

Carcinogens Directive: it is an offence to exceed a limit

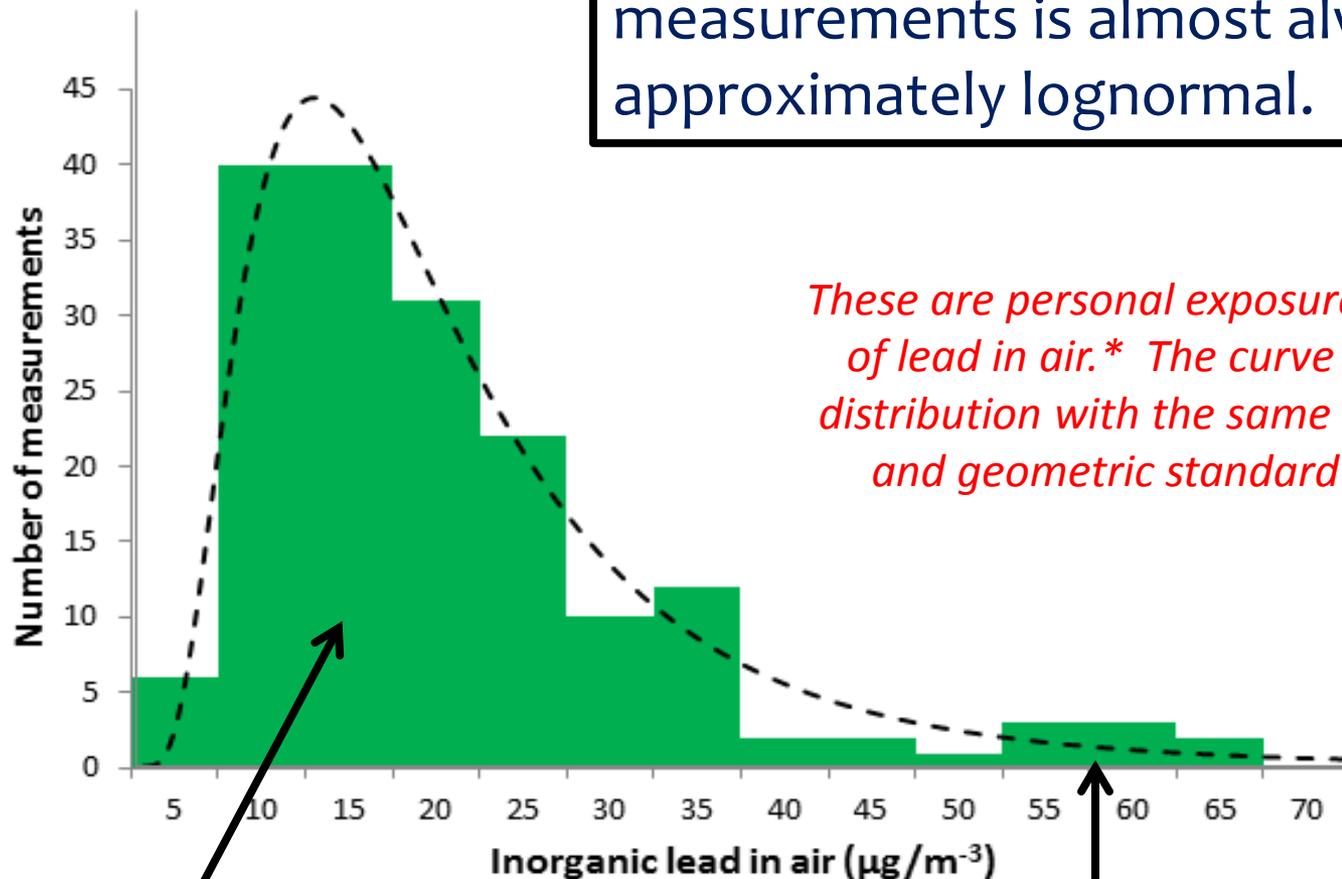
In Britain:

COSHH: it is an offence under COSHH to exceed a WEL

*Exposure averaged over the reference period of the exposure limit **must not be exceeded.** No ifs or buts.*

The problem:

The distribution of exposure measurements is almost always approximately lognormal.



These are personal exposure measurements of lead in air. The curve is the lognormal distribution with the same geometric mean and geometric standard deviation as the measurements.*

Most exposures will be in this region...

... but sometimes exposures are much higher

*Legally,
exposure
averaged
over the
reference
period of the
exposure
limit must
not be
exceeded.
No ifs or
buts.*

The employer needs guidance about how many measurements he or she should make before it can be safely assumed that the chance of exceeding the exposure limit is acceptably low.

This is what EN 689 aims to provide.

A European standard has no legal standing unless there is a law requiring its use – until then it is only guidance

Some past attempts at designing strategies

- 1977: Leidel et al, “Occupational Exposure Sampling Strategy Manual”, NIOSH.
- 1993: BOHS Technical Guide 11, “Sampling strategies for airborne contaminants in the workplace”
- 1995: European Standard EN689, “Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy”
- 2009: French Regulation “relatif aux contrôles techniques des valeurs limites d’exposition professionnelle sur les lieux de travail...”
- 2011: BOHS/NVvA guidance, “Testing compliance with occupational exposure limits for airborne substances”
- 2016: Draft revised EN 689: “Strategy for testing compliance with occupational exposure limit values”

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Measurement and COSHH

Reg 6(2) The employer must assess risk, considering “any relevant workplace exposure limit or similar occupational exposure limit”

ACoP para 60 The risk assessment should consider types and extent of exposure, including: an estimate of exposure...; a comparison between the estimate of exposure and any existing, valid standards which help to assess the adequacy of control, eg a WEL;

ACoP para 145 (for carcinogens, mutagens and asthmagens) “To comply with the requirements in regulation 7(7)(c), employers may have to carry out a programme of exposure monitoring in accordance with regulation 10, unless the risk assessment made under regulation 6 shows that the level of exposure is most unlikely ever to exceed the WEL.”

Measurement and COSHH

Reg 10. Monitoring exposure at the workplace.

“(1) Where the risk assessment indicates that – (a) it is requisite for ensuring the maintenance of adequate control of the exposure of employees to substances hazardous to health; or (b) it is otherwise requisite for protecting the health of employees, the employer shall ensure that the exposure of employees to substances hazardous to health is monitored in accordance with a suitable procedure

(2) Paragraph (1) shall not apply where the employer is able to demonstrate by another method of evaluation that the requirements of regulation 7(1) have been complied with.”

Measurement and COSHH

When monitoring is in appropriate

ACoP para 203

Monitoring is not appropriate ...if the employer is able to demonstrate that an alternative method of evaluation has been used to ensure that exposure is adequately controlled to comply with regulation 7.

An alternative method of evaluation may include:

- light-scattering techniques, smoke tubes, air velocity measurements;
- use of one or more ‘surrogate’ measurements to assess exposure to mixtures of substances;
- establishing whether the process is fully enclosed or is a continuous process under adequate control and any breaches of containment are monitored by fixed-site monitors with suitable warning devices.