



IFA

Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

The new “European OELV compliance testing standard using air exposure measurements”

Christian Schumacher

Institute for Occupational Safety and Health of the
German Social Accident Insurance (**IFA**)

25 jaar gezond en veilig werken

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History of IFA

1935 Foundation **Dust-Combating Agency** in **Berlin**

1948 Rebuilding of the **Dust Research Agency** in **Bonn**



1980 German Social Accident Insurance Institution for trade & industry (BG) institute for occupational safety“ (**BIA**) in **Sankt Augustin**

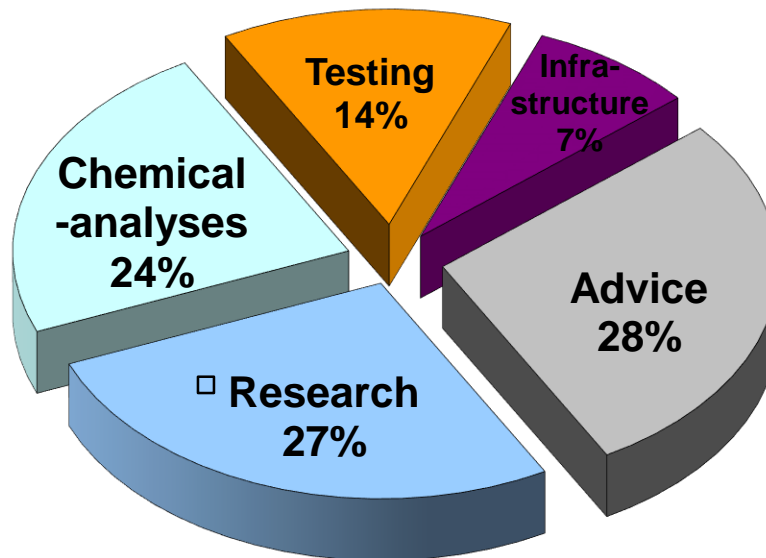
2003 Reorganisation BG-Institute for occupational safety and health (**BGIA**)

2007 Institute for Occupational Safety & Health (BGIA) of the German Social Accident Insurance (DGUV)

2010 Change of abbreviation from BGIA to **IFA**

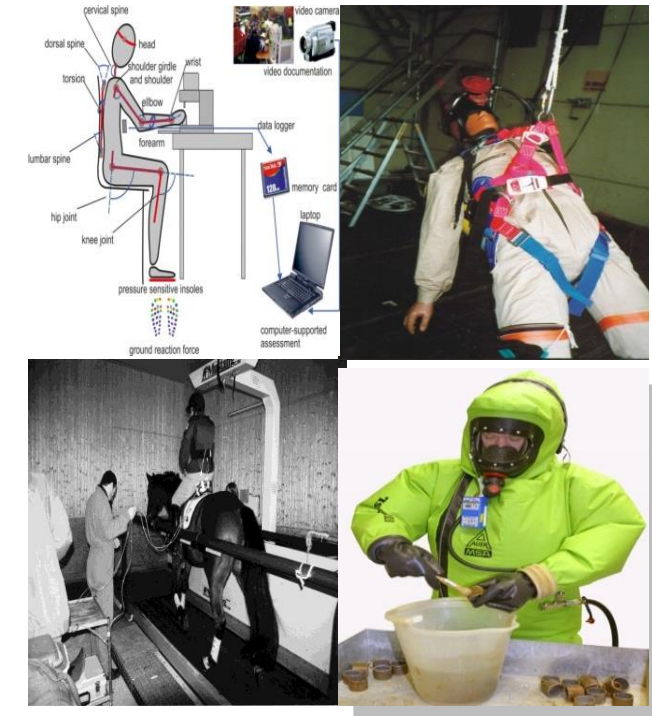


IFA-Mission



Applied research:

- 25 % in the field of accident prevention
- 75 % in the field of occupational diseases and work-related health risks



Topics

- Periodic measurements

- 689 1995

- General,
 - Figure 1,
 - Chapter 6,
 - Annex E & F

- 689 new draft

- General,
 - Figure 1,
 - Chapter 7,
 - Annex I



- Occupational exposure limit values (OELV) for compliance testing

Periodic measurements – 689 1995

- Periodic measurements to check if exposure conditions have changed
- Can be skipped when exposure is **well below the occupational exposure limit value** (OELV) and likely to remain so, indicated by
 - ‘Initial **appraisal**’ or
 - ‘Basic **survey**’ = can either be non-measuring methods
 - ‘**Category (b)**’ exposure

Periodic measurements – 689 1995

- Criteria for whether or not to carry out periodic measurements laid down in **technical guidelines** issued by the **responsible authorities**
- Intervals usually between ‘less than a week’ to ‘more than a year’
- Scope and frequency for future periodic measurements as a result of the initial (detailed) occupational exposure **assessment** of 689
 - Usually after basic survey
 - Scheme 1 suggest it after **detailed survey**
 - Sampling strategy used may not be the same than for the detailed survey ...

Periodic measurements – 689 1995

- To set the interval following factors should be considered:
 - Process cycles, including when normal working conditions occur
 - Consequences of control failure
 - Closeness to the limit value
 - Effectiveness of process controls
 - Time required to re-establish control
 - The temporal variability of the results

Periodic measurements – 689 1995

- Annex E alludes to specific legislation that has to be considered
 - = responsible authorities
- Annex F gives an example with 3 intervals with respect to the arithmetic mean of the recorded exposure measurements (occupational exposure concentration)
 - 64 weeks if the concentration (AM) < 0.25 of the limit value
 - 32 weeks if AM > 0.25 but < 0.5 of the limit value
 - 16 weeks if AM > 0.5 of the limit value but does not exceed the limit value

Periodic measurements – 689 new draft

- Periodic **reassessment** if conditions changed and
 - a new basic characterization or
 - new measurement/s is/are needed
- Even if exposure is **well below the OEL** or risk managing measures seems to be effective reassessment should be done periodically
 - in general once per year with
 - non-measuring methods (Annex A) or
 - exposure measurements according to the *strategy for testing compliance with occupational exposure limit values* (Annex I)

Periodic measurements – 689 new draft

- Annex I suggests three possible approaches to decide on the intervals between campaigns of periodic measurements
 - If the **screening test shows** compliance, no interval is suggested
=> yearly until 6 measurements per SEG are reached
 - When 6 or more measurements are recorded the geometric mean (GM) can be used to set intervals between 12 and 36 months
 - Formula of Annex F can be adopted and used to set an interval between 24 and 26 months

$$U_R = \left| \frac{\ln(j \times OELV) - \ln(GM)}{\ln(GSD)} \right|$$

Discussion

- Clear wording between and within the old and the new 689?
 - Occupational exposure assessment
 - Initial appraisal vs. initial survey
 - Basic survey vs. basic characterization
 - Detailed survey vs. screening test & statistical test
 - Periodic measurements vs. periodic reassessment
- Measurements needed for compliance testing and reassessment?
 - Chapter 7: reassessment can be done with other methods than exposure measurements – but at least 3 measurements??!
 - Annex I: at least 6 measurements?

Definition & setting of OELV

- Definition OELV in EN 1540
 - Limit of the **time-weighted average**
 - of the **concentration** of a **chemical agent** in the air
 - within the **breathing zone** of a **worker**
 - in relation to a specified **reference period**, ...
 - usually 8 h for long term & 15 min for short term measurements
- OELV can be everything;
 - Must not be legally binding
 - Must not set health-based
- See NL “publieke vs. private grenswaarden”, but also other countries!

OELV for compliance testing in 689

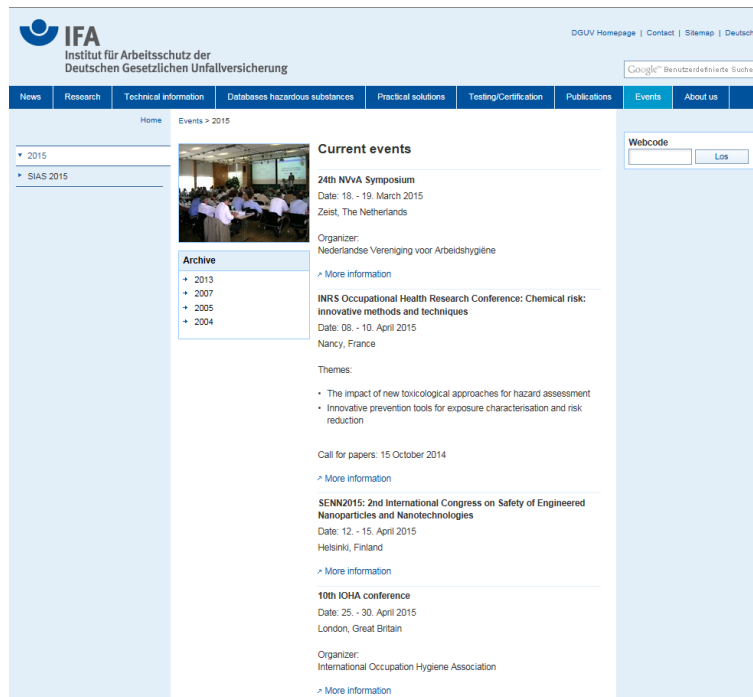
- Depending on the goal of the assessment, an appraiser can determine which of the following OELV shall be used to test compliance:
 - Legal occupational exposure limits
 - Recommendation of scientific committees
 - Exposure limit value provided by a supplier
 - Technical derived limit value or risk-based value or concentration
 - Exposure index
 - Action value
 - In-house limit value.

OELV for compliance testing in 689

- Legally binding OELV like european binding and indicative occupational exposure limit value and national OELV
 - often deduced from one of the other types of OELV, e.g. recommendation of scientific committees
- Recommendations of scientific committees are often health-based
- Exposure limit value provided by a supplier often product specific – can consist of DNELs or DMELs
- Action levels and in-house limit values can consist of any type of the before mentioned types of OELV as well as compute by an expert of the company itself, e.g. as kick-off value

Vielen Dank für Ihre Aufmerksamkeit

www.dguv.de/ifa



Questions

- Kunnen ook in het Nederlands
- Maar dan;
 - kort en krachtig a.u.b.
 - geeft u tijd voor het antwoord
- Immers;
 - ik moet ze nog vertalen 😊