



**IFA**

Institut für Arbeitsschutz der  
Deutschen Gesetzlichen Unfallversicherung

# **Are national binding occupational exposure limit values comparable?**

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**Op de bres voor Arbeidshygiëne**

NVvA Symposium 2015, Zeist

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# Topics – so much to do in such short time ...

Focus on airborne substances & measuring of inhalation exposure

- Issue: **Finding the right OELV**
- Definition & setting of OELV
  - Casus NL
- Comparison of binding OELV in EU
  - Casus health-based
- Issue: **Compliance testing**
- Focus on the target
  - Focus on the target, focus on the target, ...



# History of IFA

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

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

1953 Inauguration of the new **Dust Research Institute** (STF)

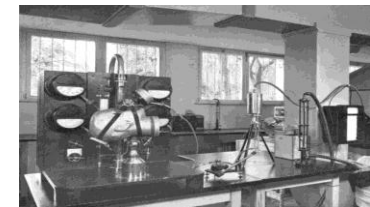
1975/76 Amalgamation STF + noise-combating- + silicosis research institute

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

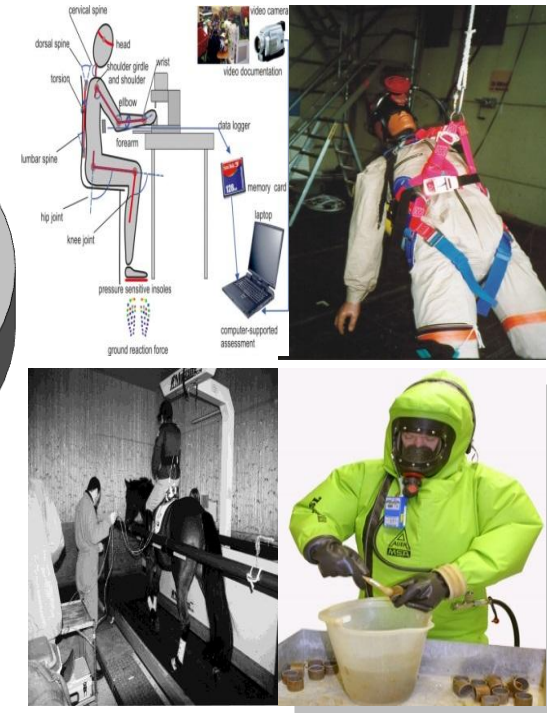
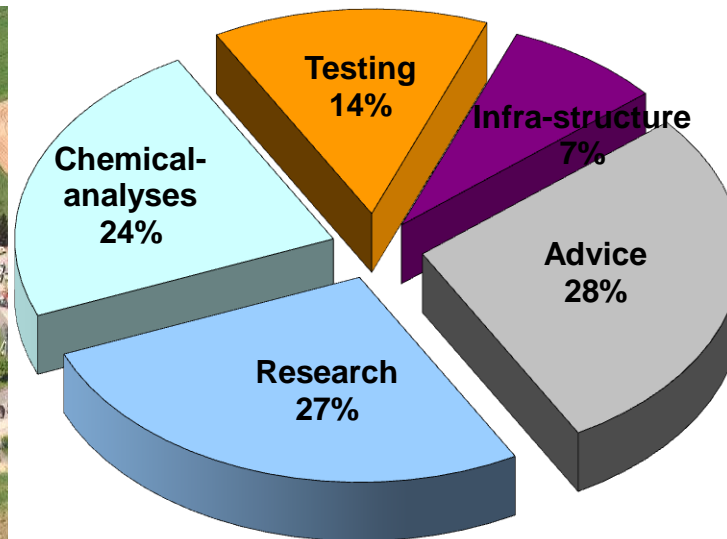
2003 Reorganisation BG-Institute for occupational safety and health (**BGIA**)

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

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



# IFA-Mission (2013)



Applied research:

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

## Find the right OELV

- Compliance testing on basis of measurements & „legal requirement“
  - You need: Substance + OELV + measurement result
  - You conclude: Exposure comply with OELV or not
- No legally binding OELV?
  - No problem; make it „private“
  - Look for health-based OELV or international OELV
- But - are occupational exposure limit values comparable?
  - No!
- *And now ...???*

## 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!

## Comparison of binding OELV in EU

- Casus: you want to find a health-based OELV
  - Legally binding OELV not only in NL not always health-based
  - Even health-based OELV of scientific committees can differ
- In Austria
  - Health-based or technical-derived
- In France
  - Health-based, then feasibility, then politics
- In Germany
  - Health-based or risk-based then feasibility, then politics

# Compliance testing

- *However*, OELV is not the problem
- Compliance
  - Fulfilment of specified requirements
- Depending on the goal of the assessment (=requirements) an industrial hygienist use certain justification in their compliance testing, e.g.
  - Legally binding OELV
  - Recommendation of scientific committees
  - Limit values provided by
  - Technical derived or risk based numerical criteria





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# **PDC - Testing Compliance with Occupational Exposure Limits for Airborne Substances**

**e.g.**

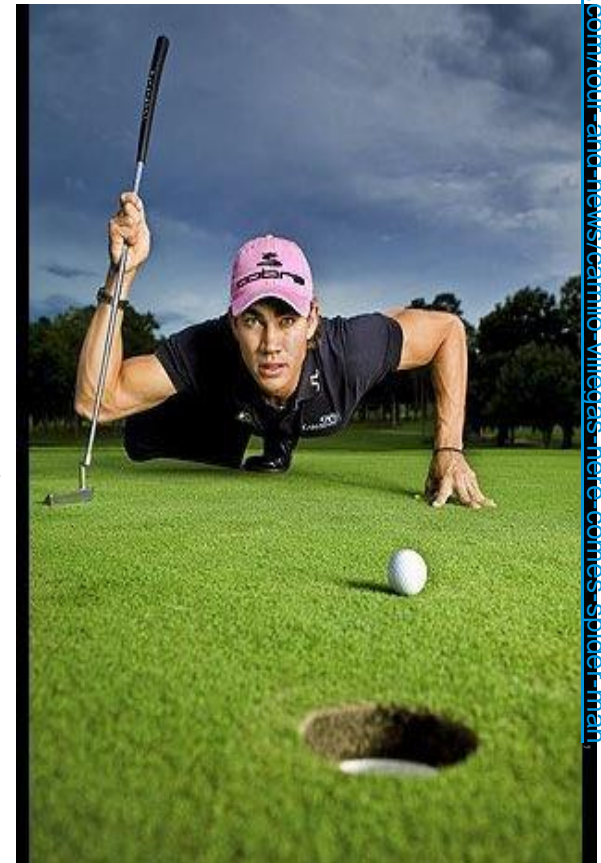
**Find and choose the right limit value out of  
different numerical criteria**

**IOHA 2015, London**

**25 - 30 April 2015**

# Focus on the target, not the ball

- Legal occupational exposure limit values
  - BOELV, National OELV, Indicative OELV
- Recommendation of scientific committees
- OELV provided by suppliers
- Technical derived OELV or risk concentrations
- Risk-based OELV
  - Acceptable or tolerable risk concentration
  - Technical risk concentration
- Action or in-house limit value



<http://www.golf.com/tour-and-news/carnillo-villegas-here-comes-spider-man>  
by Brian Smith

## So no problems left?

- Substance + OELV + measurement result
  - What measurement strategy to use?
- Focus on the target – remember???
- NVvA/BOHS guideline -> EN 689 -> please include EU-wide examples for „targets“
- Germany
  - Arbocatalogues = 72 measurements per substance!!!
- France
  - Legally binding OELV = 9 measurements per substance

## So ... what can the occupational hygienist do?

- Focus on the target
  - Target: Legal compliance vs. health at the workplace
- Legal compliance
  - Public OEL, BOHS/NVvA measuring strategy
- Health at the workplace
  - Qualification of the observer: *enough expertise?*
  - Basic information of the workplace: *enough information?*
  - Quality of measuring & analytic system: *metric/numbers correct?*
  - ...

## At the end their is ... the expert

- In Germany a German Social Accident Insurance Institution may take the responsibility for the employer
  - Focus on the efficiency of the control measures set & used!
- Target: efficiency of the risk measurement measures
  - Expert judgement
- Not scientific?
  - Qual. of observer, measuring, analysis, etc. ... remember???
  - Bayesian statistics



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# **PDC Bayesian Statistics: Overview & Practical Applications in Exposure Assessment Data Interpretation**

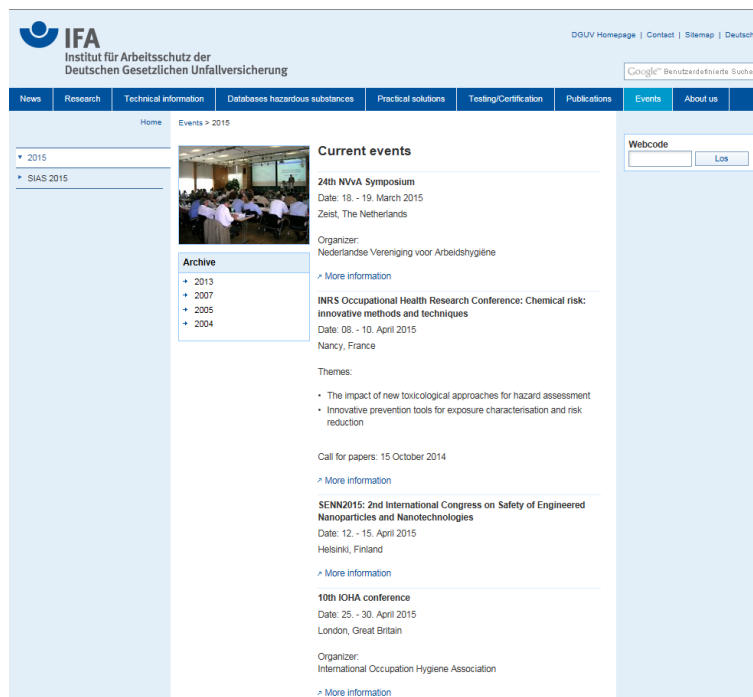
**See you in London?**

**IOHA 2015, London**

**25 - 30 April 2015**

# 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 .... 😊