

VdL-Guidance: Nanotechnology

**SSDCCI Working Group
Health & Safety and Responsible Care**

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Verband der deutschen Lack- und
Druckfarbenindustrie e.V. (VdL) –
the German Paint and Printing Ink Association ¹

Nanotechnology Brüssel-Oktober-2010/vortr.präs.



Paint Industry in Germany



- **Production: 2 million tons of paints and coatings (5.3% of global output)**
- **Sales: 5 billion euros / annum**
- **230 paint factories in Germany (130 have fewer than 20 staff)**
- **Total workforce: 20,000**

Economic Potential of Nanotechnology



- **Growing importance of nanotechnology in the paint industry – strong interest, also among small and mid-sized enterprises (SMEs)**
- **Already now, 40% of paint manufacturers in Germany are engaged in nanotechnology**
- **Outlook: in 2020 some 20% of sales will be based on real nanotechnology applications in "Smart Coatings"**

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Nanoproducts in the Market



- **Easy-to-clean paints**
- **Effect paints**
- **Antibacterial paints**
- **Scratch-resistant paints**
- **Photocatalytic paints**
- **Clear coatings with improved UV protection**
- **Wall paints as screens against electromagnetic radiation**

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Chances ← → Risks



What happens with nanoparticles when paints

- are under stress in private households?
- undergo grinding?
- undergo aging?
- are sprayed?

→ VdL-Study on the release of nanoparticles from the paint matrix

VdL-Nanostudy



Modules

- Stress in private households
- Grinding
- Aging, followed by grinding (currently being carried out)
- Spraying (planned)
- Weathering (planned)

Coatings used in the study

- Parquet coating (UV system)
- Furniture coating (2K PU system)
- Decorative paint for outdoor use (water-based acrylate system)

Added nanoparticles

- ZnO

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VdL-Nanostudy

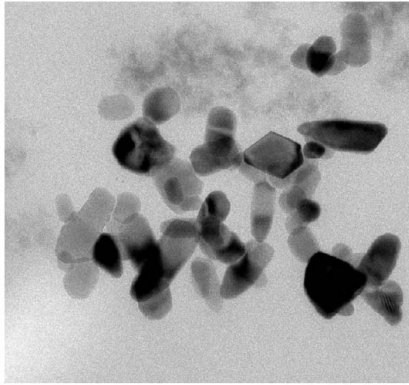


Conclusions:

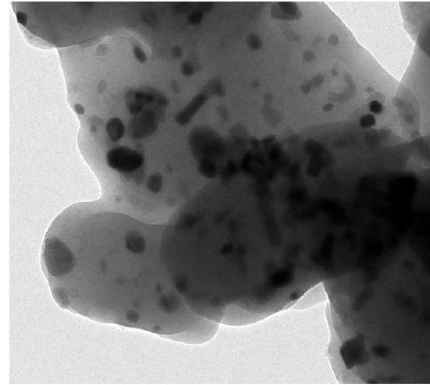
- Release of nanoparticles – no difference between release from "conventional" coatings and "nano"-coatings
- Number of released nanoparticles
 - at detection limit (1st module)
 - low, as compared with a road with much traffic (2nd module)
- Added nanoparticles are bound in the matrix
- Nothing points to risks

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VdL-Nanostudy



nanoparticles (20nm zinc oxide)



abrasive wear with embedded nanoparticles (20nm zinc oxide)

Occupational Health and Safety



- Relevant legal provisions on safety at the workplace
- Guidance documents by the VCI (German Chemical Industry Association)
- Specific VdL-Guidance for paint production - based on the principles of the NanoDialog of the German federal government
- Given the current state of knowledge and based on findings from the VdL-Study, there is no need for specific guidance for paint processing

VdL-Guidance



- **For the Handling of Nano-Objects at the Workplace;**
based on the principles of the NanoDialog of the German federal government

Contents:

- **Definitions**
- **The importance of nanotechnology to the paint industry**
- **Nano-objects in the paint and printing ink industry**
- **Occupational health and safety**
- **Use**
- **Disposal**

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VdL-Guidance / Occupational Health and Safety



- **Potential uptake routes: skin, gullet, lungs/inhalation**
- **Use of raw material preparations (pastes, dispersions)**
- **A wide range of experiences with dusty goods**
 - **Ventilation**
 - **Respiratory protective filters**

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- **No occupational diseases**
- **Employers' liability insurance associations measured data at workplaces in the automobile industry → no burden**
- **No risk to workers**



Available on the internet at

<http://www.lackindustrie.de>

in German and English language !

VdL-Guidance



- **The paint industry manufactures products which are technically safe and pose no risk to human health and the environment when used as intended.**
- **The safe handling of products comprises their manufacture – stretching from delivery and warehousing of raw materials to production, storage and distribution of paints and printing inks, their use by processors and the disposal of unavoidable wastes.**
- **Based on the results of existing studies of nano-paints, nothing points to specific risks to the health of workers and consumers or to the environment.**