

Interactive meeting on TiO₂ safety and suggested mandatory parameters for consideration of reliability of toxicological studies.

Organized by:

- Czech Association of Applied Photocatalysis
- Association of Chemical Industry of the Czech Republic
- Czech Association of Nanotechnology Industry

Date:

21 February 2018 from 9:30 – 17:00

Location:

Conference hall at the J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic (<http://www.jh-inst.cas.cz>), Prague, Czech Republic

Main goal of the meeting:

- Exchange opinions on evaluation system of inert compounds, TiO₂ safety the CLH Proposal to classify titanium dioxide as a potential carcinogen 2.
- Formulate suggestions and criteria for the evaluation process used by ECHA/RAC and parameters for potential revision of the classification procedure, which would be more objective, robust and less vulnerable to manipulations and abuse.

The meeting is organized mainly for government, legislative and environmental agencies and toxicologists and key downstream users of TiO₂ (Attendees by invitation only).

Official language:

English, Czech

Confirm your attendance at:

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cc

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Program:

9.00 registration – morning coffee

9.20-9.30 Opening remarks

9.30-10.30

Prof. Harald F Krug



*Empa, International Research Cooperations Manager
NanoCASE GmbH St. Gallen, Switzerland*

Is nanoTitania an example for “nano-panicking”? Why we do not follow the rules of Toxicology!

10.30-11.30

Jan Prochazka, Ph.D.



*Czech Association of Applied Photocatalysis
Board member*

TiO₂ safety and CAAP criteria for evaluation of scientific studies.

Environmental markets of TiO₂ vs chemical agents

11.30-12.10

Dr. David B. Warheit,



*The Chemours Company, USA
Technical Fellow, Toxicology and Risk Assessment,*

What are the Toxicological impacts of Surface Treatments/Surface Coatings and particle size on Titanium Dioxide Particle - induced effects? – A Review of In Vivo Toxicity Studies.

12.10-13.30 Lunch break



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13.30-14.15

Dr. Rodger Battersby

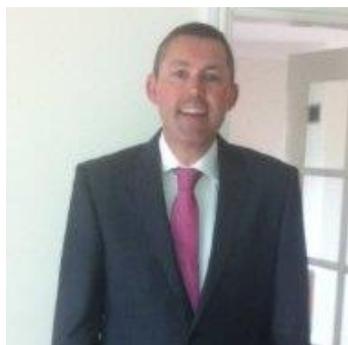


*EBRC Consulting GmbH, Hannover, Germany
(toxicology expert in TDMA)*

TiO₂ safety case study

14.15-15.00

Dr. David Lockley



*Venator Materials Plc
Product Defence and Toxicology Manager, Global
Product EHS*

Industry experience and position to
TiO₂ classification efforts.

15.00-15.45

Prof. Damjana Drobne



*University of Ljubljana
Head of the Research group for Nanobiology and
Nanotoxicology at Biotechnical Faculty*

*(In charge of the Slovenian arguments submitted to
CARACAL)*

Slovenian arguments against CLP and
recommendations for other types of
legislations not CLP. Short summary
on TiO₂ toxicity.

15.45-16.00 Coffee break

16.00-17.00 Panel discussions, formulations of points and suggestions for the CARACAL meeting in March/ final remarks/ adjourn

Is nanoTitania an example for “nano-panicking”? Why we do not follow the rules of Toxicology!

Harald F. Krug

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Retired International Research Cooperation Manager, Empa - Swiss Federal Laboratories for Materials Science and Technology, CH-9014 St. Gallen, Switzerland and Prof. em. of the University of Berne

Use and production of chemicals and new materials are always reasons of concern especially with regard to human health and the environmental impact. Over the past decades occupational safety is more and more in the focus of toxicologists and of national and international registration programs for new products. Thus, the careful investigation of the biological effects of new chemicals and materials goes without saying. However, the hype around “The Nanotechnology” has boosted a competition for public funds and thereby the number of publications on the topic “nanotoxicology” exploded^{1,2}. Since more than two decades the public discussion around the special effects of nanomaterials or nanoparticles is ongoing without a final conclusion about an existing “nano-effect”. Facing the situation of a dramatic increase in the number of publications (4340 in 2017) the quality of the results is questionable with regard to the risk assessment for nanomaterials^{1,3}.

Most of the published studies contain severe weaknesses such as missing controls, no well characterized materials or they show high-dose-experiments only to observe an effect which is publishable. Altogether this ends up in the situation that we cannot use all published data without its critical evaluation⁴ which is done for example for the internet knowledge base DaNa (www.nanoobjects.info)⁵. On this website we publish a criteria catalogue for the re-evaluation of publications and if these criteria are used, far more than 60 to 70 % of the publications cannot be taken into consideration for risk assessment.

The question is, why is ECHA using such data for the decision of its RAC coming to the result to shift TiO₂ particles (micro or nano) to the category 2 “causing cancer through the inhalation route”? The fundamental information on which this categorization is based on comes from relatively old animal studies (1985 and 1995). These have been carried out with relatively high concentrations and with less knowledge about the effects of granular biopersistent dust particles (GBP). Within this contribution the RAC decision will be critically discussed in the light of such knowledge, further evaluation of several hundreds of studies with TiO₂ particles and the rules established by ECHA itself which have been defined for a RAC process.

References

1. H.F. Krug, *Angew Chem Int Ed* **53**, 12304 (2014)
2. H.F. Krug, *K. Nau CBEN* **4**:331-338 (2017)
3. D.R. Hristozov, S. Gottardo, A. Critto, and A. Marcomini, *Nanotoxicology* **6**, 880 (2012).
4. H.F. Krug and P. Wick, *Angew Chem Int Ed* **50**, 1260 (2011).
<http://www.nanoobjects.info/en/nanoinfo/materials/titanium-dioxide/material-information>