

BfR Symposium 1. International Conference on Tattoo Safety

II Toxicology

Thomas Platzek

Toxicology of tattoos, topics of interest

Hazardous substances

- Azo colorants (also source of aromatic amines)
- Aromatic amines (as contaminants or cleavage product)
- Metals (as part of pigment or as contamination)
- Polycyclic aromatic hydrocarbons (PAH, contamination in black ink)
- Nitrosamines
- Potentially harmful preservatives (phenol, formaldehyde etc.)
- Solvents (CMR substances, e.g. phthalates)

Hazards to be assessed

- Mutagenicity / carcinogenicity ----- local and systemic
- skin toxicity and phototoxicity
- allergy

Nota bene: a safe cosmetic preservative might not be safe in tattoos

Toxicology of tattoos, topics of interest

Exposure assessment

- Determination of contaminants
- Metabolism
- Photolyse (UV and laser)
- Long term (life long) exposure !

Toxicokinetics

- Available data mainly for dermal and oral exposure, only few studies for intradermal application
- Target organs skin, lymph nodes, ...?
- Nanomaterials

Toxicology of tattoos, topics of interest

Due to the nano-dimensions, and altered uptake and biokinetics, some nanomaterials may pose a risk to the consumer because of the ability of insoluble or partially soluble particles to penetrate biological membrane barriers and reach those parts of the body that are otherwise protected from (larger) particles.

SCCS/1484/12 Guidance on the Safety Assessment of Nanomaterials in Cosmetics. Scientific Committee on Consumer Safety (SCCS)

The SCCS adopted this opinion at its 15th plenary meeting of 26 – 27 June 2012

Actions needed

Research

- Kinetics
- Epidemiology of tattoo-related skin diseases

Requirements for EU regulation on tattoos

- Safety assessment of ingredients
- Safety assessment of products
- Labelling, notification
- Positive lists for selected ingredients (pigments, preservatives, ...)
- Market surveillance

➡ Aim: safe products by specific harmonised regulation

Risk communication

the consumer should know

The speakers - Prof. Jørgen Serup

Title: Allergies and Tattoing

Prof. Dr. Jørgen Serup, Bispebjerg University Hospital,
dermatologist, chief physician
Department of Dermatology , the “Tattoo Clinic”, Copenhagen,
Denmark

e.g. beach study photosensitivity of tattoos

Congress Chairman European Congress on Tattoo and
Pigment Research November 13 -14, 2013
Copenhagen □ Denmark

The speakers – Dr. Nicolas Kluger

Title: Tattoos, Inks and Cancer

French dermatologist in Helsinki, Finland
University of Helsinki and Helsinki University Hospital

Review

Kluger N, Koljonen V (2012). Tattoos, inks, and cancer. Lancet Oncology. 13: e161-e168.

The number of skin cancers arising in tattoos is seemingly low, and this association has to be considered thus far as coincidental.

The speakers – Dr. Paul C. Howard

Title:

Toxicity & Phototoxicity of Tattoo Inks and Associated Materials

Director, Office of Scientific Coordination

National Center for Toxicological Research

U.S. Food & Drug Administration (FDA), Jefferson, Arkansas

Expert in nanotoxicology

Basic paper on kinetics *in vivo*:

Engel E, Vasold R, Santarelli F, Maisch T, Gopee NV, **Howard PC**, Landthaler M, Bäuml W (2009). Tattooing of skin results in transportation and light-induced decomposition of tattoo pigments - a first quantification in vivo using a mouse model. *Experimental Dermatology*. 19: 54-60.

The speakers – Dr. Wera Teubner

Title: General Toxicity of Pigments

Regulatory Toxicologist at BASF

REACH and global chemical regulations, risk assessment

In vitro test for skin sensitisation

Group of Prof. Dr. Hans-Rudolf Glatt

Department - Nutritional Toxicology

German Institute of Human Nutrition (DIfE)



Risiken erkennen – Gesundheit schützen

Thank you for your attention

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