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Mineral Oils in Printing Inks

MOCRINIS Workshop
Bologna

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Mineral Oils in Printing Inks

What is EuPIA?

- European Printing Ink Association
- Founded in 2003
- Operates under the umbrella of CEPE, the European Council of the Paint, Printing Ink and Artists´ Colours Industry
- Represents > 80 manufacturers of printing inks and varnishes in > 160 manufacturing sites
- Represents > 95% of ink sales in Europe
- Employs ~ 12,000 people
- Membership: Every member of a National Association representing the printing ink industry is automatically a member of EuPIA (dual membership principle)

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Use and Demand

- **Mineral Oils are typical raw materials for nearly all types of offset inks (solvent for resins used as binder)**
- **Mineral Oil consumption in printing inks (Europe 2012)*:**
  150 000 ton = 0,3 kg/capita, year
- **Mineral Oil transfer from ink to recycled paper:**
  77 000 ton (theoretical value for 100 % paper recycling)
- **For comparison: total crude oil consumption (Europe 2012)*:**
  720 000 000 ton = 1,4 ton/capita, year
- **Mineral Oil consumption - Share for use in printing inks:**
  0,02 % = 200 ppm

***estimation on the base of statistics from EuPIA and IEA (International Energy Agency)

Mineral Oils in Printing Inks

Selection Criteria for the Ink Industry

- **Viscosity**
- **Boiling range**
- **Solvent power**
- **Colour**
- **Smell**
- **Costs**
- **Compliancy to EuPIA Exclusion list = not toxic, no cmr..**

⇒Physical performance and safe classification are more important than precise chemical composition

Mineral Oils in Printing Inks

Evaluation and Classification

- According to chemical legislation (REACH/CLP). Content of polycyclic aromatic hydrocarbons is relevant (IP 346, DMSO-Extrakt, Grimmer methode)
- Evaluation as mixture, UVCB: substance of Unknown or Variable Composition
- Intended use: coatings and inks
- Normal offset inks are not classified and safe for the intended use
- German BG ETEM: no indication for occupational diseases due to mineral oil in printing inks

Mineral Oils in Printing Inks

Mineral Oil free Offset Inks

- Mineral oils free offset inks are feasible – print shops have to decide about the use.
- Need for technical adaption and a cost increase has to be considered
- Common replacements are vegetable oils and fatty acid alkyls esters
- Ink formulas have to be adjusted
- Mineral oil free sheetfed offset inks for food packaging (low migration) and other applications are state of the art (since years)

Mineral Oils in Printing Inks

Needs of the Printing Ink Industry

- **Request: mineral oil free inks**
- **Clear definitions for mineral oil/hydrocarbons**
- **Denomination of mineral oil classes of components: aliphatic, naphthenic, aromatic - MOSH, MOAH - PAH**
- **What about synthetic hydrocarbons (gas to liquid, biomass to liquid)? Are these to be regarded as mineral oils?**

- **Request: inks suitable for food packaging**
- **Clear classifications for mineral oil/hydrocarbons**
- **clear limits for transfer to food**