Printing ink industry contribution to the paper, paper converting and food industry initiatives to reduce mineral oil in paper and board packaging

Monitoring in Europe of packaging and foods has identified mineral oil contamination in a range of packaged foods. Mineral oils are widely used, and end up in foodstuffs by various routes which are being explored.

Food packaging has been identified as one source of the contamination in the foodstuffs. For instance, mineral oil can migrate from recycled paper and board, and from mineral oil-based print on the non-food contact side of packaging.

Several bodies, including the German Federal Ministry of Food and Agriculture (BMEL) have insisted that the food packaging chain takes measures such that levels of mineral oil in foodstuffs are reduced. Additionally, the BMEL is preparing legislation aimed at restricting mineral oil in food contact materials made from recycled paper and board.

In this respect, the European trade associations representing the paper industry (CEPI) and the paper converting industries (CITPA) have recommended to their members to only use mineral oil-free printing inks on paper and board packaging. Additionally, the German Federation for Food Law and Food Science (BLL) has recommended to the food industry the use of specific printing inks:

- **for food packaging**: printing ink systems, which have been optimized for migration
- **for all other packaging**: mineral oil free printing inks

To enable printers and convertors to meet their respective industry associations' commitment, EuPIA identifies the following packaging ink options:

- **Sheetfed offset printing**
  Both types of offset inks mentioned below are formulated without mineral oils[1] and are usually based on vegetable oils, vegetable oil esters or, in case of UV curable sheetfed inks, are based on synthetic reactive diluents and resins.

[1] For the purposes of this initiative, EuPIA defines mineral oil as follows: Mineral oils are liquids produced by refining of crude oil. They consist of complex mixtures of hydrocarbon molecules of different size (10 to 30 carbon atoms) in which the carbon chains are linear, branched and/or cyclic. Types of mineral oils may be characterised by their content of paraffinic, naphthenic and/or aromatic structures. Mineral oils classified as carcinogenic are not used by EuPIA members in accordance with the EuPIA Exclusion Policy.

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- **Low migration inks for food packaging**
  These inks are manufactured according to GMP and are optimized not only with regard to the lowest possible content of mineral oil, but also any unevaluated migratory substances. As raw materials are specially selected, the levels of trace impurities are significantly lower compared with standard inks.
  For more information, please consult the EuPIA customer information note regarding the use of sheetfed offset inks and varnishes for the manufacture of food packaging (www.eupia.org).

- **Conventional printing inks formulated without mineral oil for all other packaging**
  Generally the content of mineral oils originating from the raw materials is no more than 1%.

- **Flexographic printing**

  - Flexographic inks for paper and board are usually water based or UV curable, and are therefore free of mineral oils.
  - For food packaging applications, specially formulated flexographic inks are recommended.

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