

EuPIA statement on the use of mineral oils in offset inks

Monitoring in Europe of packaging and foods has identified mineral oil¹ contamination in a range of packaged foods. Mineral oils are widely used and can end up in foodstuffs by various routes. Migration from recycled paper and board used for food packaging is one of them. Since the first findings the industry has gained a comprehensive understanding of the different sources of mineral oil contamination. Many measures for the reduction of the transfer and occurrence of undesired mineral oils that have already been taken show objectively measurable success. The contribution of the printing ink industry to reduce mineral oil in paper and board packaging is detailed in the EuPIA information on this topic.²

This document is focused on the use of mineral oils in publication web offset inks (heatset and coldset) as well as some conventional sheetfed inks for commercial printing. Heatset, coldset and sheetfed inks are formulated with mineral oils. It has to be stressed, however, that in line with the EuPIA Exclusion Policy only refined mineral oils are used, which fulfil the IP346 test and are non-carcinogenic.³

In the case of **heatset** the oils are evaporated during the drying process and used to fuel the dryers and only residues remain in the paper. Vegetable-based oils or vegetable-based solvents are generally not suitable, as their high boiling point does not allow an efficient evaporation. Therefore, no broadly applicable mineral oil-free heatset ink is currently available on the market. However, inks with a reduced content of aromatic hydrocarbons are available.

Coldset inks dry by absorption of the mineral oils into the underlying paper. Two publicly-funded projects in Germany and France are currently investigating the potential use of mineral oil-free coldset inks. EuPIA members are heavily contributing to both projects. Within these projects significant progress has been achieved, but they have not yet resulted in a broadly applicable and marketable set of mineral oil-free coldset inks.

It has to be noted that both statements refer not just to Europe but to the global situation. Nevertheless, it is often stated that mineral-oil free inks are currently available in other countries or have been available in the past. This is often due to confusion with other printing techniques, such as sheetfed offset or due to ecolabel schemes which demand that inks contain a certain amount of vegetable-based oils, without being mineral oil-free. In order to clarify this, the situation in some other countries is detailed below.

¹ Mineral oils are petroleum derived substances, produced by refining crude oils.

² [Printing ink industry contribution to the paper, paper converting and food industry initiatives to reduce mineral oil in paper and board packaging](#), EuPIA 2018

³ [Mineral oils are safe for human health?](#), CONCAWE 2017

USA

In the USA there is the "Soy Ink Seal", which was founded about 30 years ago by the American Soybean Association. In order to obtain the Soy Ink Seal, the printing inks must contain a certain amount of soy oil, which varies depending on the printing process.

For heatset inks, the prescribed proportion is 7%, for newspaper inks 40% for black and 30% for coloured inks (see <https://soygrowers.com/news-media/soy-ink-seal/>). Beyond this, however, there are no exclusion criteria for other recipe components. The inks therefore always contain other solvents and also mineral oil in order to guarantee a certain process capability. The inks marked with the Soy Ink Seal were and are thus not free of mineral oil.

Japan

Japan has the "Vegetable Mark". Similar to the situation in the US, this scheme means that a certain percentage of vegetable oils have to be formulated into the ink but the ink can still contain mineral oil.

Heatset: more than 7% vegetable oil

Coldset: more than 30% vegetable oil

In addition, Japan has the "ECO Mark" which means that the ink needs to be formulated with solvents with low aromatic content (<1%) and their overall content is also limited.

Heatset: less than 45% distillate

Coldset: less than 30% distillate

Therefore, solvents with low aromatic content have to be used for inks that meet the requirements of both labels, "Vegetable" and "ECO" mark. However, the inks are not free of mineral oils.

Belgium

It is often stated that the company Trenal offered mineral oil-free inks in Belgium in the late 90s. The company Trenal was taken over by Akzo Nobel Inks in 2003, which has meanwhile become a part of Flint CPS inks. At that time, Trenal had sold newspaper inks that contained an increased amount of soybean oil, but there were no mineral oil-free inks in the portfolio and there is no indication that Trenal had sold mineral oil-free inks before.

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