

Information Leaflet Mineral-oil-free Sheet-fed Offset Printing Inks

The companies of the **hubergroup** offer mineral-oil-free offset printing inks for all packaging and publication printing applications.

In **hubergroup** mineral-oil-free printing inks, mineral oils are not intentionally used or added as ingredients. The total content of mineral oil hydrocarbons (MOSH and MOAH) is below 1% (w/w).¹

This information leaflet provides an overview of the concentrations of mineral oil in each of the sheet-fed offset printing ink series currently being marketed by European member companies of the **hubergroup**.

1. Sheet-fed printing inks for food packaging (FCM inks)

When it comes to sheet-fed offset printing of food packaging, the member companies of the **hubergroup** exclusively recommend the **MGA** printing ink and overprint varnish series **MGA CORONA**, **MGA NATURA**, **MGA Label**, **TINKREDIBLE MGA**, **MGA CONTACT**, **ACRYLAC-MGA**, **NewV pack MGA**, **NewV poly MGA**, **NewV tin MGA**, and **NewV lac MGA** to be used.

All these printing inks and varnishes for food contact materials (FCM inks) are, of course, mineral-oil-free.

All **hubergroup** printing inks and varnishes for food contact materials (FCM inks) are formulated with specially selected raw materials and manufactured in accordance with Good Manufacturing Practice (GMP). They are formulated such that under worst-case conditions, migration of substances from inks and varnishes to the packed foodstuff should not exceed applicable limits².

2. Other sheet-fed offset printing inks

All other conventional sheet-fed offset printing inks and oil-based varnishes supplied by **hubergroup** companies are not FCM inks and can be formulated *mineral-oil-free* or *mineral-oil-based*.

2.1 Mineral-oil-free printing inks are formulated on the basis of vegetable oils and/or vegetable oil fatty acid esters. The concentration of mineral oil in these products is less than 1%.

2.1.1 The **REFLECTA**, **RESISTA**, **RAPIDA ECO**, **QUICKFAST**, **ECO-PERFECT-DRY**, **PACKAGING PLUS**, **ECO SMART** series, any inks of the **ALPHA** series, the **CRS^{max}** basic ink series **QX** and **QFX**, **HBL-/continuous** offset inks, as well as all special colour inks (from the **HKS** and **PANTONE** ink mixing systems, or without specific categorisation) are *mineral-oil-free*.

2.1.2 All water-based **ACRYLAC** overprint varnishes are *mineral-oil-free*.

¹ In view of the fact that we employ technical raw materials, the presence of trace amounts of mineral oil coming from raw materials impurities, from the production process or as adventitious contaminant cannot be excluded.

² e.g. the migration limits proposed by the draft German "Mineral Oil Ordinance" (22. Verordnung zur Änderung der Bedarfsgegenständeverordnung, BMEL draft, Aug. 2020)

- 2.1.3 Metallic-pigment inks from MGA® series** (MGA CORONA, MGA NATURA, MGA Label and TINKREDIBLE MGA metallic inks) are of course *mineral-oil-free*, see point 1.
- 2.1.4** Metallic-pigment inks from the **ALCHEMY** series (46ACxxxx) are *mineral-oil-free*.
- 2.1.5 NewV** UV-curing inks and varnishes are *mineral-oil-free* (with the exception of the odd speciality inks).
- 2.1.6** Fluorescent-pigment inks **DAYGLOW** (4xPDXxxx) are *mineral-oil-free*.
- 2.1.7 PRINTLAC MOF** (“Mineral Oil Free”) oil-based overprint varnishes are *mineral-oil-free*.

2.2 Mineral-oil-based ink and varnish formulations typically contain around 30% of mineral oil.

- 2.2.1** The oil-based printing varnishes **PRINTLAC**, are *mineral-oil-based* (with the exception of the PRINTLAC MOF which are of course mineral-oil-free, see point 2.1.7).
- 2.2.2 Metallic-pigment inks** are *mineral-oil-based* (with the exception of metallic from MGA® and ALCHEMY Series, see point 2.1.3 and 2.1.4)
- 2.2.3** Various speciality inks are either *mineral-oil-free* or *mineral-oil-based*, depending on their formulation.

3. French limits for mineral oils in printing inks

3.1 CITEO

All mineral-oil-free offset printing inks labelled with the **hubergroup** brand are compliant with the French CITEO requirements. In **hubergroup** mineral-oil-free inks, mineral oils are not intentionally used or added as ingredients, and the total content of mineral oil hydrocarbons (MOSH and MOAH) is below 1% (applied to the ink weight), which is below the threshold for the CITEO penalty for both printed packaging and printed graphic papers.

3.2 French order of 13th April 2022

The French Arrêté of 13th April 2022³ specifies the limits and timelines with regard to mineral oils in printing inks applied to different types of printed articles (e.g. packaging, newspaper, etc.). The limits are set for specific ranges of MOSH and MOAH (for details consult the French order and the respective EuPIA Information Note⁴).

Summary of the applicable limits:

³ [Arrêté du 13 avril 2022 précisant les substances contenues dans les huiles minérales dont l'utilisation est interdite sur les emballages et pour les impressions à destination du public](#)

⁴ https://www.eupia.org/fileadmin/user_upload/2022-07-12_EuPIA_Information_Note_French_legal_texts_on_Mineral_Oils.pdf

<u>Deadline</u>	<u>01/01/2023</u>	<u>01/01/2025</u>
<u>Ban</u>	MOAH : Ban if $[MOAH_{1-7\ ring}] > 1\ \%$	MOAH : Ban if $[MOAH_{1-7\ ring}] > 0.1\ \%$ OR Ban if $[MOAH_{3-7\ ring}] > 1\ \text{ppm}$ AND MOSH : Ban if $[MOSH_{C16-C35}] > 0.1\ \%$
<u>Packaging</u>	X	X
<u>Unsolicited advertising leaflets and catalogue for commercial promotion</u>	X	X
<u>All paper destined to the public</u>	Not concerned	X

Limits applicable from 01/01/2023

All hubergroup MGA inks (conventional and UV-curing, see point 1) **meet the 2023 limits for all types of printed products.**

All non-MGA mineral-oil-free inks (see point 2) **meet the 2023-deadline limits**, since they are formulated mineral-oil-free and the mineral oil content is below 1% (w/w).

Mineral-oil-based inks are no more allowed to be used for printing of packaging, unsolicited advertising leaflets and catalogues for commercial promotion to be marketed in France from 01/01/2023.

Limits applicable from 01/01/2025

The current lack of clarity on which is the reference analytical method for the MOAH and MOSH determination **does not put hubergroup in the position to comment on the compliance with the 2025 limits.** Nevertheless, hubergroup is already working on its products and production processes to be able to ensure compliance with such limits.

Due to the fact that both printing inks and MOAH are complex mixtures of substances, we do not expect that it is possible to detect specific MOAH fractions in printing inks in amounts as low as 1 ppm, even using sophisticated analytical protocols.

Several printing ink raw materials contain, or consist of, saturated hydrocarbons C16-C35 which are of synthetic origin and are therefore not MOSH but will have the same analytical signal response of MOSH, hence virtually increasing the total amount when analysed with existing methods for the detection. Examples: synthetic hydrocarbons; low-molecular polyolefin waxes. The same holds for mineral oils of high purity which are authorised for pharmaceutical uses and for food contact applications. All these substances contribute to the MOSH "hump" in the chromatogram but cannot be distinguished analytically.

Furthermore, is still not clear how converters can verify compliance of the printed article (as per Article 112 of the overarching French Circular Economy law).

4. Remark on mineral-oil-based inks

Mineral-oil-based conventional offset printing inks produced by European member companies of the **hubergroup** are formulated exclusively with grades of mineral oil which are officially specified by our suppliers as neither toxic nor carcinogenic, their declarations being founded on the results of tests conducted by the manufacturers of the oils.

There is no need to fear any impairment to consumers' health caused by mineral oils present in printing inks and coatings for publication or non-food packaging printing. These types of mineral oils are, however, not intended to come into contact with foodstuffs. Mineral oil hydrocarbons (MOH) from printed paper or board have the potential to migrate into the packed foodstuff and can be detected analytically as fractions of saturated and aromatic hydrocarbons ("MOSH" and "MOAH"). We therefore explicitly recommend that mineral-oil-based printing inks and varnishes are not used to manufacture food packaging.

When selecting raw materials to be used in the production of printing inks and related products, member companies of the **hubergroup** adhere rigidly to the "Exclusion Policy for Printing Inks and Related Products" of the European Printing Ink Association (EuPIA). This policy excludes, among other things, the use of substances classified as toxic (cat. 1-3) or as carcinogenic, mutagenic or toxic for reproduction (CMR cat. 1A or 1B) from the manufacture of printing inks and related products. The latest version of this Exclusion Policy can be found at www.eupia.org.

With regard to food packaging applications, see also the **hubergroup** customer information "Note regarding the use of standard inks and varnishes (setting and/or oxidative drying) and standard water-based coatings for the manufacture of food packaging made of paper and board".

Kirchheim, 13 February 2024

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