



TECHNICAL DATA SHEET

UVAFLEX[®] FCM YL-7M106FCM Lacquer

FCM Ultramatt Lacquer for UV Flexo Printing

CHARACTERISTICS

With the UVAFLEX[®] FCM YL-7M106FCM Lacquer we present a very low-odour FCM mattlacquer, especially for printing of labels and packaging for food (FCM - food contact material). It is predominantly designed for non absorbent substrates.

UVAFLEX[®] FCM YL-7M106FCM is characterized by its very matt surface. It does not thicken in the duct and settles only slightly even after prolonged storage. It also has good scratch resistance and chemical resistance.

The UVAFLEX[®] FCM YL-7M106FCM Lacquer is formulated without free bisphenol A and without bisphenol A based raw materials (BPA-NI).. Furthermore YL-7M106FCM does not contain free initiators.

UVAFLEX[®] FCM YL-7M106FCM has a high transparency, so that the overprinted inks remain brilliant.

TECHNICAL DATA

Viscosity	0,45-0,70 Pas (20°C)
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Solids Content	100 %
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Drying/Curing	UV-Hg (Mercury Vapour)
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Substrate	Film - Paper Plastic Coated - Paper Coated - Paper Uncoated
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Printing Process	Flexo - Lacquering Unit
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Formulation	Suitable for FCM applications - VOC-free - Formulated without mineral oil - BPA-NI - Non-DFC
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Press Performance	High Reactivity - Good Stability in the Duct
Surface Properties	Matt - Cured Ink Low Odour - Good Chemical Resistances - High Scratch Resistance
Further Processing	Grooving/Creasing - Hotfoiling - Thermal Transfer - Overprinting UV
Application	Folded Box - Flexible Packaging - Self Adhesive Labels - Brochures
End Application	Food - Cosmetics - Pharmaceuticals
Market	Packaging - Labels
Conformities	Nestlé, Standard on Printing Inks for Food Packaging (St-80,001) - Switzerland, 817.023.21

SUBSTRATES

Influence of the Substrate on Migration Behaviour

The substrate has a strong influence on the migration behaviour of several substances. We recommend to use printing materials which show good barrier properties.

Generally no absorbent substrates (like paper) should be used for printing flexible packaging. Due to the open structure ink components may penetrate deep into the material which may result in insufficient cross linking during the curing process. The consequence may be the exceeding of legal limits because of migration or set off.

PACKING UNITS

+ 10 kg Plastic Jerry Can (black)

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TECHNICAL SERVICE CENTER

Kindly note that we are ready at any time for competent technical application support on your site. Please contact our technical service centre for printing inks:

Ink-Service@Zeller-Gmelin.de
Tel: +49 7161 802-279

ADDITIVES

Remark:

The addition of any additive might change the overall characteristics of the printing ink.

STORAGE

Optimal storage conditions:

The optimal storage temperature is 20°C. Higher storage temperatures reduce the shelf-life.

Remarks:

- protect from frost
- store in a cool and dark place
- stir or shake well before use
- can should be closed immediately after usage

Warranty:

If the products are stored properly, we warranty the product performance for a shelf life of 12 months from the date of delivery. Deviating from this, we warranty only 6 months product performance for all deliveries in large containers over 10kg filling quantity.

PRACTICE REMARKS

Recommendation for cell volume of the anilox roller

When using the product in a flexo unit we recommend a cell volume of 8-14 cm³/m².

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Glosslevel

<12 glosspoints (depending on substrate, anilox roller 10-14 cm³/m²)

Resistance requirements on overprinted inks

Overprinted inks should be resistant against alkali according to DIN 16524. Exception: Although the standard process magenta of our UVALUX[®] and UVAFLEX[®] ink series is not alkali resistant it can be overprinted with this lacquer without problems.

Printing Materials

We recommend using ester and ketone resistant rollers (EPDM-material). The inking roller, rubber blanket and printing plate have to be resistant against UV-inks and UV-detergents (see manufacturers instructions).

Preliminary Tests Recommended

Before beginning to print we recommend practice oriented pretests on your substrate, in order to test the desired characteristics of the finished product.

MARKING

Marking according to EC legislation:

Our inks are classified and marked according to EC legislation and the German "Gefahrstoffverordnung" (German dangerous substances regulation).

The material safety data sheet (MSDS) is available on request.

REMARKS ON MIGRATION AND CONFORMITY

The following remarks are valid for the production of food packaging which complies with the regulations in the European Union. We are not able to provide statements concerning food packaging legislation of countries outside the EU.

Regulation (EC) No 1935/2004 requires that the person responsible for "placing on the market" of a packaging article must have an appropriate documentation available to demonstrate the compliance with the rules related to food processing and distribution.

Not only the used materials influence food-legislation related properties of a packaging. The production

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process of the packaging has a significant impact as well.

Therefore, we recommend our customers to send their finished products to a recognized analytical institute for examination and certification. That way compliance with legal requirements can be proven.

The transfer of substances from the packing into the filling is called migration. The following production parameters have a significant influence on the degree of migration:

- correct processing, especially the complete through-cure of the ink film
- type of substrate and substrate thickness (sufficient barrier properties of the substrate)
- prevention of a direct contact of the printing ink with the food
- selection of printing inks which are suitable for FCM applications

The UVAFLEX[®] FCM YL-7M106FCM Lacquer is specially developed for FCM applications. Therefore, we recommend these products for printing of materials for food-packaging. The EuPIA designation "FCM" (food contact material) stands for products which are generally suitable for the production of food-packaging. Please note that our FCM products are designed for use on the packaging outside (Non-DFC). A direct contact of the filling with the printed image has to be avoided.

Due to the FCM formulation it is reasonable to assume that with these products the migration limit of the European Union should be well achievable (Regulation (EU) No 10/2011). Therefore, it should be possible to fulfil the legal requirements of Regulation (EC) No 1935/2004.

We produce our low-migration products in accordance with Regulation (EC) No 2023/2006 (Good Manufacturing Practice, GMP). The resulting demands on printing ink manufacturers are detailed in the EuPIA-GMP (see www.eupia.org).

In general you should ensure by migration analysis that no migration through the entire packaging material takes place. Due to the multitude of packaging materials and their different barrier properties we are not able to provide a general statement regarding through-migration.

Please note that migration can also occur by set-off when the printed surface is pressed against the food-contact surface of the packaging in the stack or reel.

We formulate our FCM products in such a way that potential migration is as low as possible, both through the substrate and by set-off from the printed surface to the food contact surface in the stack or reel.

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The UVAFLEX[®] FCM YL-7M106FCM Lacquer is formulated in accordance with the Nestlé Standard on Printing Inks for Food Packaging (St-80.001, 07/04/2022) and the Nestlé Guide to Packaging Inks (October 2018 edition).

The UVAFLEX[®] FCM YL-7M106FCM Lacquer is formulated in accordance with the Swiss ordinance 817.023.21 on materials and articles intended to get into contact with food.

The UVAFLEX[®] FCM YL-7M106FCM Lacquer is formulated without free bisphenol A and without bisphenol A based raw materials (BPA-NI)..

DECLARATION OF COMPOSITION AND PRODUCT DECLARATION

As there are no specific regulations concerning printing inks and varnishes Zeller+Gmelin -like other ink suppliers- is obliged to follow regulations in the EU not directly related to printing inks.

Regulation (EC) No 1935/2004

Article 3 of the Regulation (EC) No 1935/2004 (impact on food) demands, that materials and articles do not transfer their constituents to food in quantities which could endanger human health or bring about an unacceptable change in the composition of the food or bring about a deterioration in the organoleptic characteristics thereof.

We urgently advise you to use for printing on food packaging only printing inks/lacquers which we specifically recommend for this application based on FCM formulations.

A possible impact on the quality of food does not solely depend on the printing ink/lacquer itself but is depending on the complete production chain (ink laydown, UV-power, substrate, etc.). For this reason we are not able to confirm a general compliance to Regulation (EC) No 1935/2004 only based on the composition of the ink/lacquer.

Based on Article 17 (traceability) material and articles shall be ensured at all stages in order to facilitate control, the recall of defective products, consumer information and the attribution of responsibility.

All raw materials for ink/lacquer batches at Zeller+Gmelin are documented in writing on the Formula Component Report. Based on the batch number every raw material can be clearly traced back to the raw material batch.

Regulation (EC) No 2023/2006

This so called GMP regulation (Good Manufacturing Practice) defines the requirements on the different

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participants in the manufacturing process of materials and articles intended to come into contact with food. It requests a system for quality assurance, control and documentation (§5-7). The EuPIA defined the requirements on printing ink manufacturers in the EuPIA-GMP.

Regulation (EU) No 10/2011 and amendments

Regulation (EU) No 10/2011 establishes the specific rules for plastic materials and articles to be applied for their safe use and repeals Commission Directive 2002/72/EC of 6 August 2002 on plastic materials and articles intended to come into contact with foodstuff.

In this regulation, the so called PIM (Plastic Implementation Measure) limits are set for substances, which are allowed to be in direct contact with food and are allowed to migrate into food up to the level listed in Annex I. Substances used in printing inks must not (with few exemptions) get in direct contact with food and are therefore not listed in Annex I.

Paragraph (30) states, that coatings, printing inks and adhesives are not yet covered by a specific EU legislation and therefore not subject to the requirement of a declaration of compliance.

For the migration of non-authorized substances through a functional barrier into food a limit of 0,01 mg/kg (10 ppb) is defined.

Substances that are mutagenic, carcinogenic or toxic to reproduction should not be used without previous authorisation in food contact materials or articles and should therefore not be covered by the functional barrier concept.

CEPE / EuPIA – Exclusion Policy

CEPE is the European Council of producers and importers of paints, printing inks and artists colours whereas EuPIA is the European Printing Ink Group of CEPE. Many years ago the printing ink industry has implemented voluntarily the Exclusion Policy for specific substances.

Zeller+Gmelin is an active member in EuPIA and subgroups. The raw materials used by Zeller+Gmelin for the formulation of our printing inks/lacquers meet the guidelines of the CEPE / EuPIA Exclusion Policy. Thus CMR 1A and 1B raw materials (cancerogenic, mutagenic and reprotoxic) are not used in our printing inks /lacquers.

Heavy Metals

We herewith confirm that the limits of the heavy metals lead, cadmium, mercury and chromium(VI) layed down by the European packaging and packaging waste directive 94/62/EC as well as the „Model Toxics in Packaging Legislation“ of TPCH (former CONEG) are met. The limits layed down in EN 71-3 („ safety requirements for toys“) are also met. Heavy metals are not part of our formulations.

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Hazardous substances

Substances mentioned in the Directive 2002/95/EC (RoHS) and Directive 2011/65/EC are not intentionally used in our printing inks/lacquers.

SVHC-substances (substances of very high concern): In our products no substances are used which are classified as CMR 1A & 1B, PBT (PBT pollutants are chemicals that are toxic, persist in the environment and bioaccumulate in food chains), vPvB (Substances that are potentially very persistent and very bioaccumulative) und endocrine disruptors (artificial hormones).

Furthermore we confirm that our printing inks/lacquers are in accordance with the Regulation (EC) No 1895 /2005 (repeals the Directive 2002/16/EC).

DIN EN ISO certification

The production site of Zeller+Gmelin / Germany is certified according to DIN EN ISO 9001:2015 and DIN EN ISO 14001:2015.

Swiss Ordinance 817.023.21

This ordinance regulates materials and articles intended to come into contact with food. On 01.04.2008 the ordinance was changed to include regulations concerning printing inks. Since 01.04.2010 only packaging which has been produced with printing inks based on listed raw materials may be supplied to consumers. We urgently recommend to only use our FCM products for food packaging being subject to SO817.023.21.

Please note:

According to applicable law the manufacturer of the finished article and the filler have the full legal responsibility to ensure that their product is fit for its intended purpose and complies with the applicable rules (not the supplier).

Please also consider the relevant publications of the European Printing Inks Association EuPIA (<http://www.eupia.org>).

There are many types of final packaging and the printing ink/lacquer is only one constituent. Since the parameters in the printing, packing and storage processes are not under the control of the printing ink manufacturer, the printing ink suppliers are not able to issue certificates or declarations of compliance which cover the legal responsibility of the entire packaging chain.

The statements made in this declaration are according to our current knowledge. They do not absolve the user from its own responsibility to ascertain that our products are suitable for his application.

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