

## MetalDry® O30 Ink Series

Premium Ink Series for Conventional Offset Printing on Metals

## **CHARACTERISTICS**

With the MetalDry® O30 Ink Series we present a series for conventional sheetfed printing and body printing on coated and uncoated metals. The ink series is low-yellowing and formulated without mineral oil. It is characterised by its excellent formability and deep-drawing properties as well as the reduced skin formation in the can or duct. The colours are highly glossy and particularly scratch-resistant.

## **TECHNICAL DATA**

Drying/Curing	Conventional Oil Based
Substrate	Metal Coated - Metal Uncoated - Aluminium
Printing Process	Offset Sheet-Fed - Letterpress - Indirect Letterpress
Formulation	Formulated without mineral oil - BPA-NI
Press Performance	Fast Drying (170°C/10min.) - Reduced skin formation in the can or duct
Surface Properties	Glossy - Low Yellowing - Flexible Ink Film - Temperature Resistant until 180°C /10min Light Resitance At Least 6
Further Processing	Overvarnishing - Forming - Deep Drawing - Beading - Sterilising (131°C/30min, 121° C/60min)
Application	2 Piece Cans - 3 Piece Cans - Aluminium Tubes - Monoblock Aerosol Cans - Screw Caps - Crown Corks - Long Caps

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End Application	Food - Chemicals - Automotive
Market	Metal Decoration
Conformities	Nestlé, Standard on Printing Inks for Food Packaging (St-80,001) - Switzerland, 817.023.21
Availlable Systems	4 Colour Process - Z Base Colours
Mixing Lists Basis	Z Base Colours

## PACKING UNITS

+ 2,5 kg metal can

## **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

## **COVERING WHITES**

MetalDry® O30 types of opaque white are characterized by their high opacity at low ink lay down. All types of opaque white are resistant against spirit, solvent mixture and alkali (according to DIN 16524). Additionally they are low-yellowing.

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## MetalDry® O30-ZWO01SR

Opaque white, undyed for mixing. Drying MIN 170°C/7min, MAX 180°C/10min. Does not yet comply with Swiss Regulation 817.023.21. Component registration is currently in process.

## MetalDry® O30-X55401

Opaque white, violet dyed. Drying MIN 170°C/7min, MAX 180°C/10min. Does not yet comply with Swiss Regulation 817.023.21. Component registration is currently in process.

## MetalDry® O30-X55008

Opaque white, violet dyed. Drying MIN 180°C/10min, MAX 200°C/10min. Particularly high temperature resistant formulation with special raw material basis.

## **ADDITIVES**

## EURAPID 00015 Thinner

Addition max. 3% Reduces tack and viscosity. Add carefully, very efficient.

## EURAPID 00035 Antioxidant

Addition max. 0,2% Reduces skin formation on the ink

## EURAPID 00088 Printing Paste

Addition max.10% Reduces the tack without reducing the viscosity significantly.

## **O0942 MetalDry Rub Protection Paste**

Addition max. 2% Improves scratch resistance of the ink film. Overdosage may result in acceptance problems of the topcoat.

## **O0945 MetalDry Non-Varnish Paste**

Addition max. 5% Improves the mechanical resistance of the ink film for applications without topcoat (e.g. longcaps). Over varnishing is no longer possible when used.

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## MetalDry® O30-ZWT01 Transparent White

Addition unlimited Highly transparent, for reducing colour strength, tack and viscosity remain at a comparable level.

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.

## SERVICE

Complete PANTONE<sup>®</sup> mixing recommendations. Ink formulation systems, mixing systems and dispensing systems are possible in different expansion levels.

## Base ink basis for mixing recommendations:

- MetalDry® O30-Z... high intensity monopigmented base inks

## PRACTICE REMARKS

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## **Fountain Solution**

Approved fountain solution parameters: a) ph-value: 4,8 - 5,2 b) Water hardness: 9 - 12° dH We recommend the use of temperature controlled ink ducts and fountain solution.

## Information about Light Resistance

All light resistances are indicated according to the blue wool scale (BWS) and are based on the product specifications of our pigment suppliers. Light resistance can change when mixing inks and when printing halftone. Depending on the mixing ratio and on the fineness of the screen the light resistance can be lower than the pure solid colour.

## **Temperature Resistance**

All inks of this series are suitable for heat sterilising at 131°C/30min or 121°C/60min. In addition the individual colours have the following temperature resistance:

O30-ZYG01SR Yellow: 200°C/10 min. O30-ZYN01S Yellow: 200°C/10 min. O30-ZYR01S Yellow: 200°C/10 min. O30-ZON01SR Orange: 180°C/10 min. O30-ZON02S Orange: 200°C/10 min. O30-ZRY01SR Red: 200°C/10 min. O30-ZRB01SR Red: 200°C/10 min. O30-ZRB02SR Red: 200°C/10 min. O30-ZRP01SR Red: 200°C/10 min. O30-ZVN01SR Violet: 200°C/10 min. O30-ZBR01SR Blue: 200°C/10 min. O30-ZBG01SR Blue: 200°C/10 min. O30-ZGN01SR Green: 200°C/10 min. O30-ZKN01SR Black: 200°C/10 min. O30-ZWO01SR Opaque White: 180°C/10 min. O30-ZWT01 Transparent White: 180°C/10 min. O30-X55008 Opaque White: 200°C/10min.

## Sterilisation of Metallic Inks

Depending on the sterilisation process, a change in gloss or greying of metallic pigments cannot be ruled out.

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Due to the numerous different sterilisation methods and their parameters, we are unable to make a statement on the sterilisability of metallic inks. We therefore recommend that you check the sterilisability with pre-tests under your production conditions. This applies to ready-to-print gold and silver inks and to mixes with metallic pastes.

## 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.

Especially when the base- or topcoats are changed we recommend pretests.

## 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.

## MONOPIGMENTED BASE INKS

For ink mixing we recommend our mono-pigmented base inks. It is a print-ready system, with maximum colour strength. These base inks contain only one pigment respectively.

### Advantages:

- Ink formulations are better reproducible
- Higher prodution security
- The higher colour-intensity makes printing with reduced ink lay-down possible
- Reduced dot gain
- More flexibility when adjusting colour strength for solids or fine texts
- Mixing recommendations are available for all PANTONE<sup>®</sup> mixed shades
- Ink dispensing, mixing and measuring systems with different expansion levels available

## Product designation of the monopigmented base inks:

- MetalDry® O30-Z... high intensity monopigmented base inks

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## MISCELLANEOUS

## MetalDry® O30-X40300

Black, blue dyed, optimised misting properties. Special Product for indirect letterpress on preformed containers, e.g. monobloc aerosol cans. Not suitable for processing with dampening sollution in sheetfed offset.

## **RESISTANCE PROPERTIES**

Colour Name	Article Number	Light ResistanceSpi	rit Resistance	Solvent Resistance	eAlkali Resistance
4 Colour Process					
Yellow	O30-S1100	7 BWS	+	+	-
Magenta	O30-S1200	6 BWS	+	+	+
Cyan	O30-S1300	8 BWS	+	+	+
Black	O30-S1400	8 BWS	+	+	+
PANTONE® Base Colours					
Yellow	O30-P100	7 BWS	+	+	-
Yellow 012	O30-P101	7 BWS	+	+	-
Orange 021	O30-P150	6 BWS	+	+	+
Warm Red	O30-P200	5 - 6 BWS	+	+	+
Red 032	O30-P201	6 BWS	+	+	+
Rubine Red	O30-P202	6 BWS	+	+	+
Rhodamine Red	O30-P203	6 - 7 BWS	+	+	+
Purple	O30-P250	6 - 7 BWS	+	+	+
Violet	O30-P251	6 - 7 BWS	+	+	+
Reflex Blue	O30-P300	6 - 7 BWS	+	+	+
Process Blue	O30-P301	8 BWS	+	+	+
Blue 072	O30-P302	6 - 7 BWS	+	+	+
Green	O30-P350	8 BWS	+	+	+
Black	O30-P400	8 BWS	+	+	+

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Z Base Colours					
Base Yellow - Green Shade (Z2100)O30-ZYG01SR		7 BWS	+	+	+
Base Yellow (Z2101)	O30-ZYN01S	7 BWS	+	+	-
Base Yellow - Red Shade (Z2102)	O30-ZYR01S	7 BWS	+	+	-
Base Orange (Z2150)	O30-ZON01SR	6 BWS	+	+	+
Base Orange (Z2151)	O30-ZON02S	7 BWS	+	+	-
Base Red - Yellow Shade (Z2201)	O30-ZRY01SR	7 BWS	+	+	+
Base Red - Blue Shade (Z2202)	O30-ZRB01SR	6 BWS	+	+	+
Base Red - Blue Shade (Z2204)	O30-ZRB02SR	6 - 7 BWS	+	+	+
Base Red - Pink Shade (Z2205)	O30-ZRP01SR	6 - 7 BWS	+	+	+
Base Violet (Z2251)	O30-ZVN01SR	6 - 7 BWS	+	+	+
Base Blue - Red Shade (Z2301)	O30-ZBR01SR	8 BWS	+	+	+
Base Blue - Green Shade (Z2302)	O30-ZBG01SR	8 BWS	+	+	+
Base Green (Z2350)	O30-ZGN01SR	8 BWS	+	+	+
Base Black (Z2400)	O30-ZKN01SR	8 BWS	+	+	+
Base White - Opaque (Z2500)	O30-ZWO01SR	8 BWS	+	+	+
Base White - Transparent (Z2600)	O30-ZWT01		+	+	+

## **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 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.

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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

Mineral oil is not part of the formulation of our MetalDry® O30 Ink Series. However our suppliers need mineral oil for the production process of some raw materials due to technical reasons. Through these raw materials unavoidable traces of mineral oil can get into our printing inks (<1%).

The MetalDry® O30 Ink Series 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 MetalDry® O30 Ink Series is formulated in accordance with the Swiss ordinance 817.023.21 on materials and articles intended to get into contact with food.

The MetalDry® O30 Ink Series 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

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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 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–authorised 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

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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.

## 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).

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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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