

# Technische Information



## ROLID® RV Ink Series

### Ink Series for Heat-Drying (IR) Container Decoration

#### Characteristics

With the ROLID® RV Ink Series we present a heat-drying (IR) series, especially for container decoration (also referred to as dry-offset or indirect letterpress).  
The ink series is not suitable for overvarnishing and designed for cups, buckets, lids and other preformed containers. It has excellent resistances against different fillings.

#### Technical Data

- **Drying/Curing:** Conventional Oil Based
- **Substrate:** Foil
- **Printing Process:** Indirect Letterpress
- **Surface Properties:** Glossy - High Scratch Resistance - Adhesion Optimized
- **Application:** Cups / Buckets
- **End Application:** Non-Food
- **Market:** Plastic Containers
- **Available Systems:** Z Base Colours - PANTONE® Base Colours
- **Mixing Lists Basis:** Z Base Colours

#### Substrates

##### Printable Containers

The series is suitable for injected, extruded and blow-molded preformed containers made from common substrates such as PE, PP, PS, ABS, PET, PVC.

#### Packing Units

- 1 kg plastic can (silver)

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UV printing ink and lacquer  
and lacquer

### 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

ROLID® RV 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).

**ROLID® RV-X55004**  
Standard opaque white

**ROLID® RV-X55001**  
High pigmentation, maximum opacity

### Additives

**ROLID® RV0010 Reducer**  
Addition max. 5%  
Reduces tack and viscosity

**ROLID® RV0020 Slip Additive**  
Addition max. 2%  
Improves scratch- and tape resistance

**ROLID® RV0030V Retarder**  
Addition max. 5%  
Improves roller stability and slows drying, also useable to refresh the ink on the rollers after press stops

**ROLID® RV0088 Printing Gel**  
Addition max. 10%  
Reduces the tack without reducing the viscosity significantly.

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### **ROLID® RV-X60005 Print Varnish**

Addition 10%-30%

Improves flow properties and adhesion

### **ROLID® RV-X60001 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 well before use
- can should be closed immediately after usage

#### **Warranty:**

If the inks are stored correctly, we guarantee a shelf life of 6 months from date of delivery, as our raw material suppliers guarantee this period to us. However we know from practical experience that the inks can remain usable for 1-2 years or longer if they are properly handled and stored.

## Service

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

#### **Base ink basis for mixing recommendations:**

- ROLID® RV-Z... high intensity monopigmented base inks

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## Practice Remarks

### 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 und UV-detergents (see manufacturers instructions).

### 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.

### 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.

## Product Designation

### Zeller+Gmelin Base Inks:

RV-Z... high intensity monopigmented base inks

### PANTONE®:

RV-P... PANTONE® base inks

**Special Colours:** RV-X...

**Covering White:** RV-X55...

**Transparent White:** RV-X60001

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### 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 production 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® mixed shades
- Ink dispensing, mixing and measuring systems with different expansion levels available

#### Product designation of the monopigmented base inks:

- ROLID® RV-Z... high intensity monopigmented base inks

### Resistance Properties

Colour Name	Article Number	Light Resistance	Spirit Resistance	Solvent Resistance	Alkali Resistance
<b>PANTONE® Base Colours</b>					
Yellow	RV-P100	5 BWS	+	+	+
Yellow 012	RV-P101	5 BWS	+	+	+
Orange 021	RV-P150	5 BWS	+	+	+
Warm Red	RV-P200	4 BWS	+	+	+
Red 032	RV-P201	4 BWS	+	+	+
Rubine Red	RV-P202	5 BWS	+	+	+
Rhodamine Red	RV-P203	5 BWS	+	+	+
Purple	RV-P250	6 - 7 BWS	+	+	+
Violet	RV-P251	6 - 7 BWS	+	+	+
Reflex Blue	RV-P300	5 BWS	+	+	+
Process Blue	RV-P301	8 BWS	+	+	+
Blue 072	RV-P302	6 - 7 BWS	+	+	+

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Green	RV-P350	8 BWS	+	+	+
<b>Z Base Colours</b>					
Yellow	RV-Z1101	6 BWS	+	-	+
Orange	RV-Z1150	5 - 6 BWS	+	+	+
Red	RV-Z1200	4 BWS	+	+	+
Red	RV-Z1201	5 - 6 BWS	+	+	+
Violet	RV-Z1250	6 - 7 BWS	+	+	+
Blue	RV-Z1300	8 BWS	+	+	+
Green	RV-Z1350	8 BWS	+	+	+
Black	RV-Z1400	8 BWS	+	+	+
Yellow	RV-Z2100	6 - 7 BWS	+	+	+
Yellow	RV-Z2101	5 BWS	+	+	+
Orange	RV-Z2150	5 - 6 BWS	+	+	+
Red	RV-Z2200	4 BWS	+	+	+
Red	RV-Z2201	5 - 6 BWS	+	+	+
Red	RV-Z2202	5 - 6 BWS	+	+	+
Red	RV-Z2203	6 - 7 BWS	+	+	+
Violet	RV-Z2250	6 - 7 BWS	+	+	+
Blue	RV-Z2300	8 BWS	+	+	+
Green	RV-Z2350	8 BWS	+	+	+
Black	RV-Z2400	8 BWS	+	+	+

## Remarks on Migration and Conformity

The following remarks are valid for the production of food packaging which conforms to the regulations in the European Union. We can not make any statements concerning food packaging legislation of countries outside the EU.

Regulation (EC) No. 1935/2004 requires that the one responsible for the "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.

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Not only the used materials have an influence on the food-legislation related properties of a packaging. The production process of the packaging has a significant impact as well.

Therefore we recommend that you send your finished products to a recognized analytical institute for examination and certification. That way you can prove that your products comply with the legal requirements.

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

- correct processing, especially the complete through-cure of the ink film
- type of substrate and substrate thickness (sufficient barrier effect of the substrate)
- prevention of a direct contact of the printing ink with the food
- use of low-migration printing inks

Die ROLID® RV Ink Series has no special low-migration formulation. Therefore we recommend for food packaging our low-migration ink series and lacquers which are available for many applications.

Generally you should ensure with a migration analysis that no migration through the entire packaging system takes place. Due to the multitude of packaging materials and their completely different barrier properties we are unable to make any statements regarding through-migration.

However 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.

The ROLID® RV ink series has no special low-migration formulation. At the current state of technology an IR-drying low-migration ink is not technically feasible. Therefore there is no low-migration alternative to ROLID® RV available.

We recommend not to use the ink series ROLID® RV any more for the production of food packaging which complies with the legal requirements of the European Union. Instead we recommend the changeover to our low-migration ink series UVACURID® C71 (UV curing).

## 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 (EU) 1935/2004

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Article 3 of the Regulation 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 and which have a low-migration formulation.

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 can generally not confirm a compliance to Regulation 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 (EU) 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

Regulation EU 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 foodstuffs (2).

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 the 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 set.

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 List

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. The printing ink industry voluntarily came up with the Exclusion List for specific substances many years ago.

Zeller+Gmelin is an active member in the EuPIA and subgroups. The raw materials used by Zeller+Gmelin for the formulation

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of our printing inks/lacquers meet the guidelines of the CEPE / EuPIA Exclusion list. This means that CMR-substances (cancerogenic, mutagenic and reprotoxic) plus T (toxic) and T+ (very toxic) are not used in our printing inks/lacquers.

## Heavy Metals

CONEG stands for Coalition of North-Eastern Governors in the USA . One of their legislations, adopted by 18 states as of 1998, requires reductions in the amount of the four heavy metals mercury, lead, cadmium, and hexavalent chromium in packaging and packaging components sold or distributed in their member states. For Zeller+Gmelin printing inks/lacquers the limits for heavy metals as listed in the CONEG-Regulation (USA) are met. The Euro Norm 71.3 refers to the max level of heavy metals in childrens toys. For Zeller+Gmelin printing inks/lacquers the limits for heavy metals as listed in the DIN EN 71-3 are met.

Heavy metals are no part of our formulations.

## Hazardous substances

Substances mentioned in the directive 2002/95/EC (RoHS) are not intentionally used in our formulations printing inks/lacquers.

SVHC-substances (substances of very high concern): In our products no substances are used which meet the criteria of SVHC-substances (substances of very high concern). SVHC-substances are substances which are classified as CMR 1 & 2, 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). The substances listed in the guide line 67/548/EEC (amended by the directive 2006/121/EC) and in the guide line 76/769/EEC are not part of the formulation of our printing inks/lacquers.

Furthermore we confirm that our printing inks/lacquers are in accordance with the EC regulation 1895/2005 (repeals the guide line 2002/16/EC).

## ISO 9001

The production site of Zeller+Gmelin / Germany is certified according to DIN EN ISO 9001:2000 and DIN EN ISO 14001:2005 (corresponds to EN ISO 14001 edition Nov. 2004).

## 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 conforming printing inks may be supplied to consumers. We urgently advise you to use for food packaging which is subject to this regulation only printing inks/lacquers which we specifically recommend for this application and which have a low-migration formulation.

## 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).

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