

UV Printing Inks for

Container Decoration



Zeller+Gmelin
Mineralöle · Druckfarben · Chemie

Zeller+Gmelin Expertise in Printing Inks

For many decades the name of Zeller+Gmelin has stood for the highest quality and customer-oriented solutions. We are a medium-sized independent company with subsidiaries and trading partners all over the world. In close cooperation with our customers we develop individual solutions for sophisticated tasks.

Zeller+Gmelin was founded in 1866 and since then has been completely privately owned, giving the company a high level of independence, flexibility and customer focus. The head office is still located on the foundation site in Eisligen between Ulm and Stuttgart, Germany.

Since 1970 the special focus of our research and development activities has been on radiation curing, and as a result we are today one of the leading worldwide manufacturers of radiation curable printing inks and lacquers in the application areas of commercials, packaging, labels and metal decoration.

Being a technically oriented company it is our goal to give optimal support to our customers, therefore we offer not only high-quality products but also a comprehensive advisory service. For all questions concerning any printing process you will find a competent and personal contact person with us.

To support our customers we have established a technical service centre with practically experienced application engineers. We are able to offer advice and assistance with all questions related to printing technology and for any other special requirements. We install, in cooperation with our customers, tailor-made colourimetric systems, ink mixing stations and offer training for their employees.

With high-quality, sophisticated products and a flexible, independent company structure Zeller+Gmelin today is your competent partner for »printing inks«.

This brochure presents our range of standard products for direct container decoration.

Monopigmented UV Ink Mixing Systems for Direct Container Decoration

Mixing with Monopigmented Ink Mixing Systems

Based on many years of successful experience we offer you monopigmented ink mixing systems for container decoration.

With your own ink mixing station using a monopigmented ink system you can be more flexible and independent and able to react faster to your customer requests.

Advantages

- PANTONE® shades are easier to match.
- Ink mixes have higher colour strength and are purer, because only the really necessary pigments are used for the mixture.
- The higher colour-intensity makes printing with reduced ink lay-down possible.
- Reduced dot gain in halftone printing.
- More flexibility when adjusting colour strength for special shades.
- Less colour deviations between reference sample and mixed ink under changing light sources (metamerism).
- The colour-communication between ink manufacturer and his customer will be easier and faster by the usage of monopigmented ink mixing systems.
- Mixing recommendations are available for all PANTONE® mixed shades.
- Ink dispensing, mixing and measuring systems with different expansion levels are available.
- Reduction of stock expenses.
- Less leftover inks, therefore lower disposal charges.

In our production plants we work with the same monopigmented ink mixing systems. This guarantees a fast and effective colour communication between you and us.

Regardless of whether PANTONE® spot colours or other colour systems have to be mixed, with our high-pigmented ink mixing systems you will always get the best possible results. Additionally, custom shades which are independent from a reference-guide can be optimally matched.

Colour-Management-Service

Our experienced team guarantees full support and service around the topic of »ink mixing«.

From assistance for specific colour-compositions up to the planning and installation of complete ink mixing stations – Zeller+Gmelin is your competent partner. Colourimetric training at Zeller+Gmelin is offered as part of the service, as well as direct on-site support.

Monopigmented base inks are available for all the following ink series.



Low-Migration UV Printing Ink Systems for Printing of Food-Packaging

The production of legally compliant food-packaging requires the selection of the correct printing ink and lacquer systems.

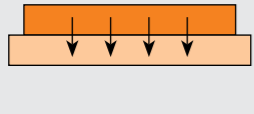
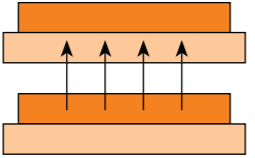
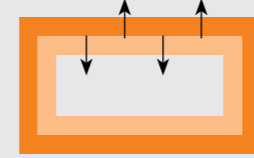
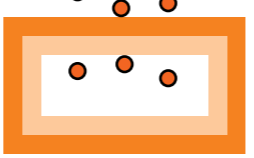
Based on our latest developments Zeller+Gmelin presents a new generation of low migration UV printing inks for printing of food-packaging. These products are distinguished by their low migration composition coupled with excellent printing characteristics.

All our low migration ink series are formulated in accordance with the guidelines of the Nestlé Guidance Note and Swiss regulation SR 817.023.21.

- **UVACURID® PrimeCup C81 Series**
Low-migration ink series for UV cup printing without overvarnishing (see page 6).

- **UVACURID® PrimeTube T81 Series**
Low-migration ink series for UV tube printing, over varnishing necessary (see page 7).

Migration Types

Migration by Penetration	Migration by Contact (Set-Off)	Migration by Evaporation	Migration by Distillation
Migration from the printed side of the substrate to the unprinted side.	Migration from the printed to the unprinted side of the substrate in a stack or reel (set-off).	Migration by evaporating volatile substances through heating (e.g. cooking, baking).	Migration by steam-distillation through cooking, baking or sterilization.
			

Analytical Laboratory MIGRALYTICS

Zeller+Gmelin has its own in-house laboratory for migration analyses which we established specifically for the development of low migration printing inks, raw material quality control and for the internal assessment of test samples.

Our laboratory meets the highest quality demands and we are very proud about the accreditation by the DAkkS (Deutsche Akkreditierungsstelle GmbH, the national German accreditation association located in Berlin, Germany).

We examine food packaging and labels applied to such packaging and detect the raw materials used in our products. This includes acrylates (binder) and photo initiators. The specific migration limit (SML) defines how much of a certain ingredient in the food packaging is allowed to migrate into the foodstuffs.

Our service includes the definition and analysis of the specific migration of Genotox classified substances (with limit values between 10 ppb and 50 ppb) and non-Genotox classified substances (< 10 ppb). For the analysis we use gas and fluid chromatography with mass-spectrogram (GC-MS and LC-MS).

Naturally we also send each of our low migration ink series to independent analytical institutes for analysis and evaluation.

With this double verification we can offer the maximum possible product security to printers, brand owners and consumers. Analytical results have consistently proven that if our low migration ink series are professionally handled it is possible with them to meet or even clearly undercut the legal 10 ppb migration limit in migration tests with 95% ethanol.



LC-MS

UVACURID® PrimeCup C81 Ink Series

UV Cup Printing, Low-Migration

With the **UVACURID® PrimeCup C81** ink series we present a low-migration series, especially for printing of packaging for food in UV container decoration (also referred to as dry-offset or indirect letterpress).

Typical applications of this series are plastic cups for yoghurt, margarine or kefir. The high intensity and the low dot gain result in bright colours with excellent image reproduction which stand out in the retail shelf.

For decades Zeller+Gmelin has been the world market leader in the segment of direct container decoration and the **UVACURID® PrimeCup C81** is a further impressive proof of our competence in this segment.

Because of its smooth and even distribution in the duct the **UVACURID® PrimeCup C81** ink series shows a very good printability. Due to the outstanding rheological properties the inks lie very even and smooth on the substrate and show very low misting even at high press speed of 700 cups/min.

Adhesion and curing reach highest levels. This results in very good tape test results and very good scratch resistance. The low-migration formulation allows the production of food packaging which safely meets the requirements and demands within the European Union.

Applications

- Plastic cups
- Unlacquered buckets
- Plastic lids

Properties

- **Low-migration formulation**
- Highly reactive
- High intensity
- Very good adhesion and surface hardness
- Low dot-gain for clean reverse text and sharp screen
- Very good press performance
- Optimised for maximum press speed over 700 cups/min
- Very good misting behaviour

Covering White

Our **UVACURID® PrimeCup C81-X55001** Premium Opaque White is a high class product which stands out with its excellent opacity and its universal use as spot ink, mixing opaque white and for pre-print applications.

Because of the high intensity of C81-X55001 you can achieve high density values with lower ink lay-down than with other common products in the market, also on transparent or coloured substrates.

It is overprintable with UV-inks and is therefore suitable for presses with pre-print unit.

Furthermore it can be mixed in unlimited ratios with our **UVACURID® PrimeCup C81** inks. The press performance of C81-X55001 is excellent despite the high intensity.

UVACURID® PrimeTube T81 Ink Series

UV Tube Printing, Low-Migration

With the **UVACURID® PrimeTube T81** ink series we present an overvarnishable low-migration series, especially for UV container decoration (also referred to as dry-offset or indirect letterpress).

Typical applications of this series are plastic tubes for food and cosmetics.

For the last decades Zeller+Gmelin has been market leader for UV printing inks for direct container decoration. Years ago we were already the first printing ink manufacturer who launched a certified low-migration UV ink series for direct container decoration (cup printing).

For the printing of plastic tubes there has not been any significant demand for low-migration ink systems so far. However in the meantime low migration production has also become an issue in this market segment.

Therefore we have taken care of this topic and have developed our first low-migration ink series for tube printing under the designation **UVACURID® PrimeTube T81**.

The ink series is designed for plastic tubes, plastic capsules and other preformed containers which are overvarnished.

Applications

- Plastic tubes
- Tablet tubes
- Lacquered buckets

Properties

- **Low-migration formulation**
- **Overvarnishable**
- High resistance against different fillings
- Excellent ink transfer
- Very good adhesion
- High gloss
- High colour strength
- Flexible ink film
- Outstanding moving in the duct and press performance



UVAROLID® UV Ink Series

UV Cup Printing

The **UVAROLID® UV** ink series is for printing of packaging in UV dry-offset.

Typical applications are cups (non-EU countries) and paint buckets.

For more than 30 years the **UVAROLID® UV** ink series has been popular all over the world. The well-proven quality of the ink series convinces with its wide processing window, high reactivity and high intensity.

With its excellent surface resistance against different mechanical and chemical influences it is also ideal for demanding applications in the non-food sector.

For food packaging we recommend our low-migration **UVACURID® PrimeCup C81** ink series, especially if the packaging is subject to the legal requirements of the European Union (see page 6).

Applications

- Plastic cups (Non-EU)
- Unlacquered buckets
- Plastic lids

Properties

- Very wide processing window
- High reactivity
- Good resistance against different fillings
- Very good surface hardness
- High colour strength



UVAROLID® UK Ink Series

UV Tube Printing

The **UVAROLID® UK** ink series is for printing of over- varnished packaging in UV dry-offset.

Typical applications are plastic tubes for cosmetics, technical greases and glues.

For more than 30 years the **UVAROLID® UK** ink series has been popular all over the world. The well-proven quality of the ink series convinces with its wide processing window, high reactivity and high intensity.

The **UVAROLID® UK** ink series is optimised for over- varnishing. Therefore it achieves its final resistance after overvarnishing.

For food packaging we recommend our low-migration **UVACURID® PrimeTube T81** ink series, especially if the packaging is subject to the legal requirements of the European Union (see page 7).

Applications

- Plastic tubes
- Lacquered buckets

Properties

- **Overvarnishable**
- Very wide processing window
- High reactivity
- Good resistance against different fillings
- High colour strength



ROLID® RV Ink Series

Heat Drying (IR) Container Decoration

The **ROLID® RV** ink series is for printing of packaging in IR drying container decoration.

This is the vintage ink series in our range. For more than 40 years it has been running on dry-offset presses all over the world.

Even today there are still many presses which are not converted to UV curing. Therefore we still have this series in our range.

Typical applications are rectangular margarine cups and round drinking cups (non-EU countries) or plastic closures for spirits.

For food packaging we recommend the changeover to UV technology and the use of our low-migration **UVACURID® PrimeCup C81** ink series, especially if the packaging is subject to the legal requirements of the European Union (see page 6).

Applications

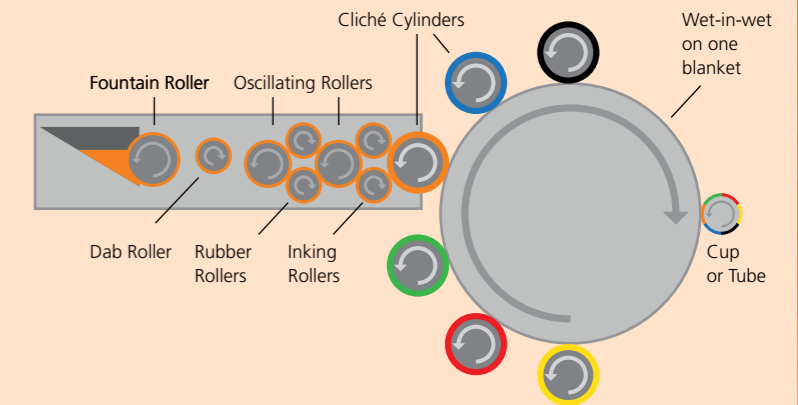
- Plastic cups (Non-EU)
- Drinking cups for hot beverages (Non-EU)
- Plastic bottle closures

Properties

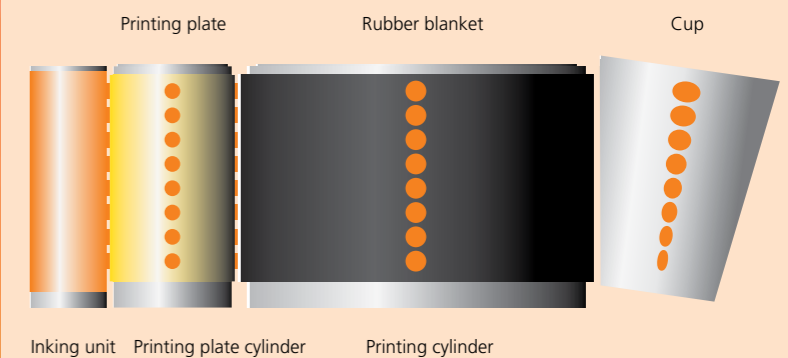
- Very good adhesion, also on difficult materials
- Fast curing
- Low odour when hot beverages are filled into the cup
- Good resistance against different fillings
- Very good surface hardness
- High colour strength

Direct Container Decoration or Indirect Letterpress

The process of direct container decoration prints all colours with letterpress plates one after each other wet-in-wet on one common rubber blanket on the large central cylinder. From the rubber blanket the complete image is transferred to the container and then the ink is cured. Because of the transfer with a rubber blanket the process is also called indirect letterpress, colloquially also »dry offset«.



The blanket is necessary because the image is transferred from a cylinder to a conical cup. As the radius of the cup is smaller at the bottom and larger at the rim the printed image is distorted at the top and bottom. The rubber blanket compensates the speed differences at the bottom and at the rim.



Not only printers but also brand owners, packaging designers and repro agencies have to be aware of these particular features of direct container decoration (wet-in-wet printing and distortion of the image). The consideration of the possibilities and limitations of this printing process leads to impressive results with competitive unit costs.

Locations

Zeller+Gmelin GmbH & Co. KG

Schlossstrasse 20
73054 Eisingen, Germany
Tel. +49 7161 802-0
Fax +49 7161 802-355
druckfarben@zeller-gmelin.de
www.zeller-gmelin.de

Zeller+Gmelin A/S

Danmarksvej 30S
8660 Skanderborg, Denmark
Tel. +45 86 5113-55
Fax +45 86 5113-75
info@zg.dk
www.zeller-gmelin.dk

Zeller+Gmelin B.V.

Beneluxstraat 10
5711 DA Someren
The Netherlands
Tel. +31 493 496575
Fax +31 493 491875
info@zeller-gmelin.nl
www.zeller-gmelin.nl

Zeller+Gmelin Corp.

4801 Audubon Drive
Richmond, VA 23231, USA
Tel. +1 804 275-8486
Fax +1 804 275-8638
uvinks@zeller-gmelin.com
www.zeller-gmelin.com

Zeller+Gmelin Ltd. Sti

Sanayi Mah. Avcilar Cad. No 9
34165 Güngören, Istanbul, Turkey
Tel. +90 212 642-6555
Fax +90 212 642-9798
c.kirlangicli@zeller-gmelin.com.tr

Zeller+Gmelin Sarl

19, Rue Roger Salengro
69740 Genas, France
Tel. +33 4 72796252
Fax +33 4 78902515
info@zeller-gmelin.fr
www.zeller-gmelin.fr

Zeller+Gmelin s.r.o.

Znojemska 4959/119
58601 Jihlava
Czech Republic
Tel.: +420 567 307250
Fax: +420 567 330194
zeller-gmelin@zeller-gmelin.cz
www.zeller-gmelin.cz

Zeller+Gmelin Sp.z.o.o

Długoleka, ul. Wiejska 59
55-095 Mirków, Poland
Tel.: +48 71 337-2820
Fax: +48 71 337-2825
biuro@zeller-gmelin.pl

Zeller+Gmelin UK Ltd

Queensbridge Industrial Park
795 London Road
West Thurrock
Essex RM20 3LH
Great Britain
Tel. +44 1708 8990-91
Fax +44 1708 8990-92
info@zeller-gmelin.co.uk
www.zeller-gmelin.co.uk

Zeller+Gmelin ULC

Matheson Blvd. East, Unit 2 2180
L 4W 5E1 Mississauga, Ontario
Canada
Tel. +1 905 624 5844
Fax +1 905 624 6135
uvinks@zeller-gmelin.ca
www.zeller-gmelin.ca



Flexo Printing



Offset Printing



Metal
Decoration



Container
Decoration



Low Migration
Printing



Zeller+Gmelin
Mineralöle · Druckfarben · Chemie