

UVAFLEX® Y77 Series

UV Flexo Printing Inks for Paper and Foil Applications

Characteristics

The **UVAFLEX® Y77** series is a new developed radical curing UV flexo ink for “universal” use on paper and foil.
The series stands out due to its low penetration into paper, a high reactivity as well as its good curling properties.
The development target was to create a “universal” ink series for printing of labels, inmould labels, folded boxes and flexible packaging with the exception of primary food packaging.

Ink range:

Available are process inks, PANTONE® base inks and special shades.

Technical Data

Properties:

- good adhesion
- good curling behaviour
- high reactivity
- low-odour
- optimized viscosity
- low ink penetration
- very good printability
- suitable for overvarnishing and hotstamping
- colourmetrical supported
- non low-migration (see page 3)

Packaging

Standard packaging: 5 kg buckets

Substrates

Non absorbent substrates and foils:

Non absorbent substrates such as metallized carton board, synthetic paper and plastics.

Papers:

All common coated and uncoated papers and cardboards.

Remark:

Generally we recommend that the inks are checked in advance under production conditions for their suitability.

Technical Service Centre

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

The statements made in this publication are according to our current knowledge. They do not absolve the user from his own responsibility to ascertain that our products are suitable for his process. They are intended to inform and advise and are subject to influence from the technical process.

TI Flexo TI-UVAFLEX Y77_E, edition of Dezember 15, 2009, replaces the previous edition dated December 7, 2009.
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Additives

Transparent white: Y77-X60001

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
- ink container 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

At the moment we do not yet have complete PANTONE® mixing recommendations on the basis of our Y77-P... PANTONE® basic inks. Currently we provide formulations for specific mixed shades on request.

Product Designation

Process inks:

Y77-S... Standard version

PANTONE®

Y77-P... PANTONE® base inks
Y77-P...S High light resistant
PANTONE® base inks

Opaque white: Y77-X55001

Transparent white: Y77-X60001

Recommendations for Press Cylinders

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 manufacturer's instructions).

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.

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Remarks on Migration and Conformity

We do not recommend our **UVAFLEX® Y77** series for the production of primary packaging for food.

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.

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 permanent direct contact of the printing ink with the food
- use of low-migration printing inks

Therefore we recommend for printing of **primary** food packaging our special low-migration **UVAFLEX® Y71** ink series.







Analytical results prove that with the **UVAFLEX® Y71** ink series the 10ppb migration limit is well achievable (Directive 2007/19/EG) in migration tests with 95% ethanol.

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Resistance Properties UVAFLEX® Y77 Process Inks						
Colour Shade	Item Number	Light Resistance	Spirit	Solvent Mixture	Alkali	Colour Shade
Process Inks						
Yellow	Y77-S1100A	4	+	+	+	
Magenta	Y77-S1200A	5	+	+	-	
Cyan	Y77-S1300A	8	+	+	+	
Black	Y77-S1400A	8	+	+	+	
Process Inks, high light resistant version						
Yellow	Y77-S1100AS	7	+	+	+	
Magenta	Y77-S1200AS	6-7	+	+	+	

The colours shown are only for illustration. The colours are not a binding colour sample!

Recommendations for cell volume of the anilox roller:

Ink Lay Down		Cell Volume CO ² Laser engraved	Cell Volume YAG Laser engraved
A	1,0g/m ²	3,5cm ³ /m ²	3,0cm ³ /m ²
B	1,5g/m ²	5,2cm ³ /m ²	4,4cm ³ /m ²
C	2,0g/m ²	7,0cm ³ /m ²	5,8cm ³ /m ²
D	2,5g/m ²	8,8cm ³ /m ²	7,3cm ³ /m ²
E	3,0g/m ²	10,5cm ³ /m ²	8,8cm ³ /m ²

Examples:

- UVAFLEX® Y77-S1100A → Ink Lay Down: 1,0g/m² → Cell Volume: 3 - 3,5cm³/m²
- UVAFLEX® Y77-P150D → Ink Lay Down: 2,5g/m² → Cell Volume: 7,3 - 8,8cm³/m²
- UVAFLEX® Y77-P250CS → Ink Lay Down: 2,0g/m² → Cell Volume: 5,8 - 7cm³/m²

















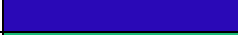

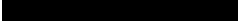
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Resistance Properties UVAFLEX® Y77 PANTONE® Base Inks						
Colour Shade	Item Number	Light Resistance	Spirit	Solvent-Mixture	Alkali	Colour Shade
PANTONE®						
Yellow	Y77-P100C	4	+	+	+	
Yellow	Y77-P100ES	7	+	+	+	
Yellow 012	Y77-P101C	4	+	+	+	
Yellow 012	Y77-P101DS	6	+	+	+	
Orange 021	Y77-P150D	6	+	-	+	
Warm Red	Y77-P200C	4	-	-	+	
Warm Red	Y77-P200CS	6	+	-	+	
Red 032	Y77-P201C	5	-	-	-	
Red 032	Y77-P201CS	6	+	-	+	
Rubine Red	Y77-P202C	5	-	-	-	
Rubine Red	Y77-P202CS	6-7	+	+	+	
Rhodamine Red	Y77-P203CS	6-7	+	+	+	
Purple	Y77-P250CS	6-7	+	+	+	
Violet	Y77-P251CS	6-7	+	+	+	
Reflex Blue	Y77-P300DS	6-7	+	+	+	
Process Blue	Y77-P301C	8	+	+	+	
Blue 072	Y77-P302DS	6-7	+	+	+	
Green	Y77-P350C	7	+	+	+	
Black	Y77-P400C	8	+	+	+	

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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 1935/2004

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 primary food packaging only printing inks which we specifically recommend for this application and which have a low-migration formulation (see page 1 and 3 of this document).

A possible impact on the quality of food does not solely depend on the printing ink 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.

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 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.

Directive 2002/72/EC

this so-called "plastics directive" lists substances which are allowed to get into direct contact with foodstuffs. It also sets migration limits for each substance up to which the substances are allowed to migrate into the food (listed in the annex of the directive and its amendments). Printing ink components are not allowed to get into direct contact with foodstuffs and are therefore not included in this list. This is the reason why we can not confirm the conformity of our products with directive 2002/72/EC.

Directive 2007/19/EC

This Directive, which is an amendment to the Plastics Directive 2002/72/EC, provides limits for substances not listed in the corresponding annexes of the Plastics Directive and amendments. Most components used in printing inks are not intended to get into direct contact with foodstuff. Therefore directive 2007/19/EC does not indicate specific migration limits for them. For these substances without SML a general limit of <10ppb (10 µg/kg food) for the transfer into food has to be undercut (Article 7). Again, many different factors have an impact on the migration (see remark under 1935/2004). Therefore a compliance to Directive 2007/19/EC can not be confirmed.

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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 of our printing inks 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.

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 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 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.

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.

Furthermore we confirm that our printing inks 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).

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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 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 (Text from EuPIA-PIFOOD May 2007).

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Zeller+Gmelin GmbH & Co. KG



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i.V.
A. Rascher
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