



Technical Information

Ink series „ER“

Printing date: 20. März 2014

Characteristics

Printing process

Letterpress, dry offset

Substrates

Plastics

All non absorbent substrates common in the market, like PE, PP, PS, PVC.

Application

Overhead projector slides, advertising material, hanging signs, adhesive labels, credit cards, etc.

Important:

Before beginning to print we recommend practice oriented pretests, in order to test the desired characteristics of the finished product. On request we are also able to make test prints for you on your specific substrate.

Packaging

Standard packaging: 1Kg tin, 300 gr cartridge, 40 ml tube

Technical Data

Properties

- Low-migration formulation (see page 3)
- High reactivity
- Very good adhesion and surface hardness (excellent tape and scratch resistance)
- Low dot-gain for clean reverse text and sharp dots
- Very smooth and even distribution in the printing unit
- Suitable for maximum press speed
- Very high opacity and gloss
- Very good resistance against various fillings and solvents
- Very good resistance against humidity
- Not overprintable
- Very high migration security. Values under 10ppb are well achievable (see page 3)
- Nestlé conform (see page 3)

Hints

- suitable plates are Nyloprint
- Rollers must be conditioned with Transparent White ER 43784 or ER ink to avoid preliminary drying on the rollers

Additives

Reducer	ER 9000
Varnish	ER 43902
Transp.white	ER 43784
Gel reducer	ER 462

Remark:

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

Printing Material

All printing materials have to be resistant against ester and ketones. Therefore "rubber" rollers are mostly made of EPDM.



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
- ink 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.

Marking

Marking according to EC legislation:

The product does not require a hazard warning label in accordance with EC directives/ GefStoffV (German regulations on dangerous substances).

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

Monopigmented Base Inks

For ink mixing we recommend our mono-pigmented „ER“ base inks. It is a print-ready system, with maximum colour strength.

The „ER“ base inks contain only one pigment respectively. Each pigment in a mixed ink has an influence on the resulting colour shade. The fewer pigments are included in a mixed shade the easier it is to match and adjust the colour shade of the reference sample.

Because of the better colour control when mixing with monopigmented ink formulations are better reproducible and thus the production security is higher.

Additionally there are less colour deviations between reference sample and mixed ink under changing light sources (metamerism).

Further Advantages:

- 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.



Remarks on Migration and Conformity

We do not recommend our Inks of the „ER“ -Series for printing of food packaging.

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 / lacquer
- type of substrate and substrate thickness (sufficient barrier effect of the substrate)
- prevention of a direct contact of the printing ink/lacquer with the food
- use of low-migration printing inks and lacquers

The Inks of the „ER“-Series are not specially formulated low migration.

Therefore anyone placing a packaging product on the market must ensure that the packaging is a functional barrier when printing primary packaging for food.

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.

Declaration of Composition and Product Declaration

As there are no specific regulations concerning printing inks and varnishes B. Grauel GmbH -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 food packaging only printing inks which we specifically recommend for this application and which have a low-migration formulation (see page 1 and 4 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 B. Grauel GmbH 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 Vg/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.

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. B. Grauel GmbH is an active member in the EuPIA and subgroups. The raw materials used by B. Grauel GmbH 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 B. Grauel GmbH 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 B. Grauel GmbH 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 B. Grauel GmbH / Germany is preparing the certification DIN EN ISO 9001:2008 and has internal audits until official certification in 2013.

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).

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.

B. GRAUEL GmbH