



SERIES 945UV/MA



Technical Data Sheet

UV screen printing inks

1. APPLICATION FIELDS

Universal **low-migration** UV screen printing inks for the printing of containers, suitable for substrates made of

- ABS
- pre-treated PC
- PS
- PVC
- pre-treated Polyolefins such as PE/PP
- PET, PETG

Substrates may differ in their chemical structure or method of manufacture. A test for suitability must always be carried out before printing. Antistatic, Mould Release Agents and Slip Additives may have negative effects on adhesion, and should be detected and removed prior to printing.

2. CHARACTERISTICS

This UV ink series 945UV/MA is

- Low-migration
- Individual ink shades are chlorine-free (see top 3.2.)
- Barium-free.

Therefore 945UV/MA may also be used for printing on the outside of food packaging.

Thanks to the good adhesion even when printing at machine speeds up to 3.600 pieces/hour the ink series 945UV/MA can be used for all industrial screen printing machines.

They are designed in high gloss, brilliant, good levelling and printability.

The inks of the 945UV/MA series are constitutionally free from toxic elements and solvents.

The used raw materials also comply with the limits of metal elements stipulated by the actual EEC regulation *EN 71-3 (Safety of Toys), part 3* (Migration of Certain Elements).

For Gold- and Silver as well as Metallic inks it is recommended to proof if the thresholds for aluminium, copper and zinc are respected.

The migration behaviour depends on many manufacturing process parameters, such as curing conditions, ink application and substrate, and thus has an influence on conformity. Therefore we recommend having a specimen certified by an independent testing laboratory.

3. RANGE OF COLOURS:

The basic ink mixing system consists of 10 basic colours and may be used for the mixing of a wide colour shade range. Field proven mixing formulations exist for Pantone®, HKS, RAL, NCS, etc.

3.1 Basic Colours:

Yellow	M01	945UV20066MA
Yellow	M02 *	945UV20067MA
Orange	M03 *	945UV31279MA
Red	M05	945UV31280MA
Pink	M06	945UV31281MA
Violett	M07 *	945UV51407MA
Blue	M08	945UV51408MA
Green	M09 *	945UV60554MA
White	M11	945UV1417MA
Black	M12	945UV9330MA
Varnish	M0	945UV0293MA

*Products contain chloric pigments

3.2. Chlorine - free pigmented products:

Yellow	M21	945UV20068MA
Orange	M31	945UV31282MA
Violett	M71	945UV51409MA

3.3. High opaque products:

Opaque White	945UV1426MA
Opaque Black	945UV9338MA

3.4 Euro-Colours / 4-Colour Process Printing Inks:
4-colour process printing / 4 Euro-basic colours are available:

Process-Yellow	945UV20045MA
Process-Magenta	945UV31257MA
Process-Cyan	945UV51382MA
Halftone Black	945UV9323MA

4. ADDITIVES:

4.1 UV-Thinner:

The inks of the 945UV/MA series are ready to use.

If further viscosity reduction is desired, UV-thinner may be added.

UV-Thinner	(max. addition 2-5%)	945UV0014
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The use of thinner and curing promoter affect the low-migration properties of the ink. For low-migration requirements it is recommended to not to use any additives. Sol-vent based thinners are not allowed to use due to the risk of equipment damage or danger of explosion.

4.2 Adhesion Modifier:

In the case of particularly high resistance requirements the addition of adhesion modifier is recommended.

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However the addition of adhesion modifier to UV curable ink will lead to a

Overprinting must take place within 12 hours at 21°C in case an adhesion modifier is added.

Adhesion Modifier (max. addition 2 - 4%) 100VR1491

5. PROCESSING INSTRUCTIONS:

5.1 Pre-treatment:

In some cases of PET substrates the carefully flame pre-treatment or CORONA-discharge is necessary; surface tension needs to be at least 40 mN/m.

In case of PE and PC, surface tension needs to be at least 42 mN/m, in case of PP at least 52 mN/m.

A test for suitability must always be carried out before printing.

5.2 Stencils / Printing Equipment:

Screen printing meshes between 120-31 threads/cm and 150-31 threads/cm are suitable for printing with 945UV inks. The colour mixing formulations are based on 165-34 threads/cm mesh. However, test prints and approval of the colour are generally recommended for the respective print jobs. Any acrylic acid ester resistant squeegee material may be used.

5.3 Curing Conditions:

The varying UV absorption of the individual colours results in a range of curing properties depending on colour and opacity. All colours of the 945UV series can be cured by the use of medium pressure mercury vapour lamps (at least 160 W/cm).

The optimum energy output is 150 - 250 Millijoule/cm², measured with Kühnast UV- Integrator under laboratory condition. UV curing is followed by a 24 hour post-cure phase after which the ink film is fully cured and has its final properties.

However, it must be noted, that low radiation intensity, excessive machine speeds or excessive film thickness can have a negative influence on the curing properties and adhesion.

Un-cured prints are considered a hazardous waste. Therefore, it is recommended to cure misprints under the UV lamp as a matter of principle. After curing, spoilage can be disposed by conventional methods and may be incinerated without causing any difficulties.

6. CLEANING:

Screens and squeegees as well as other working materials can be cleaned with the RUCO screen cleaner 32335. If cleaning is not performed by fully automatic

cleaning equipment, protective gloves must be worn. Cleaning liquids (solvents) containing UV curing components should not be used for the washing of working materials that were used with conventional screen printing inks. Solvents that contain UV residue are not suitable for reclamation and must be treated as a separate waste.

Universal Cleaner	32335
Cleaner for cleaning equipment	100VR1240C
Bio degradable Cleaner	100VR1272

7. SHELF LIFE:

A shelf life of 24 months is guaranteed when storing the inks at 21°C and in the original packing container. At higher storage temperatures the shelf life will be reduced.

8. PRECAUTIONS:

UV inks may cause irritations and can increase the sensitivity of the skin, possibly leading to hypersensitivity. Therefore, the use of disposable gloves and protective goggles is strongly recommended.

For further information on the safety, storage and environmental aspects concerning these products please refer to the Material Safety Data Sheet (MSDS).

Additional technical information may be obtained from our staff of the Product Management Department.

A. M. RAMP & Co. GmbH
Lorsbacher Strasse 28
D-65817 Eppstein

Tel:+49 (0) 6198-304-0
FAX:+49 (0) 6198-304-287
E-Mail: info@ruco-inks.com
www.ruco-inks.com

