

Technical Data Sheet

Pad printing inks

1. APPLICATION FIELDS:

Versatile one and two component ink for rotary pad printing on bottle closures made of pre-treated polyethylene (PE) and polypropylene (PP) as well as on ABS, acrylic glass, lacquered surfaces, polycarbonate, polystyrene and polyurethane.

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 high glossy, fast physically drying and chemical reactive pad printing ink exhibits good mechanical and chemical resistance, as well as a good flexibility. The colour shades of T 100 are light fast and weather resistant and high opaque.

A special product test is recommended prior to production. The raw materials used meet with the limits stipulated by the EEC regulation EN 71 (Safety of Toys), part 3 (Migration of Certain Elements) of December 1994.

3. RANGE OF COLOURS:

The basic ink mixing system consists of 12 basic colours and may be used for the mixing of a wide colour shade range.

3.1 Basic colours:

Light Yellow	B 1	T100-2652
Medium Yellow	B 2	T100-2653
Orange	B 3	T100-30639
Light Red	B 4	T100-30640
Red	B 5	T100-30641
Pink	B 6	T100-30642
Violet	B 7	T100-50547
Blue	B 8	T100-50548
Green	B 91	T100-60118
Brown	B 10	T100-8554
White	B 11	T100-1097
Black	B 12	T100-9049
Clear Base		T100-0001

3.2 Special Products:

3.2.1 High Opacity Formulations:

White	(high opacity)	T100-1002
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3.3 Euro-Colours / 4-Colour Process Printing Inks:

For 4-colour process printing according to DIN 16538, 4 Euro-basic colours are available:

Euro-Yellow	T100-2008
Euro-Magenta	T100-3023
Euro-Cyan	T100-5026
Halftone Black	T100-9002

3.4 Bronze Colours:

see separate "Bronze Colours" leaflet

4. ADDITIONAL PRODUCTS:

Raster paste can be added to reduce "Dot Gain" and to achieve sharper dots.

Raster Paste	(max. addition: 10 %)	T100-0002
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5. ADDITIVES:

5.1 Thinner:

Prior to production, the pad printing ink has to be adjusted to the printing viscosity by the addition of thinner.

Thinner, very fast	(addition: 15 - 25 %)	VS 35 353
Thinner, standard	(addition: 15 - 25 %)	VD 38 571

5.2 Hardener:

Hardener 37172 is the standard hardener. The mixing ratio is 10 parts of ink with 1 part of hardener. At room temperature of 20° C a pot life of approximately 12 hours can be achieved.

Hardener, standard	37172
10 parts of ink, with 1 part of hardener	

Please note that the final chemical and physical resistance of the ink is only achieved after 36 hours at room temperature of 20° C.

During processing and drying of the printed ink, the temperature should not be lower than 15° C otherwise the chemical cross linking is stopped.

Also avoid high humidity for several hours after printing as the hardener is sensitive to humidity. While using hardener please note that multi-colour jobs have to be printed during 36 hours. The completely dried ink can not be overprinted.

T 100

5.3 Levelling Agent:

The levelling of the ink surface can be optimised by the use of a levelling agent. It must be noted that excessive addition of levelling agent can have a negative influence on the overprintability.

Levelling Agent (max. add.: 0,5-1 %) VM 100 VR 133

6. PROCESSING INSTRUCTIONS:

6.1 Pre-treatment:

Pre-treatment of polyolefines (PE/PP) must be performed by Flame Treatment, by CORONA-discharge or by Plasma Jet application in order to ensure the adhesion of the pad printing ink to the substrate.

In case of PE, surface tension needs to be at least 42 mN/m (Dynes/cm), in case of PP at least 52 mN/m (Dynes/cm).

6.2 Cliché/Printing Equipment/Pad:

The T 100 series can be used with all pad printing machines with clichés and pads currently used for industrial applications. However, it has to be noted that type (screen) and etching depth of the cliché, mould and hardness of the pad, the adjustment of the ink (addition of thinner and/or retarder) as well as printing speed may influence the printing result.

6.3 Drying Conditions:

The drying properties of the pad printing ink during the printing process have a decisive meaning for the printing result.

An optimal ink transfer can be achieved if - due to solvent evaporation - a superficial drying of the ink first inside of the cliché and afterwards on the pad is guaranteed. Under these circumstances the total ink quantity will be transferred from the pad to the substrate.

At processing temperatures of more than 25° C and at low printing speeds a drying of the ink in the cliché may happen. Not all parts of the image area will be transferred.

At room temperatures (21° C) the inks of T 100 series are grip dry within 5 minutes, at a temperature of 50° C within 2 minutes and after shock heat drying within 2 - 3 seconds. To accelerate the ink drying onto the substrate the use of hot air blower or infrared lamps is recommended. A flame treatment is possible.

It must be noted that after heat treatment a cooling section must be installed in order to avoid that the printed parts stick together.

7. CLEANING:

Clichés, squeegees and so on can be cleaned with the RUCO Universal cleaner 32 335. For the cleaning of the pad please see to the application references of the pad manufacturers. If cleaning is not performed by fully automatic cleaning equipment, protective gloves must be worn.

Universal Cleaner	UR	32 335
Cleaner for cleaning equipment	WR	100 VR 1240C
Bio degradable Cleaner	BR	100 VR 1272

8. SHELF LIFE:

A shelf life of 12 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.

9. PRECAUTIONS:

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 Technical Application Department.

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