

Technical Data Sheet
Pad printing inks
1. APPLICATION FIELDS:

Versatile one or two component ink for pad printing on ABS, acrylic glass, rigid PVC, lacquered surfaces, metal, paper, carton, polyamide, polycarbonate, pre-treated polyethylene (PE) and polypropylene (PP), polyurethane as well as two component ink for 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 glossy, physically drying and chemical reactive pad printing ink exhibits good mechanical and chemical resistance, as well as a good flexibility. The colour shades of T70 are light fast, weather resistant and guarantee high opacity. 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. Field proven mixing formulations exist for Pantone®, HKS, RAL, NCS, etc..

3.1 Basic colours:

Light Yellow	B 1	T70-2138
Medium Yellow	B 2	T70-2139
Orange	B 3	T70-3413
Light Red	B 4	T70-3414
Red	B 5	T70-3415
Pink	B 6	T70-3416
Violet	B 7	T70-5418
Blue	B 8	T70-5419
Green	B 91	T70-6761
White	B 11	T70-1022
Black	B 12	T70-9005
Clear Base		T70-0001

3.2 Special Products:
3.2.1 High Opacity Formulations:

White	(high opacity)	T70-1027
Black	(high opacity)	T70-9016

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	T70-2109
Euro-Magenta	T70-3328
Euro-Cyan	T70-5321
Halftone Black	T70-9007

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.

Overprinting Lacquer	T70-0003
Raster Paste (max. addition: 10 %)	T70-0007

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 35353
Thinner, standard (addition: 15 - 25 %)	VD 38571

While printing on plastics such as ABS, acrylic glass and styrene tension corrosion can appear while using certain solvents. In order to avoid such effect the special thinner 35696 should be used.

Special Thinner (addition: 15 - 25 %)	35696
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5.2 Retarder

Retarder will influence the drying time of the ink under different climate conditions. Retarder VZ 35928 is a medium drying retarder, VZ 34392 is a very slow drying retarder. While using the ink under extreme climate conditions (Temperature higher than 28°C) it is recommended to use the retarder VZ 35928 as a thinner to adjust the viscosity of the ink.

Retarder, standard (addition 5 - 10 %)	VZ 35928
Retarder, slow (addition max. 5 %)	VZ 34392

It must be noted that an excessive addition of retarder may negatively influence the ink transfer and bulk goods resistance, due to the slow evaporation of the retarder.

Retarder VZ 34392 should only be used in conjunction with thinner VD 38571 or retarder VZ 35928.

Special Retarder, very slow (addition max. 10%) 100VR1170

5.3 Hardener:

Hardener 100VR1433 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 100VR1433
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 crosslinking 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.

5.4 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 100VR133

6. PROCESSING INSTRUCTIONS:

6.1 Pre-treatment:

Pre-treatment of polyolefines (PE/PP) must be performed by Flame Treatment or CORONA-discharge in order to insure the adhesion of the UV screen 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 T70 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 Curing Conditions:

At room temperatures (21° C) the inks of T 70 series are grip dry within 5 minutes. While adding hardener to the ink, drying of the ink will take approximately 36 hours at room temperature. To accelerate the ink drying onto the substrate the use of hot air blower or infrared lamps is recommended. 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. It must be noted that the pad does not come into contact with solvents. 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 32335
Cleaner for cleaning equipment	WR 100VR1240C
Bio degradable Cleaner	BR 100VR1272

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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