

**Technical Data Sheet**
**Screen printing inks**
**1. APPLICATION FIELDS:**

One and two component ink for screen printing on lacquered surfaces, metal, paper, carton, polyamide, polycarbonate, pre-treated polyethylene (PE) and polypropylene (PP), polyurethane and rigid PVC and as two component ink onto 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 screen printing ink exhibits good mechanical and chemical resistance, as well as a good flexibility. The colour shades of 700ST 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. (see 6.2).

**3.1 Basic colours:**
**3.1.1. Standard ink series:**

The basic colours of series B exhibit better light fastness as well as higher opacity than series G.

Light Yellow	B 1	700ST2138
Medium Yellow	B 2	700ST2139
Orange	B 3	700ST3413
Light Red	B 4	700ST3414
Red	B 5	700ST3415
Pink	B 6	700ST3416
Violet	B 7	700ST5418
Blue	B 8	700ST5419
Green	B 91	700ST6773
White	B 11	700ST1022
Black	B 12	700ST9005
Clear Base		700ST0003

**3.1.2. Basic colours with less light fastness:**

Light Yellow	G 1	700ST2102
Medium Yellow	G 2	700ST2205
Orange	G 3	700ST3296
Light Red	G 4	700ST3601
Red	G 55	700ST30107
Pink	G 6	700ST3300
Violet	G 7	700ST5284
Blue	G 8	700ST5285
Green	G 91	700ST6761
White	G 11	700ST1020
Black	G12	700ST9004
Clear Base		700ST0003

**3.2 Special Products:**
**3.2.1 High Opacity Formulations:**

White	(high opacity)	700ST1014
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The Black B 12 700ST9005 can also be used as the Black of high opacity.

**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	700ST2109
Euro-Magenta	700ST3328
Euro-Cyan	700ST5321
Halftone Black	700ST9007

**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.

The Clear Base 700ST0003 can also be used as overprinting lacquer.

Raster Paste	(max. addition: 10 %)	700ST0007
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# 700ST

## 5. ADDITIVES:

### 5.1 Thinner:

Prior to production, the screen 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 35 696 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
Retarder, Special (addition 5 – 10 %)	VZ 38693

It must be noted that an excessive addition of retarder may negatively influence the ink transfer and bulk good 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.

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 retarder 38 693 should be used.

### 5.3 Hardener:

Hardener 100VR1433 is the standard hardener. The mixing ratio is 5 parts of ink with 1 part of hardener. At room temperature of 20° C a pot life of approximately 12 hours can be achieved.

If a faster drying of the ink is required, hardener SE5214 is recommended. At room temperatures the pot life is approx. 8 hours.

Hardener, standard (addition 20 %)	100VR1433
Hardener (addition 20 %)	SE5214

Please note that the final chemical and physical resistance of the inks of series 700ST 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
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## 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 Stencils/Printing Equipment:

The inks of 700ST series can be printed with all commonly available screen printing meshes. They can be used with all screen printing machines with printing speeds of about 1.800 – 3.600 pieces/h with screen printing stencils currently used for industrial applications. The colour mixing formulations are based on a 120-34 threads/cm mesh.

### 6.3 Curing Conditions:

The inks of 700 ST series are physically drying through the evaporation of solvent within 1 hour. While multi-colour printing we recommend an intermediate drying process by infrared lamps or hot air blower.

The finally drying will be achieved at 70 – 80 ° C during 1 – 2 minutes.

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## 7. CLEANING:

Screens and squeegees and 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.

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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