

### 1. APPLICATION FIELDS:

Versatile one and two component ink for screen printing on ABS, acrylic glass, lacquered surfaces, metal, paper, carton, polyamide, polycarbonate, pre-treated polyethylene (PE) and polypropylene (PP), polystyrene, polyurethane and rigid PVC.

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 180PE 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	180PE2423
Medium Yellow	B 2	180PE2424
Orange	B 3	180PE30115
Light Red	B 4	180PE30116
Red	B 5	180PE30117
Pink	B 6	180PE30118
Violet	B 7	180PE50027
Blue	B 8	180PE50028
Green	B 91	180PE60045
White	B 11	180PE1065
Black	B 12	180PE9028
Clear Base		180PE0016

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

Light Yellow	G 1	180PE2170
Medium Yellow	G 2	180PE2414
Orange	G 3	180PE3452
Light Red	G 4	180PE30093
Red	G 55	180PE30634
Pink	G 6	180PE3455
Violet	G 7	180PE5434
Blue	G 8	180PE5435
Green	G 91	180PE60038
White	G 11	180PE1026
Black	G 12	180PE9005
Clear Base		180PE0016

### 3.2 Special Products:

#### 3.2.1 High Opacity Formulations:

White	(high opacity)	180PE1031
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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	180PE2085
Euro-Magenta	180PE3240
Euro-Cyan	180PE5235
Halftone Black	180PE9045

### 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 %)	180PE0013
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## 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

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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

## 5.2 Retarder

Retarder will influence the drying time of the ink under different climate conditions. Retarder VZ 35 928 is a medium drying retarder, VZ 34928 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 35 928 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 the 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.

## 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.

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

Hardener, standard (addition 10 %) 100VR1433

Hardener (addition 10 %) SE5214

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 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 180PE series can printed with all commonly available screen printing meshes. They can be used with all screen printing machines for 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 180 PE series are physically drying through the evaporation of solvent during 5 min. at 20° C and then are drying chemically by the addition of hardener. While multi-colour printing we recommend an intermediate drying process by infrared lamps or hot air blower. The finally drying will be achieved at 40 – 50 ° C during 1 – 2 minutes.

## 7. CLEANING:

Clichés, squeegees and so on can be cleaned with the RUCO Universal cleaner 32 335. It must be noted that the screen does not come into contact with solvents. For the cleaning of the screen please see to the application references of the screen 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

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## 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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The above statements are accurate to our best knowledge and belief. However, due to the great number of possible influences during the manufacture of the substrate and the variation in the application process we suggest that suitability testing take place under actual conditions before production. No legally binding guarantee of certain properties or of the suitability for a definite application purpose can be derived from the above information.

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