

## Technical Data Sheet

## Pad printing inks

### 1. APPLICATION FIELDS:

Versatile one and two component ink for pad 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 pad printing ink exhibits good mechanical and chemical resistance, as well as a good flexibility. The colour shades of T 18 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	T18-2423
Medium Yellow	B 2	T18-2424
Orange	B 3	T18-30115
Light Red	B 4	T18-30116
Red	B 5	T18-30117
Pink	B 6	T18-30118
Violet	B 7	T18-50027
Blue	B 8	T18-50028
Green	B 91	T18-60038
Brown	B 10	T18-8432
White	B 11	T18-1065
Black	B 12	T18-9028
Clear Base		T18-0016

#### 3.2 Special Products:

##### 3.2.1 High Opacity Formulations:

White	(high opacity)	T18-1031
Black	(high opacity)	T18-9046

### 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	T18-2309
Euro-Magenta	T18-3861
Euro-Cyan	T18-5763
Halftone Black	T18-9045

### 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	T18-0016
Raster Paste (max. addition: 10 %)	T18-0013

### 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

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 %)	35 696
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#### 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 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 35 928 as a thinner to adjust the viscosity of the ink.

Retarder, standard (addition 5 – 10 %)	VZ 35 928
Retarder, slow (addition max. 5 %)	VZ 34 392

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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 34 392 should only be used in conjunction with thinner VD 38 571 or retarder VZ 35 928.

Special Retarder, very slow  
(addition max. 10%) 100 VR 1170

## 5.3 Adhesion Modifier:

In order to achieve an adhesion onto not pre-treated Polypropylene (PP) the addition of adhesion modifier HV 100 VR 1260 is recommended. Please note that the addition of the adhesion modifier will accelerate the drying of the ink.

Adhesion modifier  
(addition 10 – 20 %) HV 100 VR 1260

## 5.4 Hardener:

Hardener 37172 is the standard hardener. At room temperature of 20° C a pot life of approximately 12 hours can be achieved.

Hardener FL 1484 is recommended in order to achieve a higher weather resistance as well as for the use of closed systems. The reactivity of the hardener is lower in comparison with the hardener 37172, so the pot life will 12 – 14 hours. The final hardening of the film will be finished after 2 days.

Hardener, standard (addition 10 %) 37172

Hardener (addition 10 %) FI 1484

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.

## 5.5 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 or CORONA-discharge in order to insure 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 18 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 18 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 and other working materials 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 32 335  
Cleaner for cleaning equipment WR 100 VR 1240C  
Bio degradable Cleaner BR 100 VR 1272

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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.

ATM-T18-070730-10