

SERIES T400

CYCLOHEXANONE-FREE

Technical Data Sheet

Screen and Pad Printing Inks

1. APPLICATION FIELDS:

Versatile one and two component ink for screen and 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 **cyclohexanone-free**, 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 T400 are light fast, weather resistant and guarantee high opacity. A special product test is recommended prior to production.

The used raw materials comply with the limits of metal elements stipulated by the actual EEC regulation *EN 71-3 (Safety of Toys), part 3* (Migration of Certain Elements).

For Gold and Silver inks it is recommended to proof if the thresholds for aluminum, copper and zinc are respected.

3. RANGE OF COLOURS:

The basic ink mixing system consists of 9 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:

3.1.1. Standard ink series:

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

Yellow	M 1	T400-2007
Yellow	M 2	T400-2006
Orange	M 3	T400-3017
Red	M 5	T400-3018
Pink	M 6	T400-3019
Violet	M 7	T400-5015
Blue	M 8	T400-5016
Green	M 9	T400-6005
White	M 11	T400-1007
Black	M 12	T400-9007
Clear Base		T400-0004

4. ADDITIVES:

4.1 Thinner:

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

Thinner, very fast	add (15 - 25 %)	100VR1440
Thinner, standard	add (15 - 25 %)	100VR1467

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	add (15 - 25 %)	100VR1455
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4.2 Screen printing process:

For screen printing we will recommend to use the thinner 100VR1453 as well as the retarder 100VR1170.

Thinner, slow	add (25-35) %	100VR1453
Retarder	add (15-25) %	100VR1170

4.3 Retarder:

Retarder will influence the drying time of the ink under different climate conditions. Retarder 100VR1445 is a medium drying retarder, 100VR1322 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 100VR1445 as a thinner to adjust the viscosity of the ink.

Retarder, standard	add (5 – 10 %)	100VR1445
Retarder, slow	add (max. 5 %)	100VR1322

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 100VR1322 should only be used in conjunction with thinner 100VR1467 or retarder 100VR1445.

4.4 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 8-12 hours can be achieved. Hardener 100VR1491 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 100VR1433, so the pot-life will be 12 – 14 hours. The final hardening of the film will be finished after 2 days.

Hardener, standard	add (10 %)	100VR1433
Hardener,	add (10%-15%)	100VR1491

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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 cannot be overprinted.

4.4 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 add (max. 0,5-1 %) 100VR133

5. PROCESSING INSTRUCTIONS:

5.1 Pre-treatment:

Pre-treatment of polyolefins (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).

5.2 Stencils/Printing Equipment:

The inks of T400 series can be printed with all commonly available screen and pad printing machines with the general using screen printing meshes as well as clichés and pad types. T400 can be used for screen printing machines with printing speeds of about 1.800 – 3.600 pieces/h with screen printing stencils currently used for industrial applications.

However, it must be taken into consideration that the type (screening) and etching depth of the cliché, the shape and hardness of the pad, the setting of the color (thinner or retarder) and the printing speed have an influence on the printing result.

5.3 Curing Conditions:

The inks of T400 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.

6. CLEANING:

Clichés, squeegees and so on can be cleaned with the RUCOINX Universal cleaner 100VR1442. 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	100VR1442
Cleaner for cleaning equipment	100VR1240C
Biodegradable Cleaner	100VR1272

7. 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.

8. 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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