

**Technical leaflet****2-component pad printing ink****SERIES 784****High resistant pad printing ink for technical and industrial applications on plastics and metals**

**High opaque, glossy pad printing ink with fast curing properties for industrial applications on different plastics, metals and coated surfaces.**

**Based on high chemical resistant resins, this ink is for industrial in- and outdoor applications.**

**Substrates**

The created properties of this ink line are without problems on a wide range of different substrates such as rigid PVC, acrylics like PMMA (take care: Risk of brittleness on injection moulded materials), polycarbonate, pre-treated polyolefines (PE/PP), many lacquered and coated surfaces, also polyamide (Nylon) and polyethyleneimide and polyetherimide. Special on polystyrene and its modifications (ABS, SAN; etc.) the use of special thinner Series 10-0330 is recommended. In addition to this plastics it's possible to print on metals, aluminum (raw, anodized, brushed) compound materials such as Alucobond, Dibond and Vekaplan AL, wood and other natural substrates. Cross hatch tests plus tape tests (DIN 53151) including fingernail test processed at 2-component (5:1 with hardener Series 700-HDA) were made upon 100 h rest phase under normal conditions.

This wide variety of printable materials and also the multifarious surface properties makes it absolutely necessary for own printing tests under local conditions with regard to the intended purpose prior to starting the production.

Due to the constant further development and optimizing of Series 784 the number of practical substrates may still increase.

**Applications**

Operational areas are the most of decorative and functional applications on the most substrates for advertisement articles (hand out market), industrial applications like automotive industry, electronic and pharmaceutical market, packaging's like beer crates etc. The high quality raw materials used make Series 784 suitable where extremely mechanical and chemical resistance is needed and also a good weatherability is required. The recommended hardener system is Series 700-HDA, mixture 5:1 for all plastics and metals. Series 784 is based on different polyacrylic-resins, so obligatory in case of outdoor use is the absolute gloss stability. It's also possible to work with the other offered hardener systems Series 700-HDI and Series 700-HDR (special for backing processes).

**Characteristics**

This modern pad printing ink is suitable for open inkwell equipment and also for the conception of closed cup (pot) systems. The Series 784 is free of iron containing materials, so the printing problems, produced through magnetizing of metal plates, filling knife, metal squeegee or metal caps are eliminated. The ink line is developed to combine rheologic properties for the full area print with very smooth surface and

for the fine detail print with exact definition. The offered solvents (Series 700-017 and Series 10-0330, thinners; Series 700-018 and Series 10-02637, retarders; Series 700-019, accelerator) guarantee a optimized transfer of ink from plate through pad to the substrate and a fast tack-free drying on the printed material. Chemical resistances are developed in a range of 48 to 72 hours in relation to the regional conditions (humidity, temperature, etc.). A forced curing with 140-160°C for a period of 20-30 minutes is always helpful.

**Auxiliary agents**

The pad printing inks Series 784 are developed for user-friendly handling. This means, that a normal reduction of viscosity with the offered thinner Series 700-017, addition amounts app. 15% by weight results a constant long-term consistency for open and closed machinery equipment's. The rotative technology requires a higher dilution with thinner; we recommend accelerator Series 700-019, addition around 20 weight-%.

The optimized mixing rates with hardeners are always 5 parts to 1 part, for more flexible and also chemical resistant results a mixing rate of 8 or 10 parts to 1 part is possible. We recommend the systems Series 700-HDA and Series 700-HDR (for backing process) for all metals and plastic materials. The pot life is in relation to the regional conditions always > 8 hours. The experience shows that the 2-component metallics has a restriction in pot life; it's possible that the practical rheologic properties are reduced to 4 hours (special in addition of Series 700-HDA).

Other additives offering useful possibilities of modification are specified in the Technical leaflet Series 700: Auxiliary agents for pad printing inks.

The addition of additives changes the actual product properties so that the spectrum of printing stock as well as the resistances may be modified, in some cases to a negative result.

**Pigments and Light Fastness**

Points to the future, the high opaque ink line Series 784 is heavy metal free and mono-pigmented. So in the most cases a pre-print with white to achieve the color shade is not necessary or superfluous. A useful choice of high density color shades is at the disposal of the user to cover practically the whole color chromatic spectrum:

Series 784-1005	MS-Lemon yellow
Series 784-1200	MS-Corn yellow
Series 784-2005	MS-Orange
Series 784-3005	MS-Carnation red
Series 784-4005	MS-Violet
Series 784-4505	MS-Cobalt blue

Series 784–8005 MS-Black  
 Series 784–9005 MS-White

In addition to these opaque base colors the customer find five transparent, high pigmented color shades for special mixtures and to increase sometimes the brilliance. In combination with metal particles results attractive effects:

Series 784-1105 MS-Transparent yellow  
 Series 784-3105 MS-Transparent red  
 Series 784-3305 MS-Transparent magenta  
 Series 784-5005 MS-Transparent blue  
 Series 784-6005 MS-Transparent green

All color shades, the opaque base colors and also the transparent basic colors are high pigmented and documents in the moment the maximal optical properties and possibilities on the market.

As standard inks we offer also the mat versions

Series 784-8005/MT Black, mat  
 Series 784-9005/MT White, mat

As special adjustment the user can get all base colors and individual color shades in semi-mat or mat.

The process colors for 4-color halftone prints are ready to print and follows the Europe scale:

Series 784-0950 Cyan  
 Series 784-0960 Yellow  
 Series 784-0970 Magenta  
 Series 784-0980 Black

and in addition the transparent bases

Series 784-04 Transparent paste  
 Series 784-06 Thixotropic paste

As standard varnishes are the systems

Series 784-05 Varnish, glossy  
 Series 784-05-MT Varnish, mat  
 Series 784-07 Varnish, textured

available and this in complement with nearly all individual specialties.

As metallic effect colors we have the standard range

Series 784-100 Silver, resistant  
 Series 784-101 Silver, brilliant  
 Series 784-102 Gold, light  
 Series 784-103 Gold, standard  
 Series 784-105 Gold, ducat  
 Series 784-106 Copper

All inks of this series are non toxic and follow the europe regulation EN 71, part 3 (Safety of toys, migration of certain elements). All pigments used in Series 784 shows a light fastness of 6-8 according to wool scale (DIN 16525). If the color shades are reduced with high amounts of white or transparent systems, light fastness might be reduced.

## Drying

The composition of the solvents ensures both long-lasting stability of the viscosity in the ink troughs and ink containers and quick release of solvents in the dabbing process. The pad printing system Series 784 doesn't show any corona formation, ensures an unproblematic transfer as well as fast drying on the printed material. There's normally no need for any special drying aggregates. Universal thinner Series 700-017 usefully combines the above mentioned properties and mostly makes the use of special retarders unnecessary. For faster crosslinking between resins and hardener a Leister-hot air curing is helpful. The experience shows that the accelerator works also well in closed cup systems.

## Printing blocks / Cliché

Pad printing ink Series 784 doesn't contain any ingredients which attack polymer clichés or cause oxidation's on steel printing blocks. Both printing equipment's are suitable, whereby a screening (positive contact screen) is special in case of polymer clichés advantageous for the production and printing process. Etching depths of app. 30µm for steel blocks and around 20µm for polymer clichés, depending on the motif are practicable and do not require any special preliminary test's.

## Pads

The choice of the correct type of pad, shape and Shore-hardness depends on the printing article (form, structure, surface tension, etc.). It's independent of pad printing ink Series 784 which accepts all types of pads. The handling of pads is generally binding, i.e. delubrication of new printing pads, careful handling, no solvents, cleaning with adhesive tape, etc. Silicone-activation of old pads may be achieved with additive Series 10-03775.

## Cleaning

Wet pad printing ink or not completely cured inks can be removed with all commercial solvent based cleaning agents of little polarity. Pad printing-specific universal cleaning agents like Series 700-URT and Series 700-BRT are the most suitable. Removal of completely cured pad printing ink Series 784 is time consuming and only possible using very aggressive media (decoaters). If cleaning of the pads by adhesive tape doesn't work, low aggressive cleaning agent Series 10-009 may be applied by a cotton towel.

## Storage

Under normal conditions (limited change of temperature, medium temperature 20-35°C, humidity 20-70%) we guarantee a shelf life of 24 month. For metallics be valid a storage time of 12 month.

## Packing

Series 784 are available in 0,5, 1 and 5 kg polyethylene containers. White is also offered in 2kg PE-containers. Removed residues of ink can be supplied to the Polyolefine-recycling. Packaging containing unhardened residues of ink are subject to the special waste disposal regulations (waste disposal key (Abfallschlüssel) 55509 for Germany, waste disposal key (Sonderabfall) X(1640) for Switzerland).

## Precautionary measures

Read material safety data sheet prior to processing.

The material safety data sheets according to OSHA form contain indication of hazardous ingredients, TLV-level and instructions for precautions when processing, handling and storing as well as first aid. The information given in the MSDS refers to processing as described in this technical leaflet. The statements in our leaflets have been made to the best of our knowledge and are given without any obligation. They serve to advise our business associates, **but it is absolutely necessary** to make your own printing tests under local conditions, with regard to the intended purpose prior to starting the printing job. In case of doubt please contact our technical advisors. The application, use and processing of the products delivered by us are beyond our control. This is subject to our responsibility and there is no liability or guarantee on our part.

All former leaflets are no longer valid.

Jun-02