



Technical Data Sheet

TPC 548

2- Component Pad Printing Ink

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Two component Pad Printing Ink TPC 548

High resistant pad printing ink for technical and decorative applications on plastics and metals.

High opaque, glossy pad printing ink for industrial and graphic 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 rigid 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), polyetherimide. Special on polystyrene and its modifications (ABS, SAN; etc.) the use of special thinner VP 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 including fingernail test processed at 2-component (4:1 with hardener HA) 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 TPC 548 the number of practical substrates may still increase.

Application

Operational areas are the most of decorative and functional applications on rigid substrates for advertisement articles (hand out market), industrial applications like automotive industry, electronic and pharmaceutical market, packaging, etc. The high quality raw materials used make TPC 548 suitable where extremely mechanical and chemical resistance is needed, e.g. on golf balls. The recommended hardener system is HC, mixture 4:1 for all plastics and metals. TPC 548 is based on polyurethane-resins, so obligatory in case of outdoor use is the absolute gloss stability.

Properties and handling

This modern pad printing ink is suitable for open inkwell equipment and also for the conception of closed cup (pot) systems. The TPC 548 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 (thinner VM, VR and VO, retarders ZM and ZU) guarantee an optimized transportation 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 72 to 96 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.

Additives

The pad printing inks TPC 548 are developed for userfriendly handling. This means, that a normal reduction of viscosity with the offered thinner VM, addition amounts app. 15% by weight results a constant long-term consistency for open and closed machinery equipment. The rotative technology requires a higher dilution with thinner; we recommend thinner VO, addition around 20 weight-%.

To achieve shorter cycle or drying times, we recommend the fast thinner VO or the accelerator VR. The optimized mixing rate with hardeners is always 4 parts to 1 part. 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.

Other additives offering useful possibilities of modification are specified in the Technical leaflet: Auxiliary agents for pad printing inks. The addition of additives changes the actual product properties so that



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the spectrum of printing stock as well as the resistances may be modified, in some cases to a negative result.

Choice of pigments

Points to the future, the high opaque ink line TPC 548 is heavy metal free and mono-pigmented. So in the most cases a pre-print with white to achieve the colour shade is not necessary or superfluous. A useful choice of high density colour shades is at the disposal of the user to cover practically the whole colour chromatic spectrum:

Standard Shades

TPC 548/10-NT light yellow
TPC 548/11-NT dark yellow
TPC 548/12-NT orange yellow
TPC 548/15-NT orange
TPC 548/17-NT ochre
TPC 548/20-NT light red
TPC 548/21-NT red
TPC 548/22-NT dark red
TPC 548/25-NT pink
TPC 548/30-NT luminous blue
TPC 548/31-NT blue
TPC 548/32-NT dark blue
TPC 548/33-NT black blue
TPC 548/34-NT light blue
TPC 548/37-NT violet
TPC 548/40-NT light green
TPC 548/41-NT dark green
TPC 548/42-NT turquoise
TPC 548/50-NT light brown
TPC 548/51-NT dark brown
TPC 548/65-NT black

Other shades can be manufactured subject to our special ink shade regulation.

Mixing System Base Colours

TPC 548/PC-01-NT	Lemon yellow
TPC 548/PC-02-NT	Corn yellow
TPC 548/PC-03-NT	Orange
TPC 548/PC-04-NT	Carnation red
TPC 548/PC-05-NT	Violet
TPC 548/PC-06-NT	Cobalt blue
TPC 548/PC-07-NT	Green
TPC 548/PC-11-NT	White
TPC 548/PC-12-NT	Black

These high-covering basic shades are complemented by the transparent inks:

TPC 548/PC-14-NT	Yellow transparent
TPC 548/PC-15-NT	Red transparent
TPC 548/PC-16-NT	Magenta transparent
TPC 548/PC-17-NT	Blue transparent.

These transparent inks are suitable both to increase the brilliance at ink mixing and to produce metal colour shades by adding effect bronzes.

With respect to the halftone ink, the press-ready ink systems:

TPC 548/80-NT	Yellow
TPC 548/81-NT	Magenta
TPC 548/82-NT	Cyan
TPC 548/83-NT	Black/depth

as well as cutting pastes

TPC 548/TP	Transparent paste
TPC 548/TX	Thixotropy paste

are available.

Various standard varnishes are at the disposal of the user:

TPC 548/MT	Mat varnish
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which may be completed by individual special adjustments.

As metal effect inks the product pallet offers:

TPC 548 / 73-NT	Gold, ducat
TPC 548 / 74-NT	Silver, brilliant
TPC 548 / 75-NT	Gold, light
TPC 548 / 76-NT	Gold, standard
TPC 548 / 78-NT	Copper
TPC 548 / 79-NT	Silver, resistant

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 TPC 548 shows a light fastness of 6-8 according to wool scale (DIN 16525). If the colour shades are reduced with high amounts of white or transparent systems, light fastness might be reduced.



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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 TPC 548 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 VM 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 thinner VO works also well in closed cup systems.

Printing plates

Pad printing ink TPC 548 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. 22µm for steel blocks and around 40µm 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 hardness depends on the printing stock. It is independent of pad printing ink TPC 548 which accepts all types of pads. The handling of pads is generally binding, i.e. delubrication of new printing pads, careful handling, cleaning with adhesive tape, etc.

Cleaning

The pad printing inks of TPC 548 can be removed from printing blocks and working material without any problems by commercial solvent-based cleaning agents. We recommend to use Universal cleaners RE and RM.

If the cleaning of the printing blocks by adhesive tapes does not work, cleaning agent industrial alcohol an ethanol alcohol may be applied by a cotton towel.

Shelf life

At normal conditions (little changes in temperature, medium temperature between 20-35 °C, humidity 20-70%), these pad printing systems have a shelf life of two years without losing their product properties.

Packing

As standard packing of 1 kg PE containers are available.

Removed residues of varnish can be supplied to the Polyolefin-Recycling. Packaging containing unhardened residues of varnish are subject to the special waste disposal regulations (waste disposal key No. 55509 Germany, waste disposal key No. 1640, Switzerland).

Marking

Read material safety data sheets prior to processing.

The material safety data sheets according to (EG) 1907/2006 contain marking in compliance with the regulation on dangerous preparations (1999/45/EG) as well as instructions for precautions when processing, handling and storing as well as first aid.

The information given in the material safety data sheet refers to processing as described in this product data sheet.

The statements in our leaflets and safety data sheets are based on our present experiences, however they are no assurance of product properties and do not justify a contractual legal relationship. 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 job.

- All former leaflets are no longer valid.

These indications are based on laboratory test and practical experience. Our advice for technical applications is based on our best knowledge and can only be considered as guideline. It does not relieve you of making your own tests.

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 your responsibility and there is no liability or guarantee on our part. April 2008. Version Nr.4