

# Technical Data Sheet

## TPC 558

### 2- Component Pad Printing Ink

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## Two component Pad Printing Ink TPC 558

**High flexible pad printing ink for technical and decorative applications on elastic materials**

**High opaque, glossy pad printing ink for industrial and graphic applications on different soft plastics and rubber materials. 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 soft substrates such as PVC's with high content of plastizisers, different rubber and natural or synthetic caoutchouc materials. Positive experience are also on polyester substrates and coated metals. 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 558 the number of practical substrates may still increase.

### Application

Operational areas are the most of decorative and functional applications on soft substrates for advertisement articles (hand out market), industrial applications like automotive industry, electronic and packaging's, etc. The high quality raw materials used make TPC 558 suitable where extremely mechanical and chemical resistance is needed, f.e. on soft touch surfaces. The recommended hardener system is HA, mixture 4:1 for all plastics and metals. TPC 558 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 558 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, thinner VO and retarder ZM and ZU) guarantee a 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 ink TPC 558 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's. 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 1part. We recommend the systems HA and HB (for backing process) for all plastic and natural 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.

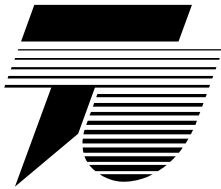
Other additives offering useful possibilities of modification are specified in the Technical leaflet: Auxiliary agents for pad printing inks.

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

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#### Choice of pigments

Points to the future, the high opaque ink line TPC 558 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 558/10-NT light yellow  
TPC 558/11-NT dark yellow  
TPC 558/12-NT orange yellow  
TPC 558/15-NT orange  
TPC 558/17-NT ochre  
TPC 558/20-NT light red  
TPC 558/21-NT red  
TPC 558/22-NT dark red  
TPC 558/25-NT pink  
TPC 558/30-NT luminous blue  
TPC 558/31-NT blue  
TPC 558/32-NT dark blue  
TPC 558/33-NT black blue  
TPC 558/34-NT light blue  
TPC 558/37-NT violet  
TPC 558/40-NT light green  
TPC 558/41-NT dark green  
TPC 558/42-NT turquoise  
TPC 558/50-NT light brown  
TPC 558/51-NT dark brown  
TPC 558/60-NT white  
TPC 558/65-NT black

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

#### Mixing System Base Colours

TPC 558/PC-01-NT	Lemon yellow
TPC 558/PC-02-NT	Corn yellow
TPC 558/PC-03-NT	Orange
TPC 558/PC-04-NT	Carnation red
TPC 558/PC-05-NT	Violet
TPC 558/PC-06-NT	Cobalt blue
TPC 558/PC-07-NT	Green
TPC 558/PC-11-NT	White
TPC 558/PC-12-NT	Black

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

TPC 558/PC-14-NT	Yellow transparent
TPC 558/PC-15-NT	Red transparent

TPC 558/PC-16-NT	Magenta transparent
TPC 558/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 558/80-NT	Yellow
TPC 558/81-NT	Magenta
TPC 558/82-NT	Cyan
TPC 558/83-NT	Black/depth

as well as cutting pastes

TPC 558/TP	Transparent paste
TPC 558/TX	Thixotropy paste

are available.

Various standard varnishes are at the disposal of the user:

TPC 558/MT	Mat varnish
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which may be completed by individual special adjustments.

As metal effect inks the product pallet offers:

TPC 558 / 73-NT	Gold, ducat
TPC 558 / 74-NT	Silver, brilliant
TPC 558 / 75-NT	Gold, light
TPC 558 / 76-NT	Gold, standard
TPC 558 / 78-NT	Copper
TPC 558 / 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 558 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.

#### 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 558 doesn't show any corona formation, ensures an



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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

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 558 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 558 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

TPC 558 are available in 1 kg polyethylene containers. White is also offered in 2 kg 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).

#### 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***