

Technical Data Sheet

TPC 538

2- Component Pad Printing Ink

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Two component Pad Printing Ink TPC 538

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 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 (DIN 53151) including fingernail test processed at 2-component (5:1 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 538 the number of practical substrates may still increase.

Application

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 like beer crates etc. The high quality raw materials used make TPC 538 suitable where extremely mechanical and chemical resistance is needed and also a good weatherability is required. The recommended hardener system is HA, mixture 5:1 for all plastics and metals. TPC 538 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 HM and HB (special for backing processes).

Characteristics

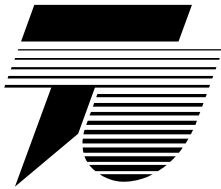
This modern pad printing ink is suitable for open inkwell equipment and also for the conception of closed cup (pot) systems. The TPC 538 is free of iron containing materials, so the printing problems, produced through magnetizing of metal plates, filling knife, metal squeegee or metal caps are eliminated. 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 (thinners VM, VO and VP, retarders ZM and ZU) 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.

Additives

The pad printing inks TPC 538 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 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 hardener HA and HB (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 hardener HA).



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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.

Choice of pigments

Points to the future, the high opaque ink line TPC 538 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 538/10-NT light yellow
TPC 538/11-NT dark yellow
TPC 538/12-NT orange yellow
TPC 538/15-NT orange
TPC 538/17-NT ochre
TPC 538/20-NT light red
TPC 538/21-NT red
TPC 538/22-NT dark red
TPC 538/25-NT pink
TPC 538/30-NT luminous blue
TPC 538/31-NT blue
TPC 538/32-NT dark blue
TPC 538/33-NT black blue
TPC 538/34-NT light blue
TPC 538/37-NT violet
TPC 538/40-NT light green
TPC 538/41-NT dark green
TPC 538/42-NT turquoise
TPC 538/50-NT light brown
TPC 538/51-NT dark brown
TPC 538/65-NT black

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

Mixing System Base Colours

TPC 538/PC-01-NT Lemon yellow
TPC 538/PC-02-NT Corn yellow
TPC 538/PC-03-NT Orange
TPC 538/PC-04-NT Carnation red
TPC 538/PC-05-NT Violet
TPC 538/PC-06-NT Cobalt blue
TPC 538/PC-07-NT Green

TPC 538/PC-11-NT White
TPC 538/PC-12-NT Black

In addition to these opaque base colours the customer find 4 transparent, high pigmented colour shades for special mixtures and to increase sometimes the brilliance. In combination with metal particles results attractive effects:

TPC 538/PC-14-NT Yellow transparent
TPC 538/PC-15-NT Red transparent
TPC 538/PC-16-NT Magenta transparent
TPC 538/PC-17-NT Blue transparent.

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

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

TPC 538/80-NT Yellow
TPC 538/81-NT Magenta
TPC 538/82-NT Cyan
TPC 538/83-NT Black/depth

as well as cutting pastes

TPC 538/TP Transparent paste
TPC 538/TX Thixotropy paste

are available.

As standard varnishes are the systems

TPC 538/MT Mat varnish

available and this in complement with nearly all individual specialties.

As metallic effect colours we have the standard range

TPC 538 / 73-NT Gold, ducat
TPC 538 / 74-NT Silver, brilliant
TPC 538 / 75-NT Gold, light
TPC 538 / 76-NT Gold, standard
TPC 538 / 78-NT Copper
TPC 538 / 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 538 shows a light fastness of 6-8 according to wool scale (DIN 16525). If the colour shades are



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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 538 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 538 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 538 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 528 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

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

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

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