

Technical leaflet**1- and 2-component screen printing ink****SERIES 660****Multi purpose screen printing ink for synthetic and natural textiles and fabrics****High opaque screen printing ink for industrial and graphic applications on various fabrics, textiles and soft surfaces. 1- and 2-component screen printing ink based on chemical resistant resins; this ink is for in- and outdoor applications.****Substrates**

The created properties of this ink line are without problems on a wide range of different synthetic textiles like polyamide (f.e. Nylon), polyester materials (f.e. Trevira) and also mixtures of synthetic fabrics with natural components, mostly cotton. Experience shows that in addition to fabrics other difficult materials like synthetic rubbers, soft-PVC and different urethanes complete the spectrum of printable materials,

Cross hatch tests plus tape tests including fingernail test processed at 2-component (10:1 with hardener Series 600-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 660 the number of practical substrates may still increase.

Applications

Operational areas are the most decorative and functional applications for the common substrates of advertised fabric articles (bags, ties, umbrellas, etc.), textiles (shirts, overalls, sportswear), sun blinds, flags, pennants and sails. Another application is the manufacturing of fabric labels in the thermo transfer process. The high quality raw materials used, make Series 660 suitable where extremely mechanical and chemical resistance is needed and a good weatherability is required. The recommended hardener system is Series 600-HDA, mixture 10:1 for all substrates and uses. Series 660 is based on different polyester and acrylic-resins, so obligatory in case of outdoor use is the absolute gloss stability. It's also possible to work with the other offered hardener system Series 600-HDR (special for backing processes).

Characteristics

This modern screen printing ink is suitable for flatbed equipment and also for the use in hand printing.

The ink line is developed to combine the rheologic properties for a full area print with a very smooth surface and for the fine detail print with exact definition. The offered solvents (Series 600-017, thinner; Series 600-018, retarder and Series 10-02637, special long retarder; Series 600-019, accelerator) guarantee an optimized use in the rec-

ommended printing processes. 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.

Auxiliary agents

The screen printing inks Series 660 were developed for user-friendly handling. This means that a normal reduction of viscosity with the offered thinner Series 600-017, addition amounts app. 15% by weight, results in a constant long-term consistency for hand print and automated printing equipment. Cylinder press technology requires a higher dilution with thinner; we recommend accelerator Series 600-019, addition around 20 weight-% and also special dryer conceptions.

The optimized mixing rate with hardeners is normally 10 parts to 1 part. In relation to chemical and mechanical resistances, and also flexibility a reduction of hardener quantities can bring advantages. We recommend these systems Series 600-HDA and Series 600-HDR (for backing process) on all substrates and materials. The pot life is in relation to the regional conditions always > 8 hours. 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 Series 600: Auxiliary agents for 2-component screen printing inks.

Special for absorbing or wide-mashed fabrics the addition of 5-10 % by weight of hold-out additive Series 10-03861 is sensible.

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 for the future, the high opaque ink line Series 660 is heavy metal free and mono-pigmented. So in 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 660-1000	MS-Lemon yellow
Series 660-1200	MS-Corn yellow
Series 660-2000	MS-Orange

Series 660-3000	MS-Carnation red
Series 660-4000	MS-Violet
Series 660-8000	MS-Black
Series 660-9000	MS-White
Series 660-0900	MS-Ultramarine (no lightfastness)

In addition to these opaque base colors the customer will find 5 high pigmented transparent color shades for special mixtures and sometimes to increase the brilliance. In combination with metal particles results attractive effects:

Series 660-1100	MS-Transparent yellow
Series 660-3100	MS-Transparent red
Series 660-3200	MS-Transparent dark red
Series 660-3300	MS-Transparent magenta
Series 660-5000	MS-Transparent blue
Series 660-6000	MS-Transparent green

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

As standard inks we offer also the high opaque versions

Series 660-33	Black, opaque
Series 660-00	White, opaque

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 660-0950	Cyan
Series 660-0960	Yellow
Series 660-0970	Magenta
Series 660-0980	Black

and in addition the transparent bases

Series 660-04	Transparent paste
Series 660-06	Thixotropic paste

As standard varnishes are the systems

Series 660-05	Varnish, glossy
Series 660-05-MT	Varnish, mat
Series 660-07	Binder

available and this in complement with nearly all individual specialties.

As metallic effect colors we have the standard range

Series 660-100	Silver, resistant
Series 660-101	Silver, brilliant
Series 660-102	Gold, light
Series 660-103	Gold, standard
Series 660-100	Gold, ducat
Series 660-106	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). With the exception of MS-0900 (Ultramarine) and the fluorescent inks (Series 660-40 to Series 660-49) all pigments used in Series 660 shows a light fastness of 6-8 according to the 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 viscosity in the screen and quick release of solvents in the application process. Universal thinner Series 600-017 usefully combines the above mentioned properties and mostly makes the use of special retarders

unnecessary. For faster crosslinking between resins and hardener an IR- or Leister-hot air curing is helpful.

Stencils

As these inks are free of high aggressive solvents and water, the most common emulsions and films can be used. Preliminary test's are necessary by using indirect stencil materials.

Cleaning

Wet screen printing ink, or not completely cured inks, can be removed with all commercial solvent based cleaning agents of little polarity. Screen printing-specific universal cleaning agents like Series 600-URS and Series 600-BRS are the most suitable. Removal of completely cured 2-component screen printing ink Series 660 is time consuming and only possible by using very aggressive media (decoaters).

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 to be valid a storage time of 6 month.

Packing

Series 660 are available in 1 kg and 5 kg polyethylene 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.

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