

UV-curing screen printing ink

SERIES 588

Substrates

In daily practice 150-31 polyester (390 mesh) or coarser fabrics are used to get the properties like opac-

High gloss, low viscosity UV-screen printing ink for decorative and functional print on plastics and different papers, based on high resistant and solvent free raw materials and coating. New rheology qualities for the manufacturing on all passable machine concepts.

The created properties of this series are without problems on plastics and different papers. Belong to this group of substrates you'll find PVC-self adhesive foils, rigid-PVC, polystyrene and it's modifications like ABS, SAN, pre-treated or coated polyester and polyolefines, modified PET-materials (PET-A and PET-G), coated metals and a lot of papers and cardboard's.

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 the number of practical substrates may still increase.

Application

Operational areas are a lot of decorative and functional applications on plastics for advertisement articles and displays with demands on high outside stabilities. Series 588 can be applied on all machine concepts and it does not depend whether there is flat pressure-, cylinder pressure- or a screen printing line used for the printing of hollow solids. Wrappings, bottles, displays, advertisement articles, different foils and much more will be printed lastingly with the series 588. The choice of the raw materials makes the applications in a *mittelfristigen Ausseneinsatz* and also the requirements after high chemical-genuinity possible. The highglossing surface guarantees an extrem high mechanic protection as well as an increased *abrassive* resistance.

In case of producing membrane switches, this ink system shows good compatibility to solvent base inks like series 365, series 386 or series 655 and also excellent embossing properties

Series 588 is a medium viscosity ink line for the range of hand printing to cylinder press application.

Characteristics

This UV-series is free of amines and critical physiological substances like NVP, TPGDA, TMPTA and also solvents. But: Series 588 is a high reactive UV-curable system and must be supposed with the UV-typical handling in printing process. Belong to the Material Safety Data Sheet (MSDS) additional informations are available.

The very low shrinking inclination of used monomer and oligomer materials minimize the risk of overcuring so a multi-layer application is realistic under normal conditions without any problems of intercoat adhesion.

ity, resistance and overprintability.

In all cases of UV-application, the substrate must be free of pollution's like oxidizing substances, fat, migrated additives of protection foils, lubricants of injection moulded processes and dust. Only under this conditions it's possible to get good adhesion and in correlation to this most important characteristic all other ink specifics.

Auxiliary Agents

Series 588 can be used directly from the can and combined rheologic properties for the full area print with very smooth surface and for the fine detail print with exact definition.

For special, individual modifications the printer can fall back on different auxiliary agents like UV-thinner, UV-initiator or wetting additives. For application and addition please refer to our UV-leaflet "Series 500: Auxiliary agents for UV-curable products". If possible, an addition of additives should be avoided as incorrect use, above all overdosage, may cause constant and unfavorable effects to the original product properties.

Pigments and Light Fastness

The Series 588 is free of heavy metals, monopigmented with high opaque characteristics. This advantage gives the opinion to print the most special color shades directly on transparent substrates without white pre-print. The user gets a practical range of high pigmented basic colors to cover the normal chromatic range.

Series 588-1005	MS-Light yellow
Series 588-1205	MS-Dark yellow
Series 588-2005	MS-Orange
Series 588-3005	MS-Red
Series 588-4005	MS-Violet
Series 588-8005	MS-Black
Series 588-9005	MS-White

In addition to this opaque base colors the customer find five transparent, extremely high pigmented color shades or special mixtures and to increase sometimes the brilliance:

Series 588-3105	MS-Magenta red
Series 588-3205	MS-Dark red
Series 588-3305	MS-Magenta
Series 588-4005	MS-Violet
Series 588-5005	MS-Blue
Series 588-6005	MS-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 high opaque qualities

Series 588-33 ST-Black
Series 588-00 ST-White

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 588-0950 ST-Process cyan
Series 588-0960 ST-Process yellow
Series 588-0970 ST-Process magenta
Series 588-0980 ST-Process black

and in addition the transparent bases

Series 588-04 ST-Transparent paste
Series 588-06 Thixotropic paste

In this line we offer a concentrate-range to get higher density values under the names

Series 588-0955 ST-Process cyan, strong

Series 588-0965 ST-Process yellow, strong

Series 588-0975 ST-Process magenta, strong

Series 588-0985 ST-Process black, strong

As standard varnishes are the systems

Series 588-05 ST-Varnish
Series 588-05-MT ST-Varnish, mat
Series 588-07 ST-Varnish, textured

available and this in complement with nearly all individual specialties.

For metallic effects we offer the article

Series 580-07/20 ST-Bronze varnish

where an amount of 20 % (Rate 4:1) of Silver or Gold Bases can be mixed in.

The following metallic bases are available for mixing into the Bronze varnish:

Series 10-02299 ST-Silver coarse (ST-Shade 02299)

Series 10-02523 ST-Silver (ST-Shade 100)

Series 10-03902 ST-Britannia Silver (ST-101)

Series 10-05011 ST-Rich gold (ST-102)

Series 10-03894 ST-Rich pale gold (ST-Shade 103)

Series 10-05013 ST-Pale gold (ST-104)

Series 10-0896 ST-Ducat gold (ST-105)

Series 10-01008 ST-Copper (ST-106)

Series 10-02593 ST-Pearlescent (ST-Shade 200)

As ready made metallic inks are available

Series 588-100 ST-Silver
Series 588-101 ST-Britannia silver
Series 588-102 ST-Rich gold
Series 588-103 ST-Rich pale gold
Series 588-104 ST-Pale gold
Series 588-105 ST-Ducat gold
Series 588-106 ST-Copper
Series 588-02299 Silver, rough

Gold and silver bronzes are metal particles which could react with the pH-acidic UV-components. Therefore mixed bronze inks should be processed quickly. De-

pending on the bronze used oxidation reactions may cause color changes (darker) or thickening of the mixed system due to catalytic effects.

All inks of this series are non toxic and follow the Europe regulation EN 71, part 3. All pigments used in Series 569 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

Series 588 only polymerize to a stable and durable ink film under UV-light of suitable wave length (high or middle pressure mercury lamps with at least 80 W/cm or 200 W/inch). Curing parameter depend on layer thickness, ink shade, substrate color and gloss, temperature. Printed directly on white or transparent materials with a 150-31 polyester fabric at room conditions an energy value of approx. 200-250 mJ/cm², measured at a range of 250-410 nm, max. 365 nm is realistic and necessary.

Under this guideline, the Series 588 shows good overprintability, excellent adhesion and the required resistant properties. All colors have the same reactivity-level for cross-linking and only a very low inclination to overcure.

Stencils

As these inks are free of solvents and water, the most common emulsions and films can be used. However, because often fine fabrics are used and thin layers are required (f.e. 4-color process) high polymer emulsions or capillar films (12-15 µm) should be used.

Cleaning

Unpolymerized UV inks can be removed with all commercial solvent based cleaning agents of little polarity. UV-specific universal cleaning agents like Serie 500-URS and Serie 500-BRS are the most suitable. Removal of completely cured UV inks is time consuming and only possible using very aggressive media (decoaters).

Polluted skin must be cleaned immediately (with warm water and soap), dirty clothes must be changed.

Storage

Under normal conditions (limited change of temperature, medium temperature 20-35°C, humidity 20-70%) we guarantee a shelf life of 12 month. For metallics be valid a storage time of 6 month.

Used containers must be stored under dark conditions without any UV-light influence. It's possible that inks from production are animate and will polymerizing in the container, because the UV-crosslinking process is a chain reaction.

Packing

Series 588 are available in 1kg 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) 55903 for Germany, waste disposal key (Sonderabfall) X(1641) for Switzerland), waste case 080302, EC (European Community).

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 any doubts 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. In case of justified complaints the manufacturer can only be made liable for the countervalue of the used ink system.

Addition of not mentioned products or competitors products are on your own risk and releases Printcolor Screen Ltd. of any later demands, especially in cases of damage and loss caused by alien products.

All former leaflets are no longer valid.

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