

UV-curing screen printing ink

SERIES 535 UV-PACK

High reactive and glossy UV-screen printing ink for decorative and functional applications on polyolefine materials like HDPE or PP and other rigid plastics.

Substrates

The created properties of this series are without problems on pretreated polyolefine plastics like Polyethylene (HDPE) and Polypropylene (PP). In addition Polyamide (PA) and many different rigid-PVC materials as well as co-polymerized Polyolefines belongs to the printable materials.

To achieve a proper and durable adhesion of the ink on polyolefine materials a pre-treatment is necessary. Normally the following values are practicable:

- 38 mN/m (dyn) for Polyethylene (HDPE)
- 43 mN/m (dyn) for Polypropylene (PP)

A flame or plasma-treatment is in most cases more effective and longer-lived than a corona treatment.

Especially Polypropylene contains in many cases recycled or co-polymerized materials. This wide variety of printable materials and also the multifarious surface properties makes it absolutely necessary to make 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 535 UV-PACK the number of practical substrates may still increase.

Application

Operational areas are a lot of decorative and functional applications on injection moulded plastics for packaging.

This includes many different materials like bottles, cans, buckets, etc. as well as cartridges, one-way products and stoppers.

The most requirements for chemical and practical water resistances can be achieved through a careful selection of the raw materials.

The brilliant and extremely glossy and smooth surface gives the extreme high abrasion resistance and mechanical stability of the cross-linked ink.

Series 535 UVPACK is designed for maximum machine and production speed as well as for simple and safe handling.

Characteristics

This UV-curable ink line is free of amines and critical physiological substances like NVP, TPGDA and solvents.

This series is based on materials which do not split Benzole or other harmful or cancer crack products.

But: SERIES 535 UV-PACK is a high reactive UV-curable system and must be supposed with the UV-typical hand-ling in printing process. Belong to the Material Safety Data Sheet (MSDS) additional informations are available.

Auxiliary Agents

SERIES 535 UV-PACK 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 use 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 535 UV-PACK is free of heavy metals, monopigmented with high opaque characteristics. This advantage gives the opinion to print the most special color shades directly on colored substrates without white pre-print. The user gets a practical range of high pigmented basic colors to cover the normal chromatic range.

Series 535-1001	Light yellow
Series 535-1201	Dark yellow
Series 535-2001	Orange bright
Series 535-2101	Orange dark
Series 535-3001	Red
Series 535-3301	Magenta
Series 535-4001	Violet
Series 535-5001	Blue
Series 535-6001	Green
Series 535-8001	Black
Series 535-9003	White

As standard inks we offer also the high opaque qualities

Series 535-33	ST-Black
Series 535-00	ST-White

As special adjustment the user can get all base colors and individual color shades in semi-mat or mat.

The process colors in the halftone area are offering high density values and can be printed with a Extender or on their own:

Series 535-0955 strong	ST-Process	cyan,
Series 535-0965 low, strong	ST-Process	yel-
Series 535-0975	ST-Process	magenta
	strong	
Series 535-0985 strong	ST-Process	black,

and in addition the transparent base

Series 535-04	ST-Transparent paste
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As standard varnishes are the systems

Series 535-05	ST-Varnish
Series 535-05/MT	Varnish, mat
Series 535-07	Varnish, textured

Available.

As metallic effect colors we have the standard range

Series 535-100	ST-Silver
Series 535-101	ST-Britannia silver
Series 535-103	ST-Rich pale gold
Series 535-105	ST-Ducat gold
Series 535-106	ST-Copper

Gold and silver bronzes are metal particles which could react with the pH-acidic UV-components. Therefore mixed bronze inks should be processed quickly. Depending 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 530 UVPACK shows a moderate light fastness of 4-8 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 535 UV-PACK 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. 150-200 mJ/cm², measured at a range of 250-410 nm, max. 365 nm is realistic and necessary.

Under this guideline, the SERIES 535 UV-PACK 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 (de-coaters).

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 35-70%) 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 535 UV-PACK 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 code 080302 for EC.

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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