

**Pigments and Light Fastness**

**UV-curing screen printing ink**

**SERIES 510 UVCD**

**Marking free UV-curable screen printing ink for compact discs (CD`s, CDR and DVD`s)**

**High gloss UV-screen printing ink for decorative and functional print on compact discs, based on non skin irritation and solvent free raw materials.**

**Substrates**

The created properties of this series are without problems on fresh polymerised UV-spin coats. As well all solvent based spin coats are suitable.

The very mild monomer and oligomer materials of this progressive ink shows no negative influence to the overprinted spin coats.

**Application**

Operational areas are all parts of CD-printing (CD`s, CD-ROM, CD-R and DVD) considering the required resistances like transport stabilities (climatic tests without change of red noise and block error values) and user friendly properties ( resistance against normal household cleaner, mechanical and abrasion stability, low odour, no migration of additives).

**Characteristics**

This modern UV-system is based on non-irritating and non-sensitized raw materials (following the regulations of OECD 404 and OECD 405).

This series is free of amines and critical physiological substances like NVP, TPGDA, HDDA or TMPTA and also free of solvents. But: Series 510 UV-CD 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.

**Auxiliary Agents**

Series 510 UV-CD 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. The special thixotropic values prevent the feared flow through the mesh by a machinery stop.

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 "Serie 500: Auxiliary agents for UV-curable products".

If possible, the addition of additives should be avoided as incorrect use, above all overdosage, may cause constant and unfavorable effects to the original product properties.

The pioneer Series 510 UV-CD is free of heavy metals (following EN 71, part 3), monopigmented with high opaque characteristics. This advantage gives the opinion to print the most special colors directly on the silver CD without white preprint. The user gets a practical range of high pigmented basic colors to cover the normal chromatic range.

Series 510-1005	MS-Light yellow
Series 510-1205	MS-Dark yellow
Series 510-2005	MS-Orange
Series 510-3005	MS-Red
Series 510-4005	MS-Violet
Series 510-4505	MS-Dark blue
Series 510-8005	MS-Black
Series 510-9005	MS-White

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

Series 510-1105	MS-Amarillo medio
Series 510-3105	MS-Rojo magenta
Series 510-3305	MS-Magenta
Series 510-5005	MS-Blue
Series 510-6005	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 mat qualities

Series 510-8005/MT	MS-Black, mat
Series 510-9005/MT	MS-White, mat

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 follow the Europe scale:

Series 510-0950	ST-Process cyan
Series 510-0960	ST-Process yellow
Series 510-0970	ST-Process magenta
Series 510-0980	ST-Process black
and in addition the transparent bases	
Series 510-04	ST-Transparent paste
Series 510-06	Thixotropic paste

As higher density process inks we offer the concentrates

Series 510-0955	ST-Process	cyan, strong
Series 510-0965	ST-Process	yel- low,strong
Series 510-0985	ST-Process	black, strong

The concentrates are printable In this adjustment or can be add with paste and/or other colors.

Standard varnishes are

Series 510-05	Varnish
Series 510-05/MT	Varnish, mat
Series 510-07	Varnish, textured

This inks are also available in fluorescent shades

Series 510-40	ST-Neon-Lemon
Series 510-41	ST-Neon luminous orange
Series 510-43	ST-Neon flame red
Series 510-46	ST-Neon cyclamen
Series 510-47	ST-Neon luminous green

This effect colors are also direct printable on silver surface without a white pre-print.

For metallic effects we offer the article

Series 510-07/35 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 10-05413	ST-Silver (ST-Shade 100)
Series 10-05011	ST-Rich gold (ST- Shade 102)
Series 10-05012	ST-Rich pale gold (ST- Shade 103)
Series 10-05013	ST-Pale gold (ST- Shade 104)

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 European regulation EN 71, part 3. Without the fluorescent inks, all pigments used in Series 510 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 510 UV-CD 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 silver CD's with a 140-34 polyester fabric at room conditions, drying speeds are approx. 4000 prints/h. This corresponds to an energy value of approx. 250 mJ/cm<sup>2</sup>, measured at a range of 250-410 nm, max. 365 nm.

Under this guideline, the Series 510 UV-CD 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. So, a very fast and uncomplicated process is guaranteed.

### 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 be in process of crosslinking and will polymerizing in the container, because the UV-crosslinking process is a chain reaction.

### Packaging

Series 510 UV-CD 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).

### 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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