Ultradisc UVCD

UV-curable screen printing ink for all Optical Disc Formats

High gloss surface, with excellent print sharpness during print run, good opacity, press-ready

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Field of Application

Ultradisc UVCD is a UV-curable screen printing ink suitable for printing onto all optical disc formats such as CD, CD-R/ RW, CD-ROM, and DVD with spin coatings as well as directly onto PC. It is possible to produce with inline or offline printing machines.

Since the different spin coatings are subject to a certain post-curing, overprinting with Ultradisc UVCD should generally be carried out as soon as possible. Preliminary trials as to the compatibility of the spin coat and the printing ink are essential.

Characteristics

Ink characteristics

Ultradisc UVCD colour shades are high-glossy and very brilliant at a best possible opacity.

Further characteristics

- excellent print sharpness during print run
- tested according to environmental chamber tests, common to the CD industry
- no run-through the fabric at machine stops due to the thixotropic nature of ink
- very fast curing and printability up to 6000 prints/h

Adjustment of the ink

Ultradisc UVCD is press-ready. However, please stir well before printing.

Curing

Ultradisc UVCD is a fast-curable UV ink. A UV drying unit with one medium pressure Mercury Vapour Lamp (capacity 150 - 200 W/cm) will cure UVCD.

Generally, the curing speed of the ink depends on the type of UV dryer (reflectors), the number, age and capacity of the UV tubes, the printed ink layer, colour shade, and printing speed.

Resistance tests with UVCD

Criterions	Testing method	Result
1. Adhesion	tape test with No. 4104 / 25mm	positive
2. Hardness	pencil hardness as per Wolff Wilborn	3H
3. Alcohol resistance	100 double rubs (500 gs) with ethanol 99,8 %	no changes
4. Rub resistance	50 double rubs, dry (weight 500 gs)	no rubbing through
5. Sweat/saliva resistance	reaction under test solvents after 2 h	no changes
6. Solvent resistance	5 min in solvent mix and 50 double rubs (500 gs) soaked with solvent mix	no changes
7. Environmental chamber test	500 h/60°C and 85% relative humidity, 21 cycles at: 25°C/ 95 RH – 12h 45°C/ 85 RH – 12h	passed

Test conditions in detail

1. Tape No. 4104/25 mm from Beiersdorf should be applied under thumb pressure and removed in one go. This test should be repeated at two different spots. If no ink is removed, the requirements for ink adhesion are met.
2. Test with an Erichsen pencil hardness device
3. 100 double rubs with a paper soaked with ethanol (99.8%)
4. Rub resistance with a test device by Prüf bau weighing 500 gs and different rub fleeces

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5. Sweat and saliva resistance as per DIN 53, reaction time of the test solvents: 2 h.
6. Solvent resistance as per DIN 16 524, reaction time of the solvent mix for 5 min and 50 double rubs with paper soaked with the solvent mix (test solvent: 30 vol. % ethylacetate, 10 vol. % ethylglycol, 10 vol. % acetone, 30 vol. % ethyl alcohol and 20 vol.% toluene)
7. Environmental chamber tests carried out with an environmental test chamber by Heraeus Vötsch, HC 4020 type.

Range

Basic shades

(see colour chart System Ultracolor)

UVCD922	Light Yellow	UVCD952	Ultramarine Blue
UVCD924	Medium Yell.	UVCD956	Brilliant Blue
UVCD926	Orange	UVCD960	Blue Green
UVCD932	Scarlet Red	UVCD962	Grass Green
UVCD934	Carmine Red	UVCD970	White
UVCD936	Magenta	UVCD980	Black
UVCD950	Violet		

All shades are intermixable. To maintain the special characteristics of this outstanding ink range, UVCD should not be mixed with other ink types.

These 13 basic shades are included in our Marabu-ColorFormulator. They build the basis for the calculation of individual colour matching formulas, as well as for shades of the common colour reference systems Pantone®, Pantone-Metallic Guide®, HKS®, DIC®, and RAL®. All formulas are stored in the Marabu-Color Manager 2 (MCM 2) software.

All shades are based on organic pigments, therefore, the heavy metal content complies with the EEC regulations EN 71, part 3, "safety of toys" - migration of specific elements.

High-opaque White Shades

All opaque whites have a high opacity and a viscosity adjustment for high printing speeds (75-100 sequences/min). They further excel owing to their best possible white shade.

UVCD 170 Opaque White

Glossy, suited for DVD/CD. Excellent tilt results and very good offset over-printability.

UVCD 171 Opaque White

Glossy, suited for DVD/CD. Very good offset over-printability.

UVCD 172 Opaque White

Satin gloss, suited for DVD/CD. Excellent tilt results and very good offset over-printability. Smooth surface, squeegee marks and mesh structures are hardly visible.

<u>Opaque Whites for rotation printing:</u>

Ultrasprint UVT 170 Opaque White

Low-viscosity opaque white developed for rotation screen printing machinery, very good offset over-printability.

Ultrastar UVS 170 Opaque White

High-viscosity opaque white used in rotary screen printing or flexo printing, very good offset over-printability.

Further shades

UVCD 180 Opaque Black

Deep black with high opacity.

4-colour process standard shades

UVCD 429	Process Yellow (Yellow)
UVCD 439	Process Red (Magenta)
UVCD 459	Process Blue (Cyan)
UVCD 489	Process Black (Black)
UVCD 409	Transparent Base

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Highly transparent 4-clr. process shades

UVCD 428	Process Yellow (Yellow)
UVCD 438	Process Red (Magenta)
UVCD 458	Process Blue (Cyan)
UVCD 488	Process Black (Black)
UVCD 409	Transparent Base

Addititives

UVCD 910 Printing Varnish

High-glossy, transparent overprint varnish for coating offset and 4-colour process screen prints. UVCD 910 can also be screen pre-printed over the whole CD-R surface for then being overprinted with appropriate thermo-transfer printers which must be equipped with a tape on wax basis.

UVCD 910 can additionally be used as a bronze binder.

UVCD 409 Transparent Paste

Thixotropic paste to aid 4-colour-process prints, fine detail or reverse printing. When adding transparent base, the density of the 4-colour process shades may be reduced.

UVCD-MW Matt White, writable

This matt, white printing ink is directly printed onto the spin-coating. The surface can be easily written onto with commercially available waterproof markers. For further decoration, UVCD-MW can be overprinted with the Ultracolor System basic shades without problems (matt/glossy effects).

Bronzes

(to be mixed with UVCD 910)

S-UV 191	High-gloss Silver (5:1)
S-UV 192	Rich Pale Gold (4:1)
S-UV 193	Rich Gold (4:1)

The mixture of bronze paste and binder has a shelf life of approx. 6 months.

Fluorescent Shades

UVCD 320	Fluorescent Yellow
UVCD 323	Fluorescent Orange
UVCD 331	Fluorescent Red
UVCD 333	Fluorescent Pink
UVCD 364	Fluorescent Green

Mixtures of UVCD fluorescent shades with UVCD basic shades must be processed within 8 hours.

Auxiliaries

UVV 3 Thinner

Thinner for the reduction of the ink viscosity.
Addition: 1-10% parts by weight

An excessive amount of thinner must be avoided and will reduce curing speed and surface durability of the printed ink film.

UV-VM Levelling Agent

To rectify flow problems (e.g. bubbles etc.).
Addition: 0.5-1.5% parts by weight

The addition may reduce intercoat adhesion when overprinting.

STM Thickening Agent

Helps to increase the ink's viscosity.
Addition: 0.5-2% parts by weight

Please stir well before printing! The use of an automatic mixing machine is recommended.

Cleaning

The appropriate cleaner is UR3. We generally recommend to clean the tools immediately after printing.

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Fabrics and stencils

Generally, fabrics of 140-31 to 180-27 threads can be used. Generally, a plain weave, as well as a high and uniform tension of the fabric are important (> 20 N).

Recommendations:

Standard shades:	150-31
4-clr. process shades:	165-27/31 to 180-27
Opaque White:	150-31
Fluorescent, MW, bronzes:	140-31 or 150-31

For UV inks, all commercially available solvent resistant capillary films (12-20 µ) or photo emulsions and combined stencils can be used.

Especially when 4-colour process printing, an emulsion layer of 5 µm maximum thickness is recommended.

Mileage

The mileage per kg ink with a 150-31fabric is about 6,000 to 7,000 CD's if the whole surface is printed, or up to 25,000 CD's with text (coverage e. g. 25%).

Shelf Life

Shelf life depends very much on the formula/ reactivity of the ink system as well as the storage temperature. It is one year for all UVCD white and fluorescent shades and two years for all other UVCD colour shades for an originally closed ink can if stored in a dark room at a temperature of 15-25 C.

Under different conditions, particularly higher storage temperatures, the shelf life is reduced. In such cases, the warranty given by Marabu expires.

Labelling

For our ink type Ultradisc UVCD and its additives and auxiliaries, there are current Material Safety Data Sheets according to EC-regulation 91/155 covering in detail all relevant safety data including the labelling according to the present EEC regulations as to health and safety labelling requirements.

Such health and safety data may also be obtained from the respective label.

Safety regulations for UV screen printing inks

We recommend that UV screen printing inks and auxiliaries should be handled with particular care. Follow the instructions given on the labels and in the Material Safety Data Sheets.

Note

Our technical advice whether spoken, written, or through test trials corresponds to our current knowledge to inform about our products and their use. This is not meant as an assurance for certain properties of the products nor their suitability for each application.

You are, therefore, obliged to conduct your own tests with our supplied products to confirm their suitability for the desired process or purpose. The selection and testing of the ink for specific application is exclusively your responsibility.

Should, however, any liability claims arise, such claims shall be limited to the value of the goods delivered by us and utilised by you with respect to any and all damages not caused intentionally or by gross negligence.

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