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TEXTILE INKS FOR INK JET PRINTING USING PIEZO DROP ON DEMAND TECHNOLOGY

US Sublimation TX inks for printing onto cotton, cotton/PES blends and other textile fibres

INKS

The *US Sublimation TX* ink series is suitable for most large format piezo printers of the latest Epson print head generation using water-based inks (Mimaki, Roland, Mutoh).

The *US Sublimation TX* ink series complies with all the regulations generally applied in the textile industry (European Directives 1999/45/EC and 67/548/EEC, the European Norm EN71-3, CONEG regulation) and textiles printed with the *US Sublimation TX* inks fulfil the requirements for obtaining the Oeko-Tex 100 label.

The following inks are available:

US Sublimation TX Yellow, US Sublimation TX Golden Yellow, US Sublimation TX Magenta, US Sublimation TX Red, US Sublimation TX Cyan, US Sublimation TX Blue, US Sublimation TX Green, US Sublimation TX Black, SuperClean Industrial Strenght Cleaning Solution.

TEXTILE MATERIALS

The printed fabric can be virtually of any type of material from 100% cotton to 100% PES encompassing all kinds of blends and other materials like viscose or silk. Each material must be of the grade “ready to print” and fastnesses must be checked before industrial production.

INK JET PRINTING

The life span of piezo heads is long and should conform to the manufacturer's specification even if *US Sublimation TX* inks are used. Our textile printing inks have been tested on the most frequently used printers of the latest Epson print head generation (Mimaki TX2, Roland FJ-540), but the suitability of the inks for individual machines and models has to be checked by the user. We are at our customers' disposal for further information. For optimal printing, the relative humidity rate must be kept at 55% or higher and the temperature should be around 20°C (70°F).

FIXATION

After printing onto the fabric, the colours must be fixed by heating at 170°C (340°F) for 30 seconds using a heat press or 1 ½ minutes using a heat oven. The optimal fixation conditions must be determined for each fabric according to the requirements of the end use.

Warning: The *US Sublimation TX Golden Yellow* and *US Sublimation TX Orange* should not be exposed to temperature exceeding 200°C. They contain diarylide pigments that may release through cleavage at high temperature 3,3'-dichlorobenzidine.

FASTNESSES

2

The fastnesses given below have been evaluated on a 120 g/m woven cotton ready to print fabric without optical brightener. Fixation conditions were 170°C (340°F) for 5 minutes. The rubbing fastnesses (according to the ISO-105/X12 norm) have been evaluated around 3-4 on this fabric depending on the colour intensity and should be determined for each newly employed fabric.

Product	**Light**	**Water** (severe)	**Washing** (60°C)	**Persp.** (acid)	**Persp.** (alkali)
	ISO 105 /B02 100% / 10%	ISO 105 /E01 ch./st.	ISO 105 /C03 ch./st.	ISO 105 /E04 ch./st.	ISO 105 /E04 ch./st.
US Sublimation TX Yellow A210	7-8 / 6	5/5	5/5	5/5	5/5
US Sublimation TX Golden Yellow A211	7-8 / 6	5/5	5/5	5/5	5/5
US Sublimation TX Magenta A230	7 / 6-7	5/5	5/5	5/5	5/5
US Sublimation TX Red A231	7-8 / 6-7	5/5	5/5	5/5	5/5
US Sublimation TX Cyan A240	8 / 7-8	5/5	5/5	5/5	5/5
US Sublimation TX Blue A241	7-8 / 7-8	5/5	5/5	5/5	5/5
US Sublimation TX Green A250	7-8 / 7	5/5	5/5	5/5	5/5
US Sublimation TX Black A270	8 / 7-8	5/5	5/5	5/5	5/5

** The light fastnesses have been measured at 100% and 10% coverage and 720 dpi. All other fastnesses have been measured at 100% coverage and 720 dpi*

Color fastness is a measure of how permanent a color is on fabric. Color can be adversely affected by a number of factors including exposure to light, to water and to normal wear and tear. Various tests assess how the color is affected by these different parameters and a numerical value is then established to indicate the degree of color change.

Color fastness to "Light"

In this test, a prepared specimen of fabric is half covered and exposed to artificial ultraviolet light along with a scale of light sensitive blue dyed wool standards designed to fade after different time periods. Only the uncovered part of the test sample will be subject to any fading. Typical exposure time is 100 hours which represents approximately four years daylight.

The light fastness is evaluated on a scale of 1 – 8 using the blue dyed wool standards, where 1 indicates very low light fastness (maximum color change) and 8 indicates very high light fastness (minimum color change). Upholstery fabrics should display a minimum rating of 5 regardless of end usage.

Color fastness to "Rubbing"

This test is undertaken on a crock meter, whereby the fabric specimen is subjected to rubbing with a sample of standard undyed cotton fabric in order to check for color transfer. Two tests are involved, one using the rubbing cloth dry, the other with the cloth wetted. The rubbing cloth is placed on the finger of the crock meter which is then moved back and forth across the fabric sample ten times at a steady speed. The rubbing cloth is then evaluated using standard Grey Scales for staining, on which 1 signifies maximum staining and 5 no staining. For all grades of end use, fabrics must show a maximum staining of 3-4 for dry rubbing and 3 for wet rubbing.

Color fastness to "Water"

This test, carried out using a perspirometer, is used to determine if any color transfer occurs when wet fabrics come into contact with water. The fabric sample is fully immersed in deionised water together with strip of multi-fiber fabric (as its name suggests, this is a strip containing materials of different compositions). Each item is then placed in the perspirometer and left for four hours in a pre-heated oven at 37°C. The multifiber strip is then assessed for color staining using the standard Grey Scales

COLOUR MANAGEMENT

Colour profiles for the most popular printers are available upon request. The use of a RIP software can greatly assist in obtaining desired colours and results, while there are several very good software packages US Sublimation uses and supports Wasatch SoftRip.

SHELF LIFE

The shelf life of the inks at room temperature is superior to six months.

PRINTER MAINTENANCE

We recommend dedicating special care to the printer maintenance in order to warrant an optimal running of the printer. The following operations during printing are recommended:

-Regular check and cleaning of the wiper (at least once a week).
-Regular check and cleaning of the capping station (at least once a month).
-Regular wiping of the print head bottom with a sponge Q-tip (preferably once a week).

If you plan to let the printer in stand-by for more than a couple of days, it is recommended to purge and clean the printer with our cleaning fluid.

STANDARD PACKING

125g (4Oz), 250gr (8Oz) , 500g (16Oz) , 1 kg (32Oz) and 5 kg (160Oz)

To the best of our knowledge the information contained herein is true and accurate but all recommendations or suggestions are made without guarantee.