

IcoPlast Ultra ZX

PVC/Phthalate Free Plastisol Inks

Issue No. 008/2019

IcoPlast Ultra ZX, a range of maximum opacity plastisol inks designed for the printing of most natural and synthetic fabrics, has been specially formulated to be PVC / Phthalate Free – whilst retaining the properties demanded from a conventional plastisol system.

PVC resins and Phthalate plasticisers have been under pressure from environmental activist groups to be eliminated, following claims they pose a threat to human health and to the environment.

Both are widely used in the manufacture of plastic products that are part of everyday life, and they have been used for the manufacture of plastisol inks for many years. Pressure groups have raised the issues with sportswear companies and high street retailers who in turn have sought to reduce the use of these raw materials in their products. **Ultra ZX** meets these requirements as well as having the highest performance properties expected from Plastisol Systems.

Plastisol Transfer

Ultra ZX is also designed for heat transfer label printing. High Quality Transfers can be produced by printing Plastisol inks onto transfer substrate, and then heat curing each colour. **Ultra ZX** can be transferred with or without adhesive. Prints may be overprinted with an adhesive to improve adhesion to synthetic substrates, improve washing resistance further, or to reduce the transfer temperature to below 160°C.

Curing Information

It is essential that the entire thickness of the ink film has time to reach the full cure temperature of 150°C or resistance properties, such as wash & rub fastness, will not be achieved. Evaluate your cure schedule by testing the print at the wash schedule that it will ultimately be expected to pass. It is recommended that cure temperature is confirmed with the use of thermal testing strips.

Factors such as ink film thickness and colour, drying equipment and fabric all influence the cure schedule needed. In most cases the oven temperature will need to be set higher than 150°C for the ink to reach full cure in a time of 1.5-3 minutes.

Flash Curing:

Under optimum conditions, dwell times of less than 5 seconds can be readily achieved. Many factors affect the dwell time required for flash curing. These include the type and wavelength of the equipment used and the distance between the curing unit and the print. Additional factors such as fabric and ink colour, film weight and coverage are also crucial. Please check suitability under your own conditions.

Main Characteristics

Properties

- Formulated on non-PVC containing resins and non-phthalate plasticisers.
- Lead-free.
- Excellent wet-on-wet printability.
- Unlimited screen stability,
- Excellent wash resistance.
- Ultra low build-up – improves productivity
- Excellent opacity – High impact prints
- Low fibrillation – prints look better, longer
- Soft gel – easy to handle – on and off screen
- Soft handle – prints are comfortable to wear

Curing

The ink film must reach 150°C.

Thinning

Supplied press-ready. Up to 5% **ZX591** Thinner may be added if necessary.

Wash-up

Wash up with **ZTC639** Screen Wash Universal.

Mesh

Monofilament 34-120 thread/cm, 80-300 thread/inch

Stencil Systems

Most direct stencil materials are suitable.

Recommended: **Dirasol 125** and **Dirasol 915**.

Coverage and Mesh No.

12-16m²/ltr. No 43 monofilament

Applications

Most knitted and woven fabrics typically used for T-shirts, Sweat Shirts, Sports and Fashion Wear, Badges, Hats and Caps, Travel Bags, Footwear.

Fabrics

Suitable on most common natural and synthetic fibres, for example, Cotton, Cotton/Polyester blends. Many grades of synthetics.

IMPORTANT: Stir well before every use. Users should satisfy themselves that **Ultra ZX** is compatible with specific textiles; required chemical standards; and that rub, stretch and other resistance properties.

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Fastness

Ultra ZX has excellent wash fastness to ISO Test No. 1 (40°C), 2 (50°C) and 3 (60°C). Prints may be ironed from the back of the fabric at a cool setting, with a cloth over the printed area. Prints will not resist dry-cleaning and garments should be marked to this effect.

Hotmelt Powder

Ultra ZX is designed to work with the following hotmelt powders:

Economical Powder – XMC378

Universal product with good cost and performance balance

Super Stretch Powder – IFSSP

For situations where the highest stretch and comfort is required.

Low Transfer Temperature Powder – IFLTP

For situations where the lowest transfer temperature is required.

Low Bleed Powder – IFLBP

Designed for use with **Ultra ZX** Low Bleed Black to create highly heat resistant dye blocking transfers

High Wash Powder – IFHWP

For a high level of stretch but where higher wash performance is required.

The adhesive powder must be applied to wet ink film, before curing at 150°C.

Code	Type	Melting Temp.	Transfer Temp.	Wash Fastness*
XMC378	Polyester	130°C	140 - 150°C	40-60°C
IFSSP	Polyurethane	125°C	130 - 150°C	60°C
IFLTP	Polyester	120°C	130 - 140°C	60°C
IFLBP	Polyamide	130°C	145 - 150°C	60°C
IFHWP	Polyurethane	150°C	155 - 165°C	60-90°C

All hotmelt powders are provided as 80-200 Micron

* 50 wash cycles (AATCC & ISO)

Low Bleed Black

To achieve high impact on previously sublimated fabrics, an interlayer of **Ultra ZX Low Bleed Black** should be used.

Designed for printing through a 24-43 threads / cm mesh. Best results are achieved by printing a sandwich layer based on colour, white, low bleed black and then backed up with extender base and adhesive powder to generate a halo-free (no glue mark) finish.

Catalyst

For maximum resistances are required, the ink should be catalysed before use. There are two catalysts available.

Estimate the amount of ink required for a day's work and thoroughly mix the ink base and catalyst in the following ratio:

ZX444	Catalyst	5%
ZX386	Catalyst	5%

Catalysed inks have a pot life of approximately 8 hours. All the catalysed ink left over at the end of the printing run must be discarded.

Colour Range

IcoPlast Ultra ZX

ZX001	Black
ZX021	White
ZX042	Yellow (GS)
ZX043	Yellow (RS)
ZX162	Orange
ZX165	Magenta
ZX166	Violet
ZX134	Red (YS)
ZX124	Red (BS)
ZX203	Mid Blue
ZX206	Deep Blue
ZX285	Green
ZX381	Mixing Clear
ZX077	Fluorescent Yellow
ZX119	Fluorescent Orange
ZX179	Fluorescent Red
ZX180	Fluorescent Magenta
ZX294	Fluorescent Green
ZX327	Phosphorescent Green
ZX004	Process Black
ZX058	Process Yellow
ZX135	Process Magenta
ZX215	Process Cyan
ZX475	Metallic Gold
ZX476	Metallic Silver
ZX417	Expanding Base
ZX007	Low Bleed Black

Available in 5kg and 15 kg containers

ZX755 Flash White
Available in 15kg containers

ZX444 Catalyst
ZX386 Catalyst
Available in 1kg containers

ZX591 Thinner
Available in 5 kg containers

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Safety and Handling

IcoPlast Ultra ZX:

- Is formulated to be free from any chemicals toxic to health, carcinogenic, mutagenic or reprotoxic according to Directive 67/548/EC.
- Is formulated free from lead and other heavy free metals and is formulated to comply with EN71-3:2013 Toy Safety Standard.
- Should be stored in a cool (air conditioned) place. Storage
- Conditions above 30°C will significantly reduce the shelf of the product. In cases where ink has been exposed to elevated temperatures for prolonged periods, it will go solid and be rendered unusable. Inks that have been used on press in very hot conditions, such as multiple flash cure prints, should not be returned to the container.
- Is formulated free from phthalate plasticisers.

Comprehensive information on safety and handling is given in the **ICONINKS** Safety Data Sheet for this product, available on request.

Environmental Information

IcoPlast Ultra ZX:

- Does not contain ozone-depleting chemicals as described in the Montreal Convention.
- Is formulated free from aromatic hydrocarbons which are known to have an adverse effect on the environment.
- Is free of any volatile solvent and can therefore be beneficial to the environment, when compared with solvent based products.
- Is formulated free from PVC containing resins.

The information and recommendations contained in this Product Information sheet, as well as technical advice otherwise given by representatives of our Company, whether verbally or in writing, are based on our present knowledge and believed to be accurate. However, no guarantee regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods, printing stocks and other materials vary. For the same reason our products are sold without warranty and on condition that users shall make their own tests to satisfy themselves that they will meet fully their particular requirements. Our policy of continuous product improvement might make some of the information contained in this Product Information sheet out of date and users are requested to ensure that they follow current recommendations.

ICONINKS LIMITED

Hong Kong
ICONINKS LIMITED
 Unit B, 12/F., Reason Group Tower,
 No. 403 Castle Peak Road, Kwai
 Chung, N.T., Hong Kong
 Tel: +852 2426 6121
 Fax: +852 2420 4230
 Email: sales@hk.iconinks.com

China
ICONINKS (Nanjing) Co., Limited
 Rm. 916, Baoyuan Huafeng Economic. Hq. Building
 Xixiang Avenue, Xixiang Street
 Baoan Area, Shenzhen, P.R. China.
 Zip Code: 518102
 Tel: +86 755 2736 8101, +86 755 2736 8139
 Fax: +86 755 2736 8073
 Email: sales@iconinks.com

Australia
Icon 21
 30/4a Bachell Ave,
 Lidcombe NSW 2141,
 Sydney, Australia
 Tel: +61 0418 474908
 Mobile: +61 02 90296018
 Email: saeed@autofilm.com.au

Germany
ICONINKS GmbH
 Turnhallenweg 7a
 74858 Aglasterhausen
 Germany
 Tel: +49 (0) 62 62 912630
 Fax: +49 (0) 62 62 912096
 Email: info@int.iconinks.com

Turkey
AKER SERİGRAFI BOYALARI
 Cebeci Mahallesi 2. cebeci yolu
 No:7 -34265 Sultangazi-Istanbul
 Turkey
 Tel: +90 (0)21 2594 3094
 Email: info@akerserigrafi.com
 www.akerserigrafi.com

Customer Service Hotlines:

Asia: +852 2426 6121 China: + 86 755 2736 8101 Australia: +61 (0)418 474908 Germany: +49 (0) 62 62 912630

www.iconinks.com