

IcoWeb Flexo FX

UV Curing Flexo Printing Inks

Issue No. 008/2019

IcoWeb Flexo FX is a high quality UV curing flexo ink system offering premium value to narrow web printers. Through introduction of this system it is possible to deliver optimum productivity and high quality prints. **IcoWeb Flexo FX** has been developed to give the highest performance across a wide range of UV flexo machinery, complementary press products and substrates.

Applications

IcoWeb Flexo FX is suitable for a wide range of applications including: self-adhesive labels, sachets and pouches, unsupported films, low shrink sleeves, wrap-arounds and in-mould labels.

Printing Recommendations

Anilox

IcoWeb Flexo FX is developed for use with fine anilox screens and volumes to minimise ink deposits and optimise print quality and efficiency. Guideline anilox recommendations:

Printing format	Screen lines per inch (lpi)	Cell Volume (cm ² /m ²)
Four Colour Process	900 - 1200	2.5 - 4
Line and Type	350 - 550	5 - 7
White	150 - 250	12 - 20
Varnish	150 - 350	6 - 10

Doctor Blades

The low viscosity of the ink system makes it suitable for reverse angle and chambered doctor blade systems. To obtain optimum results it is recommended that a doctor blade is always used.

Plates and Tape

IcoWeb Flexo FX is compatible with the majority of plate materials recommended for UV ink systems. The choice of plate and backing tape used to mount the plates can have an impact on the quality of the print

Printing format	Tape Density
Four Process Colour	Low
Solid and Backing White	High
Type and Reversed Out Area	Medium

Main Characteristics

Key benefits:

- Low viscosity press ready colours.
- High colour density.
- Adhesion to a wide range of synthetic substrates, including top coated PE & PP, PVC, PET, some thermal papers, metallised foils and most commonly available papers.
- Suitable for a wide range of applications including self-adhesive labels and unsupported films for sachets and pouches.
- Over-printable with thermal transfer ribbons and cold foil adhesives.
- Good hot foiling properties.
- Dedicated PANTONE®* formulation matching system.

Substrates

Most grades of supported and unsupported synthetic label stock including PE, PP, PVC, TC-PE, PP, PS and PET. Most commonly available papers, thermal papers and some metallised foils.

Treatment Level

38-44 dynes/cm. Corona treatment may also improve adhesion and lay of the ink.

Finish

Gloss

Plates and Tape

Most plates that are compatible with UV inks.

Doctor Blades

Reverse angle and chambered doctor blades. It is recommended that a doctor blade is always used.

Cure

160w/cm (400w/inch) bulb 100% power

Wash-up

Plates, rollers, ancillaries: General Cleaner DFGC1
 Deep cleaning of anilox: Deep Clean DFDC1
 Automatic solvent wash out: Autowash Cleaner DFAUT

Colour Range

PANTONE® 1000 Matching Formulae available.

IMPORTANT: Stir well before every use. Users should satisfy themselves that **IcoWeb Flexo FX** is compatible with specific applications and resistance properties are acceptable before commencing production runs.

*PANTONE® is the property of Pantone, Inc.

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Combination Printing

IcoWeb Flexo FX inks can be printed over IcoWeb Rotary FR034 Combination White without the addition of a trapping additive. Please note that as FR034 is silicone free. Further information is provided in the IcoWeb Rotary FR034 product information sheet.

An addition of 2% ZEA12 Trapping Additive should be added to IcoWeb Flexo FX colours when used to overprint standard IcoWeb Rotary FR034 White and colours.

Pre-Production Testing

IcoWeb Flexo FX is formulated to adhere to most grades of top coated or corona treated filmic materials with surface tension levels of 38 dyne/cm or higher. However, it is strongly recommended that all substrates and blocking foils are tested before use on a commercial run. Supposedly similar substrates can vary between manufacturers, and between batches from the same manufacturer. Certain plastics may be impregnated with lubricants that, like plasticizer migration, may impair adhesion and block resistance. It is also recommended to thoroughly test for compatibility when overprinted, as ribbons, toners and pigments used by overprint technologies can vary from batch to batch.

The end-user must determine suitability of this product for the intended use prior to production.

Substrate

Substrate	Recommendation
Synthetics	IcoWeb Flexo FX has been developed for use on a wide range of synthetic substrates including: PE, PP, PVC, TC-PE, PP, PS and PET. To ensure that optimum results are obtained it is important that the surface tension of the materials being printed are between 38 - 44 dynes/cm. Corona treatment may also improve the adhesion and lay of an ink.
Papers	IcoWeb Flexo FX generally exhibits good performance when printed over the majority of commonly available papers. When printing over absorbent papers there may be issues with the hold out of the IcoWeb Flexo FX inks. This can be exaggerated when printing thin films and at low machine speeds. We recommend that machine speeds should be in excess of 40m/min.
Thermal active papers	IcoWeb Flexo FX can be used for printing thermal papers. Care must be taken with uncoated thermal papers as they can discolour. As with all ink systems Opaque White, Metallics or Matt Varnishes may cause damage to the printheads.
Thermal transfer	A range of thermal transfer ribbons can be used to overprint IcoWeb Flexo FX inks. Due to the wide variety of ribbons on the market the properties of individual ribbons may vary.
Metallised foils	IcoWeb Flexo FX adheres to a number of Metallised foils. However due to the great variety of materials on the market an individual foil should always be tested.
Hot-foiling	IcoWeb Flexo FX has good hot foiling properties. Due to the wide variety of foils on the market the properties of an individual foil should always be tested.
Cold-foiling	IcoWeb Flexo FX can be overprinted with the majority of cold foil adhesives available on the market.

Colour Range and Resistance Properties

The IcoWeb Flexo FX standard base colours are selected for their colour accuracy and strength so not all of the colours offer a high degree of resistance to outdoor weathering, direct exposure to sunlight or resistance to strong alkaline or acidic materials. Printers should ensure that the light fastness and resistance properties are appropriate for their application before starting a production run

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Print conditions for the test stock:

Press: Nilpeter FA2500
 Anilox: 5.5 cm³/m² 360 LPI
 Speed: 50m/min
 Lamps: 4 x 120watts/cm at 100%

Resistance Tests

Soap Resistance: ISO2836:1999(E)
 Oil Resistance: ISO2836:1999(E)
 Solvent Resistance: ISO2837:1996
 Acid Resistance: ISO11628:1995
 Alkali Resistance: ISO2836:1999(E)

Resistance Scale:

+ = Pass
 - = Fail

Light Fastness

The light fastness of the pigments quoted in this Product Information sheet is based on pigment manufacturers' recommendations and refers to the **Blue Wool Scale**.

8 = Excellent
 1 = Poor

Light fastness of an ink is dependent on the quantity of pigment in a blend and the thickness of the ink film. Therefore it is possible in colour matches using low amounts of a colour, highly based back colours or thin film deposits that the light fastness may be lower than the value quoted. The resistance of a colour match should always be based on the ink reference with the lowest resistance properties.

Colour Management

Special colours can be supplied against prints or wet ink samples. A sample of the substrate to be printed, with the cell count and ink volume of the anilox used, should be attached to orders. **IcoWeb Flexo FX** can be used to produce accurate simulations of the PANTONE® colours in the coated ('C' suffixed) section of the PANTONE® colour formula guide.

IcoWeb Flexo FX Colour range

Colour ref.	Code	Soap	Oil	Alkali	Acid	Alcohol	Typical Blue Wool Rating
4 Colour Process Inks							
Trich Yellow	FX052	+	+	+	+	+	4
Trich Magenta	FX135	-	+	-	-	+	4
Trich Cyan	FX215	+	+	+	+	+	8
Trich Black	FX004	+	+	+	+	+	8
Standard Base Colours							
Dense Black	FX009	+	+	+	+	+	8
Opaque White	FX025	+	+	+	+	+	8
Mixing Base	FX381						N/A
White							
Supernova White	FX752	+	+	+	+	+	8
Special White	FXA01	+	+	+	+	+	8

Additives

Product	Code	Application	Dosage	Pack size
Thinner	ZE818	General use	1-10%	5Ltr
Cure Additive	ZE824	To improve cure if required	1-3%	1Kg

Available in 5 kg containers

ICONINKS Formulation Guide

A booklet containing hand matched PANTONE® colour formula guide recipes given in percentages by weight. All recipes in the booklet are developed using a fixed film weight equivalent to a 5.5 cm³ / m², 360 lpi (lines per inch) anilox.

Curing

Excellent cure and adhesion are attained immediately upon curing; however maximum adhesion, chemical and mar resistance will be obtained 24 hours after initial curing.

Wash-up (Do not wash-up with any UV thinner)

Application	Product Reference	Product Code
To clean plates, rollers and other equipment.	General Cleaner	DFGC1
To remove deep-seated ink deposits from anilox rollers.	Apollo Deep Clean	DFDCL
For use in automatic solvent washout units.	Autowash Cleaner	DFAUT

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Storage

Containers should be tightly closed immediately after use. At the end of long print runs surplus ink from the ink duct should be disposed of. Uncontaminated press returns should be stored under the same conditions as the unopened ink containers. In-house colour matches should be used within 3 months of the original date of blending. **IcoWeb Flexo FX** should not be stored in direct sunlight or near warm pipes and should be kept away from Peroxides. In the interest of maximum shelf-life storage temperatures should be between 10°C and 25°C. Inks and additives should not be stored in direct sunlight or extreme temperatures.

Refer to Material Safety Data Sheet (MSDS) for materials and conditions to be avoided.

Shelf-life

When stored unopened in a cool environment all **IcoWeb Flexo FX** inks are expected to have a shelf-life of 12 months from the original date of manufacture.

Safety and Handling

IcoWeb Flexo FX:

Is formulated to be free from any chemicals toxic to health, carcinogenic, mutagenic or reprotoxic according to Directive 67/548/EC.

- Has a flashpoint greater than 55°C and is therefore not classified as a “dangerous substance” under the Dangerous Substances and Explosive Atmospheres Regulations.
- For optimum shelf life, all products should be stored at moderate temperatures, between 5°C and 30°C. Storage outside of these temperatures may lead to deterioration in the performance of the product.

Comprehensive information on the safety and handling of **IcoWeb Flexo FX** inks, solvents and associated products is given in the appropriate Safety Data Sheets.

Environmental Information

IcoWeb Flexo FX:

- Does not contain ozone depleting chemicals as described in the Montreal Convention.
- Is formulated free from aromatic hydrocarbons.
- Is free of any volatile solvent and can therefore be considered to have less impact on the environment, when compared with solvent-based products.

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.

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