# Maraflex FX

**For the manufacturing of ID-Cards**

**Suitable for laminating and embossing, offset-overprintable, satin ink film, very flexible**

*Vers. 04*
*2009*
*1st Dec*

## Field of application

### Substrates

Maraflex FX is a solvent based screen printing ink suitable for printing onto PVC films and extruded ABS blanks.
The suitability of FX for use with Polycarbonate PC and PETG is limited and preliminary trials are necessary.
Since all the print substrates mentioned may have differing printability characteristics, even within an individual type, preliminary trials are essential to determine suitability for the intended use.

### Operative range

Maraflex FX is suitable for printing on single and multi-layered identity cards such as customer loyalty cards, club cards, bank cards, telephone cards, smart cards, or ID system cards. FX excels through particularly good laminating characteristics. FX can also be used in combination with other printing methods such as waterless or UV offset as well as subsequent processing methods like press finishing.

**Attention:**
The colour shade FX 170 opaque white is not laminable.

## Characteristics

### Drying

Physically very fast drying; dries at 20° C ambient temperature within 10 min. ready for overprinting, at 50° C in a tunnel dryer (2 warm – 1 cold section) within 30 - 40 sec.

The times mentioned above vary according to the substrate, the ink film thickness, drying conditions and the auxiliaries used.
When overprinting the ink an extended drying time is necessary due to the solvent retention of the previously printed colour.
When overprinting, an increased drying time is required due to the rewetting of the previous print layer. When printing both sides of cards, careful checks are necessary, so as to ensure adequate block resistance.
Good final drying properties and a check for residual solvents in the printed ink film are essential for successful lamination, good overprintability, and high peel resistance. Here, "Wicket" dryers have proven to be most effective, due to the long dwell time of 10-20 min. in the tunnel. Too much residual solvent content in the ink generally degrades the laminating result.

### Laminating parameters

The following laminating parameters have proven to work for PVC on the market.

| | |
|---|---|
| Laminating temperature: | 140° C to 150° C |
| Pressure: | 1 ton for sheet sizes of 35x50cm |
| Laminating time: | 15 min. |

### Opacity

The colour shades of the FX are brilliant with medium opacity. This ensures excellent lamination (except for FX 170 opaque white) with high outputs and permits mixing of very pure colour shades.



*Marabu GmbH & Co. KG · Phone: +49-(0)7141-691- 0 · info@marabu-inks.com · www.marabu-inks.com*

# Maraflex FX

### Fade resistance

We are using pigments of excellent fade resistance (blue wool scale 6-8) for our ink series Maraflex FX.

### Tensile strength

After proper and thorough drying, the ink film is very flexible and laminable. Furthermore, its surface is resistant to scratching and bending.
Due to the gloss levels required for good offset overprintability, the dry abrasion and rub resistance properties are somewhat lower.
Maraflex FX shows good resistance against alcohol and sweat from fingers.

## Range

The Marabu mix colour matching system includes the basic shades of the Maracolor System. All shades are intermixable. The Maraflex FX ink should not be mixed with other types of ink, to maintain the special characteristics of this outstanding ink range.
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.
All basic shades are, therefore, entirely suited for printing onto toys.

### Shades

Shade Comparison Card Maracolor

| | | | |
|---|---|---|---|
| FX 920 | Lemon | FX 950 | Violet |
| FX 922 | Light Yellow | FX 952 | Ultramarine Blue |
| FX 924 | Medium Yellow | FX 954 | Medium Blue |
| FX 926 | Orange | FX 956 | Brilliant Blue |
| FX 930 | Vermilion | FX 960 | Blue Green |
| FX 932 | Scarlet Red | FX 962 | Grass Green |
| FX 934 | Crimson red | FX 970 | White |
| FX 936 | Magenta | FX 980 | Black |
| FX 940 | Brown | | |

By using these 17 basic shades in accordance with the mixing ratios given in the Marabu-Color Manager (MCM2, version 2.2) software, it is possible to produce the shades of the ink systems PANTONE, HKS and RAL.

### Additives

| | |
|---|---|
| Special Binder: | FX 904 |
| Overprint Varnish: | FX 910 |
| IR transparent red: | FX 337 05 73 |
| Signature stripe: | Libramatt LIM 170 |
| Press Polish Varnish: | FX 567 59 910 |
| Lamination varnish and offset base: | FX 543 20 910M# |

FX 543 20 910M# is also suitable as a laminating agent over offset prints. The print varnish 567 59 910 can also be used for press finishing of non-laminated cards. Due to the high amount of pigments contained, FX 170 opaque white is not laminatable.

### Metallic Mixing System

Metallic colour shades on ID cards are a strength of the screen printing process and permit almost any colour tone. This is based on the Marabu metallic mixing system consisting of 3 silver shades of differing pigment sizes, 2 translucent tones, and the 17 FX basic shades of the Maracolor system. Any number of metallic effects can be mixed from these. Many effects and mixing recipes are illustrated in a special Marabu sample card box.

### Other products:

| | |
|---|---|
| FX 191 | Metallic-Silver, Medium<br>like FX 197 but more transparent<br>>Mesh 77-55 to 90-48 |
| FX 195 | Metallic-Silver, Fine<br>>Mesh 90-48 to 100-40 |
| FX 197 | Metallic-Silver, Medium<br>>Mesh 77-55 to 90-48 |
| FX 199 | Metallic-Silver, Coarse<br>>Mesh 43-80 |
| FX 520 | Transparent Yellow |
| FX 536 | Transparent Red |

All standard colour shades and mixed metallic shades are storable and laminable.



*Marabu GmbH & Co. KG · Phone: +49-(0)7141-691- 0 · info@marabu-inks.com · www.marabu-inks.com*

**Auxiliaries**

| | |
|---|---|
| Thinner: | UKV 2 |
| Thinner fast: | UKV 1 |
| Retarder slow: | SV 10 |
| Retarder fast: | SV 5 |
| Cleaner: | UR 3 |

To adjust the printing viscosity it is generally sufficient to add 10-15 % thinner to the ink. To produce a retarding effect for slow printing sequences, the retarder SV 10 or SV 5 is added proportionately to the thinner (about 50 % of the quantity).
To ensure good laminating characteristics, no other auxiliaries should be added to the FX.

## Fabrics and Stencils

All types of commercially available fabrics and solvent-resistant stencils can be used. The fabric recommendation for colour shades is 90-48 to 120-34, for bronze see the details under the heading Metallic Mixing System.

## Labelling

Current Material Safety Data Sheets according to EC-regulation 1907/2006 exist for our ink type Maraflex FX (System Maracolor) and its additives and auxiliaries, informing in detail about all relevant safety data including labelling according to present the EC regulations as to health and safety labelling requirements. Such health and safety data may also be obtained from the respective label.
The ink has a flash point of >55° C.

## Recommendation

The ink should be stirred well before printing.

## Note

Our technical advice whether verbal, written, or through test trials reflects our current knowledge for the purpose of information on our products and their use. It does not constitute an assurance for certain properties of the products or their suitability for any application. You are responsible to confirm the suitability of the products supplied by us for the intended process or purpose by carrying out your own trials. The selection and testing of the ink for a specific application is exclusively your responsibility.

However, in the event of any liability claims 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.



*Marabu GmbH & Co. KG · Phone: +49-(0)7141-691- 0 · info@marabu-inks.com · www.marabu-inks.com*