

## Marabu Effect Inks Screen and Pad Printing Effects

Screen/Pad

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Nowadays, many printed products draw the customer's attention not only by means of optical impressions, but with emotional messages. Different visual and haptic effects can spark or strengthen a customer's interest, while functional effects increase the product safety. Screen Printing is predestined for the realization of these effects, as well as Pad Printing. This TechINFO introduces the various possibilities and provides valuable tips regarding applications and processing.

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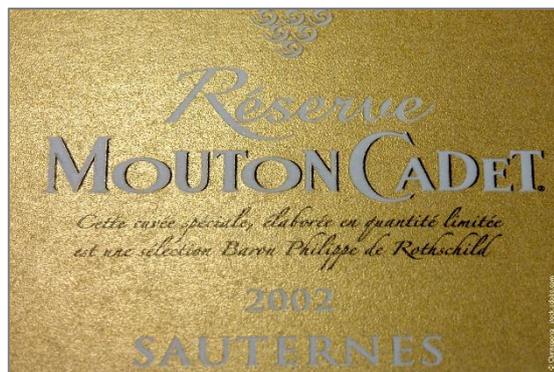
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### 1.0 Metallic Effects

Variations in color shade, particle size, gloss, adhesion, pigment quality, and finally the price, offer countless effects within the range of bronze printing inks. Furthermore, shades and effects like silver, gold, and copper bronzes can be expanded by adding transparent color shades.

Screen printing allows fine-tuning of ink deposits with the right mesh, while pad printing can achieve these effects with particles up to 20 µm.

#### 1.1 Bronze Powders and Bronze Pastes



S 182 : UVC 904 (1:6)

Very "metallic" bronze powders or alternatively bronze pastes with higher abrasion resistance are available:

#### Bronze Powders:

<b>S 181</b> Aluminium	<b>S 184</b> Pale Gold
<b>S 182</b> Rich Pale Gold	<b>S 186</b> Copper
<b>S 183</b> Rich Gold	<b>S 190</b> Aluminium

#### Bronze Pastes, universal use:

<b>S 191</b> Silver
<b>S 192</b> Rich Pale Gold
<b>S 193</b> Rich Gold

#### Bronze Pastes for UV-curable inks

<b>S-UV 191</b> Silver
<b>S-UV 192</b> Rich Pale Gold
<b>S-UV 193</b> Rich Gold

## Technical Details

- Addition 10-25 % by weight
- Pot life 12-16 h; S-UV191-193 up to 6 months
- Rub resistance should be tested for each application
- Mesh count between 68-64 and 150-31
- Suitable for solvent-based and UV-curable ink systems
- Cliché depth 25-30 µm (pad printing)

## 1.2 High Gloss Metallic Pastes

High gloss metallic pastes feature a very glossy appearance and good rub resistance. The differing qualities are indicated by the degree of gloss and the price level.

### High-Gloss Bronze Pastes („non-leafling“)

For screen and pad printing in combination with **solvent-based** bronze binders or varnishes.

**Not** suitable for silicone-free ink systems!

- S 291** High Gloss Silver
- S 292** High Gloss Rich Pale Gold
- S 293** High Gloss Rich Gold

For screen printing in combination with **UV-curable** bronze binders or varnishes (2-component inks only):

- S-UV 291** High Gloss Silver
- S-UV 293** High Gloss Rich Gold
- S-UV 296** High Gloss Silver
- S-UV 297** High Gloss Rich Pale Gold
- S-UV 298** High Gloss Pale Gold

## Technical Details

- Addition 10-25 % by weight
- Pot life approx. 8-12 h
- Mesh count 150-31
- Very small particle size → suitable for fine mesh counts, good ink mileage
- Rub resistance must be tested for each application, we recommend overvarnishing for best resistance
- Cliché depth 25-30 µm (pad printing)

## 1.3 Metallics, press-ready

A selection of press-ready metallic shades is available as standard shades in certain solvent-based ink systems ending with the number code 191-193; high-gloss versions ending with the number code 291-293. If a standard is not available, press-ready metallics can be offered upon request.

## 1.4 UVGL Hot Stamping Primer



Precious metals are often used for the decoration of high-end products. Despite continuous improvement, organic gold and silver inks have never been able to reach the look of the expensive precious metal preparations which must be baked at high temperatures. The Ultra Glass UVGL Primers, in combination with hot stamping foils, are now the perfect solution: Equal brilliance at much lower costs.

## 2.0 Mirror Silver

Formerly, creating mirror effects was only possible by using expensive processes like the silvering of glass. **Mara® Chrome MC** screen printing mirror ink enables you to simply print this effect.

Attractive gold, bronze, or coloured metallic effects can be created by pre-printing the front or back with transparent Marabu inks like Mara® Star SR.

## Technical Details

- To achieve the mirror effect, it is necessary to print onto the **back** of a **transparent** substrate
- Complete overprint (barrier) is recommended
- Mesh count between 100-34 and 120-34

### 3.0 Glitter Effects



Glitter

Glitters are coated polyester pigments and owing to this have a very particular and flashy glitter effect. Typical fields of application include graphical effects within the packaging or credit card industry. On request, glitter effects are available with many UV-curable or solvent-based printing inks.

#### Technical Details

- ➔ Available shades: Silver, gold, or colored
- ➔ Particle size 50-100 µm
- ➔ Mesh count depends on the particle size (rough guide: mesh count = triple the particle size)

### 4.0 Pearlescent Effects

Many different pigments are offered in this typical effect range, and they can be divided into the following four groups:

**Silver White** pigments are available in different color shades and sizes.

The **pigments of the so-called „flop effect“** seem to change their color, depending on the angle of view and the incidence of light.

**Highly brilliant pearlescent pigments** are vividly colored, glossy, and transparent. They are available in different colors.

**Pearlescent glitter pigments** are available in many different high gloss color shades, creating a brilliant sparkle.

Pearlescent pigments are very transparent by nature, and according to the color of the substrate there can be a significant change in shade. These pigments are most effective on black substrates, but they achieve unrivalled effects on bright substrates as well.

Chosen correctly, pearlescent pigments are suited for solvent-based screen and pad printing inks as well as for UV-curable screen printing inks. Due to the great variety of pigments and necessary fine-tunings, however, they can only be offered upon request.



Flop Effect

#### Technical Details

- ➔ Particle sizes vary between 5-150 µm depending on the desired effect
- ➔ Mesh count depends on the particle size (rough guide: mesh count = triple the particle size)
- ➔ Cliché depth 25-30 µm

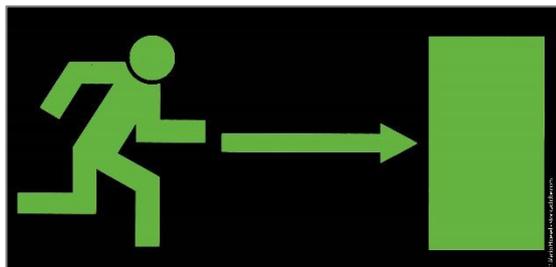
### 5.0 Luminescent Inks

#### 5.1 Glow-in-the-Dark

Glow-in-the-Dark products can absorb and store short-wave UV-light returning it once the exposure to light has stopped (visible in the dark). This effect is well-known from the safety technology, i.e. emergency exit signs or watch dials. The length of the glow depends on the amount of absorbed energy and the quality of the pigments used.

Due to the geometry of the pigment, the best possible glow-in-the-dark effect in screen printing will be

achieved using a very coarse mesh. Since the opacity of the pigments is rather low, they will only be effective on white substrates.



Mara® Glow GW 760

The solvent-based ink system **Mara® Glow GW** includes two variations:

- GW 760** High quality (whitish)
- GW 361** Standard quality (yellow/greenish)

#### Technical Details

- ➔ Mesh count between 27-120 and 48-70
- ➔ For mechanical protection, we recommend a subsequent thick overprint varnish layer

#### 5.2 Fluorescent Inks

This effect, generally known as „neon“, creates very intensive and bright impressions. Due to the low opacity of these pigments, best results will be achieved on white substrates. Fluorescent inks are suitable for short-term outdoor exposure because the inherent nature of the pigment chemistry (effect emitted as the pigment fades) offers low UV stability.

Fluorescent shades are available as standard with the solvent-based ink series **Mara® Gloss GO**. On request, fluorescent shades can be made available in other solvent-based or UV-curable ink series. Typical application fields of fluorescent effects in screen and pad printing are give-aways, sporting goods, and toys.

Please note that for inks made on request, a reduced shelf life of 3-12 months must be considered.



#### Mara® Gloss GO

- GO 320** Fluorescent Yellow
- GO 323** Fluorescent Orange
- GO 331** Fluorescent Red
- GO 333** Fluorescent Pink
- GO 364** Fluorescent Green

#### Technical Details

- ➔ Mesh count between 100-34 and 150-31
- ➔ Cliché depth 25-30 µm (multiple printing)

#### 5.3 UV-Active

UV-Active pigments appear invisible in daylight. Under the influence of a strong UV-light source (black light) a color becomes visible. Owing to this, these effects are mainly used for product safety codifications (e. g. pharmaceutical industry). There are pigments on the market offering effects from transparent to yellow or blue. Upon request, they can be offered for screen printing in either solvent-based or UV-curable systems, or in pad printing.

#### Technical Details

- ➔ Mesh count between 120-34 and 150-31
- ➔ Cliché depth 25-30 µm

#### 6.0 Matt, Structure, and Gloss Effects

Matt, structure, and gloss effects are a domain of screen printing, e.g. for labels or membrane switches. Marabu offers various effects for a large number of applications. Gloss, matt, and structure varnishes can be printed alone, combined for contrasting effects, or even mixed to create customised levels.

## 6.1 Matt

Matt surfaces have a very noble appearance due to their optical irregularity, offering diffuse light scatter. Furthermore, they are usually less sensitive to fingerprints than glossy surfaces. Marabu's universal matt varnish is **UVLM 2**, as well as products in several other ink systems ending with the number code 913.

### Technical Details

- ➔ Mesh count for UV inks: 150-31
- ➔ Mesh count for solvent-based inks: 120-34

## 6.2 Structure

Anti-glare images whilst improving the haptic can be achieved with structure varnish. The effects range from coarse/transparent to fine/milky.

Typical screen printing applications for structured layers are membrane switches or automotive speedometers. Due to their hard and scratch-free surface, UV-curable varnishes are predestined for these applications.

Marabu's universal structure varnishes are **UVLS 1** and **UVLS 2**; as well as products ending with the number codes 914, 915, or 916 in several other ink systems.

### Technical Details

- ➔ Mesh count for UV inks: 150-31
- ➔ Mesh count for solvent-based inks: 120-34

## 6.3 Gloss Effects

In the modern packaging and give-away markets, a very noble effect is attained via "spot-varnishing" which combines high-gloss coatings with matt surfaces. To achieve this effect, the resulting gloss level of an ink or an overprint varnish will be determined by the transparency of the binder, the additives used for the formulation, as well as by the printed ink film thickness and roughness of the substrate surface. High-gloss effects are a typical domain of screen printing. The best effect can be achieved with UV-curable ink systems.

Marabu's universal gloss varnishes are **UVLG 5** and **UVLG 6**; as well as products ending with the number code 910 in several other ink systems.

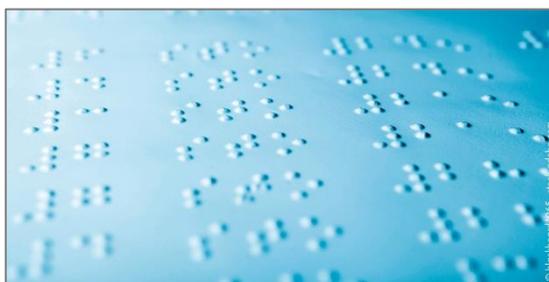
### Technical Details

- ➔ Mesh count for UV inks: 150-31
- ➔ Mesh count for solvent-based inks: 120-34

## 6.4 3D Effect

3D effects are well-known from dome-coating. Screen printing is used to achieve symbols or graphic characters with a thickness of 30-250µm. The resulting character is clearly perceptible and usually transparent as known from the triangular product safety symbol, braille printing, or other graphical effects. By adding very little of a basic shade, the transparent braille varnishes may also be colored. Best results can be achieved by choosing the correct combinations of mesh, stencil technique, and viscosity of the varnish.

Marabu's universal braille varnishes are **UVLB 1** and **UVLB 2**. **UVLG 7** and **UVRS 912** are recommended for relief printing.



UVLB 1



UVLG 7

## Technical Details

- Due to the countless variations of 3D effects, it is impossible to suggest guidelines; for further details please see the TechINFO „Tactile Effects with Braille and Relief Varnishes“

## 7.0 Writeable Inks



Writeable inks (which can only be produced by screen printing) usually have a matt, rough character, meet high resistance requirements, and are used for different applications.

**Libra Speed LIS 773** Board Ink, Black

**Libra Matt LIM 170** Opaque White, for signature fields of identity cards

Further requirements like laser writeable, e. g. for the pharmaceutical industry, can be fulfilled by Marabu's Special Colour Department.

## Technical Details

- Mesh count for Board Ink: 68-64
- Mesh count for Signature White: 120-34

## Note

For all the above-mentioned effects, extensive tests under individual print conditions must be carried out prior to production. Please also refer to our Technical Data Sheets.

## Contact

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