

Marabu Effect Inks Screen and Pad Printing Effects

Screen/Pad
2017
2. Oct

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.

Content

- 1.0 Metallic Effects
 - 1.1 Bronze Powders and Pastes
 - 1.2 High Gloss Metallic Pastes
 - 1.3 Metallics, press-ready
 - 1.4 UVGL Hot Stamping Primer
- 2.0 Mirror Inks
- 3.0 Glitter Effects
- 4.0 Pearlescent Inks
- 5.0 Luminescent Inks
 - 5.1 Glow-in-the-dark Effect
 - 5.2 Fluorescent Inks
 - 5.3 UV-Active Inks
- 6.0 Thermochrome Effects
- 7.0 Matt / Structure and Gloss Effects
 - 7.1 Matt
 - 7.2 Structure
 - 7.3 Gloss
 - 7.4 3D Effects
- 8.0 Writeable Inks
- 9.0 Scented Inks

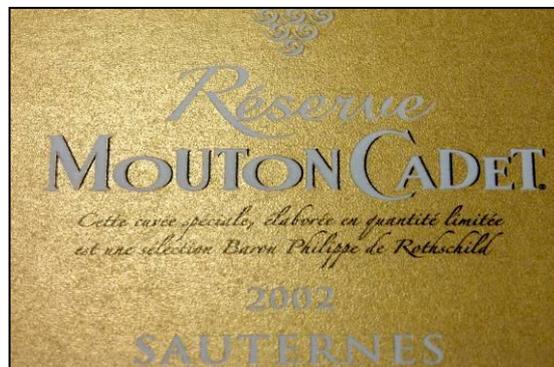
1.0 Metallic Effects

Variations of the colour shade, particle size, degree of gloss, adhesion characteristics, the quality of the pigments, and last but not least the price, offer countless effects within the range of bronze printing inks. Furthermore, individual shades and effects of certain effects such as silver, gold, and copper bronzes can be expanded by adding transparent colour shades.

Allowing for easy fine-tuning of the ink deposit by choosing the appropriate mesh, Screen Printing is made for such applications. Up to a particle size of 20µm, Pad Printing also allows the realization of these effects.

1.1 Bronze Powders and Bronze Pastes

Available are very „metallic“ Bronze Powders or alternatively Bronze Pastes featuring higher rub resistance.



S 182 : UVC 904 (1:6)

Bronze Powders:

- | | |
|----------------------|------------------------------|
| S 181 Aluminium | S 184 Pale Gold |
| S 182 Rich Pale Gold | S 186 Copper |
| S 183 Rich Gold | S 190 Aluminium, rub-resist. |

Bronze Pastes, universal use

- S 191 Silver
- S 192 Rich Pale Gold
- S 193 Rich Gold

Bronze Pastes for UV-curable inks:

S-UV 191	Silver
S-UV 192	Rich Pale Gold
S-UV 193	Rich Gold



S 192 : UVSF 904 (1:2,5)

S 193 : UVSF 904 (1:2,5)

Technical Details

- Addition 10-25 % by weight
- Pot life 12-16 hours, S-UV191 -193 up to 6 months
- Rub resistance should be tested, application-oriented
- 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:

Suitable for Screen and Pad Printing in combination with **solvent-based** bronze binders or varnishes:

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

Suitable for Screen Printing in combination with **UV-curable** bronze binders or varnishes:

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



S-UV 296: UVSF 904 (1:5)

Technical Details

- Addition 10-25 % by weight
- Pot life approx. 8-12 hours
- Mesh count 150-31
- Very small particle size → suitable for fine mesh counts, good ink mileage
- Very good rub 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.

For further information on UVGL and the Primers please refer to www.marabu-inks.com.

2.0 Mirror Inks

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.



Mara® Chrome MC 295

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

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.



Glitter

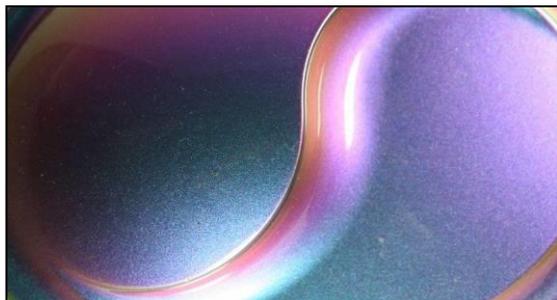
Technical Details

- available shades of Glitter: Silver, Gold, or coloured
- 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	High Brilliance (col.)
Flop Effects	Sparkling



Flop Effect

Pearlescent pigments are very transparent by nature, and according to the colour 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.

Silver White pigments are available in different colour shades and sizes.

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

Highly brilliant pearlescent pigments are vividly coloured, glossy, and transparent. They are available in different colours.

Creating a brilliant sparkle, pearlescent glitter pigments are available in many different colours.

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.



Glitter 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.

Our current product range includes three variations of solvent-based inks:

Mara® Glow GW

GW 760 High Quality (whitish)

GW 761 High Quality (yellow/ greenish)

GW 361 Standard Quality (yellow/greenish)

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. For more details, please read our separate TechINFO „Phosphorescent Inks“.



Maraglow GW 760

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.

Mara® Gloss GO

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

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



Mara® Gloss GO

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 colour 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 which go 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
- a minimum order quantity of 5 kg is normally required (production-related)



UV-Active (blue)

6.0 Thermochromatic Effects

These pigments change colour under the influence of temperature, typically as a reversible, but also obtainable as an irreversible effect. Variations are offered by selecting specific temperature ranges and by differing colour shades. It is possible, for example, that a wine label indicates a specific colour when the desired drinking temperature has been reached. This class of pigment can be offered upon request for solvent based and UV-curable Screen and Pad Printing ink series.

Thermochrome



At room temperature

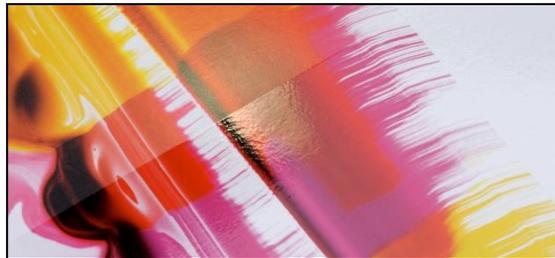
cooled at < 8 °C

Technical Details

- Mesh count for solvent-based from 43-80 to 90-48, UV from 68-64 to 140-34 depending on the desired colour strength
- Cliché depth 25 - 30 µm
- a minimum order quantity of 3 kg is required (production-related)

7.0 Matt, Structure, and Gloss Effects

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



Matt / Gloss varnish

7.1 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: 150-31
- Mesh count for solvent-based: 120-34

7.2 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 therefore almost 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: 150-31
- Mesh count for solvent-based: 120-34



Structure / Gloss varnish

7.3 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.

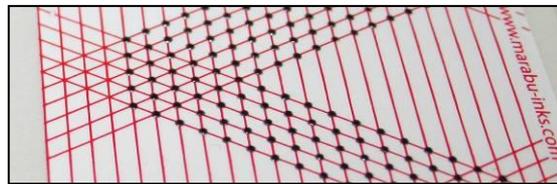
Marabu's universal gloss varnishes are **UVLG 1**, **UVLG 5** and **UVLG 6**; as well as products ending with the number code "910" in several other ink systems.

Technical Details

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

7.4 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 with 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 coloured, as our example shows:



UVLB 1 : UVRS 180 (30:1)

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



UVRS 912

Technical Details

- Due to the countless variations of 3D effects it is impossible to suggest guidelines ; for further details please see the TechINFO „Tactile Special Textured Varnishes“

8.0 Writeable Inks



Libra Speed LIS 773

Writeable Inks (only realisable with Screen Printing) usually have a matt and quite rough surface, are very resistant, and can be used for different applications. Examples for Standards:

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

For signature fields (Identity Cards):
Libra Matt LIM 170 Opaque White

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

9.0 Scent Effects

Everyone has seen and probably smelled test perfume strips included in magazines. A fragrance is released when rubbing the surface. The resulting friction causes the extremely tiny scent capsules to burst and liberate their fragrance. The manufacturers of such raw materials offer varying scents which can in some cases be used in screen printing, as long as the compatibility has been confirmed. During printing, it is particularly important to ensure, however, that the ink is not exposed to high pressure or abrasion from the squeegee as the scent capsules would then prematurely burst and cover the printing room instead of the intended product.

Technical Details

- Various particle sizes depending upon the technique used for encapsulation
- Mesh count depends on the particle size (Rough guide: mesh count = triple the particle size)
- a minimum order quantity of 5 kg is required (production-related)

Note

Extensive test series under individual print conditions must be carried out prior to a production run concerning all aforementioned effects. Please also refer to the Technical Data Sheets.

Contact

Technical Hotline, Phone: +49 7141 691140
technical.hotline@marabu.de