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SCREEN PRINTED EFFECTS

Special finishes and effect prints attract a lot of attention, therefore demand for such applications is increasing. Due to its great variety the screen process is very suitable for production of special effects. In the following we would like to line out these exceptional possibilities and present our special effect inks.

There is hardly any standard when printing effects. There is a great variety of possibilities. To give you a better overview, we are dividing them into three groups.

OPTICAL EFFECTS
TACTILE (HAPTIC) EFFECTS
SCENT EFFECTS

OPTICAL EFFECTS

All unusual visual impressions like fluorescent colours, colour shift (interference) effects, bronzes, coarse glitter particles and finally phosphorescent inks.

Fluorescent colours have been on the market for a long time, however, they always offer new and interesting applications, even for special high quality advertisements. These substances show unexceptionally bright, intensive colours. The higher the share of UV-radiation in the light the more intense is the effect. Fluorescent colorants transform the invisible UV-radiation in visible light energy. If the UV light is very strong, the fluorescent colours seem to explode. Coates Screen Inks GmbH has been offering strong fluorescent colours for a long time – ink range TL. These colour shades can also be delivered in other ink ranges upon request.

Bronze colours, i.e. gold, silver and copper colours have also been available for a long time. In the past few years interesting advanced developments and novelties producing optical effects have been introduced. Only recently so-called mirror effect inks have been launched. These are printed onto transparent plastic material behind glass. When viewing that glass from the front you will see a mirror effect comparable to results of hot stamp foils.

For these applications our bronzes B, AB and MG are available. For mirror effect printing we offer our new ink type MI.

Interference colours produce a colour shift effect. This effect is due to pigments that show a very bright optical effect under the influence of light. A special property of many of these pigment types is a significant change of colour depending on the colour of the substrate they are printed on. Some of these pigments result in completely different and very exotic colour shades depending on the substrate colour white, red, blue, green or black.

A better way to classify:
Pearl, Bronze, Interference

Colour shift pigments, changing the colour shade depending on the light angle. Very special pigments are the new Colourstream pigments of Merck, which by far supersede the usual colour shift effect of the Iriodin interference effects, also of Merck. For our products we offer a comprehensive range

of special pigment types suitable for screen printing applications. These pigment types are processed with various varnish systems of our program. Another, real special phenomenon are phosphorescent colours. These are inks containing high concentrations of special pigments mixed into the binder system. Those pigments can store the light energy. Phosphorescent inks are printed with coarse fabrics (approx. 20 – 60 threads/cm). The special property of these inks is their ability to glow in the dark. Such inks are mainly used for safety applications like emergency exit symbols. Those symbols store the energy of the light, which is then glowing as greenish light in the dark. Such pigments are also used for graphic applications like buttons, signs and posters with glowing effects for children rooms.

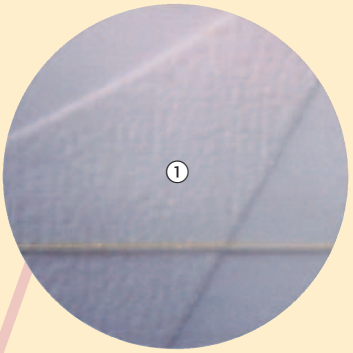
Phosphorescent colours of ink ranges PK 96/… and UVN 96/… are available in various pigment concentrations.

Another optical effect is the so-called wet and reveal effect. Known for many years this effect is revived again and again. A part of a printed, often somewhat indecent image on posters is covered with a half-opaque white. Due to the strong light scattering of these pigments the motive is then hardly noticeable, however, if the colour layer is wet with water this light scattering effect is eliminated and the covered image becomes clearly visible.

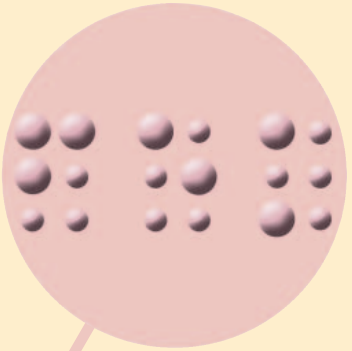
Such effects can be achieved with PF 70/32, processed with a 77 or even more coarse fabric.

TACTILE (HAPTIC) EFFECTS

When producing printed haptic effects (haptic is the sense of touch) screen printing is the best technology. In the ancient world the sense of touch was considered to be the most important of all senses, whereas during the Middle Ages it was thought to be of lesser importance. Nowadays, it is again considered very important. It was found that products with a pleasant tactile effect are much more accepted than comparable products without positive tactile effects. Automotive, textile and even food companies have their haptic laboratories where suitable tactile effects are developed for various products/items. The slogan is: Fingertips also influence a purchase.

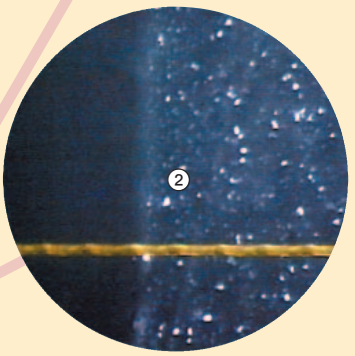


Before talking about tactile effects, let's look at perception of tactile stimuli. This comprises everything we can feel on our skin. Various receptors in the skin feel pressure, vibration, temperature and pain. These receptors are unevenly distributed all over the skin. On the back, e.g. the individual points are quite far apart (>60 mm); the hand has approx. 15000 receptors and in the fingertips receptors only are about 1-5 mm apart. Thus we can feel tiniest (micrometer range) differences on surfaces just with our fingertips.



The screen process can produce a large number of different tactile effects, such as gloss varnishes with a very smooth surface, structure varnishes with different degrees of roughness ranging from very fine to very coarse. These effects can even include relief structures with significantly elevated lines, points or text contours.

Hard varnishes can be applied just as well as soft layers, so-called soft-touch varnishes. Such varnishes can be adjusted to give either an adhesive or a sliding feeling. Depending on varnish types it is also possible to apply coloured adjustments.



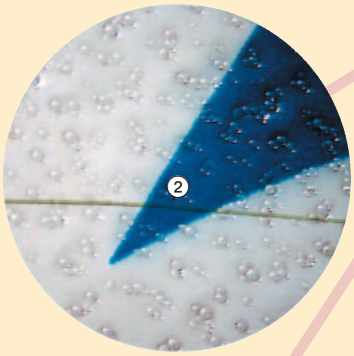
There are various fields of applications for tactile effects. Tactile symbols are increasingly used for safety applications, like Braille writing or emergency exit symbols coated with anti-slide varnishes. Other examples are serving trays with an anti-slide surface, pencils with soft knobs to achieve a better grip, mouse pads with an anti-slide bottom or keyboard foils with resistant mat structures on the front side.

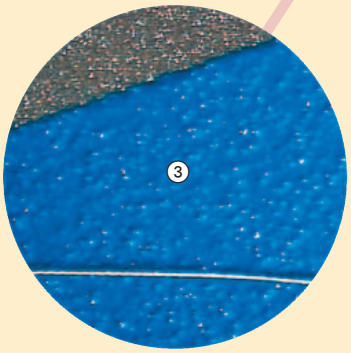
There are even more possibilities for tactile effects for creative designs. There are combinations of visual effects or even tactile effects united with visual effects.

① *Anti-slip soft-touch varnish UV 70/516*

② *UV structure varnish fine (UV 70/623), very scratch resistant*
Application: e.g. keyboard foils
yellow line: fabric thread 34µ

Easy*Way





Eye-catching finishes you want to touch; relief motives on coloured, transparent or translucent surfaces or printed on coloured texts. Varnishes applied in thick layers with small contents of bronze, colour or glitter pigments; coloured anti-slip varnishes in form of texts or motives (stars, logos etc.) on floors. There are numerous possibilities.

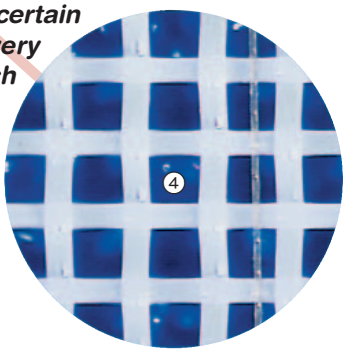
Screen process is the ideal technique for haptic effects, compared to other technologies highest layer thicknesses are possible, even huge particle sizes of up to 300 µ can be printed.

There is a large product range for "tactile prints". Depending on requirements glossy, mat, relief or structure varnishes are available. There are extremely scratch resistant nano-varnishes, very soft, anti-slip adjustments and also soft, partially even plastisol layers with a puff effect. These are mostly used for textile screen printing, however, they can also be quite interesting for some graphic applications.

Tactile effects are mostly produced with UV-curing screen printing inks. Due to their 100% solids content they have the unbeatable advantage of achieving a maximum dry ink layer resulting from the printed wet ink film determined by the screen fabric. UV curing speeds up processing. Structure and relief varnishes are printed with fabrics of 100 to 20 threads/cm. These transparent thick layers can be cured quickly with UV radiation. There is no solvent based ink that can release its contents that quickly.

Nevertheless, solvent based inks can also be used. Structured surfaces are especially applied on glass, metal or duroplastics using 2-component solvent based inks. Just think of glass decorations for shower cabins, metal logos used in the automotive industry or screen printed front sides of furniture.

Coates Screen has a broad product range for achieving tactile effects on a large number of different substrates. These screen varnish and ink products meet resistance requirements you cannot achieve by any other process. Effects can be modified and adjusted to certain requirements. Rough structure, fine structure, very coarse structure, coloured structure, soft-touch effects etc. etc.



① *UV relief varnish UV 70/511 printed on blue text diameter star 7 mm*

② *UV anti-slip varnish, coarse UV 70/596 coarse structure glass particles printed with fabric 24*

③ *UV anti-slip varnish, medium-coarse blue colour, MLS 30/00 printed on gold-coloured PVC*

④ *screen fabric comparison fabric **24**-140 compared with 34 µ thread of **120**-34*

SCENT EFFECTS

The olfactory sense of human beings can differentiate up to 5.000 different scents. Scents can be perceived (individually different) as pleasant, stimulating, soothing. For advertising purposes printed scents, e.g. for magazines to present scents of perfumes, are quite important. Purchase of a certain product or food, e.g. vegetables, can be influenced by corresponding scents. Unpleasant smells are often covered with a stronger, more pleasant scent.

Scented oils or capsules can be mixed into screen inks. There are a great variety of suitable products. Anything is possible – spices, plants, vegetables, wood, even Christmas scents! However, choice and amount/effect of scents are quite difficult, as individual customer requirements have to be taken into consideration. Therefore we would like to refer you to a special raw material supplier who can assist in achieving scent effects.

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This company offers a large range of scents that can easily be mixed into printing inks under the trade name "**FOLCOScent®**"

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