

Mara Glow GW



Solvent-based phosphorescent ink
for screen printing

Two phosphorescent duration qualities,
low odour, for PVC, PS, paperboard, and
cardboard

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Field of Application

Substrates

Mara Glow GW is suitable for printing onto PVC self-adhesive film, rigid PVC, polystyrene PS, ABS, SAN, Acrylic glass, polycarbonate, paperboard, and cardboard. Due to the very high thickness of printed ink layers, printing onto thin materials like PVC self-adhesive film might be difficult. To avoid material warpage, we recommend the use of quality films with a film thickness of at least 100µm.

As all of the above mentioned print substrates may differ in their printability characteristics, even within an individual type, preliminary trials are essential to determine suitability for the intended use and especially the subsequent finishing.

Field of Use

Mara Glow GW is a phosphorescent solvent-based screen printing ink and is available in two different phosphorescent duration qualities. In general, phosphorescent inks absorb and store illuminated short wavelength UV rays and/or light and release them as longer wavelength visible light once the illumination has stopped. This results in illuminated signs or effects during darkness. For the long-term phosphorescent quality, this effect can be repeated many times. The following fields of application are possible:

Short-term Phosphorescent Duration

Mara Glow GW 361, yellow-green inherent colour, is suitable as effect ink for printing onto self-adhesive material or signs in the realm of advertising or toys.

Long-term Phosphorescent Duration

Mara Glow GW 760, White Green
Mara Glow GW 761, Yellow Green

Both specifications contain a very high pigment quality and, if processed properly, are suitable for producing long phosphorescent duration according to DIN 67510.

This quality is used in the manufacture of long-term phosphorescent products like emergency exit and hazard location markings and the marking of devices, instrument panels, and dials. We generally recommend not to use a spray gun.

Characteristics

Printability

The ink containing the short-term phosphorescent pigment quality, GW 361, can be processed with a mesh of up to 90-48, analogous to other screen printing inks. The homogenous stirring of the ink prior to printing is essential. The basis of the long-term phosphorescent ink is an extremely hard pigment with a very high specific gravity and high pigment content. The ink, therefore, must regularly be stirred consistently before printing and during production.

The pigment content in the printed ink layer will otherwise be reduced and the phosphorescent duration required by DIN 67 510 will not be met. Due to the hard pigment quality, the stencil abrasion during production is quite significant. We recommend that the emulsion is only applied to the print side of the screen, and a hard squeegee with rounded edges is used.

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Drying of GW 361

When printing with a 90-48 mesh, the single-sided print dries stackable in the hot air channel (2 hot, 1 cold zone) at 40-50°C. Under these conditions, a rather slow drying speed of 10m/min. is recommended. Appropriate preliminary trials are essential.

Drying of GW 760 and GW 761

Due to the pigment size, the high ink film thickness, and to achieve DIN 67 510, both products require printing with a very coarse mesh (e.g. 27-120). This slows down the drying speed considerably and makes passing through the hot air channel and subsequent rack drying a necessity.

To achieve quick solvent evaporation, we always recommend to use a hot air tunnel dryer.

Opacity

To achieve a maximum phosphorescent effect, printing should only be onto white substrates. The opacity of these inks is low.

Light Storage Saturation

Both ink qualities produce a maximum storage when illuminated with 380-400nm, wavelengths present in both daylight and neon light. If only incandescent lighting is available, even prolonged charging will result in only a reduced phosphorescent effect.

Phosphorescent Duration

The phosphorescent quality GW 361 produces, if fully charged and properly processed, a phosphorescent effect of approx. 30 minutes.

The long-term phosphorescent quality GW 760 and GW 761 achieves and exceeds when properly processed and with uniform pigment distribution the values of DIN 67 510 (20 mcd/m² after 10 min. / 2.8 mcd/m² after 60 min. - 340 min. until it drops to 0.3 mcd/m²), so that it glows for several hours.

Colour Fastness

All three phosphorescent inks are free of phosphor and lead, free of radioactive materials, and harmless in accordance with DIN EN 71/ part 3. To provide for increased internal and external longevity and to protect against humidity, we recommend a suitable thick protective varnish.

Mileage

The following values relate to 1kg of printing ink plus a 5% thinner addition and depends largely on the stencil thickness and the roundness of the squeegee edge.

GW 361, mesh 90-48, approx. 40sqm
 GW 760, mesh 27-120, approx. 8sqm
 GW 761, mesh 27-120, approx. 8sqm

Range

The following standard products are available:

Phosphorescent Ink

GW760 White Green, long-term phosphorescent
 GW 761 Yellow Green, long-term phosphorescent
 GW 361 Yellow Green, phosphorescent

Protective Varnishes

To protect the phosphorescent ink against fading, the entire surface must be overvarnished.

GW 910 1C. varnish for internal applications
 GW 911 2C. UV absorbing varnish for internal and external applications
 Hardener H1 Hardener for protective varnish GW911

Mixture ratio GW 911 to hardener H1 equals 3 parts ink to 1 part hardener.

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When coating with varnish, the same mesh recommendation (or slightly finer) applies as for the phosphorescent ink.

Auxiliaries

Thinner	UKV 2
Retarder	SV 1
Cleaner	UR 3

Prior to printing we recommend adding 5% thinner or retarder to the phosphorescent ink.

Labelling

Current Material Safety Data Sheets according to EC-regulation 91/155 exist for the ink type Mara Glow GW and its additives and auxiliaries, covering in detail all relevant safety data including the labelling according to the current hazardous materials regulation and EC directives. These details can also be found on the respective labels.

Please order the safety data sheets. The ink has a flashpoint above 40°C. According to special arrangement para. 2, section 4 of the regulations on flammable liquids dated 03/05/82 the provisions of this regulation do not apply.

We cannot, therefore, guarantee the characteristics and standard effects of long-term phosphorescent products when using the screen printing inks Mara Glow GW 760 and 761.

Recommendation

The ink must be stirred well and consistently before printing and during production.

Note

The long-term phosphorescent screen printing inks Mara Glow GW 760 and 761 are suitable for the manufacture of long-term phosphorescent products in accordance with DIN 67510, part 4 (in the version of July 1996). Of crucial importance in this respect is the correct processing of the ink, the observation of printing parameters, the proper installation at the location, and the observation of illumination conditions according to DIN 67510, part 2.

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.