



NoriPUR[®] 689

Screen Printing Ink with a Long-lasting Phosphorescent Effect

Area of Application and General Characteristics

NoriPUR[®] 689 is a screen printing ink showing a phosphorescent effect of high intensity and of long fading time. If processed with coarser fabrics than 43-90 threads/cm (110-90 threads/inch), the demands of DIN 67510 are exceeded (see chapter "Characteristic Values").

Color: Yellowish-Green

Phosphorescence: Green

Activation by UV rays as well as white daylight or artificial light (cold white light emitted by fluorescent lamps). NoriPUR[®] 689 neither contains phosphorus nor radioactive additives.

The ink is suitable for printing on PVC, acrylics, polycarbonate, treated polyester, metal, paper and cardboard.

A white substrate functions as a reflective layer. The substrate should be relatively rigid and the prints should not be bended respectively, due to the brittleness of the ink film.

NoriPUR[®] 689 can be processed as one or two-component ink. When adding hardener, the resistance of the ink film increases.

Resistance

The phosphorescent pigment is classified as withstanding fading to grey. It is sensitive to water and acids. Only a completely dried and pore-free closed ink film protects the pigment against any harming chemicals.

Surface Structure

Rough surface structure due to the coarse-grained pigment. The granularity is an inherent property of the pigment and is necessary to achieve the desired luminance and duration of light emission.

Overprinting

The surface can be "smoothed" by overprinting with NoriPUR[®] 093. If the phosphorescent ink was processed with hardener, the protective lacquer must be applied before the ink is fully cured.

Processing as Two-Component Ink

Mixing ratio with hardener

for the Phosphorescent Ink NoriPUR[®] 689: 14 : 1,

for the Overprinting Lacquer NoriPUR[®] 093: 7 : 1.

Due to its longer pot life, using Hardener 002 is recommended.

Thinning

Thinner M 202, Thinner M 203, Thinner S 404 or a mixture of them.

Fabric Thickness

Not finer than 43-90 (threads/cm) or 110-90 (threads/inch).

Mileage, approx.

Guide values for a mesh 30-140 (threads/cm) or 76-140 (threads/inch); ink processed with hardener, thinning percentage 10 %.

1 kg press-ready ink for approx. 7.0 to 7.5 m²

1 liter press-ready ink for approx. 10.5 to 11.2 m².

Drying

Depending on the substrate, at room temperature or even at increased temperatures (approx. 100 to 120 °C or 210 to 250 °F).

Cleaning Screens and Utensils

UNI-REIN A III or Thinner M 202

Characteristic Values

Phosphorescence characteristics as per DIN 67510, part 1; activation under a light source of 1,000 lux, thinning percentage 10 % in each case:

<u>Fabric</u>	<u>Hardener 002</u>	<u>Film</u>	<u>Phosphorescence Characteristics</u>
27-140 threads/cm 70-140 threads/inch	without	Oracal Serie 640 permanent	55.8/8.6 – 1276/w-k
30-140 threads/cm 76-140 threads/inch	with	Jac Serilux 2000 nonperm	37.5/6.0 – 965/w-k
32-70 threads/cm 83-70 threads/inch	with	Jac Serilux 2000 nonperm	27.5/4.2 – 655/w-k
43-90 threads/cm 110-90 threads/inch	with	Jac Serilux 2000 nonperm	20.6/3.2 – 544/w-k

For comparison: Demand as per DIN 67510-4: 20 / 2,8 – 340 / w-k

- 20 = phosphorescence intensity in mcd/m², 10 min. after finished activation
- 2.8 = phosphorescence intensity in mcd/m², 60 min. after finished activation
- 340 = minutes after finished activation till be decrease of the intensity of the emitted light to 0.3 mcd/m² (a hundred times the visibility limit)
- w = color impression when irradiated w (white)
- k = visual color impression of phosphorescence (green)

The initial phosphorescence after turning off the light source can be increased more than 20 %, if a light intensity of 3,000 to 5,000 lux is used for excitation instead of the usual 1,000 lux standard light intensity.

Shelf Life

The shelf life stated on the label assures the ink's quality and refers to unopened original cans stored in a dry place at temperatures between 5 °C (40 °F) and 25 °C (75 °F).

The pigment particles tend to settle and form a sediment. Good homogenization of the ink before printing is indispensable.

Shelf life of Hardener 002 is 6 months.

Opened containers of hardener must be tightly closed immediately after use as the hardener reacts with moisture in the air.

Important

Allow the ink as well as all the auxiliaries to be added to adjust to room temperature in the closed container before use.

Substantially, the properties of the ink film as well as the phosphorescence characteristics are determined by the substrate. It is highly recommended to carry out pre-tests before printing any production runs. This applies especially for outdoor use. A suitable substrate as well as ink films free of pores are prerequisites for long-term fastness. Materials that are supposed to be identical may vary from manufacturer to manufacturer and even from batch to batch. Some substrates may have been treated with or can contain sliding agents, antistatics or other additives which will impair the adhesion of the inks.

In general please refer to our technical leaflet "General Information on Screen Printing Inks" which may be downloaded from our website www.proell.de, click Downloads ⇒ Solvent-Based Screen Printing Inks.

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