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# PUR<sup>®</sup>-ZK 688/001

Screen Printing Ink with a Long-lasting  
Phosphorescent Effect

## Area of Application and General Characteristics

**PUR<sup>®</sup>-ZK 688/001 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

Phosphorescent: Green

Activation by UV rays as well as white daylight or artificial light (cold white light emitted by fluorescent lamps). PUR<sup>®</sup>-ZK 688/001 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.

PUR<sup>®</sup>-ZK 688/001 can be processed as one or two-component ink. When adding hardener, the resistance of the ink film increases.

PUR<sup>®</sup>-ZK 688/001 is not suitable for pad printing.

<b>Important</b>	<p>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 contain lubricants, antistatics or other additives which may impair the adhesion of the ink.</p> <p>In general please refer to our technical leaflet "General Information on Screen Printing Inks" which may be downloaded from our website <a href="http://www.proell.de">www.proell.de</a>, click Download ⇒ Screen Printing Inks ⇒ General information on screen printing inks.</p>
<b>Resistance</b>	<p>The fluorescent 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.</p>
<b>Surface Structure</b>	<p>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.</p>
<b>Overprinting</b>	<p>The surface can be "smoothed" by overprinting with PUR<sup>®</sup>-ZK 093. If the phosphorescent ink was processed with hardener, the protective lacquer must be applied before the ink is fully cured.</p>
<b>Processing as Two-Component Ink</b>	<p>Mixing ratio with hardener</p> <p>for the Phosphorescent Ink PUR<sup>®</sup>-ZK 688/001: 14 : 1, for the Overprinting Lacquer PUR<sup>®</sup>-ZK 093: 7 : 1.</p> <p>Due to its longer pot life, using Hardener PUR<sup>®</sup>-ZK No. 2 is recommended.</p>
<b>Thinning</b>	<p>Thinner Norilit<sup>®</sup> U 090, Retarder VZ, Retarder K 097 or a mixture of them.</p>
<b>Fabric Thickness</b>	<p>Not finer than 43-90 (threads/cm) or 110-90 (threads/inch).</p>
<b>Mileage, approx.</b>	<p>Guide values for a mesh 30-140 (threads/cm) or 76-140 (threads/inch); ink processed with hardener, thinning percentage 10 %.</p> <p>1 kg press ready for approx. 7.0 to 7.5 m<sup>2</sup> 1 liter press ready for approx. 10.5 to 11.2 m<sup>2</sup>.</p>
<b>Drying</b>	<p>At room temperature or even at increased temperatures (approx. 100 to 120 °C or 210 to 250 °F).</p>
<b>Cleaning</b>	<p>Screens and utensils should be cleaned with UNI-REIN A III, UNI-CLEANER FP61 or Thinner Norilit<sup>®</sup> U 090.</p>

**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 PUR®-ZK Nr. 2</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/m<sup>2</sup>, 10 min. after finished activation
- 2.8 = phosphorescence intensity in mcd/m<sup>2</sup>, 60 min. after finished activation
- 340 = minutes after finished activation till the decrease of the intensity of the emitted light to 0.3 mcd/m<sup>2</sup> (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**

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

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.

The information contained in the technical information/instruction sheets or other product information sheets is based on product testing conducted by Pröll. Because printing and environmental factors critically affect each individual ink application, the above mentioned information and instructions represent only general recommendations concerning product characteristics and directions for use and should not be construed as representing express warranties regarding the product. The information and instructions in no way release the purchaser from his obligation to verify and test the inks and their application for the specific request, regarding: product characteristics, weather resistance, mixing proportions, gloss, thinning, special mixtures, printability, drying speed, cleaning, effects on or of other materials to be contacted and safety precautions. All details contained in the instruction sheet "General Information on Screen Printing Inks" are to be considered. The further manufacture and use of products containing our inks by the purchaser takes place beyond our control, and the responsibility for further application and use of our product resides solely with the purchaser. Pröll disclaims any warranties, express or implied.

This information supersedes all previous technical information.