



NoriGlass OR 960

Deep Black

Outdoor Resistant 2-Component Glass Decorating Ink –
Silicone free

Area of Application and General Characteristics

OR – Outdoor Resistant

- **Very high Optical Density:** **OD ~ 5 @ 7 μm layer thickness**
(ColorLite sd350)
- **Very high Electrical Resistance:** **> 500 G Ω @ 1000 V measuring voltage**
(FLUKE 1555; distance of electrodes = 1 cm)
- **Very high Surface Free Energy:** **$\sigma_{\text{total}} \sim 47 \text{ mN/m}$**
(\rightarrow Very good bondability.)
 $\sigma_{\text{disperse}} \sim 44 \text{ mN/m}$
 $\sigma_{\text{polar}} \sim 3 \text{ mN/m}$
(Krüss MSA; H₂O/ Diiodomethane)

If printed on second surface, NoriGlass OR 960 properties allow the best possible realization of touch panels (black frame) or capacitive touch switches for outdoor applications.

The cured ink layer is opaque and has, due to its high electrical resistance, no negative influence on touch sensors behind.

Mixing Ratio

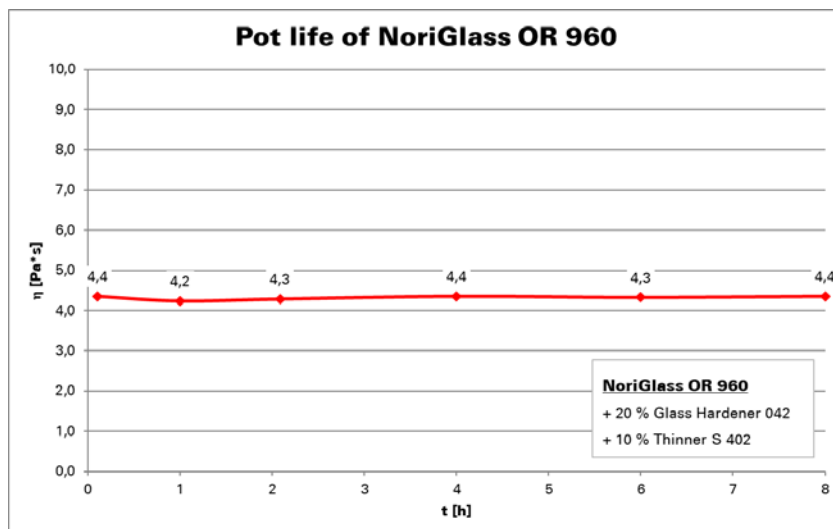
Prior to printing, NoriGlass OR 960 is mixed homogeneously with

20 % Glass Hardener 042 and the intended percentage of Thinner S 402 (approx. 10 %, for viscosity adjustment).

Optimal processing is stirring (blade agitator or dissolver).

A subsequent ink rest time of 10 minutes is recommended.

Pot Life



NoriGlass OR 960

The mixture of ink and glass hardener must be processed within 8 hours.

Even if the ink still seems to be processable, an exceeding of the pot life will impair the adhesion and chemical resistance of the printed ink film.

Consequently, the quantity of the mixture should be limited in accordance with the amount required for the printing job.

This time span refers to a closed container and an ambient temperature of approx. 20 °C (68 °F). Higher temperatures accelerate the curing process.

Thinning

Thinner S 402

Addition: 5 – 15 %; combined addition with Glass Hardener 042 is possible.

Mesh

All usual screen printing fabrics and mesh counts are suitable.

Drying

Each ink layer must be dried separately, the final curing will be done after the last drying step.

Minimal drying: 3 min / 80 °C (175 °F)

Maximal drying: 5 min / 180 °C (355 °F)

Overprinting of dried ink layers without any negative effects on the final properties is possible within four weeks, but it is mandatory to store the prints during this time at appropriate dry and clean conditions.

Heat curing of dried ink layers without any negative effects on the final properties is possible within four weeks, but it is mandatory to store the prints during this time at appropriate dry and clean conditions.

Heat Curing

Heat curing of the last ink layer without loss of quality can be done directly after printing.

Dependent on your requirements and specifications and your processing capabilities, we recommend following curing scenarios:

Heat curing in box oven: Optimal temperature: 180 °C (355 °F) → Highest resistances.

Minimal temperature: 150 °C (302 °F)

Optimal time: 30 min

Minimal time: 30 min

IR supported jet drying: Already from 200 s / 130 °C (266 °F) + 100 % IR are highest resistances possible. Drying is not necessary.

Due to the different technical equipment and the complexity of the final product (glass quality, printing sequence etc.), we strictly recommend tests at your site (potentially with technical support by Proell).

Remark

A cleaned and degreased surface of the substrate is of decisive importance regarding adhesion and resistance of the baked ink layer. When cleaning, please consider that standard (glass) cleaners often leave residues of wetting agents on the surface which may impair the adhesion of the ink, especially when exposed to mechanical stress or to steam (e. g. dew).

Outdoor Resistance

NoriGlass OR 960 is recommended for long term outdoor applications, if printed on second surface.

Cleaning of Screens and Utensils

UNI-CLEANER FP61 und UNI-REIN A III

Shelf Life

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

Opened containers of Glass Hardener 042 must be tightly closed immediately after use as it 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.

Printing results, to a large extent, depend on the substrate as well as the printing and application conditions. We recommend checking your printing materials under your conditions of use before performing any production runs. Materials that are supposed to be identical may vary from manufacturer to manufacturer and even from batch to batch.

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.

Before starting a production run, it is necessary to test samples of each newly designed part systematically with regard to the specifications for the intended use (e.g. climatic chamber, resistance,

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.

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