



Norilux[®] DC-3

abrasion resistant – high gloss

formable Dual-Cure-Lacquer

Area of Application	<p>Norilux[®] DC-3 is a formable, abrasion resistant dual cure lacquer. Norilux[®] DC-3 can be used as first surface protection lacquer/hard coat on PC and PMMA films not resistant to abrasion.</p> <p>Cured lacquer layers of Norilux[®] DC-3 are resistant to chemicals and pass various “creme tests” of the automobile industry.</p> <p>Norilux[®] DC-3 is ideally suited for first surface coating of products manufactured in IMD/FIM technology.</p>
Characteristics	<p>Norilux[®] DC-3</p> <ul style="list-style-type: none">- can be used for overprinting silicone free UV, solvent and water-based screen printing inks (pre-tests required)- is formable, e.g. by high pressure forming or thermo forming- shows excellent abrasion resistance- shows excellent resistance to chemicals
Mesh	<p>To achieve a sufficiently thick layer of lacquer, fabrics from 77-48 to 120-34 threads/cm (195-48 to 305-34 threads/inch) are recommended. Only new fabrics are applicable, i.e. reclaimed screens must not be used!</p>
Stencil	<p>Solvent resistant emulsions must be used. Excellent results during long production runs are achieved by using Pröll emulsion Norikop 8 HR.</p>

Processing

Norilux® DC-3 may only be processed in areas without UV light prior to UV curing. Invisible UV rays from sunlight as well as UV rays from artificial light sources (e.g. fluorescent lamps) have to be avoided.

Necessary equipment is available from EncapSulite® International Inc., Rosenberg, Texas or EncapSulite European Office, Cologne, Germany. Making use of the following UV blocking products is especially recommended:

- UV-Stop Security Fluorescent Tubes, trade name "UV-Shrinkwrap Tube / Type C20" (clear), cut off point at 400 nm
- UV absorbing sleeves, trade name "UV-Safety Sleeve / Type C20 – clear", cut off point at 400 nm
- UV filter film, available in rolls for window application, trade name "EncapSulite UV-Filter C10"

Further information can be found on www.encapsulite.com or www.encapsulite-europe.com.

Hardener

Norilux® DC-3 is mixed homogeneously with Hardener Norilux® DC before printing.

Mixing ratio 2 : 1

e.g. 1 kg Norilux® DC-3 : 500 g Hardener Norilux® DC

This mixture is press ready.

Pot life:

8 hours, depending on temperature and humidity.

Drying

The Dual-Cure System Norilux® DC-3 dries by evaporation of the solvents in jet dryers.

Note:

To protect PC films from solvent attacks, jet dryers should be used, even for small print runs. Drying in racks is not recommended.

To prevent decomposition reactions, the drying temperature must not exceed 80° C (176 °F).

Drying results depend on the thickness of the lacquer layer.

Conditioning/ Post-curing

Before further processing of the printed films it is necessary to remove nearly all solvent residues from the layer of lacquer and substrate.

Minimizing solvent residues is necessary for Dual-Cure-Lacquer Norilux® DC-3 to achieve its outstanding properties.

To obtain the best results, the printed films should be dried separately in racks in a well ventilated box oven.

Conditions:

Post-curing at max. 80 °C (176 °F) for 30 minutes.

Important:

Before UV curing, printed Norilux® DC-3 layers can be damaged easily. Therefore, the sheets should be stored separately in a rack after jet drying.

Forming The overall geometry of the part as well as the selection of the forming technology (e.g. high pressure forming or thermo forming) has an important influence on the forming result.

UV Curing Norilux® DC-3 is UV cured after the forming process.

Depending on the thickness of the layer of lacquer, a UV dose of 1 200 to 2 000 mJ/cm² is necessary (Kühnast UV-Integrator, UV 250 to 410 nm, max. 365 nm). The higher the UV dose, the better the scratch and abrasion resistance.

Microwave-excited curing systems, manufactured by Fusion UV Systems Inc. (www.fusionuv.com), are recommended to achieve a UV dose as high as possible without causing substrate deformation.

For this application, emitter bulbs (D emitter spectrum, iron-doped) in two performance categories (200 W/cm and 240 W/cm) are available.

The UV dose can be increased by exchanging the elliptical reflectors with dichroitic reflectors.

When curing three dimensional substrates, the UV emitter bulbs can be aligned along the shape of the formed substrate, to ensure a consistent curing of the entire 3D part.

Subsequently, processing of the substrate with the cured lacquer film can be continued: die cutting, trimming, back molding (see pictogram on page 5).

Cleaning Screens and utensils can be cleaned with UNI-REIN A III or UNI-CLEANER FP61.

Shelf Life Allow the lacquer 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 product'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).

Safety Precautions The abrasion resistant Dual-Cure-Lacquer Norilux® DC-3 is inflammable. Smoking or open flames are strictly prohibited when using this product.

Processing Norilux® DC-3 requires usual industrial hygiene measures. Please see recommendations on the label and read the material safety data sheets before use.

Important

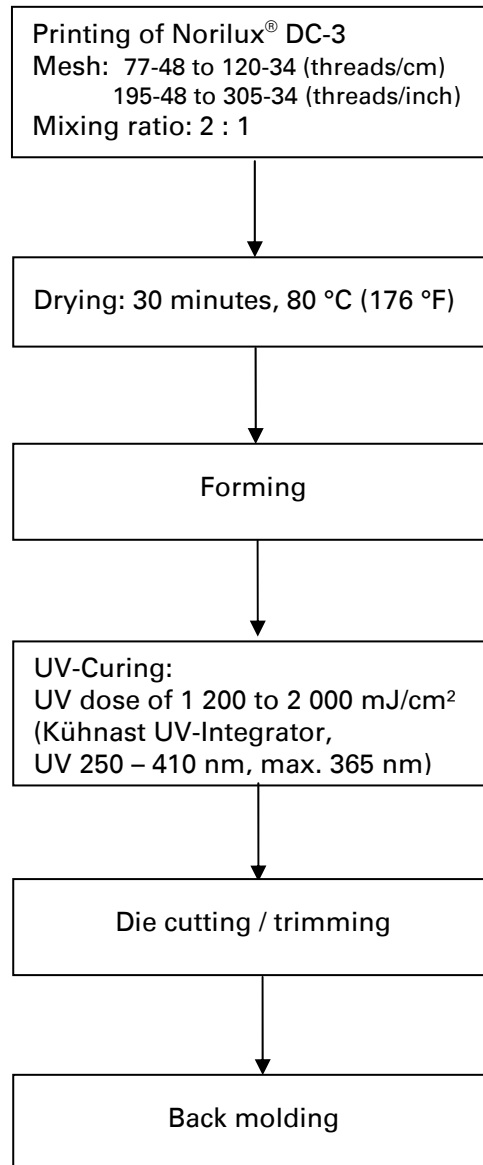
Printing results, to a large extent, depend on the substrate as well as the printing and application conditions. We recommend checking your printing materials under your conditions of use before performing any production runs. Materials that are supposed to be identical may vary from manufacturer to manufacturer and even from batch to batch. Substrates and printing inks may have been treated with or contain sliding agents, antistatics or other additives which may impair the adhesion of the lacquer.

When using Norilux® DC-3, the compatibility between the lacquer and the ink system to be overprinted must be tested. Trials concerning adhesion and abrasion resistance as well as the suitability for further processing or converting steps are necessary.

This is a test product which is still in development. For this reason, no assurances are currently given as to type conformity, processability or long-term performance characteristics. Therefore, the customer uses the product entirely at their own risk with no guarantee.

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, etc.).

Pictogram



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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