

Technical Data Sheet

FormGard®

Formable Scratch Resistant Coating

DESCRIPTION

One part, solvent borne coating solution designed to impart excellent abrasion, scratch, and chemical resistance to polycarbonate (PC) and polyester plastics.

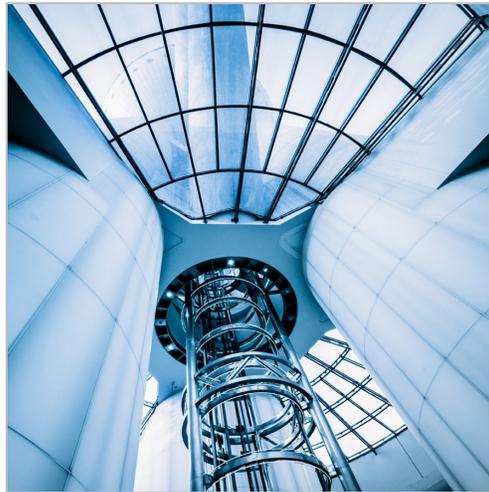
The cured coating is clear, flexible and does not discolor from exposure to sunlight. Sheets coated with this material can be formed without loss of performance properties. Suitable for dip and flow coating applications. For tintable, ophthalmic dyes can be added to the aqueous solution.

FEATURES

- Exceptional Abrasion, Scratch & Chemical Resistance
- Formable and Flexible
- Outstanding Optical Clarity
- Primer-free Adhesion to PC
- Tintable at Room Temperature
- Does not discolor from exposure to sunlight

BENEFITS

- Can be stored at room temperature
- Long product service life reduces the need for frequent tank change-outs.
- Streamlines manufacturing, enhancing yields and profitability.



Premium Formable & Scratch Resistant Coating

Product Applications

ARCHITECTURAL & BUILDING

- Domes, Roof & Skylights, Lighting
- Protective Bus Shelters & Outdoor Signage

AUTOMOTIVE & TRANSIT

- Headlamps, Lighting & Windows
- Windscreens, Canopies & Sunroofs
- Instrument Clusters & Gauges

AVIATION & AEROSPACE

- Canopies, Cabin Windows & Lighting
- Cockpit Instruments & Navigation Systems

PROTECTIVE EYEWEAR

- Safety Visors, Face Masks, Shields & Goggles



Substrate Materials

- Polycarbonate (PC)
- Polyester & Other Plastics



Product Overview

FormGard formable coating delivers best-in-class abrasion, scratch, and exceptional chemical resistance.

Cured coating offers excellent optical clarity. Primer-free adhesion to polycarbonate.



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Operating Guidelines

PRODUCT SHIPPING AND AVAILABILITY

Typical lead time for shipment of FormGard is four (4) weeks from confirmation of a purchase order. FSICT provides several shipping options. Please contact an FSICT representative to determine which option best first your needs. All orders are shipping F.O.B. Additional shipment charges including customers clearance and fees (if applicable) are the responsibility of the customer.

HEALTH AND SAFETY INFORMATION

Before using this product, read and understand the Safety Data Sheet, SDS, which provides information on health, physical, and environmental hazards, and handling precautions and first aid recommendations. **For a copy of an SDS, contact an FSICT sales or customer service representative.**

HANDLING AND SAFETY INFORMATION

Avoid contact with skin and eyes. Do not take internally. Observe proper industrial hygiene, including splash goggles and impervious gloves. Provide adequate ventilation to prevent build-up of solvent vapors above threshold limit values. Otherwise, use self-contained breathing apparatus.

FormGard contains flammable solvents and must be kept away from heat or sources of ignition. Ground all containers and do not re-use empty drums. Disposal of waste materials solution including clean-up solvents in accordance with local, state and federal regulations.

WARRANTY AND LIABILITY LIMITATIONS

This document does not constitute any warranty or representation regarding FSICT's product. Please refer to FSICT coating Technologies Standard Terms and Conditions or to your purchase agreement with FSICT for the warranty coverage of FSICT's product.

Application & Cure Requirements

FormGard is supplied at 30% solids and can be used as received, or it may be diluted with 1-methoxy-2-propanol.

The best scratch resistance is obtained from coatings that are 2.0 to 4.0 microns (0.08 to 0.16 mils) dry thickness requires about 10 microns (0.40 mils) wet at 30% non-volatile. This produces coverage of approximately 4,000 sf/gall (98²/l).

Recommended withdrawal rate for dip coating is 2 to 5 in./min. (5 to 13 cm/min.) at 30% solids. For Flow coating, dilution of 20% solids is recommended. Adjustments may be necessary to obtain proper dry coating thickness depending on part geometry and flash off time, etc.

FormGard coatings will not dry tack-free without heat, but a short bake (10 min.) at 140°F (80°C) is sufficient for pre-cure. To fully cure, parts should be oven cured at 266°F (130°C) for 45 to 60 min. FormGard does not require a post cure, so once parts are cool enough to be handled they are ready for assembly or bagging.

Substrates

FormGard is designed for primer-less adhesion to polycarbonate. While FormGard will also adhere to PETG, cellulosic plastics, PVC and certain other acrylic materials; the low heat tolerance of these materials requires less-than-ideal coating cure temperatures. As a result, FormGard abrasion resistance will be less than optimum.

Physical Characteristics

Appearance	Clear, colorless to light amber liquid, mild odor
Density	0.987 g/cc
Solids Content (by weight)	27 - 31%
Solvents	1-methoxy-2-propanol N-methyl-2-pyrrolidone
Viscosity (Brookfield)	5 - 20 cps
Abrasion Resistance *	Less than 5% Δ Haze at 100 cycles

*Abrasion Resistance is determined using ASTM D-1044 test method. A copy of the test method can be provided upon request.

Chemical Resistance

FormGard coatings are resistant to common solvents such as Isopropanol, methyl ethyl ketone, toluene and glycol ethers, and will protect sensitive plastics from brief exposure to these solvents except in areas of high stress concentration. FormGard coatings are unaffected by household and industrial detergents, glass cleaners, oil, grease and gasoline. The use of abrasive cleaners should be avoided.

Clean Up

Wash equipment with isopropyl alcohol or a water/alcohol mixture. Dried coatings will not cure without heat. Coatings that have been heat cured are difficult to remove.



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Operating Guidelines (cont.)

Forming

FormGard coated plastics may be drape-formed, vacuum-formed, heat pressed or embossed into simple and compound curves. Optimum results will be obtained using a combination of the lowest workable temperature and short cycle time. It is important to note that the degree of stretching must not exceed 30%. Deep draws and sharp right angle bends should be avoided. Overheating can result in coating cracks and/or tooling mark-off.

Transportation and In-Transit Product Conditions

Product can be stored in ambient conditions during shipment from FSICT to the customer's site.

Shelf-Life

Two years in unopened containers stored at room temperature. Cooling will extend the shelf life while warm temperatures will shorten it. When store below 70°F (21°C), FormGard may become cloudy. Brief warming 122°F (50°C) will restore clarity. Cloudy solutions that do not become clear after warming should be properly discarded.



TRADEMARKS

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