



**POLYCOAT
PRODUCTS**

A Division of American Polymers Corp.

TECHNICAL DATA SHEET

THEMECOAT® 651FR

*Fire Retardant Two Component Aromatic Hybrid
Polyurethane Protective Coating*

Product Description

Themecoat® 651FR is a Class 1 fire-rated, fast set, rapid curing, aromatic, two component, hybrid polyurea/polyurethane spray designed to be applied over EPS, wood, and many other surfaces. Its excellent balance of stiffness and impact resistance provides excellent plastic "shell-like" protection for delicate foams and EPS. Themecoat® 651FR's chemical design allows fast "user-friendly" application with excellent flow and appearance.

Features

- 100% Solids
- Excellent Chemical Protection
- Excellent Cold Temperature Impact
- Excellent Thermal Stability
- Fast Cure
- High Productivity
- Low Shrinkage
- Meets ASTM E84 Class 1 Fire Test Criteria
- Meets USDA Criteria
- Plastic "Shell-Like" Protection
- Zero VOC

Typical Uses

- Decorations / Props
- Architectural Shapes
- Steel Coating
- Food-Processing Plants
- Speaker Boxes
- Dock Flotations
- Wood Pallets / Crates
- Wood Cabinets

Packaging

10-gallon kit	5 gallons (18.9 liters) Side-A and 5 gallons (18.9 liters) Side-B
100-gallon kit	50 gallons (189 liters) Side-A and 50 gallons (189 liters) Side-B

Colors

Clear/Neutral. Custom colors are available upon request. Color Packs, when used, must be added to Side-B.

Due to its aromatic composition, Themecoat® 651FR will tend to yellow or darken in color and will become flat after exposure to UV light. Themecoat® 651FR may be topcoated within twelve hours of application with an aliphatic polyurethane/polyurea coating for a colorfast finish.

Technical Data (Based on Draw Down Film)

Mix Ratio by Volume	1A : 1B
Pot Life @ 150°F (65.5°C), 50% R.H.	4-6 seconds
Tack Free Time (thickness & substrate temperature dependent)	30-60 seconds
Recoat Time	0-12 hours
Viscosity at 150-160°F (66.5-71°C)	
Side-A	100 ± 20 cps
Side-B	150 ± 50 cps
Density (Side-A & Side-B Combined)	9.93 lbs/gal
Flash Point	> 200°F (93.3°C)
Hardness, ASTM D2240	65 ± 5 D
Tensile Strength, ASTM D412*	3000 ± 300 psi 20.69 ± 2.07 MPa
Elongation, ASTM D412*	75 ± 15%
Tear Strength, ASTM D624*	350 ± 50 pli 61.3 ± 8.7 kNm
Service Temperature - Dry	-40°F to 250°F -40°C to 120°C

*These physical properties from sample sprayed with Graco Foam Cat 200 @ 2000 psi minimum, with Gusmer GX7-400 mechanical purge gun @ (65°C to 71°C). Different machine and parameter will change these properties. User should perform their own independent testing as properties are approximate.

Coverage

Themecoat® 651FR may be applied at any rate to achieve desired thickness. Theoretical coverage for 1 mil (0.254 microns) thickness is one gallon per 1600 sqft (3.78 liters per 149 sqm).

Estimating Formula: (1600 sqft per gal /Dry Mil Thickness) x Solids Content = Application Rate per gallon.

Surface Preparation

In general, coating performance and adhesion are directly proportional to surface preparation. Most failures in the performance of surface coatings can be attributed to poor surface preparation. Polyurea coatings rely on the structural strength of the substrate to which they are applied. All surfaces must be free of dust, dirt, oil, grease, rust, corrosion and other contaminants. When coating previously used substrates, it is important to consider the possibility of substrate absorption, which may affect the adhesion of the coating system, regardless of the surface preparation. Polycoat recognizes the potential for unique substrates from one project to another. The following information is for general reference. For project-specific questions, contact Polycoat.

NEW AND OLD CONCRETE

Refer to SSPC-SP13/NACE 6, or ICRI 03732: CSP 3-5. New concrete must be cured for 28 days prior to product application. Surface must be clean, dry, sound and offer sufficient profile for product adhesion. Remove all dust, dirt, oil, form release agents, curing compounds, salts, efflorescence, laitance and other foreign matter by shotblasting and/or suitable chemical means, in accordance with local chemical regulations. Rinse thoroughly to achieve a pH between 8.0 and 11.0. Allow to dry

completely. If old concrete has a surface that has deteriorated to an unacceptably rough surface, Polycoat Products PC-260 or a mixture of Polyprime 21 and sand should be used as a repair agent for cracks, spalls, bug holes and voids. Upon full cure of the repair agent, prime the entire surface intended for coating.

CONCRETE SURFACE PREPARATION REFERENCE

ASTM D4258 - Standard practice for cleaning concrete.
ASTM D4259 - Standard practice for abrading concrete.
ASTM D4260 - Standard practice for etching concrete.
ASTM F1869 - Standard test method for measuring moisture vapor emission rate of concrete.
ICRI 03732 - Concrete surface preparation.

WOOD

All wood should be clean, dry and free of any knots, splinters, oil, grease or other contaminants. Splintered or rough areas should be sanded. Knots should be repaired using Polycoat Products PC-260 with sand. Upon full cure of the repair agent, prime the entire surface intended for coating.

STEEL (ATMOSPHERIC AND IMMERSION EXPOSURE)

Remove all oil, grease, weld spatters and round off any sharp edges from surface. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Optimum surface profile is 3-4 mils. Prime and shoot Themecoat® 651FR onto any bare metal the same day as it is cleaned to minimize any potential flash rusting.

GALVANIZED SURFACES

Clean and degrease any contaminated surfaces before priming. Do not blast galvanized surfaces with an abrasive grit. An adhesion test is recommended prior to starting the project.

FIBERGLASS REINFORCED PLASTIC

The gel coat should be lightly blasted or sanded with 80 grit sandpaper and cleaned.

PLASTIC FOAMS

Enhanced adhesion is obtained when the foam is mechanically abraded. When coating polystyrene, do not use a solvent-based primer.

TEXTILES, CANVAS, FABRICS

Adhesion to most fabrics, geothermal membranes and textiles does not require a primer.

STAINLESS STEEL

Stainless steel may be grit blasted and degreased before priming. Contact Polycoat Products for recommended primer. Some stainless steel alloys are so inert that it is not possible to achieve a satisfactory bond. An adhesion test is recommended prior to starting the project.

ALUMINUM

Aluminum should be blasted with aluminum oxide or sand, and not with steel or metal grit. Excessive blasting may result in a warped or deformed surface. After blasting, wash aluminum with a commercially available aluminum cleaner. Allow to dry, then prime. Contact Polycoat Products for recommended primer.

NEW AND OLD CAST IRON

Blast with a steel grit and degrease before priming. Old cast iron is difficult to prepare for a satisfactory bond. It can absorb oil and water soluble contaminants that will keep returning to the surface after the coating system has been applied and affect the coating system adhesion. An adhesion test is recommended prior to starting the project.

ALL OTHER SURFACES

An adhesion test is recommended prior to starting the project.

Mixing

Themecoat® 651FR may not be diluted under any circumstances. Thoroughly mix Themecoat® 651FR Side-A and Side-B with air driven power equipment until a homogeneous mixture and color is obtained.

Application

Both Side-A and Side-B materials should be preconditioned to 90-100°F (32-37°C) before application.

Both Side-A and Side-B materials should continuously be agitated before and during application. Agitate at least one hour prior to application using heavy duty drum agitator.

Both Side-A and Side-B lines must have filters removed.

Use a round pattern disc for spraying. Orifice diameter must be 0.042" or greater.

Recommended surface temperature must be at least 5°F (3°C) above the dew point.

Themecoat® 651FR should be applied using a plural component, heated, high pressure 1:1 spray mixing equipment like Graco's Reactor, Glass Craft or other equivalent machine may be used.

Both Side-A and Side-B materials should be sprayed at a minimum of 2000 psi and at temperatures above 150°F (66°C). Adequate pressure and temperature should be maintained at all times.

Themecoat® 651FR should be sprayed in smooth, multi-directional passes to improve uniform thickness and appearance.

Storage

Themecoat® 651FR has a shelf life of one (1) year from date of manufacture in original, factory-sealed containers when stored indoors at a temperature between 60-95°F (15-35°C).

Side-A and Side-B drums are recommended to be stored above 60°F (15°C). Avoid freezing temperatures.

Store drums on wooden pallets to avoid direct contact with the ground. If stored for a long period of time, rotate Side-A and Side-B drums regularly.

Limitations

Do not open until ready to use.

Both Side-A and Side-B containers must be fitted with a desiccant device during use.

Warning

This product contains Isocyanates and Curative Material.



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Limited Warranty: Please read all information in the General Guidelines, Technical Data Sheets, Guide Specifications and Safety Data Sheets (SDS) before applying material. These products are for professional use only and to be applied by professionals who have prior experience and training with the use and application of our materials, and who are fully aware of all Federal, State and local rules, regulations, and code requirements for storage, transportation, handling, installation, and application. Published technical data and instructions are subject to change without notice. Contact your local representative or visit our website for current technical data, SDS, instructions, and project specific recommendations. We warrant our products to be free of manufacturing defects and that they will meet our current published physical properties within the shelf life of products.

Our sole responsibility shall be to replace that portion of the product which proves to be defective. There are no other warranties of any nature whatsoever expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. We will not be liable for damages of any sort, including remote or consequential or punitive damages resulting from any claimed breach of any warranty whether expressed or implied. We will also not be responsible for use of this product in a manner to infringe on any patent held by others. No warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, adhesion, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. We reserve the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator. Your sole and exclusive remedy against us shall be limited to the paid cost of the materials sufficient to replace any affected areas where product failure has occurred. The cost of replacement materials shall, in no event, exceed the value of the original purchase price of the products, subject to equitable reductions for time of use.

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