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# POLYMER NATION CHEMICAL COMPANY, LLC

*Setting the Standard*

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## TECHNICAL DATA SHEET: F-52 TD URETHANE CONCRETE TROWEL OVERLAY

### Product Overview

F-52 TD is a revolutionary formulation that allows longer working time with a snap-cure. It combines our water-based urethane resin and aromatic hardener with our proprietary blend of portland cement, lime and fillers (PN 1352 T). It has been formulated to provide the highest degree of impact and thermal shock resistance of any urethane concrete on the market. It's low odor and easy application make it perfect for industrial applications.

### Uses and Benefits

F-52 TD is most often used as a self-priming, concrete flooring overlay. It is used to achieve 1/4"-3/8" thick overlay in one pass and can be trowel or rake applied. Because it is a mortar, it is the ideal material for sloping floors and creating ramps and transitions. It can also be applied to green concrete.

### Limitations

Each mix pf F-52 TD will cover 50 sq. ft. at 1/4" theoretical coverage. A waste factor of 5% should be contemplated when mixing and installing. Ideal application temperatures to be between 60-90°. Cooler temperatures will increase cure times. Warmer temperatures will decrease working and cure times. Verify that substrate temperature is above 5 degrees of dewpoint during application and cure of material to avoid a potential amine blush.

### Surface Preparation

The preparation method for each project is determined by a full understanding of the substrate to be coated, the chemistry of the coating system being used, the coating system thickness, and numerous other factors. The coating installer should fully read and understand ICRI Guideline NO. 310.2R-2013 and OSHA 29 CFR 1926.1153 before starting preparatory work. The aim, of preparing a substrate for coating applications, is to roughen the surface, remove weak layers, contaminants, dirt, debris and present a solid, clean, dry substrate for the primer. If unsure as to the level of preparation needed contact Polymer Nation at [Lab@polymerNation.com](mailto:Lab@polymerNation.com).

### Mixing

A mixture consists of 1.05 gal. Part A, 0.75 gal. Part B and 90 LB. of Part C (PN 1352 T). Combine part A and B into a single container, large enough to accept the entire kit (1 mix equals 8.4 gallons when Part C is added). Premix liquids at 350 RPM for 30-60 seconds using an appropriate mixing blade or mixing machine. Pour Part C into the mixed resin and continue mixing until a homogenous mortar is achieved (2-3 minutes usually)

### Application

Pour the entire content from the container onto the floor and follow normal trowel of rake and finish techniques. Recoat within 24 hours. Clean tools with a solvent similar to Denatured Alcohol or Acetone.

### Technical Data

The data below was gathered at temperatures of 72-75°F and 30-50% RH

|                         |  |
|-------------------------|--|
| Packaging               | 1, 262 Gallon kits   |
| Mix Ratio by Kit        | 1.05 gal. A, 0.75 gal. B, 90 lbs. C  |
| Mixed Viscosity         | 300 cP 25°C/77°F (A&B)   |
| Working Time            | 15-20 minutes  |
| Dry to Touch            | 2 hours  |
| Through Dry             | 4-6 hours  |
| Dry to Walk             | 6-10 hours   |
| Dry to Light Use        | 16-24 hours  |
| Full Cure               | 7 days   |
| Shore D Hardness        | D70 @ 24 hours   |
| Shore D Hardness        | D78 @ 7 days   |
| Gloss @ 60 Degree Angle | 30-40  |
| VOC's of Mixed Material | <50 g/l EPA Method 24  |
| Color Scale             | 0.5-1.0 per ASTM D1500   |
| Solids by Volume Mixed  | >97%   |
| Application in inches   | 1/4" – 3/8" (approx. 36-50 sq. ft./kit)  |
| Available Colors        | Natural ( <b>PN 1342 WB Color Packs</b> ), Tile Red, Light Gray, Medium Gray, Dark Gray, Black |

## PHYSICAL PROPERTIES

### F-52 URETHANE CONCRETE TROWEL OVERLAY

| Description   | Standard    | Results   |
|---|-------------|---|
| Tensile Strength  | ASTM C307   | 1,400 psi   |
| Moisture Absorption                                     | ASTM C413   | 0.04%   |
| Coefficient of Thermal Lineal Expansion                 | ASTM C531   | $2 \times 10^{-5}$  |
| Compressive Strength                                    | ASTM C579   | 8,000 psi   |
| Modulus of Elasticity                                   | ASTM C580   | N/A   |
| Flexural Strength                                       | ASTM C580   | 2,500 psi   |
| Water Vapor Transmission                                | ASTM D1653  | See ASTM D3010  |
| Impact Resistance                                       | ASTM D2794  | >160 inch pounds The addition of PC 1244 drastically improves performance   |
| Independent Certificate from third party testing agency | ASTM D3010  | Breathable  |
| Adhesion  | ASTM D3359  | N/A   |
| Abrasion Resistance CS17 1000 g 1000cycles in g Loss    | ASTM D4060  | 0.029g Loss (when higher abrasion resistance is required the addition of PC 1336 to the coating should be included) |
| Adhesion to Steel                                       | ASTM D4541  | N/A   |
| Hiding Power  | ASTM D5150  | N/A   |
| Flammability When Adhered to Concrete                   | ASTM D635   | Self-Extinguishing  |
| Adhesion to Concrete                                    | ASTM D7234  | >450 Substrate failure  |
| Coefficient of Friction Dry Ave. three tests            | NFSI B101.0 | 0.75  |
| Coefficient of Friction Wet Ave. three tests            | NFSI B101.1 | 0.7   |
| Accelerated Weathering Testing                          | ASTM G154   | Significant yellowing   |

\* Dispose of material, containers, solvents, etc., per Federal, State and local guideline, rules and laws.

\* Store material between 60-80 degrees F in a protected dry location.

Test data has been gathered from testing conducted by independent, internal and third party testing. The best way to compare coating performance is by head-to-head independent testing as this removes the numerous variables found between testing standards, equipment and testing agencies.

The information here is general information to help our customers determine whether our products suit their specific applications. Our products are intended for sale to commercial and industrial customers. ***We require that customers inspect and test our products before use to satisfy themselves as to the content and suitability for the applications they intend to use our products.*** Nothing herein shall constitute any warranty expressed or implied, including any warranty of merchantability or fitness for a particular purpose, nor is any protection from any law or patent to be inferred. The exclusive remedy for all proven claims is the replacement of our materials, and we shall not be liable for incidental or consequential damages. Polymer Nation Chemical Company LLC, 405 Oakwood Ave. Waukegan, IL 60085. All rights reserved.

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