

Starting Formulation

SF 6000

Epoxy Thin-Set Terrazzo Flooring

EPON™ Resin 828 / HELOXY™ Modifiers 505 and 8 / EPIKURE™ Curing Agent 3295

Introduction A premium quality, flexibilized, thin-set terrazzo formulation offering all of the advantages associated with epoxy terrazzo as well as several improved features.

- Features**
- Permanent, high strength bonds to substrate
 - Light weight at 1/4" thickness is important consideration in high rise buildings
 - Can be ground after overnight cure, eliminating the 4 to 7 day delay in finishing cementitious terrazzo
 - Matrix polishes to high gloss and resists staining more than cementitious terrazzo
 - Tough, flexible matrix system – 18% ultimate tensile elongation
 - No non-reactive, migrating extenders or diluents used
 - High impact strength – >16 ft•lb
 - Good air release characteristics
 - Good color retention for epoxy compound

Formula	Material	Supplier	Pounds	Gallons
Resin Portion				
	EPON Resin 828	Hexion	60	6.22
	HELOXY Modifier 505	Hexion	35	4.12
	HELOXY Modifier 8	Hexion	5	0.67
	Titanium Dioxide R-101	Du Pont Co.	5	0.14
	DC-200 Fluid, 100 centistokes grade	Dow-Corning Corp.	<u>0.007</u>	<u>0.001</u>
	Total Resin Portion		105.007	11.151
Converter Portion				
	EPIKURE Curing Agent 3295	Hexion	<u>18</u>	<u>2.17</u>
	Total Converter Portion		18	2.17
Filler Portion				
	No. 40-200 Marble Dust	Georgia Marble Co.	185	8.19
	Thin-Set Marble Chip Blend	#0 & #1 sizes Georgia Marble Co.	<u>369</u>	<u>16.33</u>
	Total Filler Portion		554	24.52

Typical Handling Properties Table 1 / Handling Properties

	<u>Units</u>	<u>Value</u>
Denisty, Filled	lbs/gal	17.91
Density, Unfilled	lbs/gal	9.26

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Viscosity at 25 °C, unfilled	cP	880
Expected Working Life:		
1 quart filled at 25 °C	min	100
100 grams unfilled at 25 °C, minutes	min	34
Combining Ratio (Resin Portion/Converter Portion)	by weight	5.8 : 1
	by volume	5.1 : 1

Compounding The titanium dioxide or other selected pigment should be milled or sheared into a portion of the EPON Resin 828 using a 3-roll mill, Cowles Dissolver, or other suitable grinding equipment. This color paste is then combined with the remaining components of the resin portion and thoroughly blended. A drill press, Lighting Mixer or other blender can be used to provide a uniform mix.

Terrazzo mix designed for placement on vertical areas such as coves and risers must be made thixotropic to prevent sagging during cure. Cab-O-Sil M-5 silica (Cabot Corp.) in the amount of 3 to 6 phr can be incorporated either at the job site or it can be compounded into the resin portion beforehand. If the latter course is taken, the Cab-O-Sil should be mixed into the resin portion at 2400 RPM or faster for a period of 30-60 minutes to assure long term thixotropic stability.

The marble chips can be purchased in standard color and size blends or can be custom blended. The chips should be water washed to remove dust (especially when dark colors are used) and dried. The dust, if not removed, can color the pigmented matrix.

Application Instructions The surface on which this compound is to be applied must be sound and free from dirt, grease, oil, wax, paint, laitance of new concrete and other contaminants. Concrete substrates can be prepared by either acid etching, scarifying, or sandblasting. If the terrazzo is to be applied over wooden floors, old paint and dirt are best removed by sanding down to clean wood. Plywood sheets should be firmly anchored over strip wood floors to minimize flexing of

individual boards.

Metal divider strips are usually bonded to the floor in a block pattern to aid in screening the terrazzo mix to the proper thickness. In the cove area, one layer of glass cloth wetted with the unfilled binder portion of this formulation is lapped over the junction of floor and wall to prevent cracking due to building movement. A coating of a clear binder portion is then applied to the entire floor and cove area to assure good wetting of the substrate. This prime coat can be applied by brush, roller, or squeegee.

The terrazzo mix is prepared by first blending the resin and converter portions of this formulation in the designated combining ratio. A propeller shaped agitator powered by a drill motor is preferred to assure a uniform blend. The marble dust and chips are then mixed in with the aid of a small concrete mixer or KOL Mixal. Hand mixing in a wheelbarrow is sometimes used. CabO-Sil is often added at the job site to provide the degree of thixotropy required to hold the cove mix in place during cure.

The mix is then screened and troweled onto the floor to the proper thickness (usually 3/8") before the prime coat has cured. Grinding is accomplished with conventional terrazzo equipment, usually 16 to 48 hours after placement of the wet mix. Grinding proceeds more slowly with increasing cure time.

A grout coat is applied after the initial grinding to fill in any pin-holes, bubbles, and other imperfections exposed by the grinding. The pigmented and marble dust filled portion of this coat is normally applied by means of a rubber squeegee. The final grinding and polishing is then accomplished after the grout coat has cured overnight.

A thin seal coat of a moisture curing polyurethane or acrylic lacquer followed by a wax completes the operation. The moisture curing polyurethane imparts notably improved mar resistance in comparison to the acrylic lacquer.

Typical Cured State Properties Table 2 / Properties of Unfilled Epoxy Binder¹

	<u>Units</u>	<u>Value</u>
Hardness	Shore D	77
Ultimate Tensile Strength	psi	5,200
Tensile Elongation	%	18
Ultimate Flexural Strength	psi	8,500

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Initial Flexural Modulus	psi	0.22 x 10 ⁶
Ultimate Compressive Strength	psi	23,000
Linear Shrinkage ¹	in./in.	0.0052
Tabor Abrasion, loss per 1000 rev.	mg	56.0
Coefficient of Linear Thermal Expansion		
Temp. range: -25 to 60 °C	in./in./ °C	117 x 10 ⁶
Chemical Resistance ³		
Distilled Water	%	0.33
10% Hydrochloric Acid	%	0.43
5% Acetic Acid	%	1.16
30% Sulfuric Acid	%	0.64
10% Sodium Hydroxide	%	0.29
Isopropanol	%	1.09
Ethanol	%	4.14
Mineral Oil	%	0.05
1% Detergent Solution	%	0.37

¹ Cure Schedule - 20 hours at 25 °C plus 4 hours at 70 °C

² Test Method ERF 12-64, mold size #1 (195 ml.).

³ Percent Weight Gained after 7 days immersion

Properties of Terrazzo Table 3 / Properties of Terrazzo

	<u>Units</u>	<u>Value</u>
Impact Resistance, Falling Ball		No failure at 16 ft•lb
Flexural Strength	psi	3,500
Flammability, ASTM D-635		Self-extinguishing
Tabor Abrasion, loss per 1000 rev ¹	mg	97.9
Tensile Bond Strength, concrete substrate ²	psi	>300
Coefficient of Linear Thermal Expansion		
Temp. range: -25 to 60 °C	in./in./ °C	49 x 10 ⁶
Resistance to Elevated Temperatures		
Per MIL D 3134F, Section 3.10		No slip of flow at 70 °C

¹ CS 10 Wheel Loaded with 1,000 gm weight.

² 100% concrete failure.

Storage Recommendations regarding storage conditions can be obtained by visiting our web site at www.hexion.com

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Please refer to the MSDS for the most current Safety and Handling information.

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