Starting Formulation

SF 6003

Electrically Conductive, Trowelable Floor Topping
EPON™ Resin 813 / HELOXY™ Modifiers 505 / EPIKURE™ Curing Agent 3072 and 3271

Introduction

This trowelable floor topping is designed for use in areas where electrical conductivity of the flooring surface is required. Examples of such usage are floors of storage areas, hospitals, instrument rooms, and manufacturing sites where the immediate dissipation of static electricity is required.

Formula

Material	Supplier	Pounds	Gallons
Resin Portion			
EPON Resin 813	Hexion Specialty Chemicals	90	9.42
HELOXY Modifier 505	Hexion Specialty Chemicals	10	1.17
Converter Portion			
EPIKURE Curing Agent 3072	Hexion Specialty Chemicals	16	1.97
EPIKURE Curing Agent 3271	Hexion Specialty Chemicals	7	0.82
Aggregate Portion			
Graphite Flake No. 2	Joseph Dixon Crucible Co.	50	2.77
Silica Sand Grade No. 2	New Jersey Pulverizing Co.	140	6.34
Silica Sand Grade No. 1	New Jersey Pulverizing Co.	210	9.52
Silica Sand Grade No. 0	New Jersey Pulverizing Co.	160	7.25

Compounding and Formulating Options

The HELOXY Modifier 505 and EPON Resin 813 are combined and thoroughly blended by a motor driven agitator. Pigment pastes ground in an epoxy resin base may be blended into the resin portion to impart color and hiding power. Air release agents such as DC-200 (Dow- Corning) or PC-1344 (Monsanto) may be incorporated at levels of 30 to 70 parts per million of resin to facilitate release of bubbles entrapped during mixing and decrease the porosity of the topping. Thixotropes may be incorporated at concentrations of 2 to 5 parts per hundred of resin to impart non-sag characteristics for application on vertical surfaces and coves. The aggregate should be dry-blended using power agitation. The combination of silica sand grades listed above provide good troweling and packing characteristics. Other aggregate combinations can be substituted although a composite offering a broad particle size distribution should be maintained to ensure good working properties.

Typical Handling Properties

Table 1 /Handling Properties

	Units	Value
Combining Ratio (by weight)		
Resin : Converter		100 : 23
Aggregate : Binder		4.55 : 1
Viscosity at 23 °C, of Binder	cP	660
Denisty at 23 °C		
Binder Portion	lbs/gal	9.19 lb
Total Compound	lbs/gal	17.4 lb
Expected Working Life, 1 Pint Binder		
at 13 °C (55 °F)	min	60

Generated: October 21, 2021
Issue Date:
Revision:

	at 25 °C (77 °F)	min	33
	at 38 °C (100 °F)	min	28
	Expected Working Life, 1 Quart Sand-Filled Topping		
	at 13 °C (55 °F)	hrs	2 1/2
	at 25 °C (77 °F)	hrs	1 1/2
	at 38 °C(100 °F)	hrs	1
	Set Time, 1/4” Thick Topping		
	at 13 °C (55 °F)	hrs	9 1/4
	at 25 °C (77 °F)	hrs	5 1/4
	at 38 °C (100 °F)	hrs	1 3/4

Application Instructions

Old concrete substrates should be cleaned by either sandblasting or scarifying to remove surface contaminants such as oils, fats, greases, waxes, membrane coatings, paints, etc. The laitance on new concrete can be removed with an acid etch (muriatic acid) followed by thorough water flushing, scrubbing and drying.

To ensure maximum adhesion, a prime coat of the unfilled binder (mixed resin + converter portions) should be applied to the concrete substrate by brush, roller or squeegee. A coverage rate of 160 square feet per gallon (average film thicknes of 10 mils) is suggested for all but highly porous substrates where heavier application may be required. The topping system must then be applied prior to gelation of the prime coat.

The topping system is prepared by first blending the resin and converter portions in the designated ratio and mixing until homogeneous. Power agitation is recommended; however, manual stirring may be used if care is taken to accomplish thorough mixing. In either case, the sides and bottom of the mixing vessel should be scraped frequently to insure complete blending. Pour the blended binder over the sand and mix in a KOL Mixal, paddle-type mortar mixer or with a drill motor powered agitator.

Dump and distribute all of the mix to the approximate thickness desired and then finish trowel. This procedure provides additional working life by permitting the heat of reaction to dissipate from the thinner sections.

To ensure uniform and optimum conductivity, additional graphite flake can be sprinkled on the surface of the freshly troweled topping. After an overnight cure, excess graphite can be removed by sweeping.

Typical Cured State Properties

Table 2 /Cured State Properties of Unfilled Binder System at 23 °C[1]

	Units	Value
Tensile Strength	psi	6,700
Tensile Elongation at Break	%	9.2
Compressive Yield Strength	psi	9,800
Flexural Strength	psi	11,000
Izod Impact, notch	ft•lb/in	0.45
Hardness	Shore D	81
Modulus of Elasticity	psi	330,000
Absorption, 24 hours at 23 °C		
Water	%	0.24
5% Acetic Acid	%	0.65

[1] Determined using 1/8 inch thick castings cured for two weeks at 23 °C.

Electrical Resistance Properties

Table 3 /Electrical Resistance of Cured Topping

	Units	Value
Surface Resistivity	ohm	No detectable reading

Storage

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

General Information

These are starting formulations and are not proven in the user’s particular application but are simply meant to demonstrate the efficacy of the products and to assist in the development of the user’s own formulation. It is the user’s responsibility to fully-test and qualify the formulation, along with the ingredients, methods, applications or equipment identified herein (“Information”), by the user’s knowledgeable formulator or

scientist, and to determine the appropriate use conditions and legal restrictions, prior to use of any Information.

Safety, Storage & Handling

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

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these materials should be used, stored, or transported until the handling precautions and recommendations as stated in the Material Safety Data Sheet (MSDS) for these and all other products being used are understood by all persons who will work with them. Questions and requests for information on Hexion Specialty Chemicals, Inc. ("Hexion") products should be directed to your Hexion sales representative, or the nearest Hexion sales office. Information and MSDSs on non-Hexion products should be obtained from the respective manufacturer.

Contact Information

For product prices, availability, or order placement contact customer service.

For literature and technical assistance, visit our website at www.hexion.com

Generated: October 21, 2021
Issue Date:
Revision: