

Starting Formulation

SF 6005

Chemical Resistant Floor Topping Epoxy

EPON™ Resin 828 / HELOXY™ Modifier 62 / EPIKURE™ Curing Agent 3370

Introduction This floor topping formulation was designed for the majority of interior applications where resistance to a broad spectrum of chemicals is required. Typical of commonly encountered chemicals are alkalines, dilute acids, aliphatic hydrocarbon solvents, salt solutions, sugar solutions, greases, animal fats, oils, and acidic foods processed from milk, citrus fruits, tomatoes, vinegar, etc. This formulation can also be used for wear-resistant surfaces in industrial areas exposed to heavy vehicular traffic.

Formula	Material	Supplier	Pounds	Gallons
Resin Portion				
	EPON Resin 828	Hexion	90.0	9.38
	HELOXY Modifier 62	Hexion	<u>10.0</u>	<u>1.11</u>
	Total Resin Portion		100.0	10.49
Converter Portion				
	EPIKURE Curing Agent 3370	Hexion	<u>38.0</u>	<u>4.55</u>
	Total Converter Portion		38.0	4.55
Aggregate Portion				
	Silica sand ¹		<u>760.0</u>	<u>34.44</u>
	Total Filler Portion		760.0	34.44

¹ Use the dry sand specifically graded for good packing and trowelling characteristics; available in standard weight bags for convenience. This sieve analysis is one characteristic of sands that will trowel well.

U.S. Standard Sieve #	Percent Retained
6	0
8	0-10
16	10-20
30	25-35
50	35-45
100	5-15

A 27:40:33 blend of grade 2/grade 1/grade 0 silica sands from New Jersey Pulverizing Co. is one example of an aggregate conforming to this particle size gradation.

Typical Handling Table 1 / Handling Properties Properties

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	<u>Units</u>	<u>Value</u>
Combining ratio		
Resin/Converter	by weight	100 : 38
Sand/Binder	by weight	5.5 : 1
Binder viscosity at 25 °C	cP	1,000
Expected pot life, 100 grams of binder at 25 °C	min	29

Compounding and Application Clean old concrete substrates by either sandblasting or scarifying (Tennant grinding machine) to remove surface contaminants such as oils, fats, greases, waxes, membrane coatings, paints, etc. The laitance of new concrete can be removed with an acid etch (muriatic acid) followed by flushing with water, then scrubbing and drying.

To insure maximum adhesion, a prime coat of the unfilled binder (resin and converter portions) should be applied to the concrete substrate by brush, roller or squeegee. A coverage rate of 160 square feet/gallon (average film thickness of 10 mils) is suggested for highly porous substrates where heavier applications may be required. Then apply the topping system prior to gelation of the prime coat.

To prepare the topping system, blend the resin and converter portions in the designated ratio and mix until homogeneous. Power agitation is recommended, but manual stirring may be used if care is taken to accomplish thorough mixing. In either case, the sides and bottom of the 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.

Distribute the sand/binder mix to the desired thickness and finish with a trowel. This procedure provides additional working life by permitting the heat of reaction to dissipate from the thinner sections. This procedure may be modified for applying skid proof toppings by broadcoating sand or abrasive grains over the ungelled topping. The excess (unwetted) grains are swept off after the epoxy binder has hardened.

Typical Cured State Properties Table 2 / Cured state properties ¹

	<u>Units</u>	<u>Value</u>
Heat deflection temperature	°C	53
Tensile strength	psi	10,550
Tensile elongation	%	2.6
Tensile modulus, 10 ⁶	psi	0.54
Izod impact, notch	ft•lb/inch	0.43
Hardness	Shore D	88

Chemical resistance, weight gain

Immersion	<u>Units</u>	<u>Water</u>	<u>5% Acetic Acid</u>	<u>Xylene</u>
1 day	%	0.11	0.18	0.11
2 weeks	%	0.55	0.80	0.14
3 weeks	%	0.66	0.97	0.18
4 weeks	%	0.76	1.12	0.26

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¹ Binder system was cured for 7 days at 250 °C.

Chemical Properties Table 3 / Chemical resistance of sand-filled topping ¹

Chemical	Days ²
Methyl ethyl ketone	< 1
Toluene	3
Hydraulic fluid	> 28
5% Detergent	> 28
Household bleach (5% NaOCl)	14
25% Sulfuric acid	> 28
15% Hydrochloric acid	> 28
5% Lactic acid	< 28
5% Acetic acid	14
25% Acetic acid	3
5% Citric acid	> 28
Oleic acid	> 28
5% Sodium hydroxide	> 28
Methanol	< 1
Skydrol	> 28

¹ Sand filled topping was cured for 3 weeks at 25 °C.

² Days without deterioration after continuous contact with fresh chemical at 25 °C.

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 MSDS 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 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, please contact customer service:

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