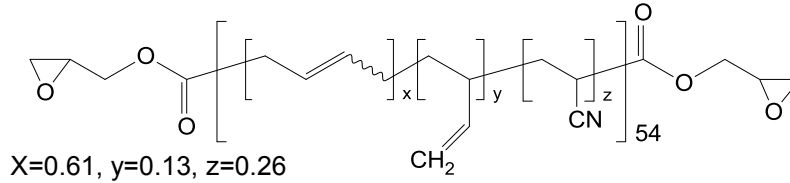


An Emerald Performance Materials Company

## Hypro<sup>®</sup> 1300X63 ETBN Epoxy-Terminated Synthetic Rubber Diglycidyl Ester of Butadiene-Acrylonitrile Copolymer



### DESCRIPTION

Hypro (f.k.a. Hycar<sup>®</sup>) 1300X63 ETBN is an epoxy-functional synthetic rubber. It is the reaction product of epichlorohydrin and Hypro 1300X13 Carboxyl-Terminated Butadiene-Acrylonitrile copolymer (CTBN). It is a 100%-solids, reactive polymer designed to incorporate synthetic rubber into a thermoset matrix by reacting it with conventional epoxy hardeners.

Hypro 1300X63 ETBN provides rubber-toughening benefits in 2K epoxy systems and in heat-cured 1K systems.

In 2K systems:

- Lower-viscosity alternative to epoxy-resin adducts with CTBNs
- Alternative to amine-terminated CTBN where there is incompatibility with the amine co-curatives
- Complementary toughener with other toughening agents

In 1K systems:

- Lower-viscosity alternative to epoxy-resin adducts with CTBNs
- Higher Tg to systems with epoxy-resin adducts

### PACKAGING & AVAILABILITY

Hypro 1300X63 ETBN is available in 55-gallon, non-returnable, open-head steel drums (400 lb net) and 5-gallon plastic pails (40 lb net).

Please contact your sales representative or our customer service (CTS.customerservice@emeraldmaterials.com or 800-296-0400) for more information.

### FEATURES & BENEFITS

Hypro Reactive Liquid Polymers set the industry standard for rubber-toughening epoxy, acrylic, vinyl ester and unsaturated polyester in neat resins, adhesives, coatings and composites.

Hypro 1300X63 ETBN differs from typical epoxy-functional elastomeric tougheners. The typical products consist of 50%-to-95% epoxy resin reacted onto the rubber. Hypro 1300X63 ETBN is free of epoxy resin. It is 100% reactive rubber.

Hypro 1300X63 ETBN is designed for epoxy adhesives, sealants, molded parts, and composites. The butadiene-acrylonitrile backbone provides toughness, flexibility, low-temperature properties, excellent adhesion, and impact resistance to the cured formulation.

### TYPICAL PROPERTIES

Hypro 1300X63 ETBN is viscous at room temperature. Heating will reduce the viscosity for mixing without degrading the properties. It is used at 40% the level of typical epoxy-CTBN adducts so the mixed viscosity in the uncured system is lower.

Hypro 1300X63 ETBN Typical Properties & Characteristics	
Molecular weight	3300
% Butadiene	74%
% Acrylonitrile	26%
Viscosity, cps @ 27 °C	500k-800k
Viscosity, cps @ 52 °C	30k-75k
Epoxy equiv weight, g/eq	1500-2500
Functionality	1.8
Gardner color	≤11
Non volatile, %	>99
Acid number, mgKOH/g	<0.1

## APPLICATIONS

Hypro 1300X63 ETBN acts as an effective toughener at 5-to-20 parts per hundred epoxy resin. It has the highest level of solubility/miscibility with all standard Bis-A, Bis-F and phenol-novolac resins.

It is miscible with these pre-reacted epoxies, and it forms distinct rubber domains when cured. These micron-size rubber particles provide the key performance benefits:

- Fracture toughness
- Impact and crack resistance
- T-Peel and Lap Shear adhesion
- Adhesion to oily surfaces
- Durability (fatigue resistance)
- Low-temperature adhesion and toughness

## SAFETY & HANDLING

The standard shelf life is 12 months in unopened container stored at temperatures below 35°C.

Store Hypro 1300X63 ETBN at room temperature to ensure optimal product performance. Store this away from incompatible substances—epoxy hardeners and chemical cross-linkers.

Use good laboratory/workplace procedures as you would with any industrial chemical. Refer to the CVC Thermoset Specialties MSDS for additional safety and handling information.

Hypro 1300X63 ETBN is not a primary skin irritant or sensitizer. However, as with any epoxy material, irritation can result from repeated or prolonged contact. The symptoms of this irritation may appear as a mild reddening or a more pronounced rash. It is important to avoid skin contact. We recommend butyl rubber gloves, full eye protection and protective clothing.

## DISCLAIMER

The information contained here in is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Because of the variations in methods, conditions, and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the applications disclosed. Full-scale testing and end product performance are the responsibility the user. CVC Thermoset Specialties shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond CVC's direct control. THE SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered permission, recommendation, nor as an inducement to practice any patented invention without permission of the patent owner. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.