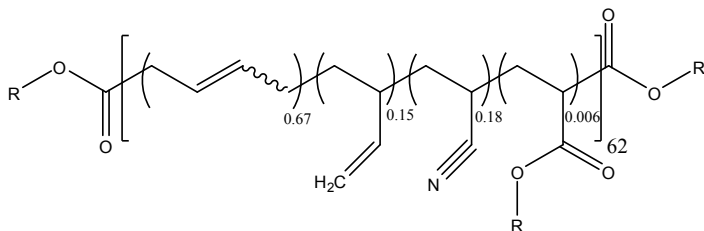
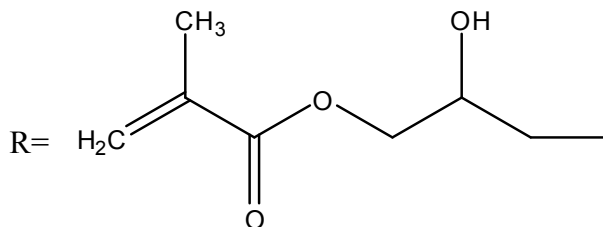


An Emerald Performance Materials Company

Hypro[®] 1300X33LC VTBNX
Methacrylate Terminated Butadiene-Acrylonitrile Copolymer
CAS #118578-03-3



Butadiene-Acrylonitrile Copolymer Backbone



Reactive Methacrylate Functionality

DESCRIPTION

Hypro 1300X33LC VTBNX is an improved, lower-color version of the Hypro 1300X33 VTBNX. It has a longer shelf life than the standard version.

Hypro 1300X33LC VTBNX is a low-molecular-weight, methacrylate-functional liquid rubber. It is a 100%-solids reactive polymer used primarily as an additive in acrylic adhesives, sealants and coatings and in vinyl esters.

The butadiene-acrylonitrile copolymer backbone provides improved adhesion, toughness, flexibility, low-temperature properties, and impact resistance. As a component in free-radical cured systems, the VTBNX is incorporated via the vinyl-methacrylate functionality.

Hypro 1300X33LC VTBNX has a random co-polymer backbone with 82% butadiene and 18% acrylonitrile and is multi-functional. The butadiene provides rubber properties and extends the flexibility and adhesion to low temperatures. It also contributes excellent resistance to moisture, acids and bases. The acrylonitrile provides compatibility with polar additives and improves adhesion to oily metal and to fiber-reinforced polymer composites. The multifunctionality enhances the cross-linking in the cured adhesive, sealant or coating.

FEATURES & BENEFITS

Hypro Reactive Liquid Polymers set the industry standard for increasing the toughness of epoxy systems. Hypro 1300X33LC VTBNX provides toughness, impact resistance and low-temperature properties to vinyl-ester or methacrylate resins and composites and to acrylic adhesives.

Hypro VTBNX's are miscible with the pre-reacted systems, and they form rubber domains when cured.

The improved Hypro 1300X33LC VTBNX has much lower color (Gardner 4 v Gardner 15+) and much better viscosity stability with age and temperature.

It also has the key properties of the standard version:

- Cures via free radicals
- Multifunctional
- Low glass transition temperature
- Optimum balance of butadiene and acrylonitrile—excellent rubber benefits and the compatibility with polar components.

TYPICAL PROPERTIES

Property	Typical Value
Gardner color	4
Initial viscosity, cps. 27 °C	200,000
Aged viscosity, cps. 27 °C	
100 hr @ 80 °C	300,000
200 hr @ 80 °C	350,000
300 hr @ 80 °C	400,000
400 hr @ 80 °C	400,000
Functionality	2.4
Molecular weight	3900
Ratio BD:Acrylonitrile	82:18
Specific gravity, 25 °C	0.967
Glass transition temp, °C	-49

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APPLICATIONS

Hypro 1300X33LC VTBNX is most commonly used in adhesives, sealants, coatings and resin systems based on vinyl esters or methyl methacrylates. It provides the performance benefits of the rubber (toughener, low-temperature, impact resistance), and it reacts into the cured polymer matrix.

Acrylic adhesives, sealants, coatings:

- Higher T-peel and lap-shear adhesion
- Higher impact resistance and toughness
- Enhanced properties at low temperatures
- Increased resistance to fatigue

Vinyl ester resin, adhesives and composites:

- Higher impact resistance and toughness
- Synergistic toughening with vinyl-ester-rubber adducts and other toughening additives
- Improved compatibility with fiber reinforcement
- Higher T-peel adhesion to metal

Polymethylmethacrylate (PMMA) composites:

- Higher toughness
- Improved compatibility with silica reinforcement

DISCLAIMER

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HANDLING & SAFETY

Hypro 1300X33LC VTBNX is compatible with the solvents commonly used with vinyl esters and methacrylates. Mixing it with solvents reduces the viscosity and eases the blending with other components.

The standard shelf life is 12 months in unopened container.

Store Hypro 1300X33LC VTBNX at room temperature to ensure optimal product performance. Store this away from incompatible substances—oxidizing agents, reducing agents, and chemicals that react with methacrylates.

As with any chemical product, use good laboratory/workplace procedures. Refer to the CVC Thermoset Specialties MSDS for additional safety and handling information.

PACKAGING & AVAILABILITY

Hypro 1300X33LC VTBNX is available in 55-gallon, non-returnable closed head steel drums (425 lb net) and 5-gallon plastic pails (35 lb net).

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