

Advanced Materials

HYPRO® 1300X43 LC VTBNX[#]

Reactive Toughener and flexibilizer

DATA SHEET

Methacrylate-Terminated Butadiene-Acrylonitrile Copolymer

Product Description

HYPRO 1300X43LC 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 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 1300X43LC VTBNX has a random co-polymer backbone with 78.5% butadiene and 21.5% acrylonitrile and multifunctionality. The butadiene provides rubber properties and extends the flexibility and adhesion to low temperatures. It also contributes to an excellent resistance to moisture, acids and bases. The acrylonitrile provides compatibility with polar additives and improves adhesion to oily metal and to the fiber reinforcements in polymer composites.

The multifunctionality enhances the cross-linking in cured adhesives, sealants and coatings.

Applications

HYPRO 1300X43LC VTBNX is typically used in adhesives, sealants, coatings and resin systems based on vinyl esters or methacrylates. It provides the performance benefits of the rubber (toughener, low-temperature and 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

Benefits

HYPRO 1300X43LC VTBNX provides toughness, impact resistance and low-temperature properties to vinyl-ester or methacrylate resins and composites and to acrylic adhesives and sealants.

[#] In addition to the brand name product denomination may show different appendices, which allows us to differentiate between our production sites: e.g. BD = Germany, US = United States, IN = India, CI = China, etc. These appendices are in use on packaging, transport and invoicing documents. Generally, the same specifications apply for all versions. Please address any additional need for clarification to the appropriate Huntsman contact.

Key data	Specified key data		
	Viscosity at 27 °C (Brookfield)	200 000 – 600 000	[mPa s]
	Acid number (titration)	0.0 – 5.5	[mg KOH/gram]

Specified key data are individually checked throughout and guaranteed.

Typical key data

Gardner Color	5
Molecular weight	3700 g/mol
Functionality	2.4
Ratio Butadiene : Acrylonitrile	78.5 : 21.5
Specific gravity, 25 °C	0.981
Glass Transition Temperature	-45°C

Data which is described in this document as 'typical' is not analyzed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.

Storage	HYPRO® 1300X43LC VTBNX should be stored in a dry place, preferably in the sealed original container, at temperatures between 2 and 40 °C. The product should not be stored exposed to direct sunlight. Store this away from incompatible substances—oxidizing agents, reducing agents, and chemicals that react with methacrylates.
Handling precautions	<p>HYPRO® 1300X43LC VTBNX 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, therefore, important to avoid skin contact where possible. Butyl rubber gloves, full eye protection and protective clothing are recommended.</p> <p>Skin contact: Wash well with soap and water. Remove contaminated clothing and wash thoroughly before reusing. It is recommended that resin not be removed from skin with solvents since solvents increase contact and encourage penetration. Moreover, solvents of themselves dry and crack the skin.</p> <p>Eye contact: Flush immediately with large quantities of water. Contact a physician.</p> <p>Refer to the Safety Data Sheet on HYPRO® 1300X43LC VTBNX for additional safety and health information. The SDS is revised as new data becomes available.</p>

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