

Advanced Materials

HYPRO® 2000X168 LC VTB[#]

Reactive Toughener and flexibilizer

DATA SHEET

Methacrylate-Terminated polyButadiene

Product Description

HYPRO® 2000X168LC VTB has improved lower color and offers better viscosity stability with age and temperature than HYPRO® 2000X168 VTB (vinyl-terminated polybutadiene). It is the reaction product of glycidyl methacrylate and HYPRO® 2000X162 carboxyl-terminated polybutadiene (CTB).

HYPRO® 2000X168LC VTB is a low-molecular-weight, methacrylate-functional liquid synthetic rubber. It is a 100% solids reactive polymer used primarily as an additive in acrylic adhesives, sealants, coatings and composites.

HYPRO® reactive liquid polymers (RLPs) set the industry standard for rubber-toughening epoxy, acrylic, vinyl ester and unsaturated polyester in neat resins, adhesives, coatings and composites.

HYPRO® 2000X168LC VTB is designed for free-radical-cured systems. It reacts into the cured polymer matrix via the vinyl functionality of the methacrylate moieties. The polybutadiene backbone provides toughness, flexibility, low-temperature properties, and impact resistance to the cured formulation. It also contributes excellent resistance to moisture, brine, acids and bases

Applications

HYPRO® 2000X168LC VTB is commonly used at 5% to 20% of total solids in (meth)acrylate adhesives, sealants, coatings and resin systems. It is miscible with the pre-reacted systems, and it forms rubber domains when cured. These micron-size rubber particles provide the key performance benefits. The key property improvements in acrylic adhesives sealants and coatings are:

- Low-temperature properties
- Impact and crack resistance
- T-peel and lap shear adhesion
- Durability (fatigue resistance)
- Thermal cycling tolerance

The benefits in polymethylmethacrylate (PMMA) composites are:

- Reactive toughening agent
- Better compatibility with silica reinforcement

In vinyl ester resins, HYPRO 2000X168LC VTB doubles the elongation and fracture toughness of rubber-modified systems.

Key data

Specified key data

Viscosity at 27 °C (Brookfield)	60 000 – 200 000	[mPa s]
Acid number (titration)	0.0 – 5.5	[mg KOH/gram]

Specified key data are individually checked throughout and guaranteed.

[#] 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.

Typical key data

Gardner Color	4
Molecular weight	4450 g/mol
Functionality	1.9
Specific gravity, 25 °C	0.929
Glass Transition Temperature	-80°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® 2000X168LC VTB 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® 2000X168LC VTB 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® 2000X168LC VTB for additional safety and health information. The SDS is revised as new data becomes available.</p>

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