CVC Thermoset Specialties

An Emerald Performance Materials Company

TECHNICAL BULLETIN

Hypro® Reactive Liquid Polymers 1300X45 ATBN Amine Terminated Butadiene-Acrylonitrile CAS #68683-29-4

DESCRIPTION

Hypro Reactive Liquid Polymers (RLP) are 100% solids liquid rubbers used to improve the toughness, flexibility, adhesion and impact resistance of thermoset resin systems including epoxies, vinyl esters, unsaturated polyesters, acrylics and urethanes. These materials are a family of butadiene homopolymers and butadiene-acrylonitrile copolymers with functionality at the chain ends. Functional groups are carboxyl (COOH), amine (NH or NH_2), methacrylate or epoxy. The acrylonitrile content varies in these polymers from zero to 26% which directly affects the solubility and glass transition temperature (Tg) of the materials.

Hypro 1300X45 ATBN is an amine terminated butadiene-acrylonitrile copolymer used predominately with other amine functional compounds to improve product performance when added to thermoset resin systems. The amine structure of Hypro 1300X45 ATBN is based on N-aminoethylpiperazine (N-AEP) - minimal source of excess amine.

BENEFITS/FEATURES

- Enhances the Toughness/Flexibility of Thermoset Resins
- Improves Adhesion to Difficult to Bond to Substrates
- Minimal Amount of Excess Amine
- Ideal for Chain Extending Epoxies
- Provides Hydrophobicity
- Increases Low Temperature Mechanical Properties
- Increases Impact/Crack Resistance

TYPICAL USES

- Adhesives
- Coatings
- End uses include Automotive, Construction, Electrical and Industrial Applications

TYPICAL PROPERTIES

Appearance	Liquid polymer, amber in color (3 - 8 on the Gardner Color Scale)
Actives Level	100%
Brookfield Viscosity, mPa.s or cP @ 27° C	300,000 - 450,000
Amine Equivalent Weight	1750 - 1950

STORAGE & HANDLING

To ensure optimal product performance, store material in original unopened containers at or below 50°C.

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Hypro® 1300X45 ATBN

Hypro ATBN Standard Line of Products —Typical Properties						
Hypro Polymers	**2000X173 ATB**	**1300X21 ATBN**	**1300X16 ATBN**	**1300X45 ATBN**	**1300X35 ATBN**	**1300X42 ATBN**
Acrylonitrile Content, %	0	10	18	18	26	18
Amine Equivalent Weight (AEW)*	950	1,200	900	1,850	700	450
Amine Value	59	47	62	30	80	125
Brookfield Visc. mPa.s or cP @ 27ºC (81ºF)	180,000	160,000	200,000	375,000	500,000	100,000
Specific Gravity, 25°/25°C (77°F)	-	0.938	0.956	-	0.978	0.942
Glass Transition Temp., Tg,ºC**	-	-65	-51	-	-38	-59
Free Amine Level, %	4	2	5	<0.1	7	10

*For secondary amine terminated polymers, AEW value may be used as Amine Hydrogen Equivalent Weight, whereas Hypro 1300X42 ATBN, a primary amine terminated material, Weight per Active Hydrogen is AEW/2.

**Measured via DSC (Differential Scanning Calorimeter).

PACKAGING & AVAILABILITY

Hypro 1300X45 ATBN is available in 55 gal. non-returnable steel drums (net weight 425 lbs.) and 5 gal. plastic pails (35 lbs. net). For further information regarding this material or any other CVC Thermoset Specialties product, please contact your local Sales Representative or our Customer Service Department at 800-296-0040.

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