



Ty-Ply[®] BN Adhesive

Description

Ty-Ply[®]BN is a single coat adhesive used to bond nitrile, polyacrylate, polyepichlorohydrin or millable polyurethane rubbers to metal or other rigid substrates during the vulcanization of the rubber.

Features and Benefits

One-Coat - reduces labor costs, solvent usage, inventory and shipping costs.

Versatility - bonds many nitrile rubber compounds and offers a wide formulation tolerance.

High Performance - offers excellent resistance to a wide variety of oils, fuels, and solvents.

Typical Properties* of Ty-Ply BN Adhesive

Composition	A mixture of dissolved polymers and dispersed fillers in an organic solvent
Color	Black
Viscosity @ 25°C (77°F)	
Ford Cup No.3	20 - 35 seconds (.020 - .035 N's/M ²)
G.E. Zahn Cup No. 1	50 seconds (.05 N's/M ²)
Non-volatile Content	
by weight	35% - 39%
by volume	23%
Coverage	370 sq. ft./gallon/one dry mil
Weight	
kg/m ³	923 - 971
lb/gal	7.7 - 8.1
Flash Point (Closed Cup)	5.5°C (42°F)
Diluents	MEK, MIBK and alcohols (dry)
Solvents	Denatured Ethanol
Shelf Life	1 year from date of shipment, unopened container at 21°C - 27°C (70°F - 80°F) storage.

*Data is typical and not to be used for specification purposes.

Surface Preparation

Metal surfaces must be thoroughly cleaned prior to applying the primer. Remove protective oils, cutting oils, greases, etc. by solvent degreasing or alkaline cleaning. Remove rust, scale, or oxide coatings by suitable mechanical or chemical cleaning methods.

Apply Ty-Ply BN adhesive to stainless steel, aluminum, brass, or other non-ferrous substrates within one-half hour after cleaning. For ferrous substrates such as steel, a longer layover can be tolerated if no rust is formed.

Mixing

Thoroughly mix before use and agitate during use to keep components uniformly dispersed. Fit dip tanks with a motor driven agitator or a recirculating system. Treat other holding tanks in the same manner.

For brush application, use full strength. For dip and spray operations, Ty-Ply BN adhesive can be diluted with MEK, MIBK, or dry alcohols.

Application

Apply by dip, spray, or brush methods. Allow Ty-Ply BN adhesive to dry for at least 30 minutes at room temperature or 10 minutes at 49°C (120°F) before bonding. During transfer or injection molding, sweeping of the adhesive may occur. In those instances, bake the dried adhesive for 10 - 20 minutes at 121°C (250°F). Then, apply a second coat of adhesive to the cooled surface. Allow to dry, then follow normal bonding procedures. Normally

the dry film thickness of Ty-Ply BN adhesive should be 7.6 - 12.7 microns (0.3-0.5 mil). It is recommended to apply a dry film thickness at the high end of this range.

Curing

As with other Chemlok® adhesives, maximum adhesion is obtained when the rubber stock has completely cured. Ideal bonding conditions exist when both the adhesive and the rubber cure at the same time. To accomplish this, load the adhesive coated metal parts, and fill the mold cavity with rubber as quickly as possible.

Loading of multiple-cavity molds usually results in pre-baking the first metal parts to be loaded. Be aware that during multiple-cavity loading, the pre-baking begins with the first loaded metal parts. Keep mold loading cycles to a minimum to prevent adhesive and rubber pre-curing. However, Ty-Ply BN adhesive will resist moderate pre-baking times without affecting bond performance. Transfer or injection molds need properly designed runners and sprues as well as adequate pressures. This prevents rubber pre-curing before the mold cavities are completely filled.

Clean Up

Apply MEK (methyl ethyl ketone) to clean up areas with a rag as soon as possible.

Ty-Ply BN Adhesive Environmental Resistance

Typical values, 50 durometer NBR to zinc phosphatized, chromic acid sealed steel;
cure 10' @ 171°C (340°F) ASTM D429-B, .32 cm (1/8") thick rubber section

Gasoline	22 days @ RT	100R
JP-5 Fluid	7 days @ RT	100R
Skydrol 500	24 hours @ 149°C (300°F)	100R
ASTM Oil #1	70 hours @ 149°C (300°F)	100R
ASTM Oil #3	70 hours @ 149°C (300°F)	100R
Turbo Oil #15	24 hours @ 149°C (300°F)	100R
Sunoco ATF	90 hours @ 149°C (300°F)	100R
Ref. Fuel B	94 hours @ RT	100R
Heat	30 minutes @ 121°C (250°F)	100R

Packaging

- 1 Gallon Container (3.8 Liter)
- 5 Gallon Pail (19 Liter)
- 55 Gallon Drum (208 Liter)

Storage

Store unopened container at 4°C - 32°C (40°F - 90°F), and preferably at 21°C - 27°C (70°F to 80°F).

Cautionary Information

Before using this or any Lord product, refer to the Material Safety Data Sheet (MSDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Values stated in this bulletin represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Service Department.

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The logo for Lord Corporation, featuring the word "LORD" in a bold, black, sans-serif font. The letter "O" is stylized with a white circle inside it.