Chemlok 213 Adhesive

Description

LORD Chemlok® 213 is a one-coat adhesive used to bond castable and RIM urethane elastomers to metal. It is composed of a mixture of polymers, curatives and pigments dissolved in an organic solvent system.

Chemlok 213 adhesive is also used to bond a wide variety of both polyether and polyester castable urethanes to metal. This adhesive bonds with polyether and polyester castable urethanes of varying hardness, based on both TDI and MDI.

Chemlok 213 adhesive provides bond strengths greater than the tear strength of the urethane substrate. This adhesive bonds RIM urethane elastomers directly to aluminum or steel without the need for primers or prebaking.

Features and Benefits

Versatile – bonds metal to a wide variety of polyether and polyester compounds including RIM urethane.

Economical – eliminates the need to inventory several adhesives due to the adhesive's versatility.

Convenient – requires only a single coat for most applications, minimizing application costs.

Process Compatible – accommodates a wide range of processing conditions, including extended prebake.

Environmentally Resistant – adds durability for harsh environment exposure, including salt spray and water and temperature exposures, when used with Chemlok 219 primer.

Time Saving – requires no agitation in preparation for use or during application, saving application time and reducing the potential for application errors. Non-settling Chemlok 213 adhesive is ready to dip or brush when opened.

Fast Drying – dries fast to allow rapid turnaround times, reducing the number of coated parts kept in inventory.

Application

Surface Preparation – Thoroughly clean metal surfaces prior to adhesive application. Remove protective oils, cutting oils and greases by solvent degreasing or alkaline cleaning. Remove rust, scale or oxide coatings by suitable chemical or mechanical cleaning methods.

- Chemical Cleaning
  Chemical treatments are readily adapted to automated metal treatment and adhesive application

Typical Properties*

Appearance	Blue Liquid
Viscosity	
cps @ 25°C (77°F) Brookfield LVT Spindle 2, 30 rpm	100-300
seconds Zahn Cup #3	20-35
Density	
kg/m^3	886.7-910.7
(lb/gal)	(7.4-7.6)
Solids Content by Weight, %	20.5-23.5
Flash Point (Seta), °C (°F)	5 (41)
Solvents	Methyl Ethyl Ketone (MEK), Acetate Blend, Xylene

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

lines. Chemical treatments are also used on metal parts that would be distorted by blast cleaning or where tight tolerances must be maintained. Phosphatizing is a commonly used chemical treatment for steel, while conversion coatings are commonly used for aluminum.

- Mechanical Cleaning
  Grit blasting is the most widely used method of mechanical cleaning. However machining, grinding or wire brushing can be used. Use steel grit to blast clean steel, cast iron and other ferrous metals. Use aluminum oxide, sand or other nonferrous grit to blast clean stainless steel, aluminum, brass, zinc and other nonferrous metals.

For further detailed information on surface preparation of specific substrates, refer to Preparation of Substrates for Bonding data sheet. Handle clean metal surfaces with clean gloves to avoid contamination with skin oils.

Mixing – No agitation is required before or during use; Chemlok 213 adhesive can be used as received. However if dilution is needed, use Chemlok 248 thinner and mix thoroughly.

If needed, proper dilution for the various application methods is best achieved by experience. Use Chemlok 248 thinner as a diluent to reduce viscosity. For brush or dip application, use a ratio of 4:1 adhesive to diluent, by volume. Spray application generally requires more thinning; use a ratio of 1:1 adhesive to diluent, by volume.

Applying – Apply adhesive in a uniformly thin coat by brush, spray or dip methods. To avoid film bubbling, do not apply Chemlok 213 adhesive to substrates hotter than 82°C (180°F).

Regardless of application method, dry film thickness of Chemlok 213 adhesive should be 19.05-31.75 micron (0.75-1.25 mil) for optimum adhesion. Thicker adhesive films caused by repeated brushing or improper dipping drainage can compromise bond strength.

Chemlok 219 adhesive is an excellent primer to use with Chemlok 213 adhesive. For castable urethane, the properties of Chemlok 219 and Chemlok 213 adhesives are complimentary - Chemlok 219 adhesive provides excellent protection as a primer for the metal; Chemlok 213 adhesive bonds well to RIM, TPU and castable polyurethanes. Chemlok 213 adhesive is also tolerant of processing conditions such as long prebakes. Together, they increase resistance to a variety of environmental elements.

When using Chemlok 219 adhesive as a primer, first apply Chemlok 219 adhesive and allow it to air-dry. Then apply Chemlok 213 adhesive and allow to air-dry. The combination is then prebaked at 121°C (250°F) for the desired time.

Drying/Curing – Allow coated parts to air-dry for 30-60 minutes at room temperature. Forced drying can speed the process at temperatures up to 93°C (200°F).

After application on a part, the adhesive is precured on the part to increase the overall environmental resistance. The large metal parts, which act as heat sinks, are preheated prior to casting.

Chemlok 213 adhesive allows a wide tolerance for prebake conditions. Without compromising the bond, the adhesive can prebake for as long as 16 hours in temperatures as high as 121°C (250°F).

When used with Chemlok 219 adhesive as a primer, both systems will tolerate prebakes as high as 163°C (325°F) for 2 hours.

When using the two-coat system of Chemlok 219 adhesive as a primer under Chemlok 213 adhesive, optimum performance requires prebaking. A minimum of two hours at 121°C (250°F) is recommended. For large parts such as roller cores, baking may extend from four to eight hours at 121°C (250°F), depending upon size.

Cleanup – Remove uncured adhesive with solvents such as MEK and xylene. Remove cured adhesive by grit blasting, grinding or belt sanding.

Shelf Life/Storage

Shelf life is one year from date of shipment when stored at 21-27°C (70-80°F) in original, unopened container. Do not store or use near heat, sparks or open flame.

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 technical data sheet 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 Support Center.

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