

# Chemlok® 220 Adhesive

## Description

LORD Chemlok® 220 adhesive is a covercoat adhesive designed for use over Chemlok 205 primer. This adhesive system will bond a wide variety of elastomers such as natural rubber (NR), styrene-butadiene (SBR), polychloroprene (CR), nitrile (NBR) and polyisoprene (IR) to various metals and other rigid substrates during vulcanization of the elastomer. It is composed of a mixture of polymers, organic compounds and mineral fillers dissolved or dispersed in an organic solvent system.

## Features and Benefits

**Versatile** – bonds a variety of elastomers and metals when used in combination with Chemlok 205 primer.

**Environmentally Resistant** – provides superior resistance to heat, water, salt spray, chemicals, oils, solvents and corrosive atmospheres.

**Easy to Apply** – applies easily by dip, spray or brush methods.

## 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 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 Chemlok Adhesives application guide. Handle clean metal surfaces with clean gloves to avoid contamination with skin oils.

## Typical Properties\*

Appearance	Black Liquid
Viscosity	
cps @ 25°C (77°F)	135-300
Brookfield LVT	
Spindle 2, 30 rpm	
seconds	45-90
Zahn Cup #2	
Density	
kg/m <sup>3</sup>	1000.0-1100.0
(lb/gal)	(8.3-9.2)
Solids Content by Weight, %	23-27
Flash Point (Seta), °C (°F)	28 (83)
Solvents	Xylene, Perchloroethylene

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

# LORD TECHNICAL DATA

Allow primer to thoroughly dry before applying Chemlok 220 adhesive. For further details on the use of Chemlok 205 primer, refer to the Chemlok 205 primer data sheet.

**Mixing** – Thoroughly stir Chemlok 220 adhesive before applying adhesive over primer. Agitate sufficiently during use to keep dispersed solids uniformly suspended. Use a high speed, propeller-type agitator or the agitator supplied with the drum. Use an air-driven or explosion-proof mixer.

**Applying** – Apply Chemlok 220 adhesive by spray, dip, brush or any method that gives a uniform coating and avoids excessive runs or tears. Regardless of application method, use the following recommended dry film thicknesses for optimum adhesion:

Chemlok 205	5.1-10.2 micron (0.2-0.4 mil)
Chemlok 220	12.7-25.4 micron (0.5-1.0 mil)

Optimum film thickness is dependent on the rubber formulation and the level of adhesion required.

- **Brushing**  
Apply full strength. The best bonds will be achieved by a uniform and complete surface coverage.
- **Dipping**  
Use full strength or dilute adhesive with 5-10% xylene or toluene, by volume, to a Zahn Cup #2 viscosity of 35-40 seconds. Proper withdrawal will help reduce the tears and drip edges.
- **Spraying**  
Dilute Chemlok 220 adhesive with 25-50% xylene or toluene, by volume, to a Zahn Cup #2 viscosity of 22-28 seconds. The adhesive must be wet when it reaches the metal part. If drying occurs in the air before reaching the metal, cobwebbing and poor adhesion will result.

**Drying/Curing** – Allow the applied adhesive to dry until visual examination of the film has shown that all solvent has evaporated. This will take approximately 45-60 minutes at room temperature. Drying time can be shortened by using hot air drying ovens or tunnels. Moderate drying temperatures of 65-93°C (150-200°F) should be used, but temperatures as high as 149°C (300°F) may be used for very short periods of time. Actual metal temperature should not exceed 82°C (180°F). Maximum air flow at minimum temperatures will give the best results.

Chemlok 220 adhesive can be used to bond rubber by compression, transfer, injection or other molding procedures used to make bonded parts. As with other Chemlok adhesives, maximum adhesion is obtained when the rubber 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 in the mold and quickly fill the cavity with rubber.

Dry films of Chemlok 205 primer and Chemlok 220 adhesive remain firm at molding temperatures. During transfer or injection molding operations, the adhesive shows minimal tendency to wipe or sweep. During multiple-cavity loading, the prebaking begins with the first loaded metal parts. Keep mold loading cycles to a minimum to prevent adhesive and rubber pre-curing. To minimize pre-curing of the adhesive during multiple-cavity molding, use loading boards for metal parts. Chemlok 220 adhesive will resist moderate prebaking 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.

# LORD TECHNICAL DATA

Although the hot tear strength of Chemlok 205 primer and Chemlok 220 adhesive is excellent, care should still be used when removing parts from the mold. Bonds formed with Chemlok 205 primer and Chemlok 220 adhesive are resistant to many adverse environmental conditions. Electroplating or anodizing of metal parts after fabrication will not affect bond strength. However, bonded assemblies should not be treated with ketone based paints or solutions as bond strength may be weakened.

**Cleanup** – Use solvents such as xylene and MEK to remove adhesive before heat is applied. Remove cured adhesive by mechanical blasting methods.

## **Shelf Life/Storage**

Shelf life is two years 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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