

Chemosil® X 3960-21 Adhesive

Technical Data Sheet

Chemosil® X 3960-21 adhesive in combination with Chemosil H 2 hardener creates a one-coat adhesive system designed for use in aggressive downhole environments for bonding a variety of nitrile compounds. This technology has been commercialized in oil and gas stator applications where it provides excellent, high temperature fluid resistance to polar and non-polar fluids.

Addition of Chemosil H 2 hardener is required to create the two-component adhesive system that bonds a variety of difficult-to-bond elastomers to metal and many polymeric substrates.

Features and Benefits:

Versatile – bonds a wide variety of elastomers to metal, plastics and fabrics; suitable for existing production lines; tolerates a wide variety of stock formulations; forms a dry film suitable for manufacturing molded rubber/metal parts.

Convenient - requires only a single-coat for most applications reducing labor, solvent usage, inventory and shipping costs.

Durable - provides high strength systems; provides superior adhesion to plated metals.

Process Enhancer - single application allows for multiple molding cycles.

Environmentally Resistant – provides excellent resistance to solvents, water, oils and other aggressive media.

Elastomers:

- Nitrile (NBR)
- Polyacrylate (ACM)
- Epichlorohydrin (ECO)

Application:

Surface Preparation – Thoroughly clean metal surfaces prior to 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.

For further detailed information on surface preparation of specific substrates, refer to Chemlok/Chemosil Adhesives application guide.

Mixing – Thoroughly stir adhesive before use. While mixing, slowly add Chemosil H 2 hardener at a ratio of 100:10 adhesive to hardener, by weight.

If dilution is needed, use ethanol. Note proper dilution for the various application methods is best achieved by experience. Slowly add diluent to material while mixing. Continuously stir material to prevent sedimentation.

Working life of mixed system is four weeks when stored at room temperature.

Applying – Apply adhesive by brush, roll coat, dip or spray methods.

Regardless of application method, the dry film thickness of Chemosil X 3960-21 adhesive should be 5-10 micron (0.2-0.4 mil).

Typical Properties*

Appearance	Grey Liquid
Viscosity, cps @ 25°C (77°F) Brookfield LVT Spindle 1, 30 rpm	10-100
Density @ 20°C (68°F) g/cm ³ (lb/gal)	0.92-0.97 (7.68-8.10)
Solids Content by Weight, % Dry residue, 30 minutes @ 130°C (266°F)	38-42
Flash Point, °C (°F) Pensky-Martens	15 (59)
Solvents	Ethanol

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



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Drying/Curing — Allow applied adhesive to air-dry for 30 minutes at room temperature. Drying times can be shortened by using hot air drying ovens or tunnels up to 100°C (212°F).

Bonding occurs during vulcanization process of the rubber under recommended cure temperatures of 120-180°C (248-356°F).

Sweep resistance may be improved, if required, by preheating coated parts for 10 minutes to 1 hour at 100°C (212°F) before vulcanization.

Cleanup — Use ethanol or ethyl acetate for clean up.

Shelf Life/Storage:

Shelf life is one year from date of manufacture when stored by the recipient below 25°C (77°F) in original, unopened container.

Cautionary Information:

Before using this or any Parker LORD product, refer to the Safety Data Sheet (SDS) 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 document 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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