Revised 9/18/09

ADH 1001

BONDING AGENT FOR URETHANE ELASTOMERS-TO-METAL & CURED URETHANE

DESCRIPTION

ADH 1001 is a single-coat adhesive for bonding castable and millable urethane elastomers to metals and other rigid substrates. **ADH 1001** bonds are resistant to water, salt spray, many solvents and other environmental conditions.

TYPICAL PROPERTIES ADH 1001

Composition	A mixture of organic polymers and resins dissolved in an organic solvent system.
Color	Clear to slightly hazy amber
Viscosity (77 Deg F)	750 - 1050 cps
Nonvolatile Content	
Weight	18 - 21%
Volume *	16.5%
Coverage *	265 sq. ft./gallon/one dry mil
Weight/Gallon	7.9 - 8.3 lbs.
Flash Point (Pensky-Martens Closed Cup)	36 Deg F (2.2 Deg C)
Diluents	Toluene, glycol ether solvents, isopropanol
Solvents	Toluene, isopropanol, ethanol
Shelf life from date of shipment, unopened container, 70-80 Deg F storage	6 months

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

METAL SURFACE PREPARATION

To ensure consistent bonding results, metal surfaces must be thoroughly cleaned prior to application of the adhesive. Protective oils, cutting oils, greases, etc. are removed by solvent degreasing or alkaline cleaning. Rust, scale or tightly adherent oxide coatings are removed by suitable mechanical or chemical methods.

Grit blasting is the most widely used method of mechanical cleaning, but machining, grinding or wire brushing may be used. Steel grit is used for blast cleaning of steel, cast iron, or other ferrous metals. Aluminum oxide, sand or other non-ferrous grit is used for blast cleaning of stainless steel, aluminum, brass, zinc or other non-ferrous metals.

Chemical cleaning or pretreatment of the metal will remove rust, scale or tightly adherent oxide coating. 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 in cases where tight size tolerances must be maintained. Phosphatizing is a commonly used chemical treatment for steel, while chromate conversion coating is commonly used for aluminum.

APPLICATION

ADH 1001 is a solution; agitation is required prior to use within a one hour period.

ADH 1001 may be applied to the cleaned substrate by brushing, sipping, spraying, roller coating, or any other method that gives uniform coating and avoids excessive runs or tears.

Proper dilution for the various application methods is best achieved by experience. **ADH 1001** is normally used full strength for brush, dip and roller application. For spray application, dilution of 50 to 100 percent by volume is suggested using (1) a 1:1 solvent blend (by volume) of isopropanol and toluene or (2) glycol ether type solvents. The dry film thickness should be in the range of 0.5 to 1 mil for best results.

ADH 1001 adhesive dries to a clear, soft, non-tacky film in a short time but at least 15 minutes drying at 77 Deg F should be allowed for complete solvent evaporation prior to the bonding operation. The adhesive film may be dried at higher temperatures for shorter periods of time.

HANDLING AND PROCESSING

The bonding operation should take place as soon as the adhesive has dried. Large metal parts may be pre-heated up to 30 minutes at 250 Deg F or 1 hour at 150 Deg F without affecting adhesion.

Any of the molding processes normally used with heat vulcanizing urethane elastomers can be used with **ADH 1001**. The cure time and temperature for bonding is the same as that required to vulcanize the urethane compound being molded. However, best results are obtained with curing temperatures above 125 Deg F. An exception is when **ADH 1001** is used as primer for two part urethane coatings where adhesion develops in 24 hours at 77 Deg F.

TYPICAL TEST RESULTS (PER ASTM D249-B)

Castable Urethane Stock	PLI	kN/m	% Urethane Retention
URS 2490 (90A Ether)	189	33.2	100
URS 2806 (86A Ester)	154	27.0	100
URS 2555 (55D Ether)	293	51.4	95

STORAGE

Systems should be stored unopened in air tight containers at 60 - 80 degrees F.

HANDLING PRECAUTIONS

For complete and updated health and safety information, read the MATERIAL SAFETY DATA SHEETS. Do not handle or use until the MATERIAL SAFETY DATA SHEET has been read and understood.