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Technical Data Sheet

EL-1621HV

Two component, thixotropic epoxy adhesive for bonding and sealing

Product Description

EL-1621HV is a two component, room temperature curing epoxy system suitable for bonding and sealing. It is capable of passing NASA standards for low outgassing (ASTM E-595) and has a convenient 1:1 (Part A: Part B) mix ratio by weight or volume. This unique epoxy system offers remarkable toughness and superior peel strength. It readily cures at room temperature and can achieve faster cures at elevated temperatures. The optimal cure schedule is an overnight room temperature set-up followed by a heat cure at 70°C - 90°C for 3 - 5 hours.

EL-1621HV is thermally conductive and it can withstand very high temperatures. It offers an extensive serviceable temperature range of -70°C to +204°C. It exhibits excellent resistance to mechanical and thermal shocks and provides extremely high lap shear strength (> 3,300 psi). EL-1621HV adheres well to a wide variety of substrates including metals, ceramics, most plastics, rubbers and glass. In addition to superior electrical insulation, it also offers very good resistance to various chemicals, such as water, oils and fuels.
EL-1621HV is widely used in electronic, optoelectronic, vacuum, aerospace and related industries.

Product Highlights	Typical Applications
Thermally conductive	Bonding
Excellent toughness	Sealing
Excellent dimensional stability	
Capable of passing NASA low outgassing	

Physical Properties

Base Chemistry	Epoxy
Viscosity, Part A, 23°C	200,000 - 300,000 cps
Viscosity, Part B, 23°C	Thixotropic Paste
Mixing Ratio (Part A : Part B)	1:1 by weight or volume
Cure Schedule	
23°C	2 - 3 days
90°C	1 - 2 hours
Optimal Cure	overnight at 23°C plus 3 - 5 hours at 70°C - 90°C
Working Life (100 grams of mixed epoxy), 23°C	15 - 25 minutes
T-peel Strength, Aluminum to Aluminum, 23°C	15 pli
Tensile Lap Shear Strength, Aluminum to Aluminum, 23°C	> 3,300 psi
Tensile Modulus, 23°C	> 460,000 psi
Hardness @ RT	>85 Shore D
Thermal Conductivity, 23°C	1.4 - 1.5 W/m/K
Dielectric Strength, 1/8" thick test sample, 23°C	> 400 volts/mil
Coefficient of Thermal Expansion, 23°C	30 - 40 × 10^{-6} in/in/°C
Shelf Life, 23°C (in original unopened containers)	1 year

EL-1621HV

Surface Preparation

Bonding surfaces must be degreased and cleaned of any oil, dust or any other contaminants and then dried prior to the application of the adhesive. Smooth surfaces must be chemically etched whenever necessary and/or roughened using sand paper or grit blasting. To ensure proper surface preparation kindly perform a simple water bead test. If the water beads up, repeat the cleaning and roughening procedures before applying the adhesive, Even spreading of water indicates good surface preparation providing superior bond strength.

Mixing procedure

EL-1621HV is prepared by efficiently mixing Part A with Part B in a 1:1 mix ratio by weight or volume. Slowly mix the two parts to avoid any entrapment of air bubbles. Gently stirring the individual components prior to mixing might be necessary to avoid settling of filler particles.
Work life can be prolonged by mixing a smaller batch.

Application of adhesive

EL-1621HV can be conveniently applied using a spatula or a knife. Take enough adhesive required to achieve the desired bond line thickness in your application. A minimum adhesive layer thickness of 2 - 6 mils is suggested. Since EL-1621HV does not contain any volatiles or solvents, applying thicker layers of adhesive does not necessarily provide higher bond strength. Being a 100% solids system, it also provides minimum shrinkage upon cure. Porous substrates may require more adhesive to fill up the voids in comparison to non-porous substrates. Bonding substrates should be clamped snugly with enough pressure to maintain good contact during cure.

Curing Procedure

EL-1621HV can be cured at room temperature as well as at elevated temperatures. EL-1621HV can completely cure in 2 - 3 days at room temperature. It can achieve faster cures at elevated temperatures i.e. 1 - 2 hours at 90°C. The optimum cure schedule would be an overnight room temperature set-up, followed by a heat cure at 70°C - 90°C for 3 - 5 hours. Remove any excess adhesive using a spatula and wipe it clean with a rag.
Acetone or xylene may be used to assist in removal of the excess adhesive. Thinner epoxy sections cure slower

Storage & Handling

EL-1621HV must be ideally stored at or below 23°C in closed containers. Tightly close the containers when not in use to avoid any contamination. No other special storage conditions are imperative.
Kindly refer to the product Safety Data Sheet (SDS) for safe handling details. Allow for good ventilation and avoid skin contact while handling adhesives. Ketone or aromat- ic solvents can facilitate efficient cleaning of equipment or any spills. However, please exercise proper ventilation and flammability precautions while use of solvents.

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Packaging

- 1Kg Kit of Resin and Hardener
- 5Kg Kit of Resin and Hardener

Do not use for specification purposes

The values mentioned in this TDS are considered typical properties only. They are not intended to be used as a basis for preparing specifications. Please contact Elixir-India for assistance in establishing particular specifications

Disclaimer

Elixir-India believes the technical advice provided by the company and the information contained herein is reliable and accurate. However, Elixir-India make no warranties, expressed or implied not should be inferred regarding the accuracy of the information. The user is responsible to competently test the product and determine the quality and suitability for their intended use. Elixir-India assumes no liability regarding the handling and use of this product

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