

EpoPro® 153-1KF-A/B

Carvable Epoxy Paste Adhesive for Wood

EpoPro® 153-1KF-A/B is a two-part, filled epoxy paste adhesive is easily carveable and can be sanded, sawed, drilled, tapped, or otherwise worked like wood. EpoPro® 153-1KF-A/B system has a convenient 1:1 mix ratio by volume and a creamy consistency that is easy to apply. The mixed EpoPro® 153-1KF-A/B has a work-life of about 8 minutes and rapidly develops its bond strength. Bonded parts can be handled within 1-2 hour at room temperature and will develop ~90% of full strength within 4 hours at room temperature. Once cured, the adhesive is temperature, chemical, and environmental resistant to at least 140°F(60°C.)

The EpoPro® 153-1KF-A/B system is designed for filling knots in wood, bonding and repairing wood products, and for many art projects, but it is also used to bonding metal, composites, and other materials where its low density or easy of machining is desirable. Multiple colors are available and custom colors are available by request.

APPLICATIONS & BENEFITS:

- Easily carveable and machinable
- Use to fill, seal, and repair knots, cracks, holes.
- Useful to build and repair wood products
- Bonds wood, metals, composites, stones, etc.

| <u>HANDLING PROPERTIES</u> | <u>VALUE</u> | <u>TEST METHOD</u> |
|--|--|--------------------|
| <u>EpoPro® 153-1KF-A</u> | | |
| Visual Appearance | Black liquid* | Visual |
| Viscosity | 37,000 cps | |
| Density | 0.90 g/cm ³ | ASTM E-201 |
| *several shades of Brown, off-white and other custom colors available by request | | |
| <u>EpoPro® 153-1KF-B</u> | | |
| Visual Appearance | Off-white to yellow liquid | Visual |
| Viscosity | 35,000 cps | |
| Density | 1.26 g/cm ³ | ASTM E-201 |
| <u>Mixed Properties</u> | | |
| Mixed Viscosity | ~40,000 cps (thixotropic semi-paste) | |
| Mix Ratio | 100:125 by weight or 1A:1B by volume | |
| Shelf-life | 1 year at room temperature | |
| Gel Time (100 grams) at 25°C | 5 - 10 minutes | |
| Suggested cure times | 8-24 hour at 25°C or 30 minutes at 40°C or 15 minutes at 65°C* | |
| Achieves handling strength in approximately 1-2 hours at 25°C and ~90% of final strength in 4 hours at 25°C | | |
| *Note: many other cure schedules are possible. Please contact us for assistance if you'd like to discuss an alternate cure schedule. | | |

Product Datasheet

| PHYSICAL PROPERTIES | VALUE | TEST METHOD |
|--|--------------------------|-----------------------|
| Color | Black and custom colors* | Visual |
| Shore Hardness | 85D | ASTM D-2240 |
| Tensile Strength | 1,978 psi | ASTM D-638 |
| Tensile Modulus | 142,000 psi | ASTM D-638 |
| Compressive Strength | 4,100 psi | ASTM D-695 |
| Compressive Modulus | 161,000 psi | ASTM D-695 |
| Flexural Strength | 4,160 psi | ASTM D-790 |
| Flexural Modulus | 147,800 psi | ASTM D-790 |
| Glass Transition Temp. (T _g) | 158°F (70°C) | ASTM D-648 |
| Heat Deflection Temperature | 122°F (50°C) | |
| Coefficient of Thermal Expansion | 45 ppm/°C | |
| Lap Shear Strengths | | ASTM D-1002 |
| Strength Development: | <u>Cure time</u> | <u>Shear Strength</u> |
| | 4 hours at 25°C (77°F) | 1460 psi |
| | 8 hours at 25°C (77°F) | 1890 psi |
| | 24 hours at 25°C (77°F) | 2040 psi |
| Effect of Temperature on Lap Shear Strength: | <u>Test Temperature</u> | |
| | -60°C (-76°F) | 1600 psi |
| | 25°C (77°F) | 2040 psi |
| | 50°C (140°F) | 720 psi |
| | 80°C (176°F) | 140 psi |
| Lap Shear Strength after continuous Tropical Aging at 49°C and in 95% relative humidity: | <u>Aging Period</u> | |
| | Initial results | 2040 psi |
| | 30 days | 1820 psi |
| | 90 days | 1390 psi |

NOTE: Typical Properties determined using EpoPro® 153-1KF-A/B cured 7 days at 25°C cure - unless otherwise stated. Values are based on laboratory or average production results – not for specification purposes.

*Custom colors available by request. Custom viscosity, pot life and cure speeds are also available by request.

SUGGESTED PROCESSING GUIDELINES

EpoPro® 153-1KF-A/B may slightly settle or separate during shipment or weeks of storage. Re-mix the container prior to use to ensure the material is uniform. For manual mixing, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Blend by using a spatula or stirring stick for 1-2 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. EpoPro® 153-1KF-A/B is a 1:1 by volume system and can also be mixed and dispensed using meter mix equipment if the equipment can handle its viscosity and thixotropy. Dispensing through a suitable static mixing nozzle will achieve adequate mixing of the adhesive, but this should be verified with new pieces of equipment or new nozzles to ensure the complete mixing is occurring on a consistent basis.

EpoPro® 153-1KF-A/B can be applied directly from a static mixing nozzle or by stiff brush, roller, squeegee, knife, or spatula. Always apply the adhesive to clean, dry surfaces for best results.

If possible, roughen the surface to be bonded with a wire brush, sand-blaster, or other procedure as this will increase bond strength and help to remove loose or rotten material. After

roughening, clean and dry surface and remove any loose material prior to bonding. Optimal bond strengths are typically achieved with an adhesive bondline thickness of 3 – 5 mils, but much larger gaps and thicker areas such as knots can be filled with this adhesive without major loss of mechanical strength.

The mass of the adhesive, especially its cross-sectional thickness, and the ambient temperature will affect the speed at which it becomes hard enough to sand, but in most cases the material will be dry and hard enough to sand within 1- 2 hours after application at room temperature. This can be accelerated with the application of mild heat such as a heating blanket, a heat lamp, or an oven at a temperature such as 95°F – 110°F (35°C- 43.3°C) for short periods such as 10 – 30 minutes.

STORAGE GUIDELINES

Store this material in a clean, cool and dry environment in its tightly closed original container. Products may settle during storage and should be thoroughly re-mixed prior to use. Avoid extended exposure to high humidity. Tightly re-seal after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 months from the date of shipment.

HANDLING PRECAUTIONS

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

PERSONAL HYGIENE

EpoPro® 153-1KF-A

WARNING! May cause eye irritation. Prolonged or repeated skin contact may cause irritation, may cause allergic skin reaction. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

EpoPro® 153-1KF-B

WARNING! Causes skin and eye irritation. May cause allergic skin and respiratory reactions. Harmful if inhaled or swallowed. Do NOT get in eyes, on skin, or clothing. Wear chemical splash goggles and impervious gloves when handling. Wash skin and clothing thoroughly after handling. Avoid breathing vapor or mist. Use only with adequate ventilation. Keep containers closed when not in use. Do NOT take internally.

FIRST AID

In case of contact with: **Skin** – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather. **Eyes** – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention. **Inhalation** - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician. **Ingestion** - Do not induce vomiting. Dilute

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with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER

IMPORTANT: The following supersedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

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