# Product Datasheet

SP&S Specialty Polymers and Services

# EpoPro 134-2A/B

## HIGH PERFORMANCE EPOXY ADHESIVE PER MMM-A-134 TYPE II

**DESCRIPTION**

The EpoPro 134-2A/B system consists of two components Part A and Part B which are mixed together prior to use. Part A consists of an epoxy resin and inert fillers. Part B consists of a polyamide curative and inert fillers. The cured adhesive provides excellent bond strength to most common materials over a temperature range from at least -55°C (-67°F) to +125°C (257°F). The cured polymer is resistant to most chemicals including anti-icing fluid, jet fuels, hydrocarbons and hydraulic oil. In addition it is resistant to outdoor weathering and creep.

The EpoPro 134-2 system is available in custom colors upon request and is also available in thickened versions for increased run or slump resistance. Please contact us to discuss your application if you'd like to receive samples of a custom variant that might be suitable for your application.

| **HANDLING PROPERTIES** | VALUE | TEST METHOD |
|---|---|---|
| EpoPro 134-2A | | |
| Visual Appearance | Dark gray to Black semi-Paste | |
| Viscosity, Part A, @ 25ºC | 13,000 cps | ASTM D-2393 |
| Flash Point | >100°C | ASTM D-92 |
| EpoPro 134-2B | | |
| Visual Appearance | Amber liquid | |
| Viscosity, Part B, @ 25ºC | 34,000 cP | ASTM D-2393 |
| Flash Point | >100°C | ASTM D-92 |

| Mixed Properties | | | |
|---|---|---|---|
| Mixed Viscosity | 19,000 cps | | |
| Mix Ratio (part by weight) | 5A: 2B | | |
| Shelf-life | at least 12 months @ room temperature (~ 25ºC) | | |
| Gel time @ 25ºC (100 grams) | 150 minutes | | |
| Work Life ( 175 grams) | @ 55°F | @ 70°F | @ 90°F |
| | ~3 hours | ~2.5 hours | ~45 minutes |

Cure Schedules: 2 hours @ 100ºC **or** 30 minutes @ 150ºC **or** 5 minutes @ 175ºC

*Note: many other cure schedules are possible see notes on page 3.

| **PHYSICAL PROPERTIES** (Tested at 25C unless otherwise noted – cured 2 hours @ 100°C) | | TEST METHOD |
|---|---|---|
| Color | Dark Gray | Visual |
| Hardness, Shore D At 25ºC | 77D | ASTM D-2240 |
| Tensile Lap Shear (AL:AL) | | ASTM D-1002 |
| @ -55ºC (-67ºF) | 2300 psi | |
| @ 25ºC ( 77ºF) | 4000 psi | |
| @ 82ºC (180ºF) | 2900 psi | |
| Tensile Lap Shear (Steel:Steel) | | ASTM D-1002 |
| @ 25ºC ( 77ºF) | 7100 psi | |
| Tensile Strength at break | 6050 psi | ASTM D 638 |
| Tensile Elongation | 2.1 % | ASTM D 638 |
| Coefficient of Thermal Expansion | 46 ppm/ºC | |
| Glass Transition Temperature | 118ºC | ASTM D 648 |

**NOTE** : Values are based on laboratory or average production results – not for specification purposes.

## PROCESSING AND APPLICATION INSTRUCTIONS :

When ready to use, weigh Part A and Part B as accurately as possible into a clean mixing container. The mix ratio for 134-2A/B is 5 parts of Part A to 2 parts of Part B by weight. The concentration of Part B may be varied by about 10% of the recommended amount without seriously affecting the physical properties other than the working life. Whenever possible work at 70° to 90°F. Higher temperatures will shorten the work-life and lower termperature will lextend the work-life and may make the resin more difficult to blend due to increased viscosity.

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 134-2A/B can be applied by stiff brush, roller, squeegee, knife, or spatula. It is also suitable for meter-mix dispensing.

In most applications, the EpoPro 134-2 should not be thinned with solvents or other diluents as this will compromise the cured properties.

## SURFACE PREPARATION

For best bond strength, roughen the surface to be bonded using sandpaper, a wire brush, sand-blasting or similar means. Surface should be clean and dry before adhesive is applied. If needed, clean and degrease surface prior to application. For critical applications or hard to bond surfaces lease contact us for further surface preparation procedures.

## METHOD OF APPLICATION

Property mixed material may be applied to the surfaces being bonded with a mechanical applicator or any clean tool such as a metal spatula, trowel, wooden coffee stirrer, or equivalent. The material should be spread thinly and evenly. Glue lines as thick as .101” will provide good strength but the general rule is-- the thinner the better. The important thing is that the surfaces being bonded are thoroughly “wetted out” with the adhesive. Once applied, the joints being bonded should be

assembled immediately; under no circumstances would this open assembly times exceed 30 minutes. No pressure is required other than that necessary to hold to assembly in position until the resin cures. Then uncured material may be removed from mixing utensils etc. with solvent such as Methyl Ethyl Ketone (MEK) and/ or Cellosolve or equivalent.

## CURE SCHEDULE:

EpoPro 134-2A/B can be cured for 7 days at room temperature; 2 hours @ 100ºC; 30 minutes @ 150ºC; or 5 minutes @ 175ºC. The 2 hour @ 100ºC cure is considered the optimal cure for most applications. Please Note: where military specification MMM-A-134 type II qualification is necessary a cure schedule of 2 hour cure at 210°F (98.9ºC) must be followed.

## 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 134-2A**

**CAUTION!** 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 134-2B**

**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:

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

## DISCLAIMER:

**IMPORTANT**: The following supercedes 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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