

TECHNICAL DATA SHEET

EPIC RESINS
POLYMERS FOR INDUSTRY SINCE 1958

S7174-03 EPOXY POTTING COMPOUND

EPIC S7174-03 is a two component epoxy potting and casting system that is UL 94 V-0 recognized. This filled material features very low shrinkage and a low mixed viscosity to allow acceptance into tight tolerance spaces and ease of degassing. EPIC S7174-03 is designed to operate in applications at temperatures up to 130°C and will handle short durations of temperatures that exceed 130°C. This potting compound is excellent for applications requiring:

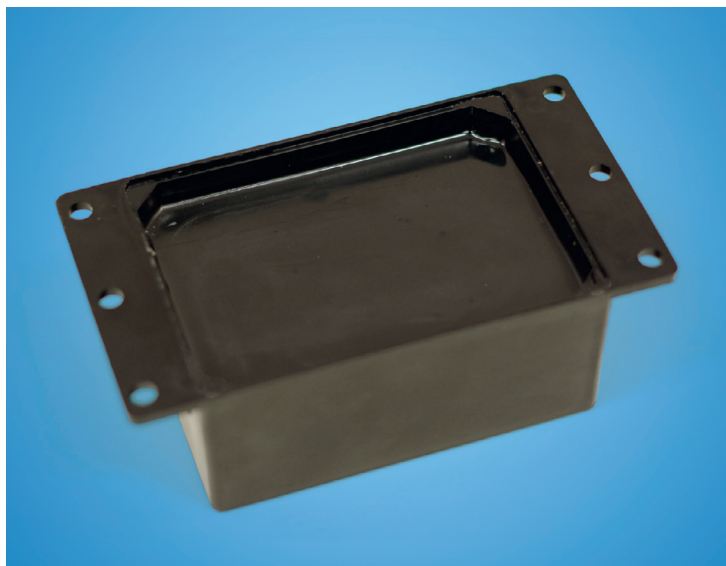
- UL 94 V-0 Recognition
- High Temperatures
- Low Viscosity
- Long Gel Time
- High Shore D Hardness
- Excellent Adhesion
- Low Weight Loss and Water Absorption

This epoxy has proven itself for many years as an excellent solution for applications needing environmental protection such as:

- Surge Protectors
- Transformers
- Livestock Heater Coil Encapsulation
- Switch Encapsulation
- Motor and Stator Windings

Epic Resins has over 50 years of experience in formulating and manufacturing epoxies and polyurethanes. Our experience offers many benefits to your company including:

- ISO 9001 and 14001 Recognized Management System
- Extensive Customer Support
- New Product Development
- Product Customization
- Application Property Testing
- Local Field Technical Service – No Need to Work Through Distributors



GENERAL PROPERTIES

Product Resin	Epoxy
Component Count	2
Mixed Color	Black
Shelf Life @ 25°C	12 months
Specific Gravity	1.43 – 1.48
UL File Number	E55516
UL Recognition	UL 94 V-0 @ 3.0mm

MATERIAL PROPERTIES

Viscosity

Part A (ASTM D2393)	6,000 – 9,000 cps @ 25°C, 20 RPM
Part B (ASTM D4287)	100 – 200 cps @ 25°C, 300 RPM
Mixed (ASTM D2393)	4,000 cps maximum @ 25°C, 20 RPM

Mix Ratio

By Weight	5 : 1
By Volume	3 : 1

Weight/Gallon (ASTM D1875)

Part A	13.35 – 13.55 lb/gal
Part B	7.90 – 8.10 lb/gal
Mixed	11.90 – 12.30 lb/gal

MIXED PROPERTIES

Gel Time (ASTM D3056)	45 – 55 minutes @ 25°C, 100g
Cure Schedule	7 days @ 25°C
Alternate Cure	6 – 8 hrs. @ 25°C plus 2 hrs. @ 65°C
Peak Exotherm	43.3°C Maximum (100g)*

MIXING INSTRUCTIONS

When mixing two component epoxy resins, the ideal method is to mix by weight using a balance or digital scale. The mixing container should be placed on the scale and set to read zero, the appropriate amount of resin should be weighed followed by the appropriate amount of hardener. The material should then be stirred, ideally with a metal spatula, ensuring that the material is thoroughly mixed to a homogenous state by scraping the sides, bottom and the area where the sides meet the bottom of the container. Failure to do so can result in uncured sections of material or altered properties of the cured material. When mixing epoxy resins it is important to keep in mind that the larger the quantity of material mixed, the shorter the pot life (working time) will be.

HANDLING AND STORAGE

Please refer to the Material Safety Data Sheet when determining the proper precautions to be used when storing or handling EPIC S7174-03. Most epoxy resins and hardeners are skin and eye irritants. Some epoxy hardeners may actually be corrosive to the skin and eyes. Other health problems may be aggravated by exposure to these materials. Epic Resins recommends that engineering controls be used to minimize employee exposure to this or any other industrial chemical.

CURED PROPERTIES

Hardness (ASTM D2240)	82 – 88 Shore D
Tg (ASTM E1545, Glass Transition)	36 – 40°C
Coeff of Therm Exp (ASTM E831)	70 – 75 (Exp-6)/°C (Below Tg) 165 – 175 (Exp-6)/°C (Above Tg)
Tensile Strength (ASTM D412)	3,000 – 3,200 psi
Elongation (ASTM D412)	18 – 19%
Thermal Conductivity (ET-164)	

0.49 – 0.50 W/mK

3.40 – 3.50 BTU in./hr. ft² °F

11.50 – 11.80 (Exp-4) Cal Cm/Sec Cm² °C

ELECTRICAL PROPERTIES

Dielectric Constant (ASTM D150)

3.9 – 4.1 @ 100 Hz

3.7 – 3.9 @ 1 kHz

3.6 – 3.8 @ 10 kHz

3.5 – 3.7 @ 100 kHz

Dielectric Strength (ASTM D149)

700 – 730 Volts/mil @ 0.052 in

420 – 450 Volts/mil @ 0.114 in

Dissipation Factor (ASTM D150)

0.035 – 0.040 @ 100 Hz

0.023 – 0.027 @ 1 kHz

0.022 – 0.026 @ 10 kHz

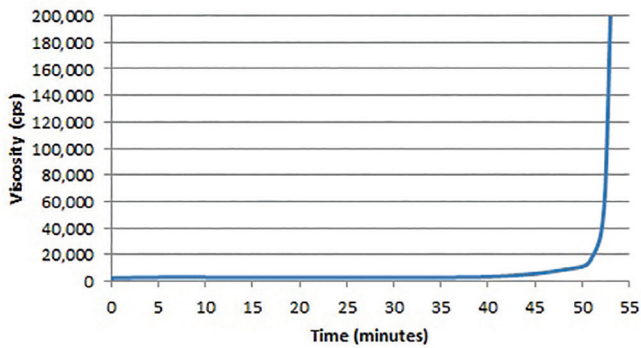
0.018 – 0.022 @ 100 kHz

Volume Resistivity (ASTM D257) 2.00e¹⁴ – 4.00e¹⁴ ohm cm

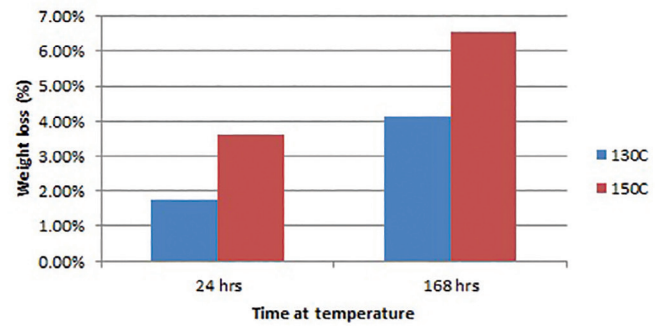
**Exotherm depends on shape of parts cast as well as mass and should be tested for each application independently.*

CHARTS AND GRAPHS

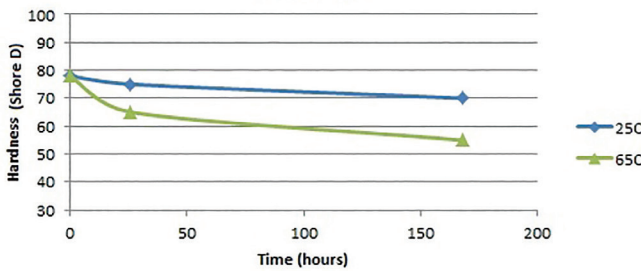
Mixed Viscosity of S7174-03 at 25C



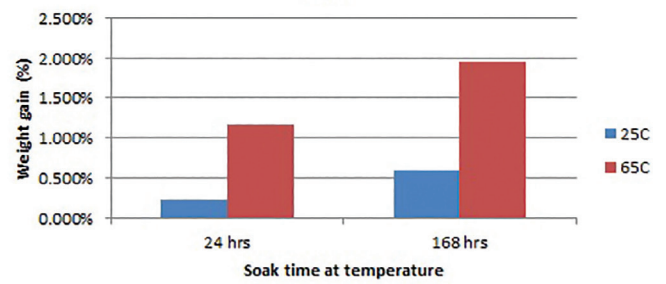
Weight loss of S7174-03 at 130C and 150C



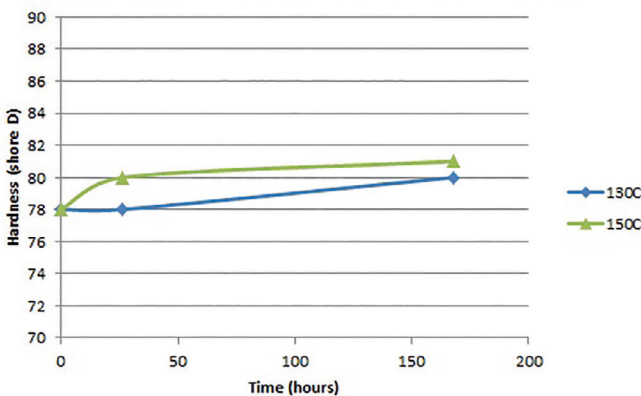
Shore D hardness over time of S7174-03 during ASTM D570 at 25C and 65C



ASTM D570 water soak of S7174-03 at 25C and 65C



Shore D hardness over time of S7174-03 at 130C and 150C





EPIC RESINS

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