

## Tuffbond® 394

### Product Description

**Hernon® Tuffbond® 394** is a single component, high temperature resistant, heat activated epoxy. It cures to a high-performance thermoset system with excellent adhesion properties to a wide variety of substrates. **Tuffbond® 394** will change from amber-yellow to a reddish brown upon cure.

Bonding the voice coil to the cone has been a challenge for engineers, specifically when the adhesive temperature resistance requirement is above 200°F (93°C). Two component epoxy was commonly used for this application, but limitations such as mixing ratio, cure speed, potential solidification in equipment and the need for equipment flushing solvents have made **Tuffbond® 394** more practical.

### Product Benefits

- High temperature resistance.
- Single component (no mixing, no pot life).
- Solventless.
- Cures on demand (heat cure).
- Will not slip during cure.
- Changes color upon cure (yellow to brown).
- Excellent adhesion to various substrates.
- Gives high shear.
- Low water absorption.
- Very rigid.
- Low density.
- No porosity upon cure.

### Typical Properties (Uncured)

Property	Value
Resin	Epoxy
Appearance	Amber-yellow liquid
Viscosity @ 25°C, cP	44,000 to 56,000
Specific gravity	1.19

### Curing Characteristics

**Tuffbond® 394** can be cured by infrared or convection oven. Cure time will depend on the bond-line temperature.

Temperature, °C (°F)	Cure Time, minutes
150 (300)	≤1.5
120 (250)	≤ 3
100 (212)	≤ 9

### Typical Properties (Cured)

Property	Value
Volume Shrinkage, ASTM D6289, %	0.83
Coefficient of thermal expansion, ASTM D696 (K <sup>-1</sup> ), at 55 °C, ppm	42
Coefficient of thermal expansion, ASTM D696 (K <sup>-1</sup> ), after tg, ppm	220

### Typical Cured Performance

Shear Strength, ASTM D1002  
Cured at temperature listed

Substrate	Cure Time	Temperature	Shear Strength, psi
Steel	5 minutes	150 °C	2000 - 3500
Steel	1 hour	90 °C	1500 - 2500

### Typical Environmental Resistance

#### Chemical/Solvent Resistance

Shear Strength, grit blasted steel, ASTM D1002  
Cured for 2 minutes at 150°C  
1 week - immersion in chemical/solvent

Chemical/Solvent	% Initial Strength Retained
Water	99
Motor Oil	100
Hydraulic Fluid	99
Aviation Fluid	100
Methanol	90

### General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

# Hernon® Technical Data Sheet

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**For safe handling information on this product, consult the Safety Data Sheet (SDS).**

### **Storage**

**Tuffbond® 394** must be stored under refrigeration at a temperature of approximately 40° F for extended shelf life. Keep container tightly closed when not in use. To prevent contamination of unused material, do not return any material to its original container.

### **Dispensing Equipment**

**Hernon®** offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.

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