3M™ Scotchcast™ Electrical Resin **263**

One-Part, General Purpose Epoxy Powder Resin

- Fast curing
- Excellent electrical properties
- Excellent thermal shock and impact resistance
- Excellent heat, chemical and moisture resistance
- Excellent cut-through resistance
- Excellent flow
- UL 1446 Electrical Insulation System (EIS) approval at class 120(E), 130(B), 155(F), and 180(H)

3M™ Scotchcast™ Electrical Resin 263 is a widely used, well-known general purpose epoxy powder resin. A one part, green pigmented, rapid heat-curing product, it is designed to provide a continuous, tough moisture and chemical resistant dielectric coating to a variety of substrates. It is intended for use where high temperature cut-through resistance is required.

Scotchcast™ Electrical Resin 263-Typical Properties

Property	Value
Color	Green
Specific Gravity[1] (cured)	1.47
Dielectrical Strength[3] 12 - 15 mil coating	1000 v/mil
Thermal Shock[2] 10 cycles - 75°C to 155°C 12 to 15 mil coating 1/8" sandblasted steel	Passes
Impact Resistance[2] 12 to 15 mil coating 1/8" sandblasted steel panel Gardner 5/8" Radius Impact Tester	100 inch-lbs
Cut-through Resistance[2] - 1 lb wt: 1/8 AWG wire	290°C (554°F)
Abrasion Resistance[2] - Removed from 12 - 15 mil coating	.06 grams
Edge Coverage[2] 12 - 15 mil coating on flat	>40%
Gel Time[2] @ 193°C hot plate	7-15 seconds

*Not recommended for specification. Product specifications will be provided upon request.

Test Methods

[1] ASTM D-792
[2] 3M Test Method
[3] ASTM D-149

Scotchcast Electrical Resin 263 is manufactured by a fusion blend process, ensuring that each individual particle of powder contains all the components necessary to effect a complete cure and attain stated performance properties.

Scotchcast 263 is applied to an object that has been heated to a temperature above the melting point of the resin. On contact with the preheated application surface, the resin melts, flows to a controlled extent, then cures, bonding to the substrate and coalescing into a smooth, continuous, essentially uniform, thick coating. It effectively coats flat surfaces and corners, as well as, high points. Uses for Scotchcast 263 include moistureproofing and insulating armatures, stators, buss bars and toroid cores.

Usage Information

Method of Application

The rapid cure of 3M™ Scotchcast™ Electrical Resin 263 permits the use of high-speed production methods. The powder can be readily applied by spraying techniques as well as through the use of fluid bed dipping of preheated parts. Automated and manual types of application equipment are both available. Equipment manufacturers' names can be suggested upon request.

Curing

The cure of Scotchcast 263 to a thermoset condition is a time/temperature relationship. The retained heat in application units having high heat capacity is sufficient in many cases to effect a cure of the resin without the need for post-curing facilities. For example, if an application surface can retain a temperature of 204°C (400°F) for 30 seconds after coating, it will be fully cured. Small articles, or those with a large surface-to-mass ratio, lose heat rapidly and may require a higher preheat temperature and/or additional oven curing.

The figures below represent nominal guidelines for obtaining the resin's adhesion, impact and chemical resistance characteristics.

Cure Temperature	Time
149°C (300°F)	30 minutes
177°C (350°F)	10 minutes
204°C (400°F)	30 seconds
232°C (450°F)	20 seconds

Time does not include that required to reach the cure temperature. The user must determine the time required for the coated substrate to reach listed temperatures.

Preheat Temperature Range

Prior to applying resin 263, the part must be preheated to a temperature ranging from 150°C (302°F) to 263°C (500°F). The optimum preheat temperature depends upon the size, heat capacity and configuration of the object to be coated, as well as the method of application. The ideal coating temperature will vary for each application and is best determined by experimentation.

Handling and Safety Precautions

Read all health hazard, precautionary and first aid statements found in the 3M Material Safety Data Sheet, and/or product label prior to handling or use.

Storage

Laboratory evaluation indicates that the usable shelf life of this product is twenty four (24) months from the date of manufacture when stored at temperatures not exceeding 27°C (80°F) providing the material is stored in its original container. Care should be taken when removing resin from the original shipping container to prevent inclusion of foreign material. After resin removal, the bag should be retied immediately. This will help to avoid agglomeration caused by excess moisture. For best results, store in a cool, dry place.

UL Recognition

Scotchcast Electrical Resin 263 has UL 1446 system approval as major insulation for use in motor, transformer, and coil constructions. The product is listed under File Number E163090, System Designation 3M120-1, 3M130-1, 3M155-1,and 3M180-1. These systems are rated class E, B, F and H respectively. Resin 263 is also recognized in UL file # E35075, Guide QMFZ2. Users interested in applying these insulation systems to their design are invited to contact 3M for an approval letter to obtain access to the UL file for further information. Underwriters Laboratories (UL) recognized products have been evaluated for use as components of end product equipment that is listed or classified by UL. To achieve Underwriters Laboratories recognition, component construction must meet UL specifications and conditions of acceptability for proper and safe use of the component or product.

Ordering Information/Customer Service

For ordering technical or product information, or a copy of the Material Safety Data Sheet, call:
Phone: 800/722-6721
Fax: 877/601-1305

Important Notice

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