3M

Scotchcast™

Electrical Resin 260

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)
- Also available as Scotchcast 260CG, a coarse ground version for improved electrostatic spray applications
- Also available as a faster curing version designated Scotchcast 260 8 G

3M™ Scotchcast™ Electrical Resin 260 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.

Resin 260 is manufactured by a fusion blend process, insuring that each individual particle of powder contains all the components necessary to effect a complete cure and attain stated performance properties.

Resin 260 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 resin 260 include moisture-proofing and insulating armatures, stators, buss bars and toroid cores.

Scotchcast™ Electrical Resin 260 – Typical Properties

Property	Value
Color	Green
Specific Gravity[1] (cured)	1.43
Dielectric Strength[3] 12 to 15 mil (305µ-381µ) coating	1000 v/mil
Thermal Shock[2] - 10 cycles - 75° C (167° F) to 155° C (311° F) 12-15 mil (305µ-381µ) coating 1/8" sandblasted steel panel	Passes
Impact Resistance[2] 12-15 mil coating 1/8" sandblasted steel panel Gardner 5/8 inch Radius Impact Tester	100 inch-lbs
Cut-Through Resistance[2] - 1 lb. wt.; 18 AWG wire	215° C (410° F)
Abrasion Resistance[4]	.08 grams loss
Edge Coverage[2] - 12 to 15 mil (305µ-381µ) coating on flat	35 - 45%
Gel Time[2] @ 193° C (380° F) hot plate	12-16 seconds (260, 260 CG) 6-10 seconds (260 8 G)

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

Test Methods
[1] ASTM D-792
[2] 3M Test Method
[3] ASTM D-149
[4] ASTM 4060

Usage Information

Method of Application

The rapid cure of 3M™ Scotchcast™ Electrical Resin 260 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 resin 260 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 45 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.

	Time	
Cure Temperature	**260, 260CG**	**260 8G**
149°C (300°F)	30 minutes	20 minutes
177°C (350°F)	10 minutes	7 minutes
204°C (400°F)	45 seconds	35 seconds
232°C (450°F)	20 seconds	15 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 260, the part must be preheated to a temperature ranging from 150°C (302°F) to 260°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.

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), provided the material is stored in its original container. For 260 8G, the usable shelf life is twelve (12) months under the same conditions. 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 260 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 260 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.

Handling and Safety Precautions

Read all Health Hazard, Precautionary, and First Aid statements found in the Material Safety Data Sheet, and/or product label prior to handling or use.

Ordering Information/Customer Service

For ordering information, technical information, product information or to request a copy of the Material Safety Data Sheet:
Phone: 800/722-6721 or 512/984-1038
Fax: 877/601-1305 or 512/984-6296

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