3M™ Scotchcast™ Electrical Resin **5230N**

One Part, Epoxy Powder Resin

- Specially formulated for use in electrostatic fluid bed process
- Excellent electrical properties
- Excellent heat, chemical and moisture resistance
- Superior cut-through resistance
- UL 1446 electrical insulation systems approval at Class-155(F)

3M™ Scotchcast™ Electrical Resin 5230N is a widely used, general purpose epoxy powder resin. A one-part, blue pigmented, rapid heat-curing product, it is designed to provide a continuous, tough moisture and chemical resistant dielectric coating to a variety of substrates.

Scotchcast™ 5230N 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.

Scotchcast™ 5230N is applied to a cold object via the electrostatic fluid bed process. The negatively charged resin particles are attracted to the grounded object to be coated. Coating thicknesses up to 25 mils may be obtained. Because of its superior charging capabilities Scotchcast™ 5230N exhibits excellent slot penetration on motor stators and armatures. Uses for Scotchcast™ 5230N include moisture-proofing and insulating armatures, stators, buss bars and toroid cores.

Scotchcast™ Electrical Resin 5230N-Typical Properties

Property	Value
Color	Blue
Specific Gravity[1] (cured)	1.60
Dielectrical Strength[3] 12 - 15 mil /30 µm to 375 µm coating	1000 v/mil (39 v/micron)
Thermal Shock[2] 10 cycles - 75°C to 155°C 12 - 15 mil /30 µm to 375 µm coating 1/8" sandblasted steel	Passes
Impact Resistance[2] 12 - 15 mil (305-375 µm) coating 1/8" blasted steel panel Gardner 5/8" Radius Impact Tester	160 inch-lbs /18.2J
Cut-through Resistance[2] - 1 lb wt: 1/8 AWG wire	320°C (608°F)
Abrasion Resistance[5]	.11 grams
Edge Coverage[2] 12 - 15 mil /305 µm to 375 µm coating on flat	>35%
Gel Time[2] @ 193°C hot plate	9-16 seconds
Thermal Conductivity[4]	0.30 w/mk

*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 E-1530
[5] ASTM D-4060

Usage Information

Method of Application

Before resin is applied, the object to be coated should be clean, dry and free of oils. Scotchcast™ Electrical Resin 5230N is first placed in an electrostatic fluid bed and charged (40 to 90KV), causing the epoxy resin particles to repel each other and move upward. This results in a cloud of charged particles above the surface of the bed. A grounded object is coated when passed through or placed in this cloud. Scotchcast™ 5230N can be deposited in film thicknesses up to 25 mils (635 microns) on objects at room temperature. Because it is applied to a room temperature substrate, the powder can be selectively removed. Air used for fluidizing should be dried to -20°F (-29°C) dew point.

Curing

The cure of Scotchcast™ 5230N is accomplished by heating the coated part to a temperature above the melting point of the resin. The resin then melts, flows to a controlled extent, and coalesces into a smooth, continuous, thin, essentially uniform coating, which cures and bonds to the substrate. The coating maintains its uniformity on flat surfaces as well as in corners and on high points of the part. Either convection oven or induction heating may be used as a heat source for curing the resin.

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

Cure Temperature	Time
177°C (350°F)	15 minutes
204°C (400°F)	6 minutes
232°C (450°F)	3 minutes

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.

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.

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 16°C (60°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™ 5230N has been evaluated by UL and is included in UL file #35075. It is recognized as class B component insulation. 5230N is also listed as integral ground insulation in a new 3M class F insulation system designated 3M155-2 under UL file #163090.

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

Warranty; Limited Remedy; Limited Liability.

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