Scotchcast™

Electrical Insulating Resin 4 GS in Bags

1. Product Description

3M™ Scotchcast™ Resin 4 GS is a two-component epoxy resin for room temperature curing. The resin has been designed for electrical insulation and mechanical protection of electrical cables joints. The product comes as 2-component resin bags or as a highly practical resin kit. There are various sizes and form factors available for different cable jointing applications.

3M™ Scotchcast™ 4 GS is classified as L-I-W, L-OP-W and M-OP-W according IEC 60455-3-8. Once hardening is complete, the resin provides impact resistance and durability against moisture and atmospheric corrosion. The resin is SVHC-free, free of CMR-substances, does not contain isocyanates and is REACH and RoHS compliant.

When combining Part A and Part B, sufficient mixing is indicated by the resin turning to a homogenous green colour, changing to darker green when fully cured. Note that colour gradation can change depending on storage conditions and application temperature.

Features of Scotchcast Resin 4 GS:

- CMR-, Isocyanate-, Halogen-, SVHC-free resin.
- Colour mixing indicator.
- Strong adhesion of resin to metals and different plastics.
- Enhanced water and humidity resistance during resin curing.
- Greater resistance of resin to humidity whilst in storage.
- Operating Temperature: -40 °C to +110 °C Continuous use, 130 °C Overload.
- Resin pouch designed with fully integrated delivery spout and separate opener for the Closed Mixing and Pouring System.

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2. Applications

Electrical insulation of low voltage electrical joints up to 0.6/1.0(1.2) kV and mechanical protection of electrical joints up to 20,8/36(42) kV installed for indoor and outdoor, underground and submerged applications.

3. Typical Properties

Note: This data is not to be used for specifications. Values listed are typical and should not be considered minimum or maximum.

Physical Properties	Typical Value	Specification
Part A Density Viscosity 23 °C Colour	 1.17 g/cm³ 4500 mPas Blue	 ISO 3675 EN ISO 2555
Part B Density Viscosity 23 °C Colour	 1.50 g/cm³ 8000 mPas Yellow-brown	 ISO 3675 EN ISO 2555
Part A&B (mixed) Density Viscosity 5 °C Viscosity 23 °C Exothermic peak temp. 23 °C	 1.34 g/cm³ 14000 mPas 3800 mPas 130 °C	 ISO 3675 EN ISO 2555 EN ISO 2555 IEC 60455-2
Part A&B (cured*)		
Mechanical Properties		
Hardness Shore D	82	EN ISO 868
Tensile Strength	34 MPa	EN ISO 527
Elongation at Break	1 %	EN ISO 527
Impact Strength (without notch)	≥6 kJ/m²	EN ISO 179
Electrical Properties		
Volume resistivity at 23 °C Volume resistivity at 80 °C	1.3E+15 Ωcm 2.1E+11 Ωcm	IEC 60250
Dielectric Strength at 23 °C	33 kV/mm	EN 60243-1
Dissipation factor at 23 °C Dissipation factor at 80 °C	0.02 0.17	IEC 60250
Dielectric constant at 23 °C Dielectric constant at 80 °C	5 10	IEC 60250
Properties after dry ageing Mass loss Impact strength without notch	 ≤1 % ≥4 kJ/m²	 IEC 60455-2 EN ISO 179
Properties after wet ageing Elongation at Break (retention/original) Tensile Strength (retention/original)	 ≥65 % ≥65 %	 ISO 527 ISO 527
Dielectric Strength 23 °C Hardness (retention/original)	22 kV/mm ≥95 %	EN 60243-1 ISO 868
*curing and aging cycles according to IEC 60455-3-8		

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4. User Information

4.1 Available Sizes

Size A90: Scotchcast 4 GS 90 ml / 121 g
Size B200: Scotchcast 4 GS 200 ml / 268 g
Size C370: Scotchcast 4 GS 370 ml / 496 g

4.2 Process Figures

Mixing Ratio (by weight)	A : B	100 : 144
Pot Life	At 5 °C	52 min
	At 23 °C	25 min
	At 40 °C	11 min

4.3 Usage Information

Keep resin bags at 10° C or warmer before mixing. In cooler ambient conditions keep resin bags in warmer area until ready to mix.

The resin is delivered in a two chamber pouch with integrated spout and aluminium Guard Bag for protection against humidity. This type of packaging will assure the correct mixing ratio for applying the resin. The re-openable seam and integrated spout with a membrane provides a Closed Mixing and Pouring system.

After opening the seam of the two chamber pouch, the two resin components can be mixed. Sufficient mixing is indicated by the resin turning to a homogenous green colour (changing to darker green when fully cured). Note that colour gradation can change depending on storage conditions and application temperature.

To pour the resin, connect the spout with the separate opener in order to open the membrane.

All necessary information for handling, service and safety are printed on the Guard bag.

4.4 Shelf Life and Storage

3M™ Scotchcast™ Resin 4GS Resin has a 36 month shelf life from date of production when stored between 5°C and 40°C and < 75% relative humidity in the originally sealed Guard Bag. The expiring date is stated on the Guard Bag and on the carton label. Storage at elevated temperatures can result in bleaching of the blue colorant and deviations of the mixed color gradation from the color code printed on the packaging. This has no influence on all other resin characteristics.
Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, it is the responsibility of the user to determine applicability of the resin.

4.5 Safety and Handling

3M provides its customers with a product specific Safety Data Sheet (SDS) to cover potential health effects, safe handling, storage, use and disposal information. 3M strongly encourages its customers to review the SDS on its products prior to their use.

4.6 Important Information

According to EU regulation for professional use only, not to be sold to consumers.

5. Additional Information

To request additional product information, see address below.

Important Notice

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes.

All questions of warranty and liability relating to 3M products are governed by the terms of the respective sale subject, where applicable, to the prevailing law.

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