



# Scotchcast™

## Electrical Insulating Resin 4 GS in Bags

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### 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 is available as a 2-component resin bags or as highly practical resin kit. There are various sizes and form factors 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 and does not contain isocyanates.

When combining Part A and Part B, mixing and curing are indicated by colour changes in the resin. A fully mixed resin is indicated by it turning a homogenous green colour, changing to dark turquoise blue when fully cured. Note that colour gradation can change depending on storage conditions and application temperature.

Features of Scotchcast Resin 4 GS and Scotchcast 4 GS Resin Kits include.

- CMR-, Isocyanate-, Halogen-, SVHC-free resin.
- Colour change indicator for mixing and curing of resin.
- Strong adhesion of resin to metals and different plastics.
- Enhanced water and humidity resistance during resin curing.
- Fast resin curing time.
- Long resin pot life.
- Greater resistance of resin to humidity whilst in storage.
- Operating Temperature: -40 °C to +110 °C Continuous use, 130 °C Overload.
- Resin bags designed with fully integrated delivery spout.
- Resin kits available with Closed Mix and Pour Delivery System.
- Innovative one part resin shell mould design.

## 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
<b>Part A</b>		
Density	1.17 g/cm <sup>3</sup>	ISO 3675
Viscosity 23°C	4500 mPas	EN ISO 2555
Color	Blue	
<b>Part B</b>		
Density	1.50 g/cm <sup>3</sup>	ISO 3675
Viscosity 23°C	7000 mPas	EN ISO 2555
Color	Yellow-brown	
<b>Part A&amp;B (mixed)</b>		
Density	1.34 g/cm <sup>3</sup>	ISO 3675
Viscosity 5°C	14000 mPas	EN ISO 2555
Viscosity 23°C	3800 mPas	EN ISO 2555
Exothermic peak temp. 23°C	130 °C	IEC 60455-2
<b>Part A&amp;B (cured*)</b>		
<b>Mechanical Properties</b>	<b>Typical Value</b>	<b>Specification</b>
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/m <sup>2</sup>	EN ISO 179
<b>Electrical Properties</b>	<b>Typical Value</b>	<b>Specification</b>
Volume resistivity		IEC 60250
at 23°C	1.3E+15 Ωcm	
at 80°C	2.1E+11 Ωcm	
Dielectric Strength		EN 60243-1
at 23°C	33 kV/mm	
Dissipation factor		IEC 60250
at 23°C	0.02	
at 80°C	0.17	
Dielectric constant		IEC 60250
at 23°C	5	
at 80°C	10	

Properties after dry ageing	Typical Value	Specification
Mass loss	≤1 %	IEC 60455-2
Impact strength without notch	≥4 kJ/m <sup>2</sup>	EN ISO 179
Properties after wet ageing	Typical Value	Specification
Elongation at Break (retention/original)	≥65 %	ISO 527
Tensile Strength (retention/original)	≥65 %	ISO 527
Dielectric Strength 23°C	22 kV/mm	EN 60243-1
Hardness (retention/original)	≥95 %	ISO 868

\*curing and aging cycles according to IEC 60455-3-8

## 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 (pbw)	A : B	100 : 142
Pot Life	At 5 °C	52 min
	At 23 °C	25 min
	At 40 °C	11 min

### 4.2 Usage Information

The resin is delivered in two chamber pouches with integrated spout, peelable adhesive barrier packed in an aluminium bag for moisture protection.

To take out the 2-component resin pouches, the guard bag shall be opened by tearing.

The resin is filled into the two-chamber plastic pouches in the correct stoichiometric proportion. This type of packaging will assure the correct mixing ratio for applying the resin.

The packaging of the 3M™ Scotchcast™ 4 GS resin kits includes a Closed Mix and Pour Delivery System. To pierce the membrane of the spout, a separate opener is added. When turning the device onto the spout, the membrane will be opened for pouring the resin.

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

Keep resin bags at 5 °C or warmer before mixing. In cooler ambient conditions keep resin bags in warmer area until ready to mix.

After curing, the remaining resin in the bag can be disposed as house waste.

### 4.3 Storage

3M™ Scotchcast™ Resin 4 GS has a shelf life of at least 36 months after manufacturing when stored between 10 °C and 40 °C with a humidity level <75 % in the originally sealed aluminium bag. Storage at elevated temperatures can result in bleaching of the colorant and deviations of the mixed or cured color gradation from the color code printed on the packaging. This has no influence on all other resin characteristics.

The expiration date of each product appears on the product label.

### 4.4 Safety and Handling

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

## 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.

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