ELEC

Insulation Innovation

Polymer Composite Solutions for Electrical Insulation

Keynote Speaker: Cameron Yang (Cam)
Technical Forum Presentation · 20 minutes

En-Liang Enterprise

Who We Are

Since **1983**, En-Liang Enterprise Co., Ltd. has specialized in composite electrical insulation materials and insulated components for power, rail, semiconductor, and industrial applications.

Based in Taiwan and serving global markets, we provide reliable insulation solutions through engineering expertise, advanced manufacturing, and strict quality control.

2 Factories (ISO Certified)

TAF Certified Laboratory

Our role; our goal

Transform customer application requirements into reliable molded composite components.

ELEC
Insulation Innovation

Our Main Focus (Materials)

BMC – What is BMC?

BMC - Bulk Molding Compound

BMC, or Bulk Molding Compound, is a thermoset composite material made from resin, glass fiber reinforcement, mineral fillers, and functional additives. After heat and pressure molding, it forms a rigid, dimensionally stable material with excellent electrical insulation, mechanical strength, heat resistance, and flame-retardant properties.

EPOXY – What is EPOXY?

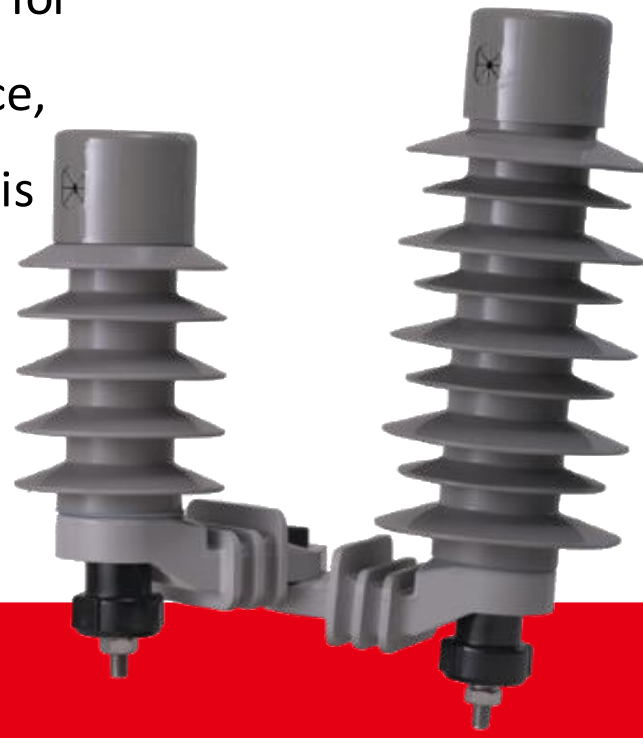
EPOXY

Epoxy is a thermoset resin system known for its excellent adhesion, electrical insulation, mechanical strength, and chemical resistance. It is commonly used for casting, potting, encapsulation, bonding, and protecting electrical components such as coils, cores, sensors, and terminals.

SILICONE – What is SILICONE?

SILICONE

Silicone is a flexible elastomer material known for its excellent heat resistance, weather resistance, chemical stability, and sealing performance. It is commonly used for gaskets, O-rings, seals, protective sleeves, and vibration-absorbing components in industrial and electrical applications.



Different Materials

Mechanical Strength

Conductive

Different Materials

Insulation

Brittle

Different Materials

Cost Effective

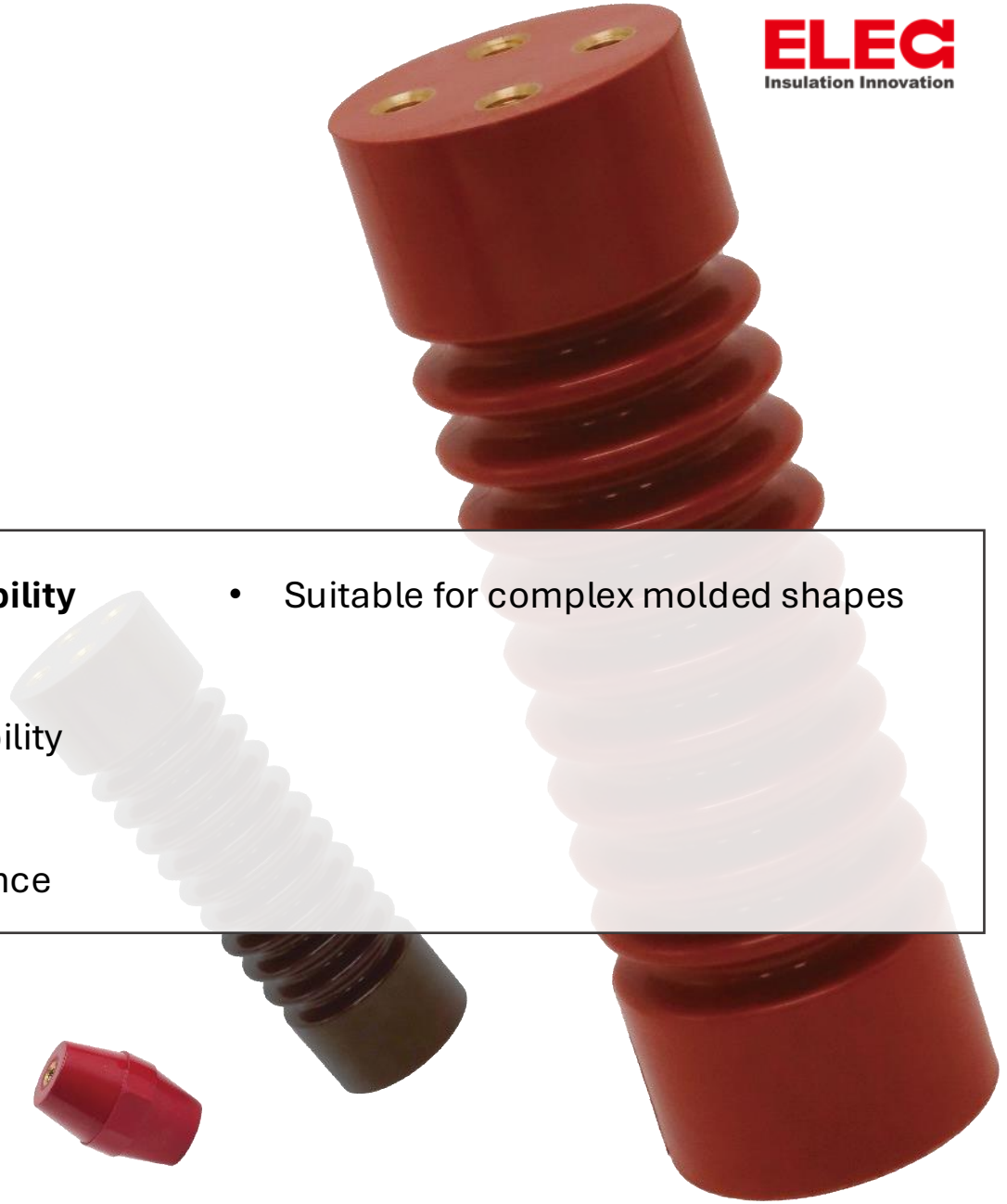
Heat-Sensitive

Design Flexibility

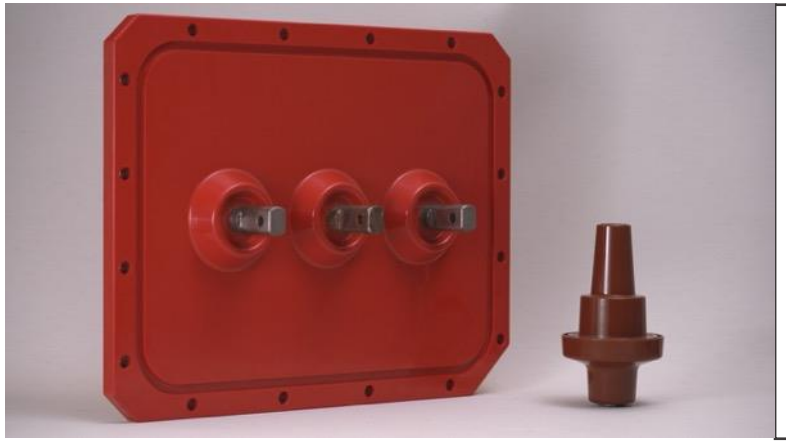
Why BMC?

Structural Strength & Moldability

- High mechanical strength
- Excellent dimensional stability
- Good electrical insulation
- Flame-retardant performance
- Suitable for complex molded shapes

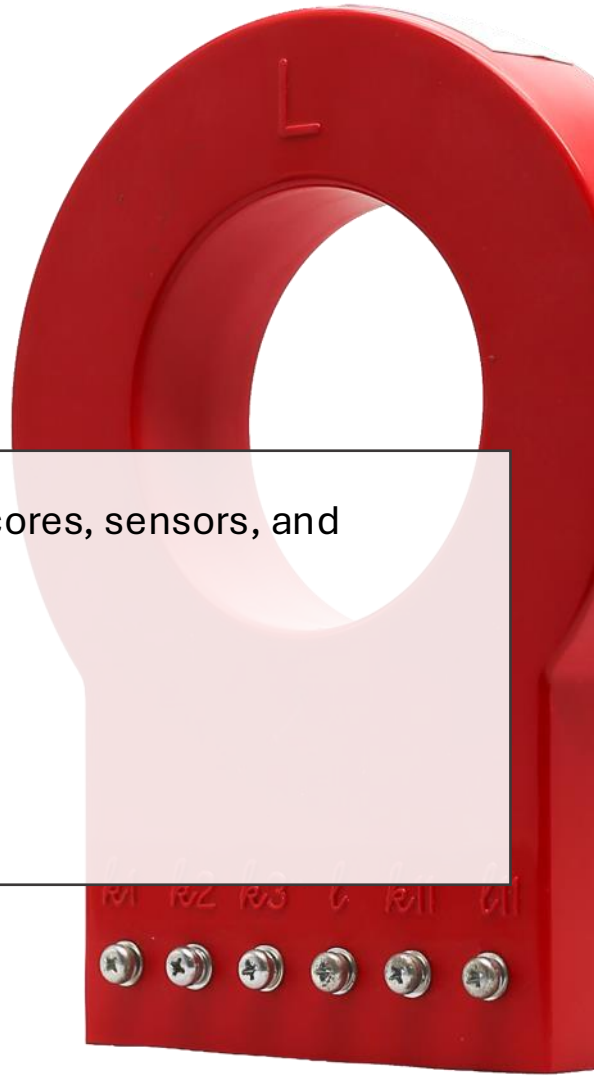


Why EPOXY?



Encapsulation & Electrical Protection

- Excellent dielectric properties
- Strong adhesion and bonding
- Good chemical resistance
- Ideal for casting and potting
- Protects coils, cores, sensors, and terminals



Why Silicone?

Flexibility & Sealing Performance

- Flexible and elastic
- Excellent heat and weather resistance
- Good UV resistance
- Strong sealing performance
- Vibration absorption and waterproof protection

ELEC: Applications - BMC

Insulator Supports

Busbar Supports

Power Distribution Components & Structural Parts

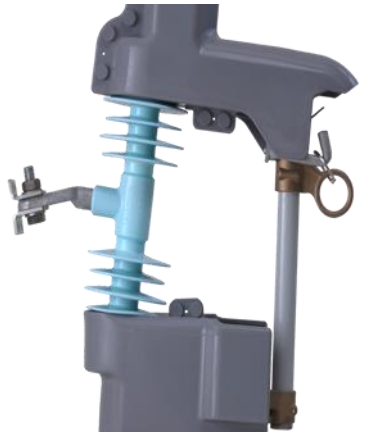
ELEC: Applications - EPOXY

Current Transformer

Insulator Supports

Power Distribution Components & Structural Parts

ELEC: Applications - SILICONE



Insulating Cover

Insulator Supports

Surge Arrester

ELEC: Special Application (BMC)

Railroad system

- UV-resistant
- High mechanical strength
- Flame-retardant certified according to EN 45545

With over 20 years of experience in the railway industry, we supply conductor rail components and insulated parts for rolling stock to customers worldwide.

ELEC: Special Application (EPOXY)

Insulation Bushing for Ion Implanters

- Radiation Shielding: 13.61% Better than Lead Sheet
- Dielectric Strength: 16.13 kV/mm

Developed in collaboration with Taiwan's ITRI and applied to insulating components for ion implantation equipment supplied domestically and internationally.

Key Takeaways

BMC and epoxy provide balanced electrical, mechanical and thermal performance.

Part performance depends on material, design, tooling, process and validation.

Early technical communication reduces risk and improves manufacturability.

Composite insulation will become more important as electrical systems become compact and demanding.

Thank you.
Questions are welcome.