

Materials Services  
Engineered Plastics

# Electrical Insulation for the Transit Industry

Engineered Plastics Solutions



thyssenkrupp



## GlasGuard™ Grade 1130

GlasGuard™ Grade 1130 is a fiberglass-reinforced thermoset polyester composite. It was initially developed to meet the challenging requirements of the New York City Transit Authority. 1130 pultruded channel shaped covers are used for the electrified third rails. Flat panels are used for signs and switchgear components. Grade 1130 is approved for NYCTA Specifications 62, 64 and 65. 1130 exhibits a unique combination of properties which make it ideal for a variety of applications including outstanding resistance to color fading caused by UV light and resistance to surface erosion caused by weathering. It performs well in corrosive environments, such as acids, bases and aliphatic hydrocarbons.



GlasGuard™ has a flame resistance rating of V-O when tested to UL® Section 94. It also meets the National Electrical Manufacturers Association (NEMA) criteria for grade GPO-3. Low smoke and low smoke toxicity make this material ideal for use in the transit industry, where smoke generation and smoke toxicity are of primary concern. First designed for use in switchgears, connectors and control panels in enclosed areas, 1130 is now widely used in structural applications. Grade 1130 meets or exceeds the stringent (polyester), as well as MIL-P-15037E (melamine) specification.

### GlasGuard™ Grade 1130 Features

- Dielectric Properties:  
This system is formulated from a special methyl methacrylate modified neopentyl glycol-isophthalic acid unsaturated polyester resin.
- Flame Resistance (UL 94 V-O Rating)
- NEMA Grade GPO-3
- Corrosion Resistance
- Weatherability
- UV Resistant

### Custom Sheet Sizes and Pultruded Shapes

Other thicknesses of sheet and custom pultrusions are available upon request. A constant cross-sections can be pultruded in a wide variety of sizes and shapes. Solid parts, hollow parts, and complex geometries are all possible. Length is only restricted by the practicalities of material handling and transportation. Roechling Glastic pultruded rods as small as 0.020 inches in diameter with a length of over 50 kilometers. Our equipment will accommodate parts up to 48 inches in width.

### Sheet Sizes

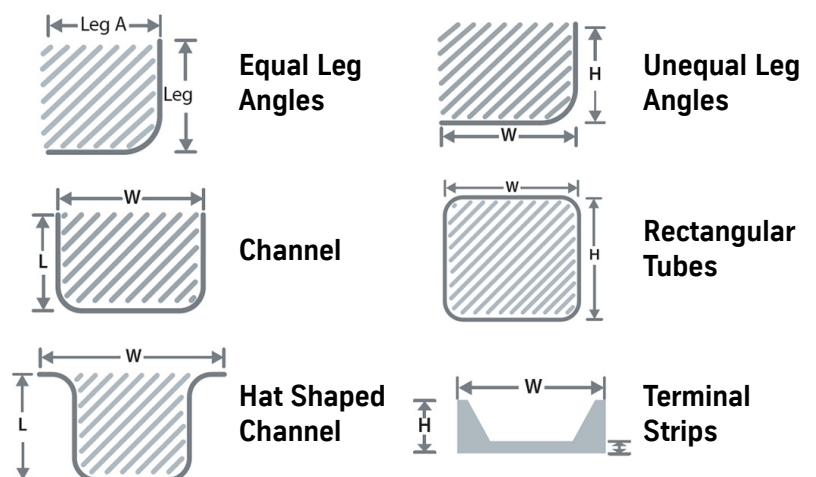
| Thickness Range | Width | Length |
|-----------------|-------|--------|
| 0.032 - 2.00    | 36    | 72     |
| 0.032 - 2.00    | 49    | 96     |
| 0.032 - 0.50    | 48    | 60     |

### More Materials for the Transit Industry

As a full line distributor we offer numerous materials for the transit industry. Ask about these products and more...

- GPO-3 Grade Sheet, Angle, Channel
- G10, FR4, G11, G9, G7, G3
- Phenolic Grades XX, XXX, L, LE, C, CE
- Standoff Insulators
- Electrical Grade Polycarbonate
- Industrial Plastics: PVC, Nylon, PTFE, Acrylic, ABS, HDPE, PEI, PET, PETG
- Copper Busbar

### Common Pultruded Shapes



Glastic materials are made in the USA by Roechling Glastic Composites

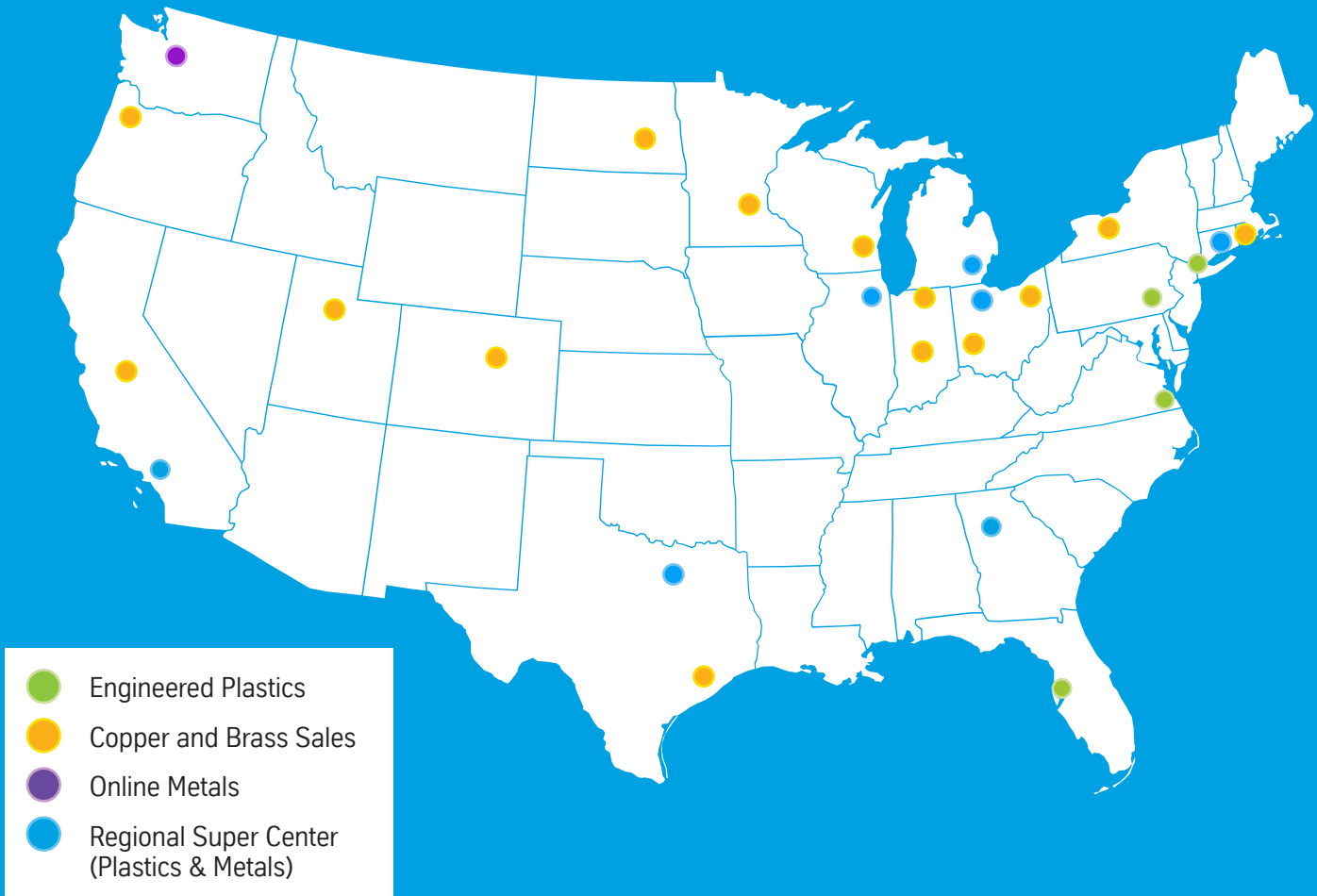
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# GlasGuard™ Grade 1130 Technical Data

| Description                                    |                   | Unit                  | ASTM / UL Number | Typical Values |
|------------------------------------------------|-------------------|-----------------------|------------------|----------------|
| Color                                          |                   |                       |                  | Grey           |
| <b>Smoke and Toxicity Data</b>                 |                   |                       |                  |                |
| Smoke Developed                                |                   |                       | E84/UL723        | 115            |
| Composition of Atmosphere                      |                   |                       | MIL-M-14G        |                |
| Hydrogen Chloride                              |                   | Parts per million     |                  | 0              |
| Hydrogen Bromide                               |                   | Parts per million     |                  | 0              |
| Hydrogen Cyanide                               |                   | Parts per million     |                  | <1             |
| Hydrogen Sulfide                               |                   | Parts per million     |                  | 0              |
| Vinyl Chloride                                 |                   | Parts per million     |                  | <.03           |
| Ammonia                                        |                   | Parts per million     |                  | 0              |
| Aldhydes                                       |                   | Parts per million     |                  | 18             |
| Oxides of Nitrogen                             |                   | Parts per million     |                  | 19             |
| Carbon Dioxide                                 |                   | Parts per million     |                  | 6,800          |
| Carbon Monoxide                                |                   | Parts per million     |                  | 105            |
| <b>Mechanical Properties</b>                   |                   |                       |                  |                |
| Tensile Strength                               | Lengthwise        | Psi                   | D638             | 14,600         |
| Tensile Strength                               | Crosswise         | Psi                   | D638             | 16,000         |
| Tensile Modulus                                | Lengthwise        | Psi x 10 <sup>6</sup> | D638             | 1.49           |
| Tensile Modulus                                | Crosswise         | Psi x 10 <sup>6</sup> | D638             | 1.49           |
| Flexural Strength                              | Lengthwise        | Psi                   | D790             | 20,400         |
| Flexural Strength                              | Crosswise         | Psi                   | D790             | 23,300         |
| Flexural Modulus                               | Lengthwise        | Psi                   | D790             | 1.41           |
| Flexural Modulus                               | Crosswise         | Psi                   | D790             | 1.39           |
| Flexural Strength                              | @ 130° C / 266° F | Psi                   | D695             | 11.3           |
| Compressive Strength                           |                   | Psi                   | D695             | 40,000         |
| IZOD Impact Strength                           | Notched           | Ft. Lb/In.            | D256             | 11.3           |
| Bonding Strength                               |                   | Lbs.                  | NEMA L1-1998     | 6,100          |
| Water Absorption                               |                   | % by wt.              | D570             | 0.1            |
| <b>Flame Resistance Properties</b>             |                   |                       |                  |                |
| UL Subject 94                                  |                   |                       | UL94             | VO             |
| UL Standard 723 Flame Spread                   |                   |                       | E84              | 20             |
| UL Standard 723 Fuel Contributed               |                   |                       | E84              | 0              |
| Radiant Panel                                  |                   |                       | E162             | 12             |
| <b>Electrical Resistance Properties</b>        |                   |                       |                  |                |
| Electrical Strength - Perpendicular S/T in air |                   | Vpm                   | D149             | 316            |
| Electrical Strength - Parallel                 |                   | Vpm                   | D149             |                |
| Condition A                                    |                   |                       |                  | 75             |
| Condition D (48/50)                            |                   |                       |                  | 79             |
| Arc Resistance                                 |                   | Seconds               | D495             | 192            |
| Inclined Plane Track Resistance                |                   | Minutes               | D2303            | 870            |

# Call Us: 877.246.7700

thyssenkrupp Engineered Plastics has multiple strategically placed branch locations throughout the country that feature full inventory and processing capabilities.



## The thyssenkrupp Engineered Plastics Advantage

The Roechling cGrade 1130 is the benchmark for transit grade materials and was developed specifically for the demanding NYCTA requirements. Let us help you grow your business and improve your supply chain.

thyssenkrupp Engineered Plastics has readily available stock to meet the needs of the Transit Industry.

- No Minimums
- Helpful Service
- Cut-to-Size Capabilities

## Röchling

Roechling Glastic Composites is the manufacturer of GlasGuard™ Grade 1130 and other Glastic materials for the power distribution and other industries.



Visit [OfflinePlastics.com](https://www.OfflinePlastics.com) for more information.

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Auburn Hills, MI  
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