

HIGH-TEMPERATURE ELECTRICAL INSULATION SOLUTIONS FROM ITEN INDUSTRIES

Resiten® G7 Silicone-Glass Laminates – Frequently Asked Questions

Resiten® G7 laminates are high-performance, glass-reinforced silicone composite materials engineered for demanding electrical and electronic insulation applications. Designed to maintain dielectric integrity in sustained high-temperature environments, G7 is specified where long-term thermal stability and electrical reliability are critical.

With more than 100 years of engineering and manufacturing expertise, **Iten Industries** produces G7 laminates in the United States using a fully vertically integrated process. From raw material control to finished sheets and fabricated components, our domestic production ensures consistent quality, dependable availability, and responsive service.

What Are G7 Laminates?

Resiten® G7 laminates are constructed from woven glass fabric saturated with silicone resin and cured under heat and pressure. The result is a rigid, durable laminate designed specifically for electrical insulation applications exposed to elevated operating temperatures.

Unlike epoxy-based grades, G7 utilizes a silicone resin system, enabling superior long-term thermal endurance while maintaining strong dielectric performance.

Key Characteristics

- ✔ Silicone-glass composite construction
- ✔ High dielectric strength
- ✔ Stable permittivity
- ✔ Low dissipation factor
- ✔ Excellent dimensional stability
- ✔ Designed for dry electrical applications

What Are the Key Performance Benefits of G7 Laminates?

G7 laminates are engineered for consistent electrical performance in sustained high-temperature environments.

✔ High Dielectric Strength

Provides reliable electrical insulation in demanding electrical and electronic systems.

✔ Thermal Endurance

Withstands temperatures exceeding **465°F** — the highest temperature resistance of any NEMA-grade laminate.

✔ Long-Term Property Retention

Maintains electrical and mechanical properties even after prolonged heat exposure.

✔ Dimensional Stability

Glass reinforcement ensures rigidity and structural stability over time.

✔ Electrical Reliability

Stable permittivity and low dissipation factor support consistent electrical performance.

What Specifications and Standards Does G7 Meet?

Iten Industries' Resiten® G7 laminates comply with recognized industry and military standards:

- ✔ **NEMA G7**
- ✔ **MIL-I-24768/17 (GSG)**

These specifications make G7 suitable for industrial, electrical, and military insulation applications where thermal endurance and dielectric integrity are required.

How Does G7 Perform in High-Temperature Environments?

G7 laminates are specifically designed for sustained high-heat operation. The silicone resin system allows the material to retain its electrical insulation properties and structural integrity even after extended exposure to elevated temperatures. G7 is ideal for applications where:

- ✔ Continuous high operating temperatures are present
- ✔ Electrical insulation must remain stable over time
- ✔ Material degradation could lead to downtime or system failure

When long-term thermal performance is the primary concern, G7 provides dependable results.

What Are Common Applications for G7 Laminates?

G7 laminates are commonly used in dry electrical applications that require reliable insulation under heat. Typical applications include:

- ✓ Electrical and electronic insulation components
- ✓ Insulators
- ✓ High-temperature electrical equipment
- ✓ Terminal boards
- ✓ Structural insulation parts
- ✓ Industrial electrical assemblies

If flame resistance is not the primary requirement, and sustained heat resistance is critical, G7 is often the preferred grade.

What Are Typical Lead Times and Order Quantities?

Because G7 laminates are manufactured domestically in Ashtabula, Ohio, Iten Industries offers:

- ✓ Reliable U.S.-based production
- ✓ Predictable lead times
- ✓ Flexible order quantities
- ✓ Reduced supply chain risk
- ✓ No tariff exposure or offshore delays

Common sheet sizes may be available from inventory. Custom runs and fabricated components are supported with efficient turnaround times.

What Sizes, Thicknesses, and Formats Are Available?

Iten Industries supplies G7 laminates in standard sheet formats:

- ✓ 36" x 48"
- ✓ 48" x 48"

Custom thicknesses are available to meet specific application requirements. In addition to sheet stock, G7 is available as:

- ✓ CNC machined components
- ✓ Precision punched parts
- ✓ Custom fabricated insulation components

Our vertical integration allows us to supply material from sheet form through finished, ready-to-install parts.

Can G7 Laminates Be Machined or Fabricated?

Yes. G7 laminates machine well using proper tooling and fabrication techniques. Iten Industries provides full in-house value-added services, including:

- ✓ CNC machining
- ✓ Drilling and milling
- ✓ Precision punching
- ✓ Custom component fabrication
- ✓ Tooling design and development

Our integrated toolroom and fabrication capabilities ensure tight tolerances, repeatability, and consistent production from prototype through full-scale manufacturing.

Why Choose Iten Industries for G7 Laminates?

With more than a century of engineering and manufacturing expertise, Iten Industries delivers:

- ✓ Fully domestic production in Ashtabula, Ohio
- ✓ Custom engineering and fabrication support
- ✓ Complete vertical integration—from resin to sheet to finished part
- ✓ Consistent quality and responsive customer service

Our team partners with you to ensure the right material, the right format, and the right performance for your application.

How to Get Started

Need a G7 laminate that performs under heat and holds up over time? The Iten Industries team is ready to help you select the right solution, provide technical guidance, and deliver high-quality materials built to perform.

Request a quote or speak with an Iten engineer today.

Built to perform. Made in the USA.