Saved from manuals.plus.
Open the live page for links to other documents and user manuals.

USASEALING BULK-CS-GFR4-41

USA Sealing G-10/FR-4 Garolite Sheet User Manual

Model: BULK-CS-GFR4-41 | Brand: USASEALING

1. Introduction

This manual provides essential information regarding the USA Sealing G-10/FR-4 Garolite Sheet. G-10/FR-4 is a high-pressure thermoset plastic laminate material composed of a woven fiberglass cloth with an epoxy resin binder. It is known for its high strength, low moisture absorption, excellent electrical insulating properties, and chemical resistance. This product is designed for various industrial and scientific applications requiring a durable and stable material.

2. Product Overview

The G-10/FR-4 Garolite Sheet offers a robust solution for applications demanding high performance. Key characteristics include:

- **Material:** Garolite G-10/FR4; Grade: Standard; Backing Type: Plain; Shape: Sheet
- **Dimensions:** 1/16" Thick x 12" Wide x 12" Long
- **Color:** Yellow; Clarity: Opaque
- **Strength:** High Tensile Strength (38,000 psi) and Excellent Impact Strength (14.0 ft.-lbs./in.)
- **Resistance:** Moisture resistant, electrically insulating, and flame resistant (UL 94 V0)
- **Hardness:** Rockwell M110
- **Density:** 0.072 lbs / cu. in.
- **Temperature Range:** Up to 280° F



A rectangular sheet of yellow G-10/FR-4 Garolite, showing its smooth surface and uniform thickness.

3. Specifications

Specification	Value
Material	Garolite G-10/FR4
Thickness	1/16"
Thickness Tolerance	(-0.004" - +0.005")
Width	12"
Width Tolerance	(-0.25" - +0.25")
Length	12"
Length Tolerance	(-0.25" - +0.25")

Specification	Value
Color	Yellow
Clarity	Opaque
Tensile Strength	38,000 psi
Impact Strength	14.0 ft.-lbs./in.
Coefficient of Friction	Not Rated
Water Absorption	0.0015
Hardness	Rockwell M110
Density	0.072 lbs / cu. in.
Temperature Range	280° F
Specifications Met	UL 94 V0
Product Dimensions	12 x 12 x 12 inches; 11.64 ounces
Item model number	BULK-CS-GFR4-41
Manufacturer	USA Sealing Inc.

4. Handling and Storage

Proper handling and storage are crucial to maintain the integrity and performance of the G-10/FR-4 Garolite Sheet.

- **Storage Environment:** Store sheets in a dry, cool, and stable environment, away from direct sunlight and extreme temperature fluctuations.
- **Protection:** Protect sheets from physical damage, such as bending, impacts, or abrasion, which can lead to surface scratches or structural weakening.
- **Stacking:** When stacking multiple sheets, ensure they are laid flat on a clean, level surface to prevent warping or deformation.
- **Cleaning:** Keep the surface clean from dust, dirt, and adhesive residues. Use appropriate cleaning agents that do not degrade the epoxy resin.

5. Applications

G-10/FR-4 Garolite is a versatile material used in a wide range of applications due to its excellent mechanical and electrical properties:

- **Electrical Insulation:** Used for standoffs, insulators, terminal boards, and other electrical components due to its high dielectric strength.
- **Structural Components:** Suitable for brackets, spacers, and other structural parts in various machinery and equipment.
- **Printed Circuit Boards (PCBs):** Commonly used as a substrate for high-performance PCBs.
- **Aerospace and Marine:** Employed in applications requiring high strength-to-weight ratio and resistance to harsh environments.
- **Knife Handles and Tooling:** Popular for custom knife handles and various tooling applications due to its

durability and machinability.

6. Safety Precautions

When working with G-10/FR-4 Garolite, observe the following safety precautions:

- **Dust Control:** Machining or cutting G-10/FR-4 can produce fine dust. Ensure adequate ventilation and use dust collection systems to minimize inhalation.
- **Personal Protective Equipment (PPE):** Wear appropriate PPE, including safety glasses or goggles to protect eyes from debris, and gloves to prevent skin irritation. A respirator is recommended when dust is present.
- **Tooling:** Use sharp, appropriate tools for cutting, drilling, or machining to prevent material splintering and ensure clean cuts.
- **Disposal:** Dispose of waste material according to local regulations.

7. Maintenance

The G-10/FR-4 Garolite Sheet requires minimal maintenance. To ensure its longevity and performance:

- **Cleaning:** For general cleaning, wipe the surface with a clean, damp cloth. For stubborn residues, a mild solvent compatible with epoxy resins may be used, followed by a clean water rinse. Avoid harsh abrasives or strong chemicals that could damage the material.
- **Inspection:** Periodically inspect the sheet for any signs of damage, such as cracks, delamination, or excessive wear, especially if used in high-stress applications.

8. Troubleshooting

While G-10/FR-4 is a durable material, some issues may arise during handling or use:

- **Surface Scratches/Imperfections:** Minor surface scratches can occur during shipping or handling. For aesthetic applications, light sanding with fine-grit sandpaper may reduce visibility, but this can alter the surface finish. For functional applications, minor scratches typically do not affect performance.
- **Adhesive Residue:** If the sheet arrives with adhesive residue from packaging, use a gentle adhesive remover or isopropyl alcohol on a soft cloth to carefully clean the area. Test on an inconspicuous spot first.
- **Warping:** Warping is rare for G-10/FR-4 under normal conditions. Ensure proper storage on a flat surface and avoid exposure to extreme, uneven temperatures.

9. Warranty and Support

For information regarding product warranty, returns, or technical support, please refer to the manufacturer's official website or contact USA Sealing Inc. directly. Keep your purchase receipt or order details handy for any inquiries.
USA Sealing Inc. Contact Information: Please visit www.usasealing.com for the most current contact details and support resources.

© 2024 USASEALING. All rights reserved.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

Open the live page

https://manuals.plus/asin/B07N949T68

More documents and user manuals: **https://manuals.plus/**