

## Fire retardant materials

### Materials to prevent the spread of fire

Our polyurea fire retardant materials are of key importance in the event of a fire, in preventing the spread of fire and in ensuring the stability of the structure, which loses its functional properties at high temperatures. The high fire classification of the offered coatings ensures that the surface covered with these materials is much more resistant to high temperatures.

#### GF-11-70 FR

**GF-11-70 FR** is a high-modulus thermoset spray-applied plural-component aromatic polyurea elastomer used as an abrasion, impact and moisture resistant coating for multiple substrates. This rapid curing, 1:1 volumetric ratio system is designed to be sprayed with high pressure plural component spray equipment. **GF-11-70 FR** forms a seamless, monolithic membrane that delivers water and chemical resistance along with superior stiffness and corrosion resistance. Its flame retardance ability makes it an ideal coating for numerous applications that require a Class I rating. Because of the large number of flammability ratings and the large array of surfaces that can be coated, it is highly recommended that testing, certification and approval be considered on the finished product. Note: Ultimate flame retardance is dependent upon coated substrate, thickness and density. Thickness of the lining will vary depending on the application, typically from a minimum of 20 mils up to unlimited thickness.

#### TYPICAL USES:

- "Hard Coat" for EPS, PU and other foams
- Pipe lining interior and exterior
- Brush guards
- Saltwater corrosion such as protection for oil well platforms
- Various structural applications
- Base coat for EIFS systems

#### FEATURES & BENEFITS:

- Class I fire rated, flame spread  $\leq 25$  and smoke density  $\leq 450$
- Robust application window with ability to spray at low temperatures  $-20^{\circ}\text{F}$  ( $-29^{\circ}\text{C}$ ) and high humidity
- Excellent physical properties
- Excellent chemical resistance and corrosion resistance
- Excellent waterproofing characteristics
- High impact resistance
- Fast-set: handle within 60 seconds
- Excellent leveling properties
- Sprays out with a smooth, glossy surface to reduce filling and sanding.
- Durability extends substrate life.
- Bonds to virtually all substrates of any dimension, including metals, woods, concrete, fiberglass and geotextiles
- Stable from  $-40^{\circ}$  to  $230^{\circ}\text{F}$  ( $-40^{\circ}$  to  $110^{\circ}\text{C}$ )
- High temperature stability to  $220^{\circ}\text{F}$  ( $95^{\circ}\text{C}$ ) with intermittent temperatures to  $300^{\circ}\text{F}$  ( $148^{\circ}\text{C}$ ).
- 100% solids, zero VOCs, no solvents

**DRY FILM THICKNESS:** Varies based on application, typically a minimum of 20 mil (0.5 mm) up to unlimited thickness

**SUBSTRATES:** Bonds to virtually all substrates of any dimension, including metals, wood, concrete and fiberglass

**COLOR OPTIONS:** Standard colors: industrial tan, light gray and black. Custom colors will be quoted upon request.

**HOW SUPPLIED:** Net weight per set is 910 pounds (412.7 kg). A set of GF-11-70 FR consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component.

**STORAGE:** GF-11-70 FR components should be stored in sealed containers at 70 – 100°F (20 – 38° C) in a dry area. Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected, carbon dioxide (CO<sub>2</sub>) created pressure can develop. Do not attempt to use contaminated material.

**SAFETY PRECAUTIONS: Health Considerations: Consult the GreenEco Safety Data Sheets (SDS)**

This chemical system requires the use of proper safety equipment and procedures. Please follow the Green Eco's product SDS and Safety Manual for detailed information and handling guidelines.

**For Your Protection:** The information and recommendations in this publication are, to the best of our knowledge, reliable.

Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Green Eco . Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products supplied by Green Eco will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors.

Because of numerous factors affecting results, **Green Eco makes no warranty of any kind, express or implied**, other than that the material conforms to its applicable current Standard Specifications. **Green Eco** hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of **Green Eco** for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.

## **GF-FR 21-50**

**GF-FR 21-50** is a two component, flame retardant, elastomeric, polyurea system. Its flame retardance makes it an ideal coating for numerous applications that require a flammability rating. Because of the large number of flammability ratings and the large array of surfaces that can be coated, it is highly recommended that testing, certification and approval be considered prior to any application of this coating. Note: Ultimate flame retardance is dependent upon coated substrate, thickness and density.

### **TYPICAL USES:**

- Excellent fire retardant protective lining for abrasion, impact and corrosion resistance
- Spray-on application creates a monolithic, seamless lining which conforms to any shape and size.
- Tough, durable lining for military applications such as:
  - Tactical vehicles and equipment requiring abrasion, corrosion and impact protection

- Foot traffic areas requiring non-slip surfaces
- Excellent blast mitigation properties for military barracks, vehicles, temporary structures and buildings.
  - High tensile and elongation properties contain and reduce schrapnel in vehicles and buildings
- Can withstand tracked vehicle traffic and heavy loads with proper thickness build
- Reduces noise from vibration and impact
- Spray-on application creates a monolithic, seamless lining which conforms to any shape and size
- Can withstand vehicle forklift traffic and heavy loads with proper thickness build

**FEATURES & BENEFITS:**

- Class I fire rated, flame spread  $\leq 25$  and smoke density  $\leq 450$
- Excellent fire resistance
- Can be applied in 80% humidity or lower and
- Excellent weather resistance temperatures as low as 0° F
- Excellent corrosion resistance
- Maximum thickness – unlimited
- Excellent impact resistance
- Provides vibration and acoustic dampening
- Excellent abrasion resistance
- High tensile strength, elongation and tear strength
- Good chemical resistance

**DRY FILM THICKNESS RANGE:**

Varies based on application, typically used at a minimum of 1/16" (62.5 mils; 1.5 mm) up to unlimited thickness)

**CHEMICAL RESISTANCE:**

(Guidelines only: Fume, splash, spillage as noted. Individual testing required for immersion).

Acetic Acid to 10% . . . . .	Excellent	Ammonia to 5% . . . . .	Excellent
Formic Acid to 5% . . . . .	Excellent	Caustic Soda Lye to 50% . . . .	Excellent
Sulfuric Acid to 10% . . . . .	Excellent	Potash Lye to 20% . . . . .	Excellent
Tannic Acid to 20% . . . . .	Excellent	Oils . . . . .	Excellent
Solvents . . . . .	Moderate		

Properties were checked from polyurea lining, 1/8" (125 mils), (3.18mm) thick stock.

**SUBSTRATES:** Metals, wood, concrete, fiberglass, geotextiles and most plastics

**COLOR OPTIONS:** Standard colors - black. Custom colors are available by special order.

**HOW SUPPLIED:** Net weight per set is 910 pounds (412.7 kg). A set of Rhino Extreme 11-50 FR consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component.

**SAFETY PRECAUTIONS:** Health Considerations: Consult the Rhino Linings® Safety Data Sheets (SDS) This chemical system requires the use of proper safety equipment and procedures. Please follow the Rhino Linings® product SDS and Safety Manual for detailed information and handling guidelines.

For Your Protection: The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Rhino Linings Corporation. Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products made by Rhino Linings Corporation will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors. Because of numerous factors affecting results, Rhino Linings Corporation makes no warranty of any kind, express or implied, other than that the material conforms to its applicable current Standard Specifications. Rhino Linings Corporation hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of Rhino Linings Corporation for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.

**Note:** Final fire resistance depends on the substrate type to be coated and the thickness and density of the coating.

It should be remembered that the ultimate ability to prevent the spread of fire depends on the type of substrate to be protected, as well as the thickness and density of the coating. The thickness of the coating should be selected according to the requirements of a specific application, usually from a minimum of 500 µm to virtually unlimited thickness. Class 1 or class A is the highest fire rating of materials that can be achieved. A class fire rating indicates a degree of flame spread ranging from zero to 25. Class A or Class 1 materials include brick, plasterboard or fiber cement materials. These types of materials are flame retardant and are very unlikely to serve as a fuel for a fire to spread.