**Application Conditions**

**Generic Type**  
Water-based intumescent coating designed for the fire protection of structural steel

**Description**  
Thin film intumescent coating that creates a fire retardant and fire resistant barrier on a wide range of building surfaces including gypsum, wood, and steel.

Listed and certified by Guardian Fire Test Laboratories Inc.

**Features**  
- ASTM E-119, ASTM E-84 Tested  
- Decorative Finish- Gives a smooth decorative finish.  
- Can be top coated to color choice.  
- Smooth/ Flat surface  
- Durable finish- Provides a hard, impact and abrasion resistant surface  
- Topcoat finishes smooth  
- Thin film coating- space saving smaller column footprints  
- Low VOC content  
- LEED compliant

**Color**  
White

**Finish**  
Smooth

**Primers**  
Must be applied over a compatible primer. (ALKYD, EPOXY)  
Generally not recommended for primers with zinc metals.

**Top Coating**  
For interior conditioned space a topcoat is optional. For exterior applications the material must be top coated with an impermeable exterior coating. The choice of topcoat will depend on project requirements. FireGuard E-84® Intumescent Coating must be allowed to cure for 4-5 days prior to the application of a topcoat. Application must be protected from the elements until topcoat is in place.

**Wet Film Thickness**  
Up to 25 - 30 mils per coat

**Dry Film Thickness**  
Up to 13.5 - 16.2 mils per coat

**Solids Content**  
By volume 54%

**Coverage Rate**  
866ft² / Gal at 1mil  
86ft² / Gal at 10mil  
28.9ft² / Gal at 30mil  
Allow for loss in mixing and application.

**VOC Content**  
3.6 g/l

**Limitations**  
Not for use on exterior environments or for interior steelwork that will be exposed to freeze/thaw cycling or long-term surface temperatures over 140°F (60°C) in normal use without the use of a suitable top coat.

**Substrates & Surface Preparation**

**General**  
Prior to application, steel surfaces need to be cleaned by removing all oil, grease or any loose particles that may interfere with the bond of ForceField® FireGuard®. The substrate must then be primed with a compatible primer.

**Performance Data**

<table>
<thead>
<tr>
<th>Standards Tested To</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM E-119-106</td>
<td>2hr Column- Heavy Steel</td>
</tr>
<tr>
<td>NFPA 251</td>
<td>1-2hr Beam- Heavy Steel</td>
</tr>
<tr>
<td>UL 263</td>
<td>1-2hr Column- Medium Steel</td>
</tr>
<tr>
<td>ULC-101-07</td>
<td>1-2hr Beam- Medium Steel</td>
</tr>
<tr>
<td></td>
<td>1-1.5hr Column- Light Steel</td>
</tr>
<tr>
<td></td>
<td>1-1.5hr Beam- Light Steel</td>
</tr>
<tr>
<td>ASTM 2768/ ASTM E-84 30 Min Extended</td>
<td>Flame Spread – 0 Smoke Index -S</td>
</tr>
<tr>
<td>ASTM D2794</td>
<td>&gt;160 Impact Resistance</td>
</tr>
<tr>
<td>ASTM D4541</td>
<td>250psi Adhesion Pull off Strength</td>
</tr>
<tr>
<td>ASTM D4060</td>
<td>0.1378 Taber Abrasion</td>
</tr>
<tr>
<td>ASTM D2240</td>
<td>67 Durometer Hardness</td>
</tr>
</tbody>
</table>

*no load small scale  
* Heavy Steel > 25lbs/foot  
Medium Steel = 10-25lbs/foot  
Light Steel < 10lbs/foot

**Mixing & Thinning**

**Mixer**  
Use ½” electric or air driven drill with a slotted paddle mixer (300rpm under load).

**Mixing**  
Fireguard® must be mixed using a ½” electric or air driven drill with a slotted paddle or jiffy mixer blade. Mix material for a minimum of 5 minutes to achieve the necessary texture required before spraying.

**Thinning**  
Do not thin.

**Tinting**  
Do not tint.

**Application Procedures**

**Airless Spray**  
A single coat, built up with a number of quick passes, allows greater control over quantities, thickness and finish. In most conditions, it is advantageous to apply two thin coats rather than one thick coat

**Application Rates**  
At an ambient temperature of 70°F (21°C), the following application rates are applicable:  
Max 25 – 30 mil wet per coat depending on application, 24 hour recoat time between coats 1 coat per day  
*Fireguard can be recoated when previous coat has a shore D hardness of 50 measured at 70°F (21°C)
**Application Procedures**

**Wet Film Thickness**

Frequent thickness measurements with a wet film gauge are recommended during the application process to ensure uniform thickness.

**Dry Film Thickness**

Final thickness must be measured using an electronic dry film thickness gauge such as a PosiTector 6000. For method of thickness determination and tolerances refer to: AWCI Technical Manual 12-B (standard practice for the testing and inspection of field applied thin film intumescent fire resistive materials).

**Application Equipment Guidelines**

Listed below are general equipment guidelines for the application of this product when spray applied.

- **Airless Spray**: Airlessco LP540 or equivalent
- **Spray Gun**: Standard airless spray gun
- **Spray Tips**: 0.019” - 0.021”
- **Fan Size**: 4” - 10” (depending on section being sprayed)
- **Hose Length**: 150’ (45m)
- **Material Hose**: 3/8” (9.25mm) I.D. minimum
- **Whip Hose**: ¼” (6.35 mm) I.D minimum (optional)

**Application Conditions**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Material</th>
<th>Surface</th>
<th>Ambient</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>70°F (21°C)</td>
<td>50°F (10°C)</td>
<td>50°F (10°C)</td>
<td>0%</td>
</tr>
<tr>
<td>Maximum</td>
<td>100°F (38°C)</td>
<td>125°F (52°C)</td>
<td>110°F (43°C)</td>
<td>85%</td>
</tr>
</tbody>
</table>

*Steel surface temperature should be a minimum of 5°F (3°C) above the dew point. Fireguard must be protected from exposure to weather. Protect from freezing.

**Curing Schedule**

<table>
<thead>
<tr>
<th>Surface Temp. &amp; 50 % Relative Humidity</th>
<th>Dry to Recoat</th>
</tr>
</thead>
<tbody>
<tr>
<td>77°F (25°C)</td>
<td>24 Hours</td>
</tr>
</tbody>
</table>

*It is recommended to apply one coat 25 - 30 mils wet per day. Drying time will vary with temp. Thinner coats as well as air movement will help drying time. Another coat of Fireguard® can be applied when previous coat has a Shore D hardness of 50 measured at 70°F (21°C). It can be top coated when a hardness of 60 is achieved after a 4-5 day cure time.

**Cleanup & Safety**

**Cleanup**

Pump, Gun, Tips, Hoses, and Mixers should be cleaned once per day with clean water.

**Safety**

It is recommended protective equipment should be worn when applying Fireguard®, including spray suits, eye protection, gloves, and respirators. Refer to Fireguard® Material Safety Data Sheet.

**Ventilation**

Ventilation should not be less than 4 complete air exchanges per hour until the material is dry.

**Maintenance**

**General**

If coating becomes damaged, rebuild required thickness by spray or trowel. When dry, smooth and finish with topcoat to match. Damaged areas must be abraded back to a firm edge by sanding or scraping. The topcoat should be abraded back 1” (25.4 mm) from the damaged area. The surface must be clean and dry before applying Fireguard®.

**Testing/ Certifications**

Uncertainty Measurement in Guardian’s fire testing is less than 1% as per ASTM E 2536-06.

Guardian is accredited and meets the requirements of ISO/IEC 17025 as verified by ANSI/ASQ National Accreditation Board/ A CLASS. Refer to certificate and scope of accreditation report AT1247. Guardian also is accredited as an inspection agency per ISO 17020 through ANSI/ASQ National Accreditation Board/ ACLASS, Report 1547.

N.B.: ANSI/ASQ/ACLASS is a signatory member of the International Laboratory Accreditation Cooperation’s (ILAC) Mutual Recognition Arrangement (MRA).

ANSI/ASQ/ACLASS accreditation of Guardian ensures global recognition for Guardian’s services.

**Storage, Packaging & Handling**

**Shelf Life**

1 year from production date

*Shelf Life*: (actual stated shelf life) when kept at recommended storage conditions and in unopened original container.

**Shipping Weight**

approximately 12 lbs per gallon (1.44 kg/l)

**Storage**

Store indoors in a dry environment between 33˚F-100˚F (1˚C - 38˚C). Protect from freezing.

**Packaging**

- 5 Gallon
- 55 Gallon
- Tote

May 2015.

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