



ForceField® FireGuard E-84® Intumescent Paint For Gypsum/ Wood/ OSB

Application Conditions

Generic Type	Water-based intumescent coating designed for the fire protection of gypsum and wood.
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 (see tech data sheet for 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. -Can be brushed on, rolled on, or sprayed on -Durable finish- Provides a hard, impact and abrasion resistant surface -Topcoat finishes smooth -Thin film coating- space saving footprints -Low VOC content -LEED compliant
Color Finish	White Smooth
Primers	Can be used as a finished coat or a primer.
Topcoats	For interior 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 and mil thickness of intumescent coating. 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. When applying a top coat, dry mil applications thickness to achieve a desired rating may change.
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	866ft ² /Gal at 1mil 86ft ² /Gal at 10mil 28.9ft ² /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 topcoat.

March 2015.

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Substrates & Surface Preparation

General	Prior to application surfaces need to be cleaned by removing all oil, grease or any loose particles that may interfere with the bond of ForceField® FireGuard®. It is highly recommended to prime drywall substrates before the application of FireGuard E-84®. On wood substrates where the wood is extremely old and dried out, it will be necessary to scrape off any old flaking off paint (if painted) and prime the surface before the application of FireGuard E-84®.
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Performance Data

Standards Tested To	Results
ASTM 2768 / ASTM E-84 30 min Extended	Flame Spread- 0 Smoke Index- 5
ASTM E-84	
ASTM E-119	1 & 2 Hour on gypsum and wood wall and floor/ceiling assemblies
UL 263	
NFPA 251	
ULC-S-101	

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

Brushed or Rolled	Generally creates an 11 to 12 mil wet application. Multiple coats will be required to meet specifications to the job requirements. Allow each coat to completely dry to touch before applying next coat.
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

Shield Industries, Inc.

131 Smokehill lane. Woodstock, GA 30188 (770) 517-6869

Application Procedures

Application Rates At an ambient temperature of 70°F (21°C), the following application rates are applicable:
25 – 30 mils per coat (wet)
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)

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 can be measured using an electronic dry film thickness gauge. Positector 200 or equivalent may be used. Wet mil thickness dries to 54%. (i.e. 20mil wet = 10.6mil dry)

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	1/4" (6.35 mm) I.D minimum (optional)

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

Fireguard must be protected from exposure to weather. Protect from freezing.

Curing Schedule

Surface Temp. & 50 % Relative Humidity	Dry to Recoat
77°F (25°C)	24 Hours

*It is recommended to apply one 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 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, brush or roll. 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 E-84®.

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



May 2015

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ForceField® FireGuard E-84® Intumescent Paint For Steel

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 Finish	White 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	866ft ² / Gal at 1mil 86ft ² / Gal at 10mil 28.9ft ² / 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

Standards Tested To	Results
ASTM E-119-106	2hr Column- Heavy Steel
NFPA 251	1-2hr Beam- Heavy Steel
UL 263	1-2hr Column- Medium Steel
ULC-101-07	1-2hr Beam- Medium Steel
	1-1.5hr Column- Light Steel
	1-1.5hr Beam- Light Steel
ASTM 2768/ ASTM E-84 30 Min Extended	Flame Spread – 0 Smoke Index -5
ASTM D2794	>160 Impact Resistance
ASTM D4541	250psi Adhesion Pull off Strength
ASTM D4060	0.1378 Taber Abrasion
ASTM D2240	67 Durometer Hardness

*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)

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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	3/4" (6.35 mm) I.D minimum (optional)

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

*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

Surface Temp. & 50 % Relative Humidity	Dry to Recoat
77°F (25°C)	24 Hours

*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.

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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.

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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



Shield Industries, Inc.

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ForceField® FireGuard E-84® Intumescent Paint For PVC

Application Conditions

Generic Type	Water-based intumescent coating designed for the fire protection of PVC
Description	Thin film intumescent coating that creates a fire retardant and fire resistant barrier on a wide range of building surfaces including gypsum, wood, steel, and PVC. Listed and certified by Guardian Fire Test Laboratories Inc.
Features	<ul style="list-style-type: none"> - ASTM E-84 Tested, ASTM E-662 -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 footprints -Low VOC content -LEED compliant
Color Finish	White Smooth
Primers	NA
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	866ft ² / Gal at 1mil 86ft ² / Gal at 10mil 28.9ft ² / 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 substrates 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 PVC surfaces need to be cleaned by removing all oil, grease or any loose particles that may interfere with the bond of ForceField® FireGuard®.

Performance Data

Standards Tested To	Results
ASTM E-662	56% Reduction In Smoke Density
ASTM E-84 -12c	Flame Spread Index - 10
	Smoke Development Index- 250 at an application thickness of 30 Dry Mil
	Smoke Development Index- 350 at an application thickness of 15 Dry Mil
ASTM D2794	>160 Impact Resistance
ASTM D4541	250psi Adhesion Pull off Strength
ASTM D4060	0.1378 Taber Abrasion
ASTM D2240	67 Durometer Hardness

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 40ml wet per coat depending on application 1 coat per day *Fireguard can be recoated when previous coat has a shore D hardness of 50 measured at 70°F (21°C)

May 2015.

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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. 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

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

*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

Surface Temp. & 50 % Relative Humidity	Dry to Recoat
77°F (25°C)	24 Hours

*It is recommended to apply one coat at 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 4-5 days cure.

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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.

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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



Shield Industries, Inc.

131 Smokehill lane. Woodstock, GA 30188 (770) 517-6869



ForceField® FireGuard E-84® Intumescent Paint For Spray Foam Insulation and Rigid Foam Board

Application Conditions

Generic Type	Water-based intumescent coating designed for the fire protection of foam applications
Description	Thin film intumescent coating that creates a fire retardant and fire resistant barrier on a wide range of building surfaces including gypsum, wood, steel, PVC, and Foam. Listed and certified by Guardian Fire Test Laboratories Inc.
Features	<ul style="list-style-type: none"> - Thermal Barrier Tested - For use on Rigid Foam Board, Open Cell Spray Foam Insulation, and Closed Cell Spray Foam - Decorative Finish - Gives a smooth decorative finish depending on substrate conditions - Smooth/ Flat surface - Durable finish- Provides a hard, impact and abrasion resistant surface depending on substrate - Thin film coating- space saving footprints - Low VOC content - LEED compliant
Color Finish	White Smooth
Primers	NA
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	866ft ² at 1mil 86ft ² at 10mil 28.9ft ² 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 substrates 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, Foam surfaces need to be cleaned by removing all oil, grease or any loose particles that may interfere with the bond of ForceField® FireGuard®.

Performance Data

Standards Tested To	Results
UL 1715	15 Min Thermal Barrier
NFPA 286 1-3.4, 5-1.3 for Flashover	No Flashover Occurred

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 40ml wet per coat depending on application 1 coat per day *Fireguard can be recoated when previous coat has a shore D hardness of 50 measured at 70°F (21°C)

May. 2015.

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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. 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	3/4" (6.35 mm) I.D minimum (optional)

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

*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

Surface Temp. & 50 % Relative Humidity	Dry to Recoat
77°F (25°C)	24 Hours

*It is recommended to apply one coat at 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.

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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®.
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Testing/ Certifications

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

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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	



Shield Industries, Inc.

131 Smokehill lane. Woodstock, GA 30188 (770) 517-6869



ForceField® FireGuard E-84® Intumescent Paint For Concrete Masonry

Application Conditions

Generic Type	Water-based intumescent coating designed for the fire protection of concrete masonry
Description	Thin film intumescent coating that creates a fire retardant and fire resistant barrier on a wide range of building surfaces including gypsum, wood, steel and concrete masonry. Listed and certified by Guardian Fire Test Laboratories Inc.
Features	<ul style="list-style-type: none">-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 footprints-Low VOC content-LEED compliant
Color Finish	White Smooth
Primers	Must be applied over a compatible primer. Water-based Styrene resin, comparable to Behr 436.
Fireproofing Topcoats	For interior conditioned space a topcoat is optional. The choice of top coat will depend on project requirements. 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	866ft ² / Gal at 1mil 86ft ² / Gal at 10mil 28.9ft ² / Gal at 30mil 17.3 ft ² / Gal at 50mil 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 topcoat.

May 2015.

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Substrates & Surface Preparation

General Prior to application concrete masonry 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

Standards Tested To	Results
ASTM E-119 NFPA 251 UL 263 ULC-101 ASTM E2226	1,2,3 Hour Rating - 4" Hollow Block Wall 2,3 Hour Rating - 6" Hollow Block Wall 2,3 Hour Rating - 8" Hollow Block Wall 3 Hour Rating - 10" Hollow Block Wall
ASTM D2794	>160 Impact Resistance
ASTM D4541	250psi Adhesion Pull off Strength
ASTM D4060	0.1378 Taber Abrasion
ASTM D2240	67 Durometer Hardness

*Tested On Calcareous Concrete Masonry Block with 52% Solids.

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
Brushed or Rolled	Generally creates a 11 to 12 mil wet application. Multiple coats will be required to meet specifications to the job requirements. Allow each coat to completely dry to touch before applying next coat.

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Application Procedures

Application Rates At an ambient temperature of 70°F (21°C), the following application rates are applicable:
Up to 25 - 30 mil wet per coat depending on application method (roll, brush, and spray)
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)

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. 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	3/4" (6.35 mm) I.D minimum (optional)

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	85%

*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

Surface Temp. & 50 % Relative Humidity	Dry to Recoat
77°F (25°C)	24 Hours

*It is recommended to apply one coat at 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 4-5 day cure.

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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

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