



## Repellents

### An extensive line of high-performance fluorosurfactants

- Innovative C6\* short-chain chemistry
- Excellent hydrophobicity and oleophobicity
- Exceptional Oil, Water, Alcohol and Soil Repellency
- Water-based
- Vapor permeable to reduce cracking of outdoor hard surfaces
- Good stability on alkaline surfaces (Masonry, grout, concrete)
- Readily dilutes in water
- Excellent stability
- Unparalleled quality and service
- Customized product and application formulations

### Short-Chain Perfluoro Products

Product	Type	Ionic Character	Actives	Current Applications
FE-2000	Acrylic Emulsion	Weakly Cationic	35 %	Ideal for concrete, tile and grout sealers, Fabrics, carpets, Wood, Additive for Dirt Pickup Resistance
FE-2210	Acrylic Emulsion	Weakly Cationic	20 %	Ideal for concrete, tile and grout sealers, Fabrics, carpets, Wood, Additive for Dirt Pickup Resistance
FE-2221	Acrylic Polymer Solution	Anionic	20 %	Ideal for paper, concrete, tile and grout sealers, fabrics, carpets, wood. Approved for food contact paper (21 CFR 176.170, 176.180)
FE-2222	Acrylic Polymer Solution	Anionic	20 %	Ideal for paper, concrete, tile and grout sealers, fabrics, carpets, wood. Approved for food contact paper (21 CFR 176.170, 176.180)
FE-2311	Methacrylate Emulsion	Cationic	30 %	Ideal for concrete, tile and grout sealers, Fabrics, carpets, Wood, Additive for Dirt Pickup Resistance
FE-2312	Acrylic Emulsion	Weakly Cationic	30 %	Ideal for concrete, tile and grout sealers, Fabrics, carpets, Wood, Additive for Dirt Pickup Resistance
FE-5000	Acrylic/Silane Blend	Weakly Cationic	35 %	Improved abrasion resistance for solid surface floors, driveways, and walks
S-764P-14A	Phosphate Ester	Anionic	14 %	Ideal for stone, concrete, tile and grout sealers



## Recommended Usages

Application	FE-2000	FE-2210	FE-2221	FE-2222	FE-2311	FE-2312	FE-5000	S-764P-14A
Hard Surface	✓	✓	✓	✓	✓	✓	✓	✓
Hard Surface Flooring	○	○	○	○	○	○	✓	○
Food Contact Paper	⊗	⊗	✓	✓	⊗	⊗	⊗	⊗
Non-Food Contact Paper	⊗	⊗	✓	✓	⊗	⊗	⊗	✓
Textile	✓	✓	○	○	✓	✓	✓	⊗
Leather	✓	✓	○	○	✓	✓	✓	⊗

**Key:** Recommended = ✓ , Optional = ○ , Not Recommended = ⊗

\*CHEMGUARD fluoropolymer emulsions are based on telomer synthesis. Telomer chemistry does not produce PFOS. In 2006, former EPA Administrator Stephen L. Johnson invited eight major fluoropolymer and telomer manufacturers to join a global stewardship program with two stated goals:

1. To achieve no later than 2010, a 95% reduction of perfluoro octanoic acid (PFOA), in both facility emissions and product content
2. To work towards eliminating PFOA from emissions and products by December 31, 2015.

The eight major C8 manufacturers Arkema, Asahi, BASF, Clariant, Daikin, 3M, Dupont, and Solvay Solexis are transitioning their production from C8 to C6 chemistry to meet the intent of the 2010/2015 PFOA Stewardship program. As a consequence, fluorochemical manufacturers must transition their products to utilize C6 fluoropolymers and telomers.

The EPA has never regulated and has no current plans to regulate any of the products that contain PFOA,

As our fluoropolymer and -telomer suppliers transition to supplying C6 chemistry, all Tyco products will be predominately C6 products.

No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. The CHEMGUARD fluoropolymers listed above are composed of predominately six carbon (greater than 95%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

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# CHEMGUARD FE-2000

## High Performance Fluoro-Emulsion Repellent

T + 1 817 473 9964  
F + 1 817 473 0606

### Product Description:

CHEMGUARD FE-2000 is a short-chain fluoro-emulsion material. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Chemguard FE-2000

- Exceptional Oil, Water, Alcohol and Soil Repellency
- Water-based
- Vapor permeable to reduce cracking of outdoor hard surfaces
- Good stability on alkaline surfaces (Masonry, grout, concrete)
- Readily dilutes in water
- Excellent stability
- Composed of short chain C-6 perfluoro telomer

### Typical Properties<sup>1</sup>

Appearance	Liquid, white dispersion
Ionic Character	Weakly cationic
Density	1.1 g/ml at 25°C
Solids Content	35%
pH	3.5-4.5
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Dispersible

<sup>1</sup> Not for specification purposes.

### Performance:

#### **Hard Surfaces:**

Chemguard FE-2000 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution.

Chemguard FE-2000 can be diluted with up to 20 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing. For best results a second coat should be applied within 1 hour of the first.

**Fabrics and leather:**

Chemguard FE-2000 can be applied by foam, spray, and padding methods. Use levels of 15-70 g/L (2-9 oz/gallon) are typically used. The pH of the applied solution should be maintained at 4-5 using 60% acetic acid. Dry at 110-130°C and cure at 150°C for 3 minutes.

**Storage and Shelf Life:**

Chemguard FE-2000 should be stored between 5°C and 40°C.

If frozen, warm to room temperature and mix well before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least five years if stored tightly sealed in the original container at temperatures below 40°C (104°F).

**Health and Safety:**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2000 is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-2210

## High Performance Fluoro-Emulsion Repellent

### Product Description

CHEMGUARD FE-2210 is a short-chain fluoro-emulsion material. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Attributes

- EXCEPTIONAL OIL, WATER, ALCOHOL AND SOIL REPELLENCY
- WATER-BASED
- VAPOR PERMEABLE TO REDUCE CRACKING OF OUTDOOR HARD SURFACES
- GOOD STABILITY ON ALKALINE SURFACES (MASONRY, GROUT, CONCRETE)
- READILY DILUTES IN WATER
- EXCELLENT STABILITY
- COMPOSED OF SHORT CHAIN C-6 PERFLUORO TELOMER

### Typical Properties<sup>1</sup>

Appearance	Liquid, white dispersion
Ionic Character	Weakly cationic
Density	1.1 g/ml at 25°C
Solids Content	20%
pH	3.5-4.5
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Dispersible

<sup>1</sup> Not for specification purposes.

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## Performance

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### **Hard Surfaces:**

Chemguard FE-2210 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution.

Chemguard FE-2210 can be diluted with up to 10 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing.

**Compatibility:**

Chemguard FE-2210 is cationic and is compatible with other materials in the system except anionic additives. Complex coatings should be checked for stability.

Sealer formulas should contain a biocide to improve storage stability.

**Application Methods:**

Typical application methods include roller, paint brush, pads, mop for large horizontal areas, and sponge. Wet the area thoroughly and allow to dry for 15-30 minutes, removing the excess. For maximum protection a second coat is recommended after the first coat dries at least 1 hour.

**Performance Comparisons**

PRODUCT	STAIN RESISTANCE	WATER REPELLENCY	OIL REPELLENCY
FE-2210	EXCELLENT	EXCELLENT	EXCELLENT
SOLVENT BASED	GOOD	EXCELLENT	GOOD
SILICONE	GOOD	EXCELLENT	POOR
UNTREATED	NONE	NONE	NONE

**Fabrics and leather:**

Chemguard FE-2210 can be applied by foam, spray, and padding methods. Use levels of 30-140 g/L (4-16 oz/gallon) are typically used. The pH of the applied solution should be maintained at 4-5 using 60% acetic acid. Dry at 110-130°C and cure at 150°C for 3 minutes.

**Storage and Shelf Life**

Chemguard FE-2210 should be stored between 5°C and 40°C.

If frozen, warm to room temperature before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least one year if stored tightly sealed in the original container at temperatures below 40°C (104°F).

**Health and Safety**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2210 is



**Tyco Fire Protection Products**

204 South 6<sup>th</sup> Avenue  
Mansfield, TX 76063 USA

T + 1 817 473 9964

F + 1 817 473 0606

[www.chemguard.com](http://www.chemguard.com)

composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-2221

## High Performance Fluoropolymer Repellent

### Product Description

CHEMGUARD FE-2221 is a short-chain fluoropolymer. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting paper, fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Attributes

- EXCEPTIONAL OIL, WATER, ALCOHOL AND SOIL REPELLENCY
- WATER-BASED
- VAPOR PERMEABLE TO REDUCE CRACKING OF OUTDOOR HARD SURFACES
- GOOD STABILITY ON ALKALINE SURFACES (MASONRY, GROUT, CONCRETE)
- READILY DILUTES IN WATER
- EXCELLENT STABILITY
- COMPOSED OF SHORT CHAIN C-6 PERFLUORO TELOMER
- LISTED IN THE CODE OF FEDERAL REGULATIONS\*, 21 CFR 176.170 AND 176.180

### Typical Properties<sup>1</sup>

Appearance	Off-white to pale yellow liquid
Ionic Character	Weakly anionic
Density	1.1 g/ml at 25°C
Solids Content	20%
pH	6-8
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Soluble
VOC Content (EPA 24/24A)	<3%

<sup>1</sup> Not for specification purposes.

### Performance

#### **Hard Surfaces:**

Chemguard FE-2221 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution. Maintain a pH between 6 and 8 for maximum repellency.

Chemguard FE-2221 can be diluted with up to 10 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing.



**Compatibility:**

Chemguard FE-2221 is anionic and is compatible with other materials in the system except cationic additives. Complex coatings should be checked for stability.

Sealer formulas should contain a biocide to improve storage stability.

**Application Methods:**

Typical application methods include roller, paint brush, pads, mop for large horizontal areas, and sponge. Wet the area thoroughly and allow to dry for 15-30 minutes, removing the excess. For maximum protection a second coat is recommended after the first coat dries at least 1 hour.

**Performance Comparisons**

PRODUCT	STAIN RESISTANCE	WATER REPELLENCY	OIL REPELLENCY
FE-2221	EXCELLENT	EXCELLENT	EXCELLENT
SOLVENT BASED	GOOD	EXCELLENT	GOOD
SILICONE	GOOD	EXCELLENT	POOR
UNTREATED	NONE	NONE	NONE

**Fabrics and leather:**

Chemguard FE-2221 can be applied by foam, spray, and padding methods. Use levels of 30-140 g/L (4-16 oz/gallon) are typically used. Dry at 110-130°C and cure at 150°C for 3 minutes.

**Storage and Shelf Life**

Chemguard FE-2221 should be stored between -5°C and 40°C.

If frozen, warm to room temperature before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least two years if stored tightly sealed in the original container at temperatures below 40°C (104°F).

### **Health and Safety**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2221 is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-2222

## High Performance Fluoropolymer Repellent

### Product Description

CHEMGUARD FE-2222 is a short-chain fluoropolymer. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting paper, fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Attributes

- EXCEPTIONAL OIL, WATER, ALCOHOL AND SOIL REPELLENCY
- WATER-BASED
- VAPOR PERMEABLE TO REDUCE CRACKING OF OUTDOOR HARD SURFACES
- GOOD STABILITY ON ALKALINE SURFACES (MASONRY, GROUT, CONCRETE)
- READILY DILUTES IN WATER
- EXCELLENT STABILITY
- COMPOSED OF SHORT CHAIN C-6 PERFLUORO TELOMER
- LISTED IN THE CODE OF FEDERAL REGULATIONS\*, 21 CFR 176.170 AND 176.180

### Typical Properties<sup>1</sup>

Appearance	Off-white to light pink liquid
Ionic Character	Weakly anionic
Density	1.1 g/ml at 25°C
Solids Content	20%
pH	6-9
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Soluble

<sup>1</sup> Not for specification purposes.

### Performance

#### **Hard Surfaces:**

Chemguard FE-2222 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution. Maintain a pH between 6 and 8 for maximum repellency.

Chemguard FE-2222 can be diluted with up to 10 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing.

### Performance Comparisons

PRODUCT	STAIN RESISTANCE	WATER REPELLENCY	OIL REPELLENCY
FE-2222	EXCELLENT	EXCELLENT	EXCELLENT
SOLVENT BASED	GOOD	EXCELLENT	GOOD
SILICONE	GOOD	EXCELLENT	POOR
UNTREATED	NONE	NONE	NONE

### Compatibility:

Chemguard FE-2222 is anionic and is compatible with other materials in the system except cationic additives. Complex coatings should be checked for stability.

Sealer formulas should contain a biocide to improve storage stability.

### Application Methods:

Typical application methods include roller, paint brush, pads, mop for large horizontal areas, and sponge. Wet the area thoroughly and allow to dry for 15-30 minutes, removing the excess. For maximum protection a second coat is recommended after the first coat dries at least 1 hour.

### Paper Applications:

#### Internal Application

INGREDIENT	CHARGE	1	2	3	4	5
FE-2222	ANION	0.30%	0.30%	0.30%	0.30%	0.40%
STARCH	CATION	0.7%	0.7%	0.7%	0.7%	0.7%
SIZING-AKD	CATION			0.10%	0.10%	
FIXING-PAE	CATION	0.30%	0.30%			0.30%
FIXING-PAM	CATION			0.30%	0.30%	
COAGULANT-PAM	CATION	0.02%			0.02%	
<b>TEST RESULTS</b>						
<b>OIL REPELLENCY</b>	TAPPI KIT	7	6.5	5.5	6.5	8
	AGR (%)	10	20	40	32	0
	RP-2 (%)	0	4	9	0	0
<b>WATER REPELLENCY</b>	COBB 60 (g/m <sup>2</sup> )	35	33	33	32	30

**Fabrics and leather:**

Chemguard FE-2222 can be applied by foam, spray, and padding methods. Use levels of 30-140 g/L (4-16 oz/gallon) are typically used. Dry at 110-130°C and cure at 150°C for 3 minutes.

**Storage and Shelf Life**

Chemguard FE-2222 should be stored between -5°C and 40°C.

If frozen, warm to room temperature before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least two years if stored tightly sealed in the original container at temperatures below 40°C (104°F).

**Health and Safety**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2222 is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-2311

## High Performance Fluoro-Emulsion Repellent

### Product Description

CHEMGUARD FE-2311 is a short-chain fluoro-emulsion material. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Attributes

- EXCEPTIONAL OIL, WATER, ALCOHOL AND SOIL REPELLENCY
- WATER-BASED
- VAPOR PERMEABLE TO REDUCE CRACKING OF OUTDOOR HARD SURFACES
- GOOD STABILITY ON ALKALINE SURFACES (MASONRY, GROUT, CONCRETE)
- READILY DILUTES IN WATER
- EXCELLENT STABILITY
- COMPOSED OF SHORT CHAIN C-6 PERFLUORO TELOMER

### Typical Properties<sup>1</sup>

Appearance	Liquid, white or pale yellow emulsion
Ionic Character	Weakly cationic
Density	1.1 g/ml at 25°C
Solids Content	30%
pH	2-5
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Dispersible

<sup>1</sup> Not for specification purposes.

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## Performance

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### **Hard Surfaces:**

Chemguard FE-2311 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution. To obtain maximum oil and water repellency, maintain a pH of 4-5 using acetic acid to lower the pH.

Chemguard FE-2311 can be diluted with up to 10 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing.

**Compatibility:**

Chemguard FE-2311 is cationic and is compatible with other materials in the system except anionic additives. Complex coatings should be checked for stability.

Sealer formulas should contain a biocide to improve storage stability.

**Application Methods:**

Typical application methods include roller, paint brush, pads, mop for large horizontal areas, and sponge. Wet the area thoroughly and allow to dry for 15-30 minutes, removing the excess. For maximum protection a second coat is recommended after the first coat dries at least 1 hour.

**Performance Comparisons**

<b>PRODUCT</b>	<b>STAIN RESISTANCE</b>	<b>WATER REPELLENCY</b>	<b>OIL REPELLENCY</b>
FE-2311	EXCELLENT	EXCELLENT	EXCELLENT
SOLVENT BASED	GOOD	EXCELLENT	GOOD
SILICONE	GOOD	EXCELLENT	POOR
UNTREATED	NONE	NONE	NONE

**Fabrics and leather:**

Chemguard FE-2311 can be applied by foam, spray, and padding methods. Use levels of 30-140 g/L (4-16 oz/gallon) are typically used. The pH of the applied solution should be maintained at 4-5 using 60% acetic acid. Dry at 110-130°C and cure at 150°C for 3 minutes.

**Storage and Shelf Life**

Chemguard FE-2311 should be stored between -5°C and 30°C.

If frozen, warm to room temperature before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least two years if stored tightly sealed in the original container at temperatures below 30°C (86°F).

### **Health and Safety**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2311 is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-2312

## High Performance Fluoro-Emulsion Repellent

### Product Description

CHEMGUARD FE-2312 is a short-chain fluoro-emulsion material. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting fabrics, carpets, wood, concrete, tile stone, and as a grout sealer.

### Attributes

- EXCEPTIONAL OIL, WATER, ALCOHOL AND SOIL REPELLENCY
- WATER-BASED
- VAPOR PERMEABLE TO REDUCE CRACKING OF OUTDOOR HARD SURFACES
- GOOD STABILITY ON ALKALINE SURFACES (MASONRY, GROUT, CONCRETE)
- READILY DILUTES IN WATER
- EXCELLENT STABILITY
- COMPOSED OF SHORT CHAIN C-6 PERFLUORO TELOMER

### Typical Properties<sup>1</sup>

Appearance	Liquid, white emulsion
Ionic Character	Weakly cationic
Density	1.1 g/ml at 25°C
Solids Content	30%
pH	2-5
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Dispersible

<sup>1</sup> Not for specification purposes.

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## Performance

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### **Hard Surfaces:**

Chemguard FE-2312 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution. To obtain maximum oil and water repellency, maintain a pH of 4-5 using acetic acid to lower the pH.

Chemguard FE-2312 can be diluted with up to 10 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing.

### Compatibility:

Chemguard FE-2312 is cationic and is compatible with other materials in the system except anionic additives. Complex coatings should be checked for stability.

Sealer formulas should contain a biocide to improve storage stability.

### Application Methods:

Typical application methods include roller, paint brush, pads, mop for large horizontal areas, and sponge. Wet the area thoroughly and allow to dry for 15-30 minutes, removing the excess. For maximum protection a second coat is recommended after the first coat dries at least 1 hour.

### Performance Comparisons

PRODUCT	STAIN RESISTANCE	WATER REPELLENCY	OIL REPELLENCY
FE-2312	EXCELLENT	EXCELLENT	EXCELLENT
SOLVENT BASED	GOOD	EXCELLENT	GOOD
SILICONE	GOOD	EXCELLENT	POOR
UNTREATED	NONE	NONE	NONE

### Fabrics and leather:

Chemguard FE-2312 can be applied by foam, spray, and padding methods. Use levels of 30-140 g/L (4-16 oz/gallon) are typically used. The pH of the applied solution should be maintained at 4-5 using 60% acetic acid. Dry at 110-130°C and cure at 150°C for 3 minutes.

### Storage and Shelf Life

Chemguard FE-2312 should be stored between -5°C and 30°C.

If frozen, warm to room temperature before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least two years if stored tightly sealed in the original container at temperatures below 30°C (86°F).

### **Health and Safety**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion.

Chemguard fluorosurfactants are based on telomer synthesis. No PFOS, no PFOA, and no derivatives that decompose to them are used in the manufacturing process. Chemguard FE-2312 is composed of predominately six carbon (greater than 98%) and shorter perfluoro chains with no known pathway of decomposing to PFOS or PFOA.

Please refer to the material safety data sheet (MSDS) for recommended disposal, handling, and protection information.

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# CHEMGUARD FE-5000

## High Performance Fluoro-Emulsion Repellent

T + 1 817 473 9964  
F + 1 817 473 0606

### Product Description:

CHEMGUARD FE-5000 is a fluoro-silane emulsion material. It provides exceptional oil, water, alcohol and soil repellency. It has wide application in protecting fabrics, leather, carpets, wood, concrete, tile stone, and as a grout sealer.

### Chemguard FE-5000

- Exceptional Oil, Water, Alcohol and Soil Repellency
- Water-based
- Harder TG for fabrics and leather
- Vapor permeable to reduce cracking of outdoor hard surfaces
- Good stability on alkaline surfaces (Masonry, grout, concrete)
- Readily dilutes in water
- Excellent stability

### Typical Properties<sup>1</sup>

Appearance	Liquid, white dispersion
Ionic Character	Weakly cationic
Density	1.1 g/ml at 25°C
Solids Content	35%
pH	3-6
Flash Point	>220°F, TCC
Odor	Mild
Water solubility	Dispersible

<sup>1</sup> Not for specification purposes.

### Performance:

#### **Hard Surfaces:**

Chemguard FE-5000 is designed for applications on hard surfaces at room temperature. No heat curing is required. It is supplied as a concentrate that readily dilutes in distilled or softened water and has excellent storage stability as received and after dilution.

Chemguard FE-5000 can be diluted with up to 20 parts water before application and coverage will vary depending on porosity of the surface coated. Excess liquid applied should be wiped up if it has not penetrated after 10 to 15 minutes to avoid hazing. For best results a second coat should be applied within 1 hour of the first.

**Fabrics and leather:**

Chemguard FE-5000 can be applied by foam, spray, and padding methods. Use levels of 15-70 g/L (2-9 oz/gallon) are typically used. The pH of the applied solution should be maintained at 4-5 using 60% acetic acid. Dry at 80-100°C and cure at 120-150°C for 3 minutes.

**Storage and Shelf Life:**

Chemguard FE-5000 should be stored between 5°C and 40°C.

If frozen, warm to room temperature and stir well before use. Freezing and thawing will affect the properties and performance.

Shelf life is at least five years if stored tightly sealed in the original container at temperatures below 40°C (104°F).

**Health and Safety:**

Chemguard does not recommend this product for use in applications involving repeated exposure to skin contact, inhalation, or ingestion. This product is not intended to be used for medical, cosmetic, food or pharmaceutical applications.

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