



**A Proven Fit**  
Two Brands, One Mission

**1. Product and Company Identification**

Product Name: FE-100 (B-Side)

VersaFlex / Raven Lining Systems  
686 South Adams Street  
Kansas City, KS 66105

[www.versaflex.com](http://www.versaflex.com) / [www.ravenlining.com](http://www.ravenlining.com)

Company Phone: (913) 321-9000  
Company Toll Free: (800) 324-2810

CHEMTREC 24 hour Emergency USA: (800) 424-9300  
CHEMTREC 24 hour International: (703) 527-3887

Product Use: Primer / Sealer / Coating / Lining  
Not recommended for: Non Professional Use

**2. Hazards Identification**

Signal Word: Danger



**GHS Ratings:**

Skin corrosive	1B	Destruction of dermal tissue: Exposure < 1 hour Observation < 14 days, visible necrosis in at least one animal.
Eye corrosive	1	Serious eye damage: Irreversible damage 21 days after exposure, Draize score: Corneal opacity >= 3, Iritis > 1.5
Skin sensitizer	1	Skin sensitizer.
Reproductive toxin	2	Human or animal evidence possibly with other information.

**GHS Hazards**

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H361	Suspected of damaging fertility or the unborn child.

**GHS Precautions**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment (see Section 4 of the SDS).
P363	Wash contaminated clothing before reuse.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with soap and water.

P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container according to Section 13 of the SDS.

### 3. Composition / Information on Ingredients

Chemical Name	CAS number	Weight Concentration %
Fly Ash	68131-74-8	15 - 40%
Amidoamine		10 - 30%
Aliphatic Polyamidoamine	68919-79-9	10 - 30%
Titanium Dioxide	13463-67-7	1 - 5%
Aliphatic Amine		1 - 5%
Tetraethylenepentamine	112-57-2	1 - 5%
2,4,6-tris(Dimethylaminomethyl) Phenol	90-72-2	1 - 2%
Alkylphenol	84852-15-3	1 - 2%
Amorphous Hydrophobic Fumed Silica	67762-90-7	1 - 2%
Crystalline Silica, Quartz	14808-60-7	0.1 - 1%

### 4. First Aid Measures

Inhalation: Remove to fresh air if effects occur. Consult a physician.

Eye Contact: Flush with large quantities of water for at least 15 minutes. Consult a physician.

Skin Contact: Wash thoroughly with soap and flowing water.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. Fire Fighting Measures

Flash Point: 154 C (309 F)

Flammable Properties: Product is not considered a fire hazard, but will burn if ignited.

NFPA Flammability Class: Class III A liquids are combustible liquids that have a flash point  $\geq 140$  deg F (60 deg C), but  $< 200$  deg F (93 deg C). Class III B liquids are combustible liquids that have a flash point  $\geq 200$  deg F.

Suitable Extinguishing Media: Carbon dioxide, dry chemical, water fog or fine spray. Alcohol resistant foams are preferred, general purpose synthetic foams or protein foams may function, but will not be as effective.

Unsuitable Extinguishing Media: Do not use direct water stream, as it may spread fire.

Products of Combustion: Thermal decomposition in the presence of air may yield carbon monoxide, carbon dioxide, phenolics, ammonia, nitrogen oxides and other unidentified toxic and/or irritating compounds.

Fire Fighting: Stay upwind and keep people away. Isolate fire and deny unnecessary entry. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out. Contain fire water run-off if possible, as it may cause environmental damage. Review section 6 and section 12 of this SDS.

Protection of Firefighters: Wear positive pressure self-contained breathing apparatus (SCBA) and approved protective clothing (helmet, coat, trousers, boots and gloves). If contact is likely, use full chemical resistant fire fighting clothing with SCBA.

## 6. Accidental Release Measures

Personal Precautions: Put on appropriate personal protective equipment (see section 8).

Environmental Precautions: Prevent spilled material from contact with soil, drains and sewers.

Methods for Containment: Contain by diking with sand, earth or other suitable material.

Methods for Clean-up: Absorb spill with an inert material, use non-sparking tools to place into labeled waste container for disposal.

## 7. Handling and Storage

Handling: Wear appropriate personal protective equipment (see section 8). Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Do not ingest. Avoid prolonged or repeated contact with skin. May cause allergic skin reaction, persons with a history of skin sensitization should not be employed in any process in which this product is used. Wash thoroughly with soap and water after handling. Do not handle or store near flame, heat or strong oxidants. Keep away from sources of ignition and hot metal surfaces.

Storage: Store original unopened containers in a sheltered area between 60°F and 80°F (15°C and 27°C) at atmospheric pressure. Do not store in direct sunlight. Keep containers closed when not in use.

## 8. Exposure Controls / Personal Protection

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Fly Ash 68131-74-8	Not Established	Not Established	Not Established
Amidoamine	Not Established	Not Established	Not Established
Aliphatic Polyamidoamine 68919-79-9	Not Established	Not Established	Not Established
Titanium Dioxide 13463-67-7	15 mg/m <sup>3</sup> TWA (total dust)	10 mg/m <sup>3</sup> TWA	Not Established
Aliphatic Amine	Not Established	Not Established	Not Established
Tetraethylenepentamine 112-57-2	Not Established	Not Established	Not Established
2,4,6-tris(Dimethylaminomethyl) Phenol 90-72-2	Not Established	Not Established	Not Established
Alkylphenol 84852-15-3	Not Established	Not Established	Not Established
Amorphous Hydrophobic Fumed Silica 67762-90-7	Not Established	Not Established	Not Established
Crystalline Silica, Quartz 14808-60-7	0.05 mg/m <sup>3</sup> TWA (respirable fraction)	0.025 mg/m <sup>3</sup> TWA (respirable fraction)	NIOSH: 0.05 mg/m <sup>3</sup> TWA (respirable dust)

Engineering Controls: General mechanical ventilation is sufficient for most conditions. Control airborne levels below the exposure guidelines, if established.

Local exhaust ventilation may be necessary for some operations.

General Hygiene Considerations: Wash thoroughly after handling and before eating, drinking or smoking.

Eye/face Protection: Use chemical safety glasses, splash-proof eye goggles or goggles with full faceshield.

Skin Protection: Use nitrile or other impermeable chemical resistant gloves to prevent skin irritation. If potential for skin contact is present, wear impervious, long-sleeved, body covering clothing and rubber boots.

Respiratory Protection: Respiratory protection should not be needed. If exposure may or does exceed occupational exposure limits, respiratory irritation is experienced, or during spray application, use a properly fitted MSHA/NIOSH approved respirator fitted with organic vapor cartridges. In addition, spray application may require the use of paint pre-filters. If the respirator is the sole means of protection, use a full-face supplied air respirator. If sanding or grinding on cured material, use above respirator fitted with HEPA filters or a dust mask.

Contaminated Gear: Remove contaminated clothing and shoes while washing. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

**9. Physical and Chemical Properties**

<p><b>Appearance</b> Product color varies</p> <p><b>Odor Threshold</b> No data found</p> <p><b>pH</b> No data found</p> <p><b>Boiling Point</b> 267°C</p> <p><b>Flash Point</b> 309°F, 154°C</p> <p><b>Flammability (solid, gas)</b> No data found</p> <p><b>Vapor Pressure</b> No data found</p> <p><b>Specific Gravity</b> 0.8 - 1.0</p> <p><b>Partition Coefficient (n-octanol/water)</b> No data found</p> <p><b>Decomposition Temperature</b> No data found</p> <p><b>Lbs VOC/Gallon Less Water</b> 0.0</p>	<p><b>Odor</b> Ammonia-like</p> <p><b>Physical State</b> Liquid</p> <p><b>Melting/Freezing Point</b> No data found</p> <p><b>Boiling Range</b> No data found</p> <p><b>Evaporation Rate</b> No data found</p> <p><b>LEL/UEL</b> No data found</p> <p><b>Vapor Density</b> No data found</p> <p><b>Solubility in Water</b> No data found</p> <p><b>Autoignition Temperature</b> No data found</p> <p><b>Viscosity</b> No data found</p>
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**10. Stability and Reactivity**

Chemical Stability: Stable under recommended storage conditions (see Section 7).

Conditions to Avoid: Elevated temperatures may cause product to decompose.

Incompatible Materials: Strong acids, bases, or oxidizing agents. Avoid unintended contact with isocyanates and/or epoxies.

Products of Combustion: Thermal decomposition in the presence of air may yield carbon monoxide, carbon dioxide, phenolics, ammonia, nitrogen oxides and other unidentified toxic and/or irritating compounds.

Hazardous polymerization will not occur.

**11. Toxicological Information**

**Mixture Toxicity**

- Oral Toxicity LD50: 4,586mg/kg
- Dermal Toxicity LD50: 3,684mg/kg
- Inhalation Toxicity LC50: 14mg/L

**Component Toxicity**

- 68131-74-8 Fly Ash  
Oral LD50: 2,001 mg/kg (Rat) Dermal LD50: 2,001 mg/kg (Rat) Inhalation LC50: 5 mg/L (Rat)
- 112-57-2 Tetraethylenepentamine  
Oral LD50: 3,990 mg/kg (Rat) Dermal LD50: 661 mg/kg (Rabbit)
- 90-72-2 2,4,6-tris(Dimethylaminomethyl) Phenol  
Oral LD50: 1,200 mg/kg (Rat) Dermal LD50: 1,280 mg/kg (Rat)
- 84852-15-3 Alkylphenol  
Oral LD50: 1,300 mg/kg (Rat) Dermal LD50: 2,031 mg/kg (Rabbit)

Toxicological information on this product or its components appear in this section when such data is available.

**Likely Routes of Exposure:**

No data found

**Target Organs**

May cause damage to the following organs:

- Eyes
- Respiratory System

## Effects of Overexposure

**Carcinogenicity:** Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2b) through inhalation (not ingestion), based on lifetime inhalation studies of rats. The IARC's findings were consistent with the massive accumulation of fine dust particles in the rat's lung (which overwhelm the natural lung clearance mechanisms, causing lung overloading) and consequential pulmonary overload and inflammation that causes lung cancer. In further studies, these tumors were found to occur only under particle overload conditions in a uniquely sensitive species, the rat, and have little or no relevance for humans. Epidemiology studies on more than 20,000 workers do not suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. If present in this product, the titanium dioxide is in a "wet out" form and does not pose an inhalation hazard.

**Carcinogenicity:** This product may contain carbon black, a substance that has been listed by OSHA as a carcinogen to humans when inhaled. If present in this product, it is pre-dispersed in a liquid and not available as a dust. Under normal use conditions it would not be considered a hazard. IARC characterized carbon black as a possible human carcinogen (Group 2B) and concluded that there is sufficient evidence in experimental animals for the carcinogenicity of inhaled carbon black dust and inadequate evidence of carcinogenicity in humans. The IARC's findings were consistent with the massive accumulation of fine dust particles in the lung which overwhelm the natural lung clearance mechanisms, known as "lung overload" phenomenon, rather than from a specific chemical effect from the carbon black in the lung. NIOSH recommends that only carbon blacks with a PAH level greater than 0.1% be considered potential occupational carcinogens.

**Carcinogenicity:** This product may contain crystalline silica (quartz), a substance that has been classified as carcinogenic to humans when inhaled. If present in this product, it is pre-dispersed and not available as a dust. Under normal use conditions it would not be considered a hazard.

<u>CAS Number</u>	<u>Description</u>	<u>% Weight</u>	<u>Carcinogen Rating</u>
14808-60-7	Crystalline Silica, Quartz	0.1 - 1%	Crystalline Silica, Quartz: NIOSH: potential occupational carcinogen IARC: Human carcinogen OSHA: listed
13463-67-7	Titanium Dioxide	1 - 5%	Titanium Dioxide: NIOSH: potential occupational carcinogen IARC: Possible human carcinogen OSHA: listed

## 12. Ecological Information

### Component Ecotoxicity

Aliphatic Amine	96 Hr LC50 <i>Poecilia reticulata</i> : 570 mg/L [semi-static]; 96 Hr LC50 <i>Pimephales promelas</i> : 495 mg/L 48 Hr EC50 <i>Daphnia magna</i> : 31.1 mg/L 72 Hr EC50 <i>Desmodesmus subspicatus</i> : 2.5 mg/L; 72 Hr EC50 <i>Pseudokirchneriella subcapitata</i> : 20 mg/L; 96 Hr EC50 <i>Pseudokirchneriella subcapitata</i> : 3.7 mg/L
Tetraethylenepentamine	96 Hr LC50 <i>Poecilia reticulata</i> : 420 mg/L [static] 48 Hr EC50 <i>Daphnia magna</i> : 24.1 mg/L 72 Hr EC50 <i>Pseudokirchneriella subcapitata</i> : 2.1 mg/L
Alkylphenol	96 Hr LC50 <i>Pimephales promelas</i> : 0.135 mg/L [flow-through]; 96 Hr LC50 <i>Lepomis macrochirus</i> : 0.1351 mg/L [flow-through] 48 Hr EC50 <i>Daphnia magna</i> : 0.14 mg/L 96 Hr EC50 <i>Pseudokirchneriella subcapitata</i> : 0.36 - 0.48 mg/L [static]; 72 Hr EC50 <i>Pseudokirchneriella subcapitata</i> : 0.16 - 0.72 mg/L [static]; 72 Hr EC50 <i>Desmodesmus subspicatus</i> : 1.3 mg/L

## 13. Disposal Considerations

**Waste Disposal Methods:** Dispose of in accordance with federal, state and local regulations. The preferred method for disposal of uncontaminated product is by recycling, reclaiming, incineration or other thermal destruction device using

a licensed and permitted waste disposal contractor.

## 14. Transport Information

<u>Agency</u>	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Packing Group</u>	<u>Hazard Class</u>
DOT	Not Regulated			
ICAO/IATA	Not Regulated			
IMDG	Not Regulated			
TDG	Not Regulated			

## 15. Regulatory Information

USA Federal: This SDS has been prepared in compliance with the Occupational Safety and Health Act (OSHA) Hazard Communication Standard (29 CFR 1910.1200). This product is considered to be a hazardous chemical under that standard. The specific chemical identity and/or exact percentage of any proprietary ingredient(s) may be withheld as a trade secret, pursuant to the standard.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): To the best of our knowledge, this product contains the following chemicals which are known to the State of California to cause cancer, developmental or reproductive toxicity at levels which require warning under this statute:

14808-60-7 Crystalline Silica, Quartz 0.1 to 1.0 % Carcinogen  
13463-67-7 Titanium Dioxide 1 to 5 % Carcinogen

USA Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) - section 103 Hazardous Substances Reportable Quantities (RQs): To the best of our knowledge, this product contains the following chemicals which are listed in 40 CFR 302.4:

- None

Massachusetts Right to Know: To the best of our knowledge, this product contains the following chemicals at levels which require reporting under this statute:

14808-60-7 Crystalline Silica, Quartz 0.1 to 1.0 %  
112-57-2 Tetraethylenepentamine 1 to 5 %  
Aliphatic Amine 1 to 5 %  
13463-67-7 Titanium Dioxide 1 to 5 %

New Jersey Right to Know: To the best of our knowledge, this product contains the following chemicals at levels which require reporting under this statute:

14808-60-7 Crystalline Silica, Quartz 0.1 to 1.0 %  
112-57-2 Tetraethylenepentamine 1 to 5 %  
Aliphatic Amine 1 to 5 %  
13463-67-7 Titanium Dioxide 1 to 5 %

Pennsylvania Right to Know: To the best of our knowledge, this product contains the following chemicals at levels which require reporting under this statute:

14808-60-7 Crystalline Silica, Quartz 0.1 to 1.0 %  
112-57-2 Tetraethylenepentamine 1 to 5 %  
Aliphatic Amine 1 to 5 %  
13463-67-7 Titanium Dioxide 1 to 5 %

USA Resource Conservation and Recovery Act (40 CFR 261): To the best of our knowledge, this product contains the following chemicals at levels which require reporting under this statute:

- None

USA Superfund Amendments and Reauthorization Act (SARA) of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) - section 313 Toxic Release Inventory (TRI) Form R: To the best of our knowledge, this product contains the following chemicals which are listed in 40 CFR 372.65:

- None

USA Superfund Amendments and Reauthorization Act (SARA) of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) - section 302 Extremely Hazardous Substances Threshold Planning Quantities (TPQs): To the best of our knowledge, this product contains the following chemicals at levels which require reporting under this statute:

- None

USA Toxic Substances Control Act (TSCA) - section 12(b): To the best of our knowledge, this product contains the following chemicals above the de minimus concentration(s) which requires notification to the Environmental Protection Agency (EPA) per 40 CFR 707, subpart D, if any person intends to export:

84852-15-3 Alkylphenol 1 to 2 %

<u>Country</u>	<u>Regulation</u>	<u>All Components Listed</u>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Canada Domestic Substance List	Yes
Canada	Canada Non-Domestic Substances List (NDSL)	No
China	China Inventory of Existing Chemical Substances	Yes
EU	EU REACH List of Registered Intermediates	No
EU	EU REACH List of Pre-Registered Substances	Yes
EU	EU REACH List of Registered Substances	No
Japan	Japanese Existing and New Chemical Substances List	No
South Korea	South Korea Existing Chemicals Inventory	Yes
Philippines	Philippines Inventory of Chemicals and Chemical	Yes
USA	USA TSCA Inventory list section 8(b)	Yes

- None

## 16. Other Information

### Legend

ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
ADR/RID	European Agreement for transport of dangerous goods by road (ADR) and by rail (RID)
CAS No.	Chemical Abstract Service Registry Number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, AKA "Superfund"
DOT	Department of Transportation (USA)
HCS	OSHA Hazard Communication Standard (29 CFR 1910.1200)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IMDG	International Maritime Dangerous Goods
MSHA	Mine Safety and Health Administration
N.A.	Not Applicable
N.D.	Not Determined
N.E.	Not Established
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration (USA)

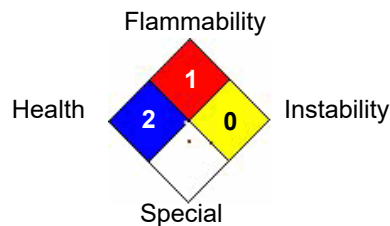
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act of 1986 (40 CFR)
STEL	Short Term Exposure Limit (15 minute Time Weighted Average)
TDG	Canada Transport of Dangerous Goods regulations
TLV	Threshold Limit Value
TWA	Time Weighted Average
WHMIS	Canada Workplace Hazardous Materials Information System

**Hazardous Material Information System (HMIS)**

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0
PERSONAL PROTECTION		

**HMIS & NFPA Hazard Rating Legend**  
 \* = Chronic Health Hazard  
 0 = INSIGNIFICANT  
 1 = SLIGHT  
 2 = MODERATE  
 3 = HIGH

**National Fire Protection Association (NFPA)**



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Reviewer Revision

Date Prepared: 5/30/2019