

DESCRIPTION

CAFCO BLAZE-SHIELD HP is an inorganic, Portland cement based, medium density Spray-Applied Fire Resistive Material (SFRM) designed to provide fire protection for structural steel in commercial construction. Tested and classified by UL as "investigated for exterior use", CAFCO BLAZE-SHIELD HP's durable surface and cement based formula enable it to withstand indirect weather exposure conditions and limited physical abuse, thus allowing for application in parking garages, mechanical rooms, elevator shafts, etc.

In addition to fire resistance, CAFCO BLAZE-SHIELD HP also provides thermal and acoustical benefits. As a thermal insulator, it is effective in reducing heat loss, particularly when applied to the underside of a roof deck. The R-value added by CAFCO BLAZE-SHIELD HP may also allow a reduction in roof insulation. As an efficient sound absorbing material, it adds value to the fire protection application in areas where high noise levels are anticipated.

With a simple one-step application process, CAFCO BLAZE-SHIELD HP is able to provide complete passive fire protection for most construction conditions at reduced costs and in less time.

PRODUCT ADVANTAGES

- UL "Investigated for exterior use"
- Meets current IBC high rise bond strength requirement of 430 psf
- Inorganic Portland cement based formulation
- Highest recycled content in its class (56% pre-consumer)

FIRE TEST PERFORMANCE

CAFCO BLAZE-SHIELD HP has been extensively tested for fire resistance and is rated for up to 4 hours for floor assemblies, beams, joists, columns, roof assemblies and walls and partitions.

- Classified by UL in accordance with ANSI/UL 263 (ASTM E119)
- Classified by UL in accordance with CAN/ULC-S101 (ASTM E119)

CODE COMPLIANCES

CAFCO BLAZE-SHIELD HP satisfies the requirements of the following:

- IBC®-INTERNATIONAL BUILDING CODE® (ICC ESR-1649)
- NBC - National Building Code of Canada

MAJOR SPECIFICATIONS

CAFCO BLAZE-SHIELD HP complies with the requirements of the following specifications:

- MasterSpec®, Section 078100 APPLIED FIREPROOFING (AIA)
- MasterFormat® 2014, Section 07 81 00 Applied Fireproofing (CSC, CSI)
- Unified Facilities Guide Specification, UFGS 07 81 00 Spray-Applied Fireproofing (USACE, NAVFAC, AFCEC, NASA)
- Master Construction Specifications, Number 07 80 10 Applied Fireproofing (VA)
- Code of Federal Regulations, Title 40 Protection of the Environment (EPA)
- PBS-P100 Facilities Standards for the Public Buildings Services (GSA)

Thermal Performance

Product	Conductivity(k)*	Resistance (R/inch)
BLAZE-SHIELD HP	0.41 BTU in/hr ft ² °F @ 75° F (0.059 W/mK @ 24°C)	2.43

*When tested in accordance with ASTM C518

Acoustical Performance

Product	Thickness	Base	NRC Rating*
BLAZE-SHIELD HP	1/2 inch (13 mm)	Deck & Beam	0.85

*When tested in accordance with ASTM C423

Physical Performance

Characteristic	ASTM Method	Standard Performance*	Tested Performance**
Density	E605	22 pcf (352 kg/m ³)	24 - 26 pcf (384 - 416 kg/m ³)
Combustibility	E136	Noncombustible	Noncombustible
Cohesion/Adhesion	E736	430 psf (20.6 kPa)	1,525 psf (73.0 kPa)
Deflection	E759	No Cracks or Delaminations	No Cracks or Delaminations
Bond Impact	E760	No Cracks or Delaminations	No Cracks or Delaminations
Compressive Strength	E761	7,344 psf (351 kPa)	7,920 psf (379.2 kPa)
Air Erosion Resistance	E859	Less than 0.025 g/ft ² (0.27 g/m ²)	0.000 g/ft ² (0.000 g/m ²)
Corrosion Resistance	E937	Does Not Promote Corrosion of Steel	Does Not Promote Corrosion of Steel
Fungal Resistance	G21	No Growth After 28 Days	Passed

* Standard performance based on industry standards and practices. Refer to UL design for density requirement.

** Values represent independent laboratory tests under controlled conditions.

CAFCO BLAZE-SHIELD HP Guide Specification

SECTION 078100 - APPLIED FIREPROOFING

The following is an outline/short language specification. Complete specifications for Spray-Applied Fire Resistive Materials are available on various media upon request.

PART 1 - GENERAL

1.1 Work included

1.1.1 Provide all labor, materials, equipment and services necessary for, and incidental to, the complete and proper installation of all sprayed fire protection and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract Documents.

1.1.2 The material and installation shall conform to the applicable building code requirements and the requirements of all authorities having jurisdiction.

1.2 Quality Assurance

1.2.1 Work shall be performed by a firm with expertise in the installation of fire protection or similar materials. This firm shall be recognized or otherwise approved by the spray-applied fire resistive material manufacturer.

1.2.2 Before proceeding with the fire protection work, approval of the proposed material thicknesses and densities shall be obtained from the architect and other applicable authorities having jurisdiction.

1.3 Related Sections

1.3.1 SECTION 051200 - STRUCTURAL STEEL FRAMING

1.3.2 SECTION 053100 - STEEL DECKING

1.3.3 SECTION 072100 - THERMAL INSULATION

1.3.4 SECTION 078123 - INTUMESCENT FIREPROOFING

1.3.5 SECTION 078443 - JOINT FIRESTOPPING

1.4 References

- A. ASTM E84 - Surface Burning Characteristics of Building Materials.
- B. ASTM E119 - Fire Tests of Building Construction and Materials.
- C. ASTM E136 - (Noncombustibility) Behavior of Materials in a Vertical Tube Furnace at 750°C.
- D. ASTM E605 - Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members.
- E. ASTM E736 - Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
- F. ASTM E759 - Effect of Deflection of Sprayed Fire-Resistive Materials Applied to Structural Members.
- G. ASTM E760 - Effect of Impact on Bonding of Sprayed Fire-Resistive Materials Applied to Structural Members.
- H. ASTM E761 - Compressive Strength of Sprayed Fire-Resistive Materials Applied to Structural Members.
- I. ASTM E859 - Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.
- J. ASTM E937 - Corrosion of Steel by Sprayed Fire-Resistive Materials Applied to Structural Members.
- K. CAN/ULC-S101 - Standard Methods of Fire Tests of Building Construction and Materials.
- L. CAN/ULC-S102 - Steiner Tunnel Test.
- M. CAN4-S114 Standard Test Method for Determination of Noncombustibility in Building Materials.

1.4.1 Underwriters Laboratories (UL) Fire Resistance Directory.

1.4.2 Underwriters Laboratories of Canada (ULC) List of Equipment and Materials.

1.4.3 IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS, Section 1704 Special Inspections.

1.4.4 AWC Publication: Technical Manual 12-A Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials; an Annotated Guide.

1.5 Submittals

1.5.1 Manufacturer's Data: Submit Manufacturer's specification, including certification as may be required to show material compliance with Contract Documents.

1.5.2 Test Data: Independent laboratory test results shall be submitted for all specified performance criteria.

1.6 Delivery, Storage and Handling

1.6.1 Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data. Packaging shall bear the UL and ULC labels for fire hazard and fire-resistance classifications.

1.6.2 Store materials above ground, in a dry location, protected from the weather. Damaged packages found unsuitable for use should be rejected and removed from the project.

1.7 Project Conditions

1.7.1 When the prevailing outdoor temperature at the building is less than 40° F (4°C), a minimum substrate and ambient temperature of 40° F (4°C) shall be maintained prior to, during, and a minimum of 24 hours after application of spray-applied fire resistive material. If necessary for job progress, General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels.

1.7.2 General Contractor shall provide ventilation to allow proper drying of the sprayed fire protection during and subsequent to its application.

1.7.2.1 Ventilation must not be less than 4 complete air exchanges per hour until the material is dry. When spraying in enclosed areas such as basements, stairwells, shafts, and small rooms, additional air exchanges may be necessary.

1.8 Sequencing/Scheduling

1.8.1 All fire protection work on a floor shall be completed before proceeding to the next floor.

1.8.2 The Contractor shall cooperate in the coordination and scheduling of fire protection work to avoid delays in job progress.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

2.1.1 The spray-applied fire resistive material shall be manufactured under the CAFCO® brand name, by authorized producers.

2.2 Materials

2.2.1 Materials shall be CAFCO BLAZE-SHIELD HP, (UL/ULC designation: Type HP) applied to conform to the drawings, specifications and following test criteria:

2.2.1.1 Deflection: When tested in accordance with ASTM E759, the material shall not crack or delaminate when the non-concrete topped galvanized deck to which it is applied is subjected to a one time vertical centerload resulting in a downward deflection of 1/120th of the span.

2.2.1.2 Bond Impact: When tested in accordance with ASTM E760, the material shall not crack or delaminate from the concrete topped galvanized deck to which it is applied.

2.2.1.3 Cohesion/Adhesion (bond strength): When tested in accordance with ASTM E736, the material applied over uncoated or galvanized steel shall have an average bond strength of 430 psf (20.6 kPa).

2.2.1.4 Air Erosion: When tested in accordance with ASTM E859, the material shall not be subject to losses from the finished application greater than 0.025 grams per sq. ft. (0.27 grams per square meter).

2.2.1.5 Compressive Strength: When tested in accordance with ASTM E761, the material shall not deform more than 10 percent when subjected to a crushing force of 7,344 psf (351 kPa).

2.2.1.6 Corrosion Resistance: When tested in accordance with ASTM E937, the material shall not promote corrosion of steel.

2.2.1.7 Noncombustibility: When tested in accordance with ASTM E136 or CAN4-S114, the material shall be noncombustible.

2.2.1.8 Surface Burning Characteristics: When tested in accordance with ASTM E84 or CAN/ULC-S102, the material shall exhibit the following surface burning characteristics:
Flame Spread.....0
Smoke Developed.....0

2.2.1.9 Density: When tested in accordance with ASTM E605, the material shall meet the minimum individual and average density values as listed in the appropriate UL / ULC design or as required by the authority having jurisdiction.

2.2.2 The material shall have been tested and classified by Underwriters Laboratories (UL) or Underwriters Laboratories of Canada (ULC) in accordance with the procedures of UL 263 (ASTM E119) or CAN/ULC-S101.

2.2.3 Spray-applied fire resistive materials shall be applied at the appropriate minimum thickness and density to achieve the following ratings:

Floor assemblies ____ hr.
Roof assemblies ____ hr.
Beams ____ hr.
Girders ____ hr.
Columns ____ hr.
Joists ____ hr.

2.2.4 Potable water shall be used for the application of spray-applied fire resistive materials.

2.2.5 Spray-applied fire resistive materials shall contain no detectable asbestos. Material manufacturer shall provide certification of such upon request.

PART 3 - EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive fire protection shall be free of oil, grease, loose mill scale, dirt, paints/primer or other foreign materials which would impair satisfactory bonding to the surface. Manufacturer shall be contacted for procedures on handling primed/painted steel. Any cleaning of surfaces to receive spray-applied fire resistive material shall be the responsibility of the General Contractor or Steel Erector, as outlined in the structural steel or steel deck section.

3.1.2 Clips, hangers, supports, sleeves and other attachments to the substrate are to be placed by others prior to the application of spray-applied fire resistive materials.

3.1.3 The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of spray-applied fire resistive materials is complete in an area.

3.1.4 The spray-applied fire resistive material shall only be applied to steel deck which has been fabricated and erected in accordance with the criteria set by the Steel Deck Institute.

3.1.5 When roof traffic is anticipated, as in the case of periodic maintenance, roofing pavers shall be installed as a walkway to distribute loads.

3.2 Application

3.2.1 Equipment, mixing and application shall be in accordance with the manufacturer's written application instructions.

3.2.2 The application of spray-applied fire resistive material shall not commence until certification has been received by the General Contractor that surfaces to receive sprayed fire protection have been inspected by the applicator and are acceptable to receive spray-applied fire resistive material.

3.2.3 All unsuitable substrates must be identified and made known to the General Contractor and corrected prior to application of the spray-applied fire resistive material.

3.2.4 Spray-applied fire resistive material shall not be applied to steel floor decks prior to the completion of concrete work on that deck.

3.2.5 The application of spray-applied fire resistive material to the underside of roof deck shall not commence until the roofing is completely installed and tight, all penthouses are complete, all mechanical units have been placed, and after construction roof traffic has ceased.

3.2.6 Proper temperature and ventilation shall be maintained as specified in 1.7.1, 1.7.2, and 1.7.2.1.

3.2.7 Provide masking, drop cloths or other suitable coverings to prevent overspray from coming in contact with surfaces not intended to be sprayed.

3.2.8 CAFCO BOND-SEAL (Type EBS) adhesive shall be applied as per the appropriate UL/ULC fire resistance design and manufacturer's written recommendations.

3.3 Repairing and Cleaning

3.3.1 All patching of and repair to spray-applied fire resistive material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage.

3.3.2 After the completion of the work in this section, equipment shall be removed and all surfaces not to be sprayed shall be cleaned to the extent previously agreed to by the applicator and General Contractor.

3.4 Inspection and Testing

3.4.1 The spray-applied fire resistive material shall be tested for thickness and density in accordance with one of the following procedures:

ASTM E605 - Standard Test Method of Sprayed Fire-Resistive Materials Applied to Structural Members.

AWCI Publication: Technical Manual 12-A Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials; an Annotated Guide.

IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS, Section 1704 Special Inspections.

Product Availability

Isolatek International Spray-Applied Fire Resistive Materials are available to trained, recognized applicators around the world from strategically located production and distribution points in the U.S., Canada, Mexico, Europe and the Pacific Basin.



ISOLATEK INTERNATIONAL is registered with the
AIA Continuing Education System (AIA/CES)



We support our customers with unsurpassed technical expertise and customer service, complemented by an extensive global network of experienced sales representatives and recognized applicators. For detailed product information or for the name of the sales representative in your area please contact us.

The performance data herein reflect our expectations based on tests conducted in accordance with recognized standard methods under controlled conditions. The applicator, general contractor, property owner and/or user MUST read, understand and follow the directions, specifications and/or recommendations set forth in Isolatek International's publications concerning use and application of these products, and should not rely merely on the information contained in this product data sheet. Isolatek International is not responsible for property damage, bodily injuries, consequential damages, or losses of any kind that arise from or are related to the applicator's, general contractor's, or property owners' failure to follow the recommendations set forth in Isolatek International's publications. The sale of these products shall be subject to the Terms and Conditions set forth in the Company's invoices.



Isolatek International provides passive fireproofing materials under the CAFCO® trademark throughout the Americas and other markets and under the ISOLATEK® trademark throughout the world.

800.631.9600 or 973.347.1200
www.isolatek.com | technical@isolatek.com



Section 1 – Chemical Product / Company Information

Product Name: CAFCO® BLAZE-SHIELD® DC/F, CAFCO® BLAZE-SHIELD® DC/F WHITE, CAFCO® BLAZE-SHIELD® DC/F CHARCOAL, CAFCO® BLAZE-SHIELD® II, CAFCO® BLAZE-SHIELD® II WHITE, CAFCO® BLAZE-SHIELD® II CHARCOAL, CAFCO® BLAZE-SHIELD® HP, CAFCO® BLAZE-SHIELD® HP WHITE, CAFCO® BLAZE-SHIELD® HP CHARCOAL

Effective Date: October 6, 2015

Product Use/Class: Spray-Applied Fire Resistive Materials (SFRM)

Manufacturer: United States Mineral Products Company
dba Isolatek International
41 Furnace Street
Stanhope, NJ 07874 USA
(973)-347-1200

Preparer: R&D Department

In Case of Emergency Call: CHEMTREC
800.424.9300 (USA) +1 703.527.3887 (Int'l)

Supersedes: January 30, 2015

Section 2 – Hazards Identification

GHS Classification:

Hazard Class	Hazard Category	Route of Exposure
Skin Irritation	2	Skin
Skin Sensitizer	1	Skin
Eye Irritation	2B	Eye
Inhalation Toxicity	4	Nose/Mouth

Global Harmonization Labeling and Classification:

Signal word: Warning

Hazard Symbol(s): GHS07



Overview: This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. As product may contain trace amount of crystalline silica, prolonged exposure to respirable crystalline silica may cause cancer.

Primary Route(s) of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Medical Conditions Prone to Aggravation by Exposure: Sensitive skin; respiratory conditions

Hazard Statements:	
H303	May be harmful if swallowed.
H313	May be harmful in contact with skin.
H320	Causes eye irritation.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements:	
P202	Do not handle until safety precautions have been read and understood.
P261	Avoid breathing dust/ fumes/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P402+P403	Store in a dry place. Store in a well ventilated place.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.

Response:	
P301+P330 P331+P312	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/ physician if you feel unwell.
P302+P352+ P332+P313+ P363	IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.
P304+P340+ P342+P313	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get medical advice/ attention.
P305+P351+ P338+P337+ P313	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Storage:	
P402+P403+ P232	Store in a dry place. Store in a well ventilated place. Protect from moisture.

Disposal:	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations (see section 13).

Section 3 – Composition / Information On Ingredients

Chemical Name	CAS Number	Wt. % (Max.)
Slag Wool	65997-17-3	50 - 90
Portland Cement	65997-15-1	10 – 50
Calcium Sulfate Hemihydrate	26499-65-0	1 - 10
Crystalline Silica	14808-60-7	<1

Section 4 – First Aid Measures

General – If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area, see a physician/get medical attention.

First Aid – Skin Contact: Wash with soap and water. Remove contaminated clothing. If persistent irritation occurs, seek medical attention.

First Aid – Eye Contact: Flush eyes thoroughly with copious amounts of water. Seek medical attention if irritation persists.

First Aid – Inhalation: Remove to fresh air. Seek medical attention if irritation persists.

First Aid – Ingestion: Do not induce vomiting. Rinse mouth out with water. Seek medical attention if irritation persists.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

Section 5 – Fire Fighting Measures

Extinguishing Media: Not Applicable. Product will not burn.

Unusual Fire & Explosion Hazards: None.

Special Firefighting Procedures: None.

Section 6 – Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Sweep up material and place in disposal containers. Avoid inhalation of dust. Dispose of material in accordance with all federal, state, and local regulations. Use personal protective equipment as necessary.

Section 7 – Handling And Storage

Precautions for safe handling: Avoid inhalation of dust. Avoid skin & eye contact. Wear skin and eye protection during use. Use normal personal hygiene to remove materials, contaminants; wash clothing separately before re-use.

Conditions for safe storage: Keep dry. Keep containers closed when not in use. Store in a cool, dry place with adequate ventilation.

Section 8 – Exposure Controls / Personal Protection

Permissible Exposure Limits

Chemical Name	CAS Number	OSHA PEL	ACGIH TLV	NIOSH	Mexico
Slag Wool	65997-17-3	15 mg/m ³ TWA (Total Dust) 5 mg/m ³ (Respirable Fraction)	1 f/cc TWA	5 mg/m ³ TWA (Total Dust)	N/E
Portland Cement	65997-15-1	15 mg/m ³ TWA (Total Dust)	10 mg/m ³ TWA (Chemical is a particulate matter containing no asbestos and <1% crystalline silica.	10 mg/m ³ TWA (Total Dust)	N/E
Calcium Sulfate Hemihydrate	26499-65-0	15 mg/m ³ TWA (Total Dust) 5 mg/m ³ (Respirable Fraction)	15 mg/m ³ TWA (Chemical is a particulate matter containing no asbestos and <1% crystalline silica.	10 mg/m ³ TWA (Total Dust) 5 mg/m ³ (Respirable Fraction)	10 (Respirable Fraction)
Crystalline Silica	14808-60-7	30 mg/m ³ %SiO ₂ +2 (Total Dust) 250 mppcf %SiO ₂ +5 (Respirable) 10 mg/m ³ %SiO ₂ +2 (Respirable Fraction)	0.025 mg/m ³ TWA (Respirable Fraction)	0.05 mg/m ³ TWA (Total Dust) 0.05 mg/m ³ TWA (Respirable Fraction)	0.010mg/m ³ TWA (Total Dust)

Engineering Controls: Exhaust fans may be necessary when mixing in enclosed areas.

Respiratory Protection: Wear a proper disposable dust mask to prevent exposure above the limits specified.

Skin Protection: Wear gloves and use hand creams to prevent dry skin.

Eye Protection: Wear proper eye protection; at minimum, safety glasses with side shields.

Work / Hygienic Practices: Use bag opening procedures which minimize dust release. Use anti-slip surfaces on working platforms – material is slippery when wet.

Section 9 – Physical And Chemical Properties

Appearance:	White to charcoal
Odor:	Low odor
pH:	10-13
Melting Point (°F):	>1800°F (981°C)
Boiling Point (°F):	Not Applicable
Flash Point:	Not Applicable
Evaporation Rate:	Not Applicable
Flammability:	Not Applicable
Lower Explosive Limit:	Not Applicable
Upper Explosive Limit:	Not Applicable
Vapor Pressure (mm Hg):	Not Applicable
Bulk Density (kg/mm³)	Not Applicable
Solubility in Water:	Low
Specific Gravity (H₂O=1):	Not Applicable
Physical State:	Solid
% Volatiles:	Not Applicable
Viscosity	Not Applicable
Auto Ignition temperature	Not Applicable

Section 10 – Stability And Reactivity

Chemical Stability (under normal conditions):	Stable
Possibility of Hazardous Reactions:	No
Conditions to Avoid:	Contact with strong acids
Incompatibility:	Strong Acids
Hazardous Decomposition Products:	Stable under normal conditions. Trace amounts of carbon and nitrogen oxide compounds may release under fire.
Hazardous Polymerization:	No polymerization will occur.

Section 11 – Toxicological Information

Carcinogenicity	IARC			NTP		OSHA	LD50/LC50
Chemical Name	Group 1	Group 2	Group 3	Known	Suspect		
Slag Wool	No	No	Yes (not classifiable as to human carcinogenicity)	No	No	No	No Data Available
Portland Cement	No	No	No	No	No	No	No Data Available
Calcium Sulfate Hemihydrate	No	No	No	No	No	No	No Data Available
Crystalline Silica	Yes	No	No	Yes	No	Yes	No Data Available

Section 12 – Ecological Information

Ecological Information: No data available.

Section 13 – Disposal Considerations

Disposal Information: For waste disposal purposes, this product is not known to be designated as hazardous by current provisions under RCRA. Dispose of in accordance with federal, state and local regulations.

Section 14 – Transportation Information

Proper Shipping Name:	Not Applicable
Technical Name:	Not Applicable
Hazard Class:	Non-Hazardous
UN/NA Number:	Not Applicable
Additional Notes:	None

Section 15 – Regulatory Information

U.S. Federal Regulations SARA 311/312	Immediate Health (Acute)	Delayed Health (Chronic)	FIRE	PRESSURE	REACTIVE
	No	Yes	No	No	No

U.S. State Regulations	State Hazardous Substance List						
	CAS Number	CA	MA	MN	NJ	PA	RI
	65997-17-3	No	No	No	No	No	No
	65997-15-1	No	No	No	No	No	No
	26499-65-0	No	No	No	No	No	No
	14808-60-7	Yes	Yes	Yes	Yes	No	Yes

International Regulations as Follows:

Chemical Inventory Status

All chemicals in this product are listed or exempt from listing in the following countries:

U.S	Canada		Europe		Australia	Korea
TSCA	DSL	NDSL	EINECS	ELINCS	AICS	ECL
Yes	Yes	No	Yes		Yes	Yes

CANADIAN WHIMIS

This SDS has been prepared in compliance with Controlled Product Regulations and contains all information required.

CANADIAN WHMIS CLASS: D2A

HMIS Rating

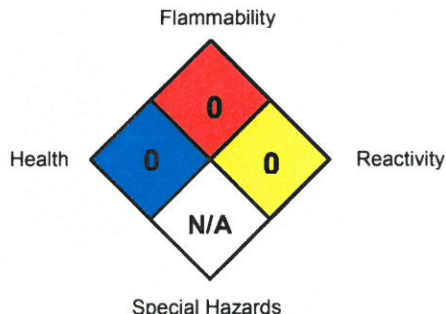
HEALTH	1
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	e

Section 16 – Other Information

N/E – Non Established

N/A – Not Applicable

NFPA:



Prepared By: Research Department, U.S.A.

Telephone: (973) 347-1200

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. **VENDOR SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** In no event shall the vendor be liable for special, indirect or consequential damages.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in this data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes all risks in his use of the material.