



THE FIRESTOP AUTHORITY

An ISO9001:2008 Company

Edge of Slab Fire Containment

Project Webster University - I.S.B.

Date 07/13/2016 *REVISED 1-9-17*

Project Address St. Louis, Missouri 63103
United States

Robert Mann

Table of Contents

Systems

1 CWS0002

Steel backpan. Aluminum framed curtain wall with glass/aluminum/stone spandrel panels. Roxul & Thermafiber products.

Product Data Sheets

1 Fast Track Firestop Spray

2 AS200 Elastomeric Spray

3 Mineral Wool

Approval Information

Factory Mutual

1 FM 4990 Certificate of Compliance

2. FM 4991 INSTALLER QUALIFICATIONS (FM APPROVED)

UL Letters

2 UL Certificate of Compliance

3 UL Certificate of Conformance



System No. CW-S-0002

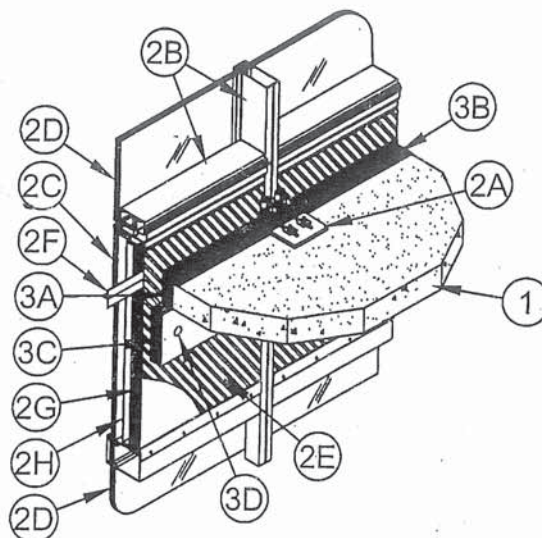
F Rating - 2 Hr

T Rating - 1/2 Hr

Linear Opening Width - 2 In. Max

L Rating At Ambient - Less Than 1 CFM/Lin Ft

L Rating At 400°F - Less Than 1 CFM/Lin Ft



1. **Floor Assembly** - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) structural concrete.
2. **Curtain Wall Assembly** - The factory-assembled curtain wall assembly shall incorporate the following construction features:
 - A. **Mullion Mounting Brackets** - Min 8 in. (203 mm) wide by 3/4 in. (19 mm) thick extruded aluminum Halfen mounting brackets with one nom 2 in. (51 mm) high leg for support and attachment of mullion and with one leg at least 6 in. (152 mm) longer than the width of linear opening between floor assembly and mullion. Mounting bracket attached to top of floor with two min 1/2 in. (13 mm) diam steel masonry anchors in conjunction with washer plates supplied with mounting bracket.
 - B. **Framing** - The one or two-piece rectangular tubing mullions (vertical members) and transoms (horizontal members) shall be min 2-1/2 in. (64 mm) wide by 5 in. (127 mm) deep and shall be formed from min 0.100 in. (2.5 mm) thick aluminum. Mullions spaced max 60 in. (1.52 m) OC and secured to mullion mounting anchors (Item 2A) at each floor level in conjunction with extruded aluminum clips bolted to the sides of the mullions and designed to engage the vertical leg of the Halfen mullion mounting bracket in conjunction with an extruded aluminum hook/leveling connector. Interior face of mullions to be max 2 in. (51 mm) from edge of floor assembly. Transoms to be spaced min 36 in. (0.91 m) OC. Sill of vision panel to be located min 6 in. (152 mm) above top surface of floor assembly.
 - C. **Spandrel Panels** - The spandrel panels shall consist of one of the following types:
 - a. **Glass Panels** - Min 1/4 in. (6 mm) thick opaque heat-strengthened glass or min 1 in. (25 mm) thick insulated glass units with two layers of nom 1/4 in. (6 mm) thick heat-strengthened glass separated by a min 1/2 in. (25 mm) air space. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.
 - b. **Aluminum Panels** - Min 1/8 in. (3 mm) thick aluminum panels with nom 1/4 in. (6 mm) thick edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.
 - c. **Stone Panels** - Nom 1-3/16 in. (30 mm) thick polished granite spandrel panels with 1 in. (25 mm) thick gauged edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.
 - D. **Vision Panels** - Min 1/4 in. (6 mm) thick transparent heat-strengthened glass or min 1 in. (25 mm) thick insulated glass units with two layers of nom 1/4 in. (6 mm) thick transparent heat-strengthened glass separated by a min 1/2 in. (25 mm) air space. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.

Design covered under US Patent No. 7,856,775 B2



Specified Technologies Inc. 210 Evans Way Somerville, NJ 08876

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Created or Revised: December 02, 2014

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CW-S-0002
PAGE 1 OF 2

- E. **Steel Backpan** - No. 22 gauge (min 0.031 in. or 0.79 mm thick) galv steel panels installed between mullions and transoms within spandrel panel area. Steel backpan provided with min 1/2 in. (13 mm) wide lip around all four sides. Steel backpan installed flush with interior face of framing and screw-attached to mullions and transom along all sides with min No. 8 by 1/2 in. (13 mm) long self-drilling, self-tapping steel screws spaced max 8 in. (203 mm) OC.
- F. **Stiffener Tee** - Nom 1-1/2 in. deep by 3in. wide T-shaped stiffener formed of No. 22 gauge (min 0.031 in. or 0.79 mm thick) galv steel welded to exterior surface of steel backpan. Stiffener tee installed with its stem at an elevation 2 in. (51 mm) below the top surface of the floor such that, upon installation of the safing insulation (Item 3A), the stiffener channel will be located at the middepth of the safing insulation. The spot or stitch welds securing the stiffener tee to the backpan shall be spaced max 8 in. (203 mm) OC along the length of the tee with welds alternating between the top and bottom of the tee.
- G. **Curtain Wall Insulation*** - Min 2 in. (51 mm) thick mineral wool batt insulation faced on one side with aluminum foil/scrim vapor retarder. Insulation batts to be installed as a continuous piece with no seams, partially kerfed on one face to receive stem of stiffener tee. Insulation panels tightly-fitted between vertical mullions and the transoms and secured to steel backpan with No. 12 gauge steel weld pins with steel clinch shields or with cup head weld pins (Item 3D) spaced max 12 in. (305 mm) OC.

~~TECHNICAL MANUAL FOR THE CURTAINWALL SYSTEM~~

~~REXEL INC - CURTAINWALLS~~

THERMAFIBER INC - FIRESpan 90

- H. **Aluminum Sandwich Panel** - (Optional) - Min 1/8 in. (3 mm) solid aluminum panel or aluminum composite panel installed on exterior surface of curtain wall insulation (Item 2G).

3. Safing System - The safing system shall incorporate the following construction features:

- A. **Forming Material*** - Nom 4 pcf (64 kg/m³) density mineral wool batt insulation. Batt sections cut to a width equal to the thickness of the floor and stacked to a thickness which is min 50 percent greater than the width of the linear gap between the curtain wall insulation and the edge of the concrete floor slab. The forming material is compressed min 33 percent and inserted cut-edge-first into the linear gap such that it is flush with the top and bottom surfaces of the floor assembly. Adjoining lengths of forming material to be tightly butted with butted seams spaced min 24 in. (610 mm) OC. Forming material to be continuous beneath mullion mounting brackets (Item 2A).

~~TECHNICAL MANUAL FOR THE CURTAINWALL SYSTEM~~

~~REXEL INC - CURTAINWALLS~~

THERMAFIBER INC - SAF

- B. **Fill, Void or Cavity Material*** - Min 1/8 in. (3 mm) wet thickness (1/16 in. or 1.5 mm dry thickness) of fill material spray-applied over top of forming material and lapping min 1/2 in. (13 mm) onto the top surface of the floor and onto the steel backpan. When SpecSeal Fast Tack Spray is used, wet and dry thickness of spray is min 5/64 in. (2 mm).
SPECIFIED TECHNOLOGIES INC - SpecSeal AS200 Elastomeric Spray or SpecSeal Fast Tack Spray
- C. **Safing Shelf - Curtain Wall Insulation*** - Nom 2 in. (51 mm) thick mineral wool batt insulation faced on one side with aluminum foil/scrim vapor retarder. Min 8 in. (203 mm) wide strips butted tightly against bottom of safing insulation (Item 3A), continuous over the steel backpans and mullions, and secured to the steel backpan with cup head weld pins (Item 3D) spaced max 12 in. (305 mm) OC.

~~TECHNICAL MANUAL FOR THE CURTAINWALL SYSTEM~~

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- D. **Weld Pin** - Nom 2 in. (51 mm) long No. 12 gauge galv steel weld pin with nom 1-3/16 in. (30 mm) diam galv steel cup head used to secure curtain wall insulation (Item 3C) to steel backpan.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Design covered under US Patent No. 7,856,775 B2



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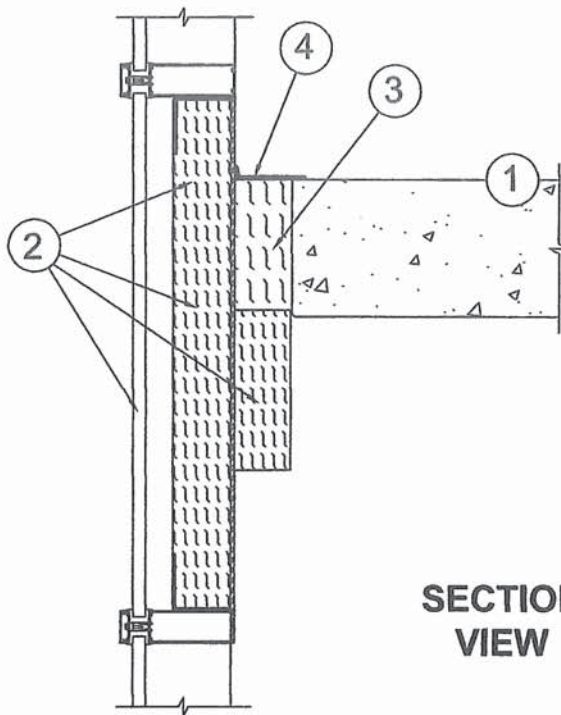
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CW-S-0002
PAGE 2 OF 2



**SECTION
VIEW**

1. **Floor Assembly (2 Hr)** — Min 4-1/2 in. thick concrete or min 2-1/2" thick concrete over fluted steel deck (max 3" deep flutes). Min vertical surface at edge of slab is 4".
2. **Curtain Wall Assembly** — Curtain wall assembly built per UL System No. CW-S-0002 incorporating the following features:
 - Min 22 gauge steel back pan installed on interior face of framing.
 - Min 2" thick, 8 pcf, mineral wool batt insulation fastened using 90 degree angle insulation hangers. Pins to be snipped flush with interior face of framing.
 - Linear opening width is max 10".
3. **Forming Material** — Min 4 pcf mineral wool batt insulation cut to a min width of 4" and stacked to attain a thickness 25% greater than width of linear opening. Mineral wool compressed 20% in thickness and installed into linear opening flush with top surface of concrete wall.
4. **SpecSeal® AS200 Elastomeric Spray** or **SpecSeal® Fast Tack™ Firestop Spray** — Spray applied over forming material to a min 1/8" wet thickness, lapping surrounding substrates by a min 1/2".

***Note:** Rating of the perimeter fire barrier system is dependent on the performance of the surrounding construction under fire exposure with a max possible F rating of 2 Hr.

THIS DESIGN REPRESENTS A FIRESTOP SYSTEM EXPECTED TO PASS THE STATED RATINGS IF TESTED

Project: Webster University		Signature: 		System Reference: CW-S-0002, CW-S-2062	
Project Address: Webster Grove, MO		Date: 01/13/2017		Based on testing to ASTM E2307: Intermediate-Scale Multi-Story Test Apparatus; IBC Chapter 7, Floor Continuity Provisions	
Designed by: Kevin Lang					
Contractor: Rebel		Scale: N.T.S.		PAGE 1 OF 1	
 Specified Technologies Inc. 210 Evans Way • Somerville, NJ 08876 USA • Toll Free: 800-992-1180 • T: +1 908-526-8000 F: +1 908-231-8415 • E: techserv@stifiestop.com • www.stifiestop.com		All statements, technical information, and recommendations contained herein are based upon tests we believe to be accurate; however since the conditions of use and application are beyond our control, STI shall not be liable for any damage, direct or consequential, resulting from the use of this material or design. STI's sole warranty shall be to refund or replace materials found to be defective.			



SERIES AS200 ELASTOMERIC SPRAY

APPLICATIONS

SpecSeal® Elastomeric Spray is designed primarily for the protection of construction joints, curtain wall saing gaps, and certain through-penetrations.



PRODUCT DESCRIPTION

SpecSeal® Series AS200 Elastomeric Spray is a non-halogenated latex-based, highly elastomeric coating designed to provide passive smoke and fire protection in construction joints.

SpecSeal® Series AS200 Elastomeric Spray is engineered to adhere to virtually all construction surfaces and may be applied using airless spray equipment or with a brush (ideally for, but not limited to, small applications or touch ups).

SpecSeal® Series AS200 Elastomeric Spray dries to form a flexible shield against the propagation of fire. Its premium latex binder system is totally resistant to water and will not re-emulsify after drying. SpecSeal® Series AS200 Elastomeric Spray contains no inorganic fibers, asbestos, solvents.

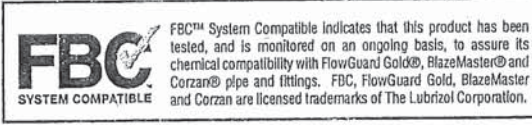
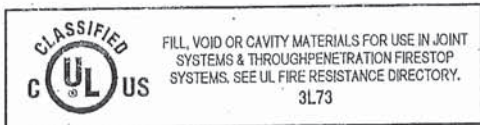
FEATURES

- Water-Based for easy installation and cleanup
- Non-halogenated.
- Thixotropic for high-build application.
- Auto Bonding.
- Safe... no solvents! No asbestos!
- Flexible!
- Water Resistant!
- Low Abrasion for longer pump life and less maintenance.
- UL Classified.
- Tested with spray applied fire resistive materials (SFRM).
- Paintable

PERFORMANCE

When applied to a wet film thickness of 1/8" (3.2 mm) over appropriate backing materials, SpecSeal® Series AS200 Elastomeric Spray has been successfully tested in one, two, three and four hour joints tested in accordance with ASTM E1966 (ANSI/UL2079) and CAN/ULCS115. This product has also been tested for use in Perimeter Fire Barrier Systems in accordance with **ASTM E2307**. Consult factory for individual system designs and application requirements.

LIMITATIONS: Use product as per manufacturer's instructions. Use only in applications per the manufacturer's tested and published designs or specific recommendations. End user must ultimately determine the suitability of the product and designs to his specific requirement and assumes responsibility for its use. **PRODUCT CONTAINS WATER AND IS CONDUCTIVE UNTIL DRY. DO NOT APPLY IN THE PRESENCE OF EXPOSED OR ENERGIZED ELECTRICAL CONDUCTORS.**



PHYSICAL PROPERTIES

PROPERTIES:		SERIES AS SPRAY	
Color		Pale Blue and Red	
Odor		Mild Latex	
Specific Gravity		1.3	
Solids Content by Weight		74%	
Solids Content by Volume		66.4%	
Flame Spread		0*	
Smoke Developed		25*	
Movement		±50%**	
Coverage	12.8 sq ft/gal @ 1/8" (0.31 sq m/L @ 3.2 mm)		
Viscosity		110,000 cps	
pH		7.5	

PROPERTIES:		SERIES AS SPRAY	
Solvent Content		None	
Plasticizer		None	
In-Service Temp.		≤185° F (85° C)	
Storage Temp.		40°F (4°C) - 95°F (35°C)	
Drying Time		Tack Free 2 Hours	
		Dry Through 24-48 Hours ^A	
STC Rating		61	
VOC Content ^B		10 g/L	
Shelf Life		18 Months	

* Tested to ASTM E84 (UL723) @ 14% coverage.
 **500 Cycles per UL2079, AC308 (ICBO) and ASTM E1399
^ADependent on temperature and humidity.
^BPer ASTM D3960 EPA Fed. Reference Method 24



FIG. 1: METALLIC PIPE PENETRATIONS - CONCRETE/MASONRY FLOORS & WALLS

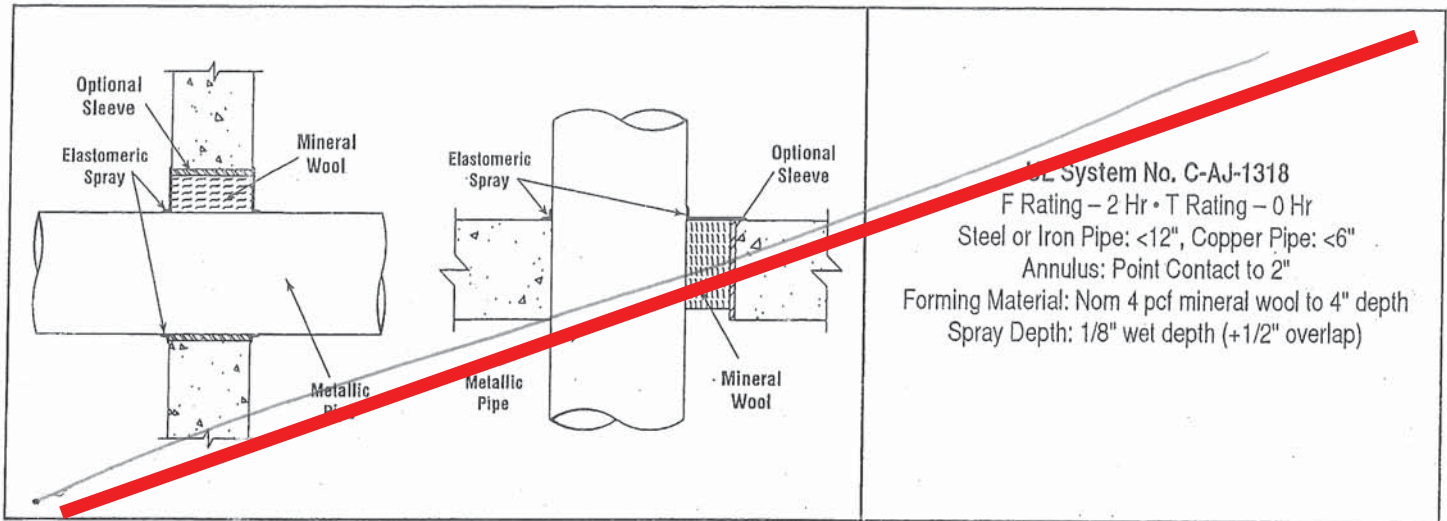


FIG. 2: SLAB-EDGE SAFING GAP APPLICATIONS

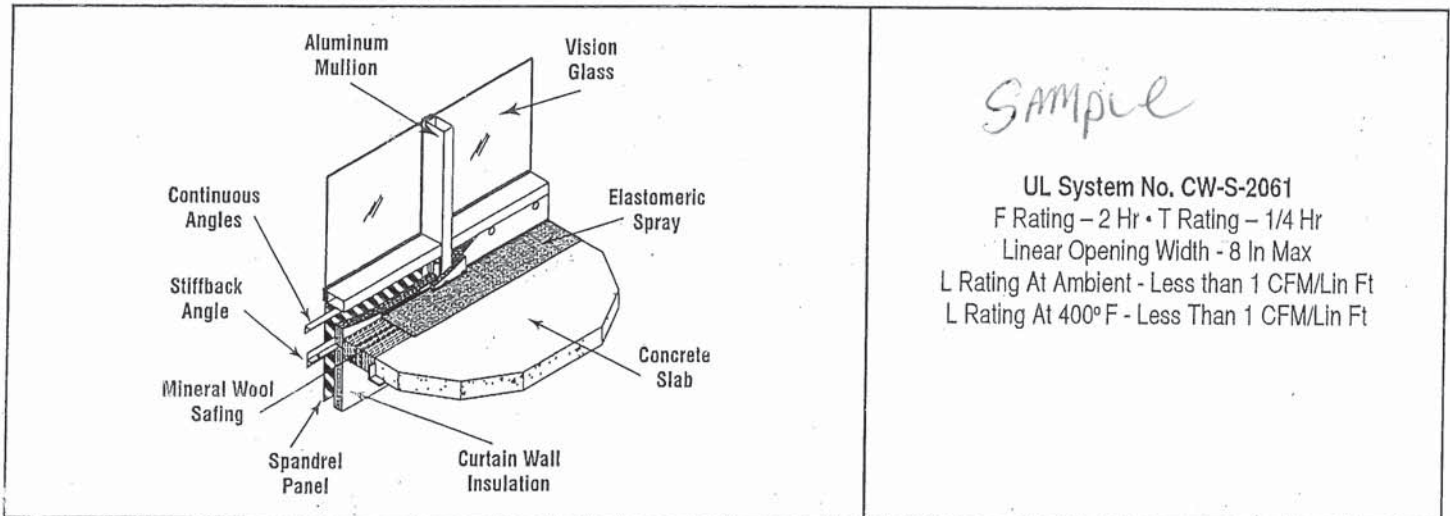
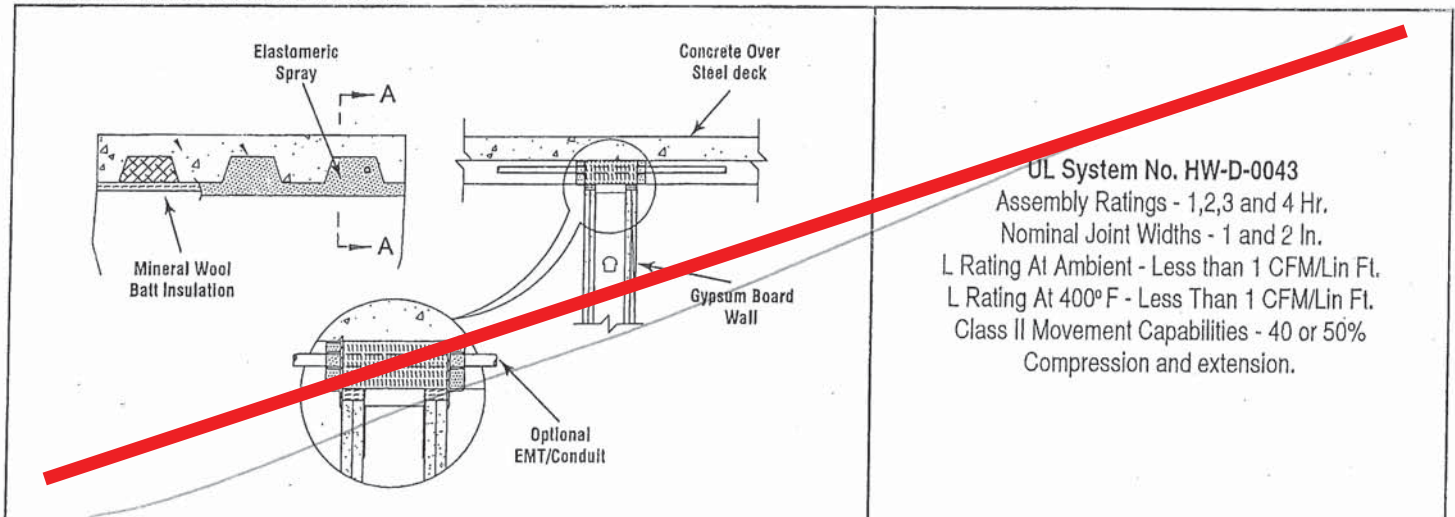


FIG. 3: HEAD-OF-WALL APPLICATIONS



SPECIFICATIONS

The fire protective joint coating shall be a water-based, non-halogenated elastomeric coating and shall contain no solvents, inorganic fibers, nor asbestos. The coating shall dry to form a flexible, moisture resistant film and shall adhere to all common construction surfaces. The coating shall provide up to 50 percent movement. The coating shall be thixotropic and shall be capable of being applied by brush or by airless spray. The approved coating shall be SpecSeal® Series AS200 Elastomeric Spray.

SPECIFIED DIVISIONS

DIV. 7	07 84 00	Through-Penetration Firestopping
DIV. 4	04 22 00	Concrete Unit Masonry
DIV. 7	07 21 00	Thermal Insulation
DIV. 8	08 44 00	Curtain Wall and Glazed Assemblies

INSTALLATION INSTRUCTIONS

GENERAL: Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Recommended storage temperatures range between 40°F (4°C) and 95°F (35°C). Installation temperature shall be between 40°F (4°C) and 95°F (35°C). Although not a requirement, the optimal application temperature range is 60°F (16°C) to 90°F (32°C). When applying product at the lower end of the temperature range, warming the material to 70°F (21°C) will enhance drying characteristics. Drying time will vary according to prevailing temperature and humidity. Allow to thoroughly dry before exposure to moisture.

Consult appropriate manufacturer's drawing for system design requirements. Forming or packing materials are required as an integral part of various system designs.

Coating may be applied by airless spray in a single pass up to 3/16" (4.8mm) wet coating depth. If applying by brush or spraying on vertical surfaces where coating appears to be prone to slumping, multiple coats or the application of a thin tack coat may be required. DO NOT ATTEMPT TO THIN PRODUCT BY ADDING WATER. When dry, may be painted using most non-solvent based paints.

MAINTENANCE

Inspection: Installations should be inspected periodically for subsequent damage. Following safety precautions listed below (See Precautionary Information) and pertinent installation guidelines, remove coating in damaged areas down to undamaged material. Reapply fresh coating material to original coating thickness.

TECHNICAL SERVICE

Specified Technologies Inc. provides toll free technical support to assist in product selection and appropriate installation design. UL Systems, Material Safety Data Sheets and other technical information is available at the Technical Library at www.stifirestop.com.

PRECAUTIONARY INFORMATION

Consult Material Safety Data Sheet for additional information on the safe handling and disposal of this material. Wash areas of skin contact with soap and water. Avoid contact with eyes. The use of an OSHA or NIOSH approved mask for dust and mist environment is recommended. Apply in areas with adequate ventilation.

AVAILABILITY

SpecSeal® Series AS200 Elastomeric Spray is available worldwide from authorized distributors. Consult factory for the names and locations of the nearest sales representatives or distributors.



TABLE A: APPLICATION EQUIPMENT

NOTICE: Spray application of SpecSeal Elastomeric Spray requires airless spray equipment meeting the following specifications:

Working Pressure: Min. 2500 PSI (172 Bar)

Delivery: Min. .72 U.S. gpm (2.7 l/min.) recommended

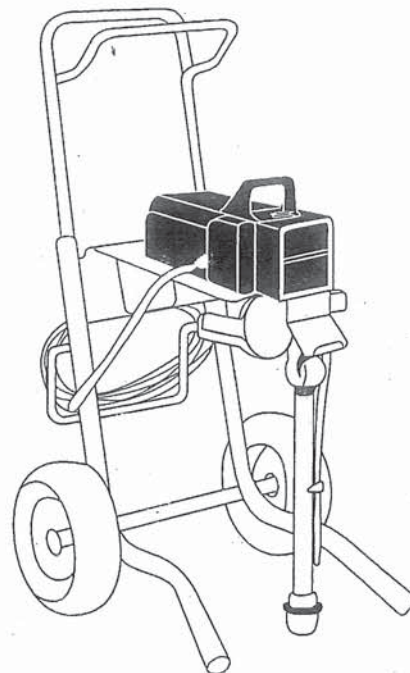
Spray Tip Orifice: 0.023" to 0.026" (0.58 to 0.66 mm) recommended

Wetted Parts All seals and contact surfaces suitable for contact with latex emulsions.

A minimum 3/8" (9.5 mm) fluid line is required, a 1/2" (13 mm) line is preferred. Consult pump manufacturer for long hose runs or lifts to higher elevations. A reversible spray tip is recommended. A 6" (152 mm) fan pattern is suggested to minimize overspray.

The following airless spray equipment has demonstrated suitability for application of this product. STI makes no warranties concerning the suitability or use of this equipment and has no affiliation of any kind with its manufacturer.

Manufacturer	Model Number & Description
Titan Tool Inc.	740ix Electric Airless Sprayer
Graco Inc.	Ultra Max II 695 Electric Airless Sprayer



ORDERING INFORMATION

SpecSeal® Elastomeric Spray is available in 5 gal. pails, 55 gal. drums are available on a special order basis.

AS205	Pale Blue Color	5 gal. Pail	1,155 cu. in. (19 liters)
AS205R	Red Color	5 gal. Pail	1,155 cu. in. (19 liters)



CITY OF NEW YORK MEA 310-99-M

Important Notice: All statements, technical information, and recommendations contained herein are based upon testing believed to be reliable, but the accuracy and completeness thereof is not guaranteed.

WARRANTY: Specified Technologies Inc. manufactures its goods in a manner to be free of defects. Should any defect occur in its goods (within one year), Specified Technologies Inc., upon prompt notification, will at its option, exchange or repair the goods or refund the purchase price.

Limitations and Exclusions: THIS WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS EXPRESSED OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE) AND UNDER NO CIRCUMSTANCES SHALL SPECIFIED TECHNOLOGIES INC. BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL PROPERTY DAMAGE OR LOSSES. PRIOR TO USE, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND THE USER ASSUMES ALL RISKS AND LIABILITY FOR SUBSEQUENT USE.

No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

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Specified Technologies Inc.

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February 5, 2016

Christopher DeMarco
Specified Technologies Inc.
210 Evans Way
Somerville, NJ 08876

Dear Christopher:

Thank you for choosing UL Environment, and its ISO/IEC 17025 accredited testing laboratory, for your analytical needs. Specified Technologies Inc.'s "SpecSeal AS200 Elastomeric Spray" was tested by our laboratory for low emitting materials.

Testing was conducted in small environmental chambers following the principles of ASTM D 5116 with the defined product specific test protocols and IAQ emission requirements of CDPH/EHLB/Standard Method V1.1 (February 2010) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" (aka CA Section 01350).

Calculations were performed using the parameters below to estimate the concentrations of VOCs of concern for use in a classroom environment and in an office environment.

Ventilation Rate	Room Volume	Product Surface Area
CLASSROOM		
0.82 air changes per hour (ACH)	12.2 m x 7.32 m x 2.59 m = 231 m ³ (40 x 24 x 8.5 ft = 8,160 ft ³)	63.1 m ²
PRIVATE OFFICE		
0.68 air changes per hour (ACH)	3.66 m x 3.05 m x 2.74 m = 30.6 m ³ (12 x 10 x 9 ft = 1,080 ft ³)	18.7 m ²

The product mentioned above as received and tested meets the Section 1350 requirements for use in a classroom and in an office with the above parameters.

If you have any questions or concerns about the test results, please contact your Account Manager at (888) 485-4733.

Sincerely,

Allyson M. McFry
Chemistry Laboratory Director

Enclosure: Report: 18290-06



**INDOOR AIR QUALITY EVALUATION
FOLLOWING THE REQUIREMENTS OF
CDPH/EHLB/STANDARD METHOD V1.1 (FEBRUARY 2010)**

**PREPARED FOR:
SPECIFIED TECHNOLOGIES INC.**

MANUFACTURER INFORMATION

Manufacturer	Specified Technologies Inc.
Contact Name and Title	Christopher DeMarco, Quality Assurance & Certifications Manager
Contact Address	210 Evans Way Somerville, NJ 08876
Contact Phone Number	908-526-8000 Ext. 1027

PRODUCT INFORMATION

Product Description	SpecSeal AS200 Elastomeric Spray
Manufacturer Product ID	118352 3025
Product Category	Adhesives/Sealants
Product Sub-Category	Sealants
Manufacturing Location	Not Provided
Date Manufactured	October 29, 2015
Date Collected	December 8, 2015
Date Shipped	December 9, 2015
Date Received	December 14, 2015

Released by:

A handwritten signature in cursive script that reads "Allyson M. McFry".

Allyson M. McFry
Chemistry Laboratory Director

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

UL Environment, and its ISO/IEC 17025 accredited testing laboratories, presents the results of its indoor air evaluation of a product identified as "SpecSeal AS200 Elastomeric Spray" submitted by Specified Technologies Inc. UL Environment conducted this study using a product evaluation test protocol following California's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers Version 1.1" (aka CA Section 01350) (1). Test chamber methodology followed the guidance of ASTM D 5116 (2), volatile organic compound (VOC) analysis followed the methodology in EPA TO-17 (3) and ASTM D 6196 (4), and analysis for low molecular weight aldehydes, including formaldehyde and acetaldehyde, followed the methodology in ASTM D 5197 (5). The definition for total VOCs (TVOC) is from ISO 16000-6 (6). The quantifiable level for all compounds is 2 µg/m³. All identified target list compounds are quantified using authentic standards. Identified substances not on one of the designated toxics list are quantified using either authentic standards or surrogates and are notated appropriately.

The product was monitored for emissions of TVOC, individual VOCs, formaldehyde and other aldehydes over the 96-hour test period. Measurements were made and predicted exposures were calculated according to the CA Section 01350 protocol. As specified in this protocol, the results at 96 hours, after 10 days of conditioning, were compared to ½ (one-half) the current Chronic Reference Exposure Levels (CRELs), as adopted from the California OEHHA list (7). All identified VOCs were also compared to the California-EPA OEHHA Proposition 65 list (8) and the California-EPA Air Resource Board list of Toxic Air Contaminants (TACs) (9).

RESULTS

The product "SpecSeal AS200 Elastomeric Spray" meets the IAQ emission requirements of CA Section 01350. Expected concentrations at 96 hours, following 10 days conditioning, for classrooms and offices were calculated using the parameters specified in CA Section 01350 as shown in the table below:

Ventilation Rate	Room Volume	Product Usage	Product Surface Area
CLASSROOM			
0.82 air changes per hour (ACH)	12.2 m x 7.32 m x 2.59 m = 231 m ³ (40 x 24 x 8.5 ft = 8,160 ft ³)	air barrier	63.1 m ²
OFFICE			
0.68 air changes per hour (ACH)	3.66 m x 3.05 m x 2.74 m = 30.6 m ³ (12 x 10 x 9 ft = 1,080 ft ³)	air barrier	18.7 m ²

TABLE 1

ENVIRONMENTAL CHAMBER STUDY PARAMETERS PREPARED FOR: SPECIFIED TECHNOLOGIES INC.

PRODUCT 18290-060AA

Product Description:	ADHESIVES/SEALANTS; SpecSeal AS200 Elastomeric Spray
Sample Preparation:	The product was received by UL Environment on 12/14/15 as packaged and shipped by the customer. The package was visually inspected and stored in a controlled environment immediately following sample check-in. Immediately prior to loading, the product was applied to a foil-wrapped stainless steel plate using a trowel with an application rate of 4,138.42 g/m ² . The weight of the product was within 5% of the target weight. The sample was immediately placed inside the environmental chamber, and tested according to the specified protocol.
Conditioning Period:	01/15/2016 - 01/25/2016
Test Period:	01/25/2016 - 01/29/2016
Product Area Exposed:	one-sided area = 0.0361 m ²
Chamber Volume:	0.0943 m ³
Product Loading Ratio:	0.38 m ² /m ³
Test Chamber Conditions:	Air change rate: 1.00 ± 0.05 1/h Inlet air flow rate: 0.0943 ± 0.004 m ³ /h Temperature: 22.2°C - 23.1°C Relative Humidity: 50% RH ± 5%
Pollutant Emissions Evaluated:	Total Volatile Organic Compounds Individual Volatile Organic Compounds Target List Aldehydes, including Formaldehyde

TABLE 2

**COMPARISON OF DATA TO CA SECTION 01350 TARGET CRELS
AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING**

**PREPARED FOR: SPECIFIED TECHNOLOGIES INC.
PRODUCT 18290-060AA; SPECSEAL AS200 ELASTOMERIC SPRAY**

Compound Name	CAS Number	½ CREL (µg/m³)	Chamber Concentration (µg/m³)	Emission Factor ^{††} (µg/m²·hr)	Classroom Predicted Concentration (µg/m³) ^{**}	Office Predicted Concentration (µg/m³) ^{**}	Meets ½ CREL? (Classroom/Office)
Acetaldehyde	75-07-0	70	BQL	BQL			Yes
Benzene	71-43-2	1.5	BQL	BQL			Yes
Carbon disulfide	75-15-0	400	BQL	BQL			Yes
Carbon tetrachloride	56-23-5	20	BQL	BQL			Yes
Chlorobenzene	108-90-7	500	BQL	BQL			Yes
Chloroform	67-66-3	150	BQL	BQL			Yes
Dichlorobenzene (1,4-)	106-46-7	400	BQL	BQL			Yes
Dichloroethylene (1,1)	75-35-4	35	BQL	BQL			Yes
Dimethylformamide (N,N-)	68-12-2	40	BQL	BQL			Yes
Dioxane (1,4-)	123-91-1	1,500	BQL	BQL			Yes
Epichlorohydrin*	106-89-8	1.5	BQL	BQL			Yes
Ethylbenzene	100-41-4	1,000	BQL	BQL			Yes
Ethylene glycol	107-21-1	200	68	180	59	160	Yes
Ethylene glycol monoethyl ether acetate	111-15-9	150	BQL	BQL			Yes
Ethylene glycol monoethyl ether	110-80-5	35	BQL	BQL			Yes
Ethylene glycol monomethyl ether acetate	110-49-6	45	BQL	BQL			Yes

Compound Name	CAS Number	½ CREL (µg/m³)	Chamber Concentration (µg/m³)	Emission Factor†† (µg/m²·hr)	Classroom Predicted Concentration (µg/m³)**	Office Predicted Concentration (µg/m³)**	Meets ½ CREL? (Classroom/Office)
Ethylene glycol monomethyl ether	109-86-4	30	BQL	BQL			Yes
Formaldehyde	50-00-0	9.0***	BQL	BQL			Yes
Hexane (n-)	110-54-3	3,500	BQL	BQL			Yes
Isophorone	78-59-1	1,000	BQL	BQL			Yes
Isopropanol	67-63-0	3,500	BQL	BQL			Yes
Methyl chloroform	71-55-6	500	BQL	BQL			Yes
Methyl t-butyl ether	1634-04-4	4,000	BQL	BQL			Yes
Methylene chloride	75-09-2	200	BQL	BQL			Yes
Naphthalene	91-20-3	4.5	BQL	BQL			Yes
Phenol	108-95-2	100	BQL	BQL			Yes
Propylene glycol monomethyl ether	107-98-2	3,500	BQL	BQL			Yes
Styrene	100-42-5	450	BQL	BQL			Yes
Tetrachloroethylene (perchloroethylene)	127-18-4	18	BQL	BQL			Yes
Toluene	108-88-3	150	BQL	BQL			Yes
Trichloroethylene	79-01-6	300	BQL	BQL			Yes
Vinyl acetate	108-05-4	100	BQL	BQL			Yes
Xylenes (m-, o-, p-)	1330-20-7	350	BQL	BQL			Yes

BQL denotes below quantifiable level of 2 µg/m³ (instrument calibration using authentic standard).

††The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N_c), the chamber volume (V_c), and the product area exposed in the chamber (A_c) as: $EF = (CC \cdot V_c \cdot N_c) / A_c$.

*Denotes compound is within volatility range of method but no calibration standard was available.

**The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N_B), the building room volume (V_B), and the product area exposed in the building room (A_B) as: $BC = (EF \cdot A_B) / (V_B \cdot N_B)$. Prediction based on a standard classroom air barrier usage of 63.1 m² in a 231 m³ room with 0.82 ACH or on a standard office air barrier usage of 18.7 m² in a 30.6 m³ room with 0.68 ACH.

***Guidance value per CA Standard Method

TABLE 3

**CHAMBER CONCENTRATIONS AND EMISSION FACTORS
FOR TVOC AND FORMALDEHYDE AT 24, 48, AND 96 HOURS
FOLLOWING 10 DAYS OF CONDITIONING**

**PREPARED FOR: SPECIFIED TECHNOLOGIES INC.
PRODUCT 18290-060AA; SPECSEAL AS200 ELASTOMERIC SPRAY**

ELAPSED EXPOSURE HOUR AFTER 10 DAYS CONDITIONING	CHAMBER CONCENTRATION ($\mu\text{g}/\text{m}^3$)	EMISSION FACTOR ^{††} ($\mu\text{g}/\text{m}^2\cdot\text{hr}$)
TVOC[†]		
24	4,900	13,000
48	5,100	13,000
96	4,600	12,000
Formaldehyde[‡]		
24	BQL	BQL
48	BQL	BQL
96	BQL	BQL

BQL denotes below quantifiable level of $2 \mu\text{g}/\text{m}^3$.

Exposure hours are nominal (± 1 hour).

[†]Defined as the sum of those VOCs that elute between the retention times of n-hexane (C_6) and n-hexadecane (C_{16}) on a non-polar capillary GC column quantified based on a toluene response factor.

[‡]Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

^{††}The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N_c), the chamber volume (V_c), and the product area exposed in the chamber (A_c) as: $\text{EF} = (\text{CC} \cdot V_c \cdot N_c) / A_c$.

TABLE 4

**CHAMBER CONCENTRATIONS, EMISSION FACTORS, AND
PREDICTED EXPOSURE CONCENTRATIONS
FOR THE TVOC & TEN MOST ABUNDANT IDENTIFIED INDIVIDUAL
VOLATILE ORGANIC COMPOUNDS (VOCs) AND/OR ALDEHYDES
AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING**

**PREPARED FOR: SPECIFIED TECHNOLOGIES INC.
PRODUCT 18290-060AA; SPECSEAL AS200 ELASTOMERIC SPRAY**

CAS NUMBER	COMPOUND	CHAMBER CONC. (µg/m ³)	EMISSION FACTOR ^{††} (µg/m ² •hr)	CALCULATED PREDICTED EXPOSURE CONCENTRATION ^{**} (µg/m ³)	
				Classroom	Office
—	TVOC ^{††}	4,600	12,000	4,000	11,000
57-55-6	1,2-Propanediol (Propylene glycol)	3,600	9,300	3,100	8,300
142-96-1	n-Butyl ether	510	1,300	440	1,200
71-36-3	1-Butanol (N-Butyl alcohol) [†]	170	440	150	390
590-01-2	Butyl propionate (Propanoic acid, butyl ester)	120	300	100	270
123-86-4	Acetate, butyl	84	220	73	200
107-21-1	1,2-Ethanediol (Ethylene glycol) [†]	68	180	59	160
7299-91-4	2-Butenoic acid, butyl ester [*]	24	62	21	55
16747-26-5	Hexane, 2,2,4-trimethyl [*]	19	50	17	45
100-52-7	Benzaldehyde [†]	19	50	17	45
62016-28-8	Octane, 2,2,6-trimethyl [*]	17	44	15	39

Exposure hours are nominal (± 1 hour).

VOC data obtained by scanning GC/MS; identification of compound made by retention time and mass spectral characteristics.

[†]Quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

^{*}Identification based on NIST mass spectral database only.

[†]Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

^{††}The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N_c), the chamber volume (V_c), and the product area exposed in the chamber (A_c) as: $EF = (CC \cdot V_c \cdot N_c) / A_c$.

^{**}Defined as the sum of those VOCs that elute between the retention times of n-hexane (C₆) and n-hexadecane (C₁₆) on a non-polar capillary GC column quantified based on a toluene response factor.

^{**}The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N_B), the building room volume (V_B), and the product area exposed in the building room (A_B) as: $BC = (EF \cdot A_B) / (V_B \cdot N_B)$. Prediction based on a standard classroom air barrier usage of 63.1 m² in a 231 m³ room with 0.82 ACH or on a standard office air barrier usage of 18.7 m² in a 30.6 m³ room with 0.68 ACH.

TABLE 5

VOC PREDICTED AIR CONCENTRATIONS AND REGULATORY INFORMATION AT 96 HOURS FOLLOWING 10 DAYS OF CONDITIONING

**PREPARED FOR: SPECIFIED TECHNOLOGIES INC.
PRODUCT 18290-060AA; SPECSEAL AS200 ELASTOMERIC SPRAY**

CAS NUMBER	COMPOUND IDENTIFIED	CHAMBER CONC. (µg/m³)	EMISSION FACTOR†† (µg/m²·hr)	PREDICTED EXPOSURE CONCENTRATION** (µg/m³)		✓ INDICATES PRESENCE ON LIST		
				Classroom	Office	CA PROP 65	CA AIR TOXIC	CREL
107-21-1	1,2-Ethanediol (Ethylene glycol)†	68	180	59	160		✓(IIA)	✓
71-36-3	1-Butanol (N-Butyl alcohol)†	170	440	150	390		✓(IVB)	
98-86-2	Acetophenone (Ethanone, 1-phenyl)†	3.8	9.9	3.3	8.9		✓(IVA)	

†Quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

‡Compound identified and quantified by DNPH derivitization and HPLC/UV analysis.

††The emission factor (EF) is calculated from the chamber concentration (CC), the chamber air change rate (N_c), the chamber volume (V_c), and the product area exposed in the chamber (A_c) as: $EF = (CC \cdot V_c \cdot N_c) / A_c$.

**The predicted building exposure concentration (BC) is calculated from the emission factor (EF), the building air change rate (N_B), the building room volume (V_B), and the product area exposed in the building room (A_B) as: $BC = (EF \cdot A_B) / (V_B \cdot N_B)$. Prediction based on a standard classroom air barrier usage of 63.1 m² in a 231 m³ room with 0.82 ACH or on a standard office barrier usage of 18.7 m² in a 30.6 m³ room with 0.68 ACH.

CAL Prop. 65: California Health and Welfare Agency, Proposition 65 Chemicals

1 = known to cause cancer

2 = known to cause reproductive toxicity

CAL Toxic Air Contaminant:

I) Substances identified as Toxic Air Contaminants, known to be emitted in California, with a full set of health values reviewed by the Scientific Review Panel.

IIA) Substances identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

IIB) Substances NOT identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

III) Substances known to be emitted in California, and are NOMINATED for development of health values or additional health values.

IVA) Substance identified as Toxic Air Contaminants, known to be emitted in California, and are TO BE EVALUATED for entry into Category III.

IVB) Substance NOT identified as Toxic Air Contaminants, known to be emitted in California, and are TO BE EVALUATED for entry into Category III.

V) Substance identified as Toxic Air Contaminants, and NOT KNOWN TO BE EMITTED from stationary source facilities in California based on information from the AB 2588 Air Toxic "Hot Spots" Program and the California Toxic Release Inventory.

VI) Substances identified as Toxic Air Contaminants, NOT KNOWN TO BE EMITTED from stationary source facilities in California, and are active ingredients in pesticides in California.

Chronic REL: California Office of Environmental Health Hazard Assessment (OEHHA), Chronic Reference Exposure Levels

✓ = Found in Listing

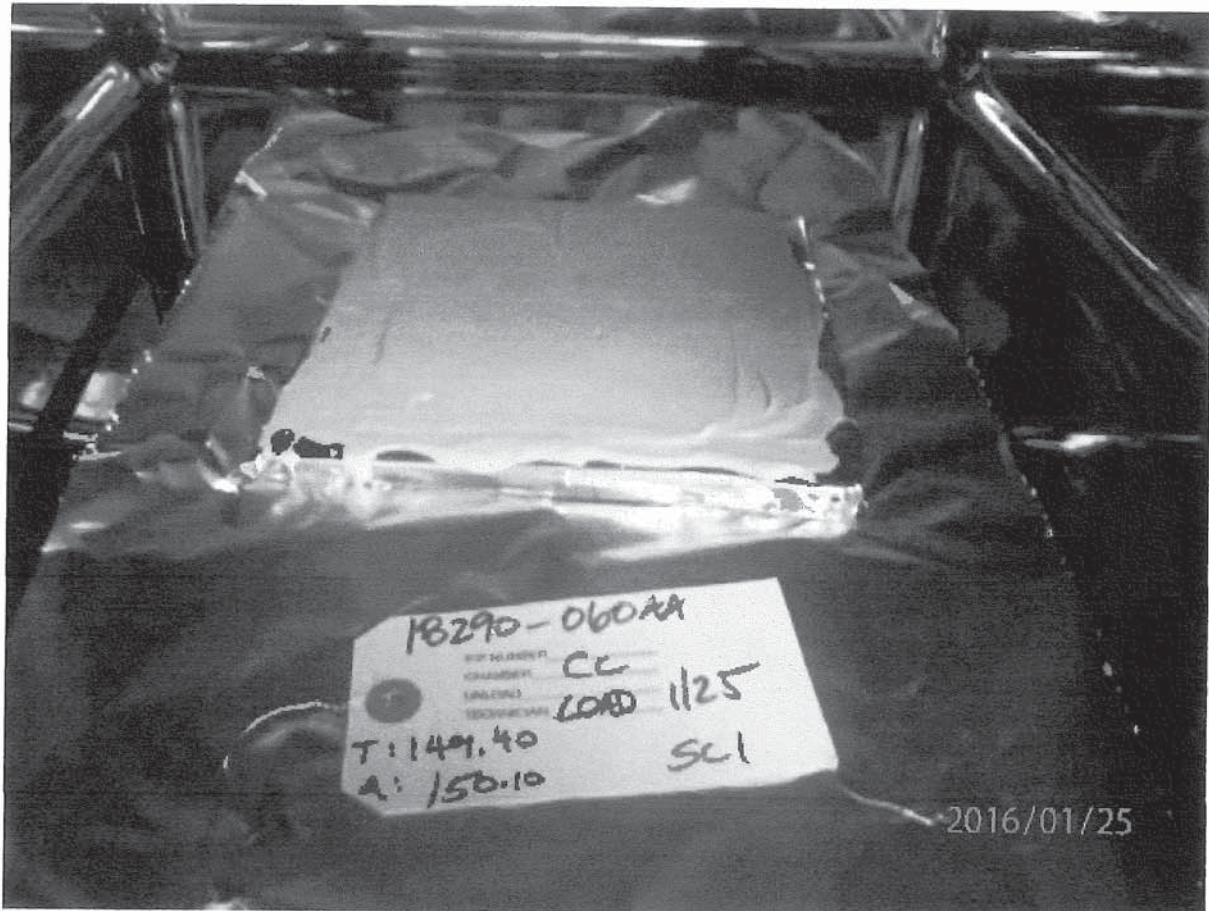
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<http://www.oehha.ca.gov/air/Allrels.html>.
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9. California Environmental Protection Agency. Air Resources Board. Toxic Air Contaminants (TAC) Identification List; <http://www.arb.ca.gov/toxics/cattable.htm>

Released by UL Environment
Date Prepared: February 5, 2016
Product #: 18290-060AA
Report #: 18290-06
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APPENDIX 1

PREPARED FOR: SPECIFIED TECHNOLOGIES INC.
PRODUCT 18290-060AA; SPECSEAL AS200 ELASTOMERIC SPRAY



APPENDIX 2

CHAIN OF CUSTODY

FOR INTERNAL USE ONLY		UL Environment Chain of Custody	
 1000756 11038092 Time 1/1			
 CUPLAC321			
Project: 18290-060AA Category: 18290-060AA Subcategory: 18290-060AA		Specialized Test for Odors Formaldehyde Only 4 Hr 24 Hr	
RUSH (Confirm with Account Manager prior to submitting product)		CA 01350 CDPH/EHLB/Standard Method V1.1 Office Classroom Residential	
24 Hr TVOC with Formaldehyde		ANSI/BIFMA M7.1 / X7.1 Small Chamber Intermediate Chamber Large Chamber	
24 Hr TVOC & IVOCs with Formaldehyde		Other (Specify test method, non-standard sample preparation, modeling parameters, application rate for wet products, etc.):	
GREENGUARD Screening Test (24 Hr TVOC, IVOCs, and Aldehydes w/modeling)			
Company Name Specified Technologies Inc.		Contact Name Christopher DeMarco	
Street Address 210 Evans Way		Title Quality Assurance & Certifications Manager	
City, State/Province, Zip/Postal Code Somerville, NJ 08876		Phone Number 908.526.8000 Ext. 1027	
Country USA		E-Mail Address cdemarco@stifirestop.com	
Sample ID (Used in Report) SpecSeal AS200 Elastomeric Spray		Product Collection Location 210 Evans Way, Somerville, NJ 08876	
Product Commercial Name SpecSeal AS200 Elastomeric Spray		Product Collection Date/Time (mm/dd/yyyy hh:mm) 12/08/2015	
Manufacturer's Identification Number 118352 3025		Product Collected By Christopher DeMarco	
Manufactured Date (mm/dd/yyyy) 10/29/2015		Number of Product Pieces 1 pail (5 gal)	
Return Product (Return Shipper and Manufacturer's Shipping Account # must be provided for product return)		X Discard product after testing	
Return Shipper		Manufacturer's Shipping Acc #	
Packed By		Carrier CONWAY	
Ship Date (mm/dd/yyyy) 12-9-15		Alt Bill # 81-244-960660	
Requisitioned By (Manufacturer)		Date & Time (mm/dd/yyyy hh:mm)	
Signature			
Received by (Laboratory)		Date & Time (mm/dd/yyyy hh:mm) 12-14-15 1:10pm	
Signature			
Types of Containers		Shipping Package Notes	
Condition of Shipping Package X Undamaged Damaged		Product Condition Notes	
Condition of Product X Acceptable Unacceptable			

APPENDIX 3

QUALITY CONTROL PROCEDURES FOR ENVIRONMENTAL CHAMBER EVALUATIONS

UL Environment's IAQ testing laboratories are ISO/IEC 17025 accredited with defined and executed internal and third party verification programs encompassing emission test methods and low level pollutant measurements. UL Environment's quality control/assurance plan is designed to ensure the integrity of the measured and reported data obtained during its product evaluation studies. This QC program encompasses all facets of the measurement program from sample receipt to final review and issuance of reports. As a firm with ISO/IEC 17025 accredited IAQ testing laboratories, UL Environment's product control, testing, data handling, and reporting protocols and procedures are standardized and controlled. UL Environment participates in proficiency and accreditation measurement programs for VOC and emission testing as required by the State of California, Germany Ministry of Health's Blue Angel Program, LGC Standards Air Proficiency Testing Scheme, and GREENGUARD Certification programs. Quality Assurance is maintained through UL Environment's computerized data management system. An electronic "paper trail" for each analysis is also maintained and utilized to track the status of each sample, and to store the results. A complete quality report can be provided upon request and all test data and analysis procedures are available on site for customer review.

Chamber Evaluations

One of the most critical parameters in UL Environment's product evaluations is the measurement of ultratrace levels of gaseous chemicals, typically in the ppb air concentration range. This necessitates a very rigidly maintained effort to control background contributions and contamination. These contributions must be significantly less than those levels being measured for statistically significant data to be obtained. UL Environment addresses this control in many directions including chamber construction materials, air purification and humidification, sampling materials and chemicals, sample introduction, and analysis.

Supply air purity is monitored on a weekly basis, using identical methodology to the chamber testing. The supply air is assured to contain less than 10 $\mu\text{g}/\text{m}^3$ TVOC, < 10 $\mu\text{g}/\text{m}^3$ total particles, < 2 $\mu\text{g}/\text{m}^3$ formaldehyde, and < 2 $\mu\text{g}/\text{m}^3$ for any individual VOC. Preventative maintenance ensures supply air purity, and corrective action is taken when any potential problems are noted in weekly samples. Supply air filter maintenance is critical for ensuring the purity of the chamber supply air. Chamber background samples are obtained prior to product exposure to ensure contaminant backgrounds meet the required specifications prior to product exposure. Results of this monitoring are maintained at UL Environment and available for on-site inspection.

All environmental chamber procedures are in accordance with ASTM D 5116 and meet the data quality objectives required.

Various measures are routinely implemented in a product's evaluation program. These include but are not limited to:

- appropriate record keeping of sample identifications and tracking throughout the study;

- calibration of all instrumentation and equipment used in the collection and analysis of samples;
- validation and tracking of all chamber parameters including air purification, environmental controls, air change rate, chamber mixing, air velocities, and sample recovery;
- analysis of spiked samples for accuracy determinations;
- duplicate analyses of 10% of all samples evaluated and analyzed;
- multi-point calibration and linear regression of all standardization;
- analysis of controls including chamber backgrounds, sampling media, and instrumental systems.

VOC and Aldehyde Measurements

Precision of TVOC and aldehyde analyses is assessed by the relative standard deviation (%RSD) from duplicate samples, defined as the standard deviation of each data set divided by the mean multiplied by 100. VOC accuracy is based on recovery of toluene mass spiked onto sorbent material. QC data on TVOC measurements conducted for the 12 month period ending December 31, 2015, showed an average precision measurement of 4.5% RSD based on duplicate measurements and 100.9% recovery based on toluene spikes. Aldehyde accuracy is based on LGC Standards formaldehyde proficiency test results. QC data on total aldehyde measurements (including formaldehyde) for the 12 month period ending December 31, 2015, showed an average precision measurement of 3.3% RSD based on duplicate measurements and an average accuracy of 5.3% RPD based on LGC Standard results. Third party proficiency and round robin testing for low level VOCs for national and international programs are continuously conducted and reported in UL Environment's quarterly Quality Assurance Report, available to all customers.

CERTIFICATE OF COMPLIANCE

Certificate Number 20130712-R14288
Report Reference R14288
Issue Date 2013-July-12

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

SpecSeal AS200 Elastomeric Spray for use in Perimeter Fire Containment System Nos.

CW-D-1002, CW-D-1004, CW-D-1007, CW-D-1008, CW-D-1009, CW-D-1010, CW-D-1011, CW-D-1012, CW-D-1013, CW-D-1014, CW-D-2001, CW-D-2002, CW-D-2003, CW-D-2004, CW-D-2005, CW-D-2006, CW-D-2007, CW-D-2008, CW-D-2009, CW-D-2010, CW-D-2011, CW-D-2012, CW-D-2013, CW-D-2020, CW-D-2021, CW-D-2022, CW-D-2023, CW-D-2024, CW-D-2031, CW-D-2032, CW-D-2033, CW-D-2039, CW-D-2040, CW-D-2041, CW-D-2042, CW-D-2056, CW-D-2057, CW-D-2058, CW-S-0001, CW-S-0002, CW-S-0003, CW-S-0004, W-S-0005, CW-S-1002, CW-S-1003, CW-S-1006, CW-S-1008, CW-S-1009, CW-S-1010, CW-S-1012, CW-S-1013, CW-S-1014, CW-S-1015, CW-S-1017, CW-S-1019, CW-S-1020, CW-S-1021, CW-S-1022, CW-S-1023, CW-S-1024, CW-S-2003, CW-S-2006, CW-S-2008, CW-S-2009, CW-S-2010, CW-S-2011, CW-S-2013, CW-S-2014, CW-S-2021, CW-S-2022, CW-S-2023, CW-S-2025, CW-S-2026, CW-S-2034, CW-S-2035, CW-S-2036, CW-S-2039, CW-S-2040, CW-S-2041, CW-S-2044, CW-S-2045, CW-S-2046, CW-S-2047, CW-S-2048, CW-S-2049, CW-S-2050, CW-S-2051, CW-S-2052, CW-S-2055, CW-S-2056, CW-S-2057, CW-S-2058, CW-S-2059, CW-S-2060, CW-S-2061, CW-S-2062, CW-S-2064, CW-S-2065, CW-S-2066.

SpecSeal Fast Tack Spray for use in Perimeter Fire Containment System Nos. CW-D-1002, CW-D-1004, CW-D-1007, CW-D-1008, CW-D-1009, CW-D-1011, CW-D-1014, CW-D-2001, CW-D-2002, CW-D-2003, CW-D-2004, CW-D-2005, CW-D-2006, CW-D-2007, CW-D-2008, CW-D-2009, CW-D-2010, CW-D-2011, CW-D-2012, CW-D-2013, CW-D-2020, CW-D-2021, CW-D-2022, CW-D-2023, CW-D-2024, CW-D-2031, CW-D-2032, CW-D-2033, CW-D-2039, CW-D-2040, CW-D-2041, CW-D-2042, CW-D-2056, CW-D-2057, CW-D-2058, CW-S-0001, CW-S-0002, CW-S-0003, CW-S-0004, CW-S-0005, CW-S-1002, CW-S-1003, CW-S-1006, CW-S-1008, CW-S-1009, CW-S-1010, CW-S-1012, CW-S-1013, CW-S-1014, CW-S-1015, CW-S-1017, CW-S-1019, CW-S-1020, CW-S-1021, CW-S-1022, CW-S-1023, CW-S-1024, CW-S-2003, CW-S-2006, CW-S-2008, CW-S-2009, CW-S-2010, CW-S-2011, CW-S-2013, CW-S-2014, CW-S-2021, CW-S-2022, CW-S-2023, CW-S-2025, CW-S-2026, CW-S-2034, CW-S-2035, CW-S-2036, CW-S-2039, CW-S-2040, CW-S-2041, CW-S-2044, CW-S-2045, CW-S-2046, CW-S-2047, CW-S-2048, CW-S-2049, CW-S-2050, CW-S-2051, CW-S-2052, CW-S-2055, CW-S-2056, CW-S-2057, CW-S-2058, CW-S-2059, CW-S-2060, CW-S-2061, CW-S-2062, CW-S-2064, CW-S-2065, CW-S-2066.

SpecSeal Firestop Pillows for use in Perimeter Fire Containment System Nos. CW-D-1011, CW-S-1019, CW-S-1021, CW-S-1022.

Pensil 300 Sealant for use in Perimeter Fire Containment System Nos. CW-S-0001, CW-S-2066.

SpecSeal Series SIL300 Sealant for use in Perimeter Fire Containment System No. CW-S-0001.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at www.ul.com/contactus





GENERAL CERTIFICATE OF CONFORMANCE

FEBRUARY 2014

Description:

SpecSeal® Firestop Products; Pensil® Silicone Sealants; EZ-Path® Fire Rated Pathways; Ready® Sleeve Firestop Sleeves; STI Firestop Products

Included Products:

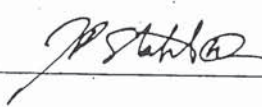
SpecSeal® Series SSS Intumescent Sealant	SpecSeal® Series LCI Intumescent Sealant	SpecSeal® Series LC Firestop Sealant
SpecSeal® Series ES Elastomeric Sealant	SpecSeal® Series SIL300 Silicone Sealant	SpecSeal® Series SIL300SL Silicone Sealant
Pensil® PEN300 Silicone Sealant	Pensil® PEN300SL Silicone Sealant	Pensil® PEN200 Silicone Foam
BlazeStop™ WF300 Firestop Caulk	SpecSeal® Series AS200 Elastomeric Spray	SpecSeal® Series FT Fast Tack™ Firestop Spray
SpecSeal® Series SSP Putty & Putty Pads	SpecSeal® Series EP PowerShield™ Box Insert	SpecSeal® Series SSM Firestop Mortar
SpecSeal® Series SSB Firestop Pillows	SpecSeal® Series CS Composite Sheet	SpecSeal® Series SSW Wrap Strips
SpecSeal® Series LCC Firestop Collars	SpecSeal® Series SSC Firestop Collars	SpecSeal® Series RTC Firestop Collars
SpecSeal® Series FP Firestop Plugs	SpecSeal® Series CD Cast-In Firestop Devices	FyreFlange® Firestop Angle
EZ-Path® Series 22	EZ-Path® Series 33	EZ-Path® Series 44 or 44+
Ready® Sleeve	Ready® Sleeve Split	EZ-Path® Firestop Grommet
SpecSeal® Series SSAMW Mineral Wool	SpecSeal® SpeedFlex® Fire Rated Joint Profile	SpecSeal® Closet Flange Firestop Gasket
SpecSeal® Series CS105 Cable Spray	SpecSeal® SpeedFlex® Track Top Gasket	Series TBW Thermal Barrier Wrap

These products are tested to one or more of the following standards:

- ASTM E814 (ANSI/UL1479) Standard Test Method for Fire Tests of Penetration Firestop Systems
- ASTM E1966 (ANSI/UL2079) Standard Test Method for Fire-Resistive Joint Systems
- ASTM E119 (ANSI/UL263) Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate Scale, Multi-Story Test Apparatus
- ASTM E1399 Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems
- ASTM E84 (ANSI/UL723) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E1725, Standard Test Methods for Fire Tests of Fire-Resistive Barrier Systems for Electrical System Components
- UL Subject 1724, Fire Tests for Electrical Circuit Protective Systems
- CAN/ULC S115 Standard Method of Fire Tests of Firestop Systems
- CAN/ULC S101 Standard Methods of Fire Endurance Tests of Building Construction and Materials

Chemical Content Statement:

No asbestos, PCB's, lead, or water-soluble intumescent ingredients are used or contained in these products.


James P. Stahl Jr., CFPS
Vice President of Engineering


Paul M. Jankowski
Quality Control Manager



Certificate of Compliance

This certificate is issued for the following products:

SpecSeal® Products:	CS-105 Cable Spray	Firestop Mortar	Sealant
	Intumescent Putty/Pads	SSB Firestop Pillows	Firestop Mortar
	AS200 Elastomeric Spray	SSS Intumescent Sealant	Composite Shee
	LCI Intumescent Sealant	LCC Intumescent Collar	CD200
	BLU Intumescent Wrap Strip	ES Elastomeric Sealant	CD300
	Fyre Flange Firestop Angles	SIL300 Silicone Sealant	CD400
	LE600 Sealant	LC 150 Sealant	
	EZ-PATH Series 22	EZ-PATH Series 33	

Prepared for:

Specified Technologies, Inc.
210 Evans Way
Somerville, NJ 08876
United States

FM Approvals Class: 4990

Approval Identification: Various

Approval Granted: Various

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

For more than 160 years FM Approvals has partnered with business and industry to reduce property losses.

Cynthia Frank
Group Manager - Materials -
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062



Member of the FM Global Group

Created: January 15, 2013

FM APPROVED
INSTALLER

APPROVED

Certificate of Compliance

FM Approvals hereby certifies that the company shown below has met all the requirements contained in Approval Standard 4991, Approval of Firestop Contractors and is listed in the Approval Guide of FM Approvals. As a result, they are eligible to mark their firestop installations as Approved in accordance with said Approval Standard.

Company:

Firestoppers, Inc

PO Box 525

Belleville, IL 62222

APPROVAL REPORT: 3031887

DATED: April 16, 2008

Said Approval is subject to satisfactory field performance and continuing follow-up Facilities and Procedures Audits.

For more than 160 years FM Approvals has partnered with business and industry to reduce property losses.



Member of the FM Global Group

George A. Smith, P.E.
Director, Asst. Vice President



Material Safety Data Sheet

14-AUGUST-2014

SpecSeal® AS200 ELASTOMERIC SPRAY

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

PRODUCT NAME.....SpecSeal® AS200 SPRAY
CHEMICAL FAMILY.....Mixture

Company Identification

MANUFACTURER/DISTRIBUTOR

Specified Technologies Inc.
210 Evans Way
Somerville, NJ 08876

PHONE NUMBERS

Product Information : 1-908-526-8000
Emergency : 1-800-255-3924

HAZARDS IDENTIFICATION

*****EMERGENCY OVERVIEW*****
* Possible skin and eye irritant. Paste. *

Potential Health Effects:

EYE: Contact may cause irritation.

SKIN: Contact may cause irritation.

INGESTION: Relatively non-toxic.

INHALATION: Irritation of the nose, throat, and lungs may result from over-exposure to vapors or mist.

CHRONIC (CANCER) INFORMATION: Not classified as carcinogenic.

LONG TERM TOXIC EFFECTS: None known.

COMPOSITION/INFORMATION ON INGREDIENTS

Proprietary mixture containing in part:

INGREDIENT NAME

ACRYLIC COPOLYMER

CALCIUM CARBONATE

TITANIUM DIOXIDE

ALUMINA TRIHYDRATE

CAS NUMBER

Non Hazardous

1317-65-3

13463-67-7

21645-51-2

FIRST AID MEASURES

First Aid

INHALATION: Remove to fresh air.

SKIN CONTACT: Wash thoroughly.

EYE CONTACT: Irrigate eyes with running water for at least 15 minutes. Get medical attention if irritation develops.

INGESTION: None applicable.

FIRE FIGHTING MEASURES

Not a fire hazard.

EXTINGUISHING MEDIA:.....Dry Chemical; Carbon Dioxide; Foam; Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES:.....As for surrounding fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

HANDLING AND STORAGE

Store under ambient conditions. No special handling required.

EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION REQUIREMENTS:.....Safety glasses/goggles.

SKIN PROTECTION REQUIREMENTS:.....Gloves.

RESPIRATOR REQUIREMENTS:.....None.

VENTILATION REQUIREMENTS:.....If needed, use local exhaust ventilation to keep airborne concentrations below the TLV.

Exposure Guidelines

Exposure Limits

PEL(OSHA) : Particulates (Not Otherwise Classified) 15 mg/m³, 8 Hr. TWA, total dust 5 mg/m³, 8 Hr. TWA, respirable dust

TLV(ACGIH): None Established

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM:.....Paste

SPECIFIC GRAVITY:.....1.25

PERCENT VOLATILES:.....23+/-2

EVAPORATION RATE:.....>1

BOILING POINT:.....100 deg. C

SOLUBILITY IN WATER:.....Infinitely dilutable

CARB VOC (Calculated).....1.81 Wt. %

SCAQMD VOC (US EPA Method 24).....23 Grams/Liter

STABILITY AND REACTIVITY

STABILITY:.....This is a stable material.

CONDITIONS TO AVOID.....Storage >55 deg. C

HAZARDOUS POLYMERIZATION:.....Will not occur.

INCOMPATIBILITIES:.....None special

TOXICOLOGICAL INFORMATION

Mixture not tested but based on components:

May be irritating to skin and eyes and may produce symptoms of nausea in poorly ventilated areas.

None of the components are listed as carcinogens.

ECOLOGICAL INFORMATION

No data.

DISPOSAL CONSIDERATIONS

Waste Disposal:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

TRANSPORTATION INFORMATION

DOT – not regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

Section 313 Supplier Notifications.

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372

OTHER INFORMATION

NPCA-HMIS Rating

Health : 1

Flammability : 0

Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): Alumina, Titanium Dioxide.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER:

None Known..

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the data compiled. However, no representation, warranty, or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information.

Responsibility for MSDS :

Specified Technologies Inc.

210 Evans Way

Somerville, NJ 08876

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB	
PROJECT NAME	
8274 BIG BEND BLVD	
ADDRESS	
NUMBER	
WEBSTER UNIVERSITY	
OWNER	
CANNON DESIGN	
ARCHITECT / ENGINEER	
DEVIN D GATES	
SUBMITTED BY	
078446-002	
CONTRACTOR / CM SUBMITTAL NO.	CANNON DESIGN SUBMITTAL NO.
	078446
DRAWING / DETAIL REFERENCE	SPECIFICATION SECTION / PARAGRAPH
MANUFACTURER / SUPPLIER	ITEM / PRODUCT ID
REQUIRED DATE	PRIORITY
	CRITICAL

ITEM BEING SUBMITTED (check only one)

- | | | |
|---|--|--|
| ☐ Shop Drawings | ☐ Certification / Qualifications | ☐ Coordination Drawing |
| ☐ Samples (____ copies) | ☐ Record Documents | ☐ Calculations |
| ☐ LEED Submittal | ☒ Product Data | ☐ Schedules |
| ☐ Other _____ | | ☐ O&M Manuals |

ITEM BEING SUBMITTED FOR (check only one)

- ☒ Action ☐ Information Only ☐ Record

REMARKS OR DEVIATIONS

For use at static locations only. A separate submittal will be forwarded for dynamic locations. See attached plan for locations.

CONTRACTOR / CM CERTIFICATION (SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)



PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:

Devin D. Gates

To be completed by Reviewer

07 8446-002 REV004
CANNON DESIGN SUBMITTAL NUMBER
1/27/17
RECEIVED DATE

- ☐ A. No Exceptions Taken
No further review of submittal is required.
- ☒ B. Make Corrections Noted
Incorporate corrections in work; resubmission is not required.
- ☐ C. Revise and Resubmit
Revise as noted, and resubmit for review.
- ☐ D. Rejected
Submittal is not in compliance with Contract Documents; provide new submittal.
- ☐ E. For Record / Information Only
Submittal was reviewed for Record / Information purposes only.
- ☐ F. Not Required for Review
Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS

☐ See attached sheet(s) for additional comments

1) Provide separate submittal for fire-resistive joint assembly or engineering judgment for dynamic condition.

2) Provide Identification post-installation per specification 078446-002, 3.4, A.

DEVIN D GATES	1/26/17
REVIEWED BY	DATE

Kelvin Patel	02/03/17
REVIEWED BY	DATE

Digitally signed by Kelvin Patel
DN: C=US, E=kpatel@cannondesign.com, O=Cannon Design,
OU=Architect, CN=Kelvin Patel
Date: 2017.02.03 14:27:27 -06'00'