Southwest Type 7TB
Submittal Package

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SOUTHWEST TYPE 7TB™

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	A Portland cement based, Spray-applied Fire Resistive Material (SFRM) formulated to provide thermal barrier fire protection.
Description	A 22 lb./ft³ (352 kg/m³) density (average) SFRM designed for use as a thermal barrier fire protection material over foam plastics. A secondary use is for fire protection of steel. It was specifically formulated to resist exposure to high humidity and moisture and for direct application to rigid foam plastic urethane, and polystyrene insulation. Southwest Type 7TB is a trademark of the Southwest Fireproofing Products Company.
Features	• 15 minute thermal barrier protection • Damage resistant and permanent • Noncombustible • High build • Moisture resistant • Asbestos-free – complies with EPA and OSHA regulations. • Mineral Wool free – no airborne fibers. • Styrene free – no toxic decomposition gases. • Economical – Maintains project on budget.
Color	Gray Product color may vary due to variations in color or portland cement.
Finish	Textured
Primer	A/D Type TC-55 Sealer is used as a primer/bonding agent where specified for use over foam plastic insulation. Southwest Type 7TB is applied over the A/D Type TC-55 Sealer while the primer/bonding agent is still tacky. Contact Carboline Fireproofing Technical Service for further information. Southwest Fireproofing materials neither promote nor prevent corrosion. Fireproofing should not be considered part of the corrosion protection system.
Application Thickness	3/4" (19 mm) 3/4" (19 mm) thickness provides 15 minute thermal barrier over urethane and polystyrene foam plastic insulation.
Limitations	Not intended for permanent direct exposure to weather, exterior use or excessive physical abuse beyond normal construction cycles. Not recommended for use as refractory cement or where operating temperatures exceed 200°F (93°C).
Topcoats	Generally not required. In severely corrosive atmospheres, consult Carboline Technical Service for selection of coating most suitable for the operating environment.

SUBSTRATES & SURFACE PREPARATION

General	Prior to application, all substrates must be clean and free of loose scale, dirt, oil, grease, condensation, or any other substance that would impair adhesion. Contact Carboline Technical Service for further information.

PERFORMANCE DATA

Test Method	Results
ASTM C569 Penetration Resistance	54,032 psf (2,587 kPa)
ASTM E136 Combustibility	Passed (non-combustible)
ASTM E605 Density[1]	22 pcf (352 kg/m³) Average
ASTM E736 Cohesion/Adhesion	1,260 psf (60 kPa)
ASTM E761 Compresive Strength	19,008 psf (910 kPa)
ASTM E84 Surface Burning	Over 1/2" (19 mm) polystyrene: FS: 5 / SD: 0 Over 1/2" (19 mm) urethane: FS: 10 / SD: 0
UL 1715 Corner Room Test	3/4" (19 mm) achieved 15 minute thermal barrier rating over urethane and polystyrene foam plastic insulation

[1] Air dry at ambient conditions to constant weight. Do not force cure. Use ASTM E605 Positive Bead Displacement method utilizing #8 lead shot. Test density in accordance with AWCI Technical Manual 12-A (Standard Practice for the Testing and inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide).
All values derived under controlled laboratory conditions.
Test reports and additional data available upon written request.

MIXING & THINNING

Mixer

1. Use a minimum 12-16 cubic foot (340-453 liter) heavy-duty mortar mixer capable of rotating at 40 rpm with rubber tipped blades that wipe the sides.
2. Use continuous feed mixer. Contact Carboline Technical Service for recommendation. Densities may vary when using this type of mixing equipment.

Mixing

Always mix with clean potable water. The mixer shall be kept clean and free of any previously mixed materials which may cause premature setting of product. A 2 bag mix is recommended for paddle type mixers. Mix time should be approximately 1.5 minutes minutes at 40 rpm. Do not over mix. The material volume should not go over center bar of mixer. Use 10 to 11 gallons (37.8 to 41.6 liters) of water per 50 lb. (22.7 kg) bag. Add water to the mixer first with blades stopped. With mixer turned on, add material to the water and begin mixing.

Density

For information and recommendations obtaining the proper density and yield, contact the local Carboline representative or Carboline Fireproofing Technical Service.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Pump

This material can be pumped with a wide range of piston, rotor stator and squeeze pumps designed to pump cement & plaster materials including:
Essick - model# FM9/FM5E (Rotor Stator/2L4)
Putzmeister - model# S5EV(Rotor Stator/2L6)
Hy-Flex - model# HZ-30E(Rotor Stator/2L6)
Hy-Flex - model# H320E (Piston)
Strong Mfg. - model# Spraymate 60 (Rotor Stator/2L6)
Airtech - model# Swinger (Piston)
Mayco - model# PF30 (Dual Piston)
Thomsen - model# PTV 700 (Dual Piston)

Marvel kit must be removed from piston pumps.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Ball Valves	Ball valves should be located at the manifold and at the end of the surge hose to facilitate cleaning of the pump and/or hoses.
Material Hose	Use 15 to 25 feet (4.5 m to 7.6 m) of 3” (76 mm) I.D. or larger surge hose from the manifold. Follow with a 16” (406 mm) tapered fitting to a 2” (50 mm) I.D. hose to the spray area. Taper to 15 to 20 feet (4.5 m to 6 m) of minimum 1-1/4” or 1” (25 mm) whip hose.
Standpipe	Use 3” (76 mm) I.D. aluminum tubing with quick external disconnections. Elbows should be 3” (76 mm) I.D. with minimum 36” (0.9 m).
Nozzle/Gun	Use a minimum 1” (25 mm) I.D. plaster type nozzle with shut off valve, swivel and air shut off valve.
Orifice Size and Shields	9/16 to 5/8” (9.5 mm - 15.9 mm) I.D. “blow-off” tips (mini shields optional)
Compressor	Compressor on pump must be capable of maintaining minimum 30 psi (206 kPa) and 9 to 11 cfm at the nozzle.
Air Line	Use 5/8” (15.9 mm) I.D. hose with a minimum bursting pressure of 100 psi (689 kPa).

APPLICATION PROCEDURES

General	Thicknesses of 3/4" (19 mm) or less can be applied in one pass. When additional coats are required to reach specified thickness, apply subsequent coats after prior coat has set. If preceding coat has dried, dampen the surface with water prior to application of additional coats. For complete application instructions, refer to the Southwest Fireproofing Products Field Application Manual.
Field Tests	Test for thickness and density in accordance with the applicable building code, AWCI Technical Manual 12-A (Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide), and ASTM E605 (Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members).
Finishing	Normally left as a sprayed texture finish.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	40°F (4°C)	40°F (4°C)	40°F (4°C)	0%
Maximum	100°F (38°C)	125°F (52°C)	110°F (43°C)	95%

Air and substrate temperatures shall be maintained 24 hours before, during and 24 hours after application. Contact Carboline Fireproofing Technical Service for recommendations.

CURING SCHEDULE

Surface Temp.	Dry to Recoat
77°F (25°C)	4 Hours

Recoat times will vary based upon ambient conditions and air movement. Once the product has set, it is suitable for general purpose areas with prolonged exposure to moisture or high humidity.

CLEANUP & SAFETY

Cleanup	Pump, mixer and hoses should be cleaned with potable water. Sponges should be run through the hoses to remove any material remaining in the hoses. Wet overspray must be cleaned up with soapy or clean, potable water. Cured overspray material may be difficult to remove and may require chipping or scraping to remove.
Safety	Follow all safety precautions on the Material Safety Data Sheet. It is recommended that personal protective equipment be worn, including spray suits, gloves, eye protection and respirators.
Overspray	Adjacent surfaces shall be protected from damage and overspray. Sprayed fireproofing materials may be difficult to remove from surfaces and may cause damage to architectural finishes.
Ventilation	In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour until the material is dry.

TESTING / CERTIFICATION / LISTING

Underwriters Laboratories, Inc.	Tested in accordance with UL 1715 Enclosed Corner Room Test at Underwriter's Laboratories, Inc. **- 15 minute thermal barrier rating at 3/4" (19 mm)**

PACKAGING, HANDLING & STORAGE

Packaging	50 lb. (22.7 kg) bags
Shelf Life	12 months
Storage	Store indoors in a dry environment between 32°F - 125°F (0°C - 52°C) Material must be kept dry or clumping of material may occur.
Shipping Weight (Approximate)	50 lb. (22.7 kg)

WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.

Safety Data Sheet
prepared to UN GHS Revision 3

1. Identification of the Substance/Mixture and the Company/Undertaking

1.1 Product Identifier 56ADS1NL

Product Name: SOUTHWEST TYPE 7TB

Revision Date: 10/02/2015

Supercedes Date: 06/02/2015

1.2 Relevant identified uses of the substance or mixture and uses advised against Fireproofing Material

1.3 Details of the supplier of the safety data sheet

Manufacturer:

Carboline Company
2150 Schuetz Road
St. Louis, MO USA 63146

Regulatory / Technical Information:
Contact Carboline Technical Services at
1-800-848-4645

Datasheet Produced by: Schlereth, Ken - ehs@stoncor.com

1.4 Emergency telephone number:

CHEMTREC 1-800-424-9300 (Inside US)
CHEMTREC +1 703 5273887 (Outside US)
HEALTH - Pittsburgh Poison Control 1-412-681-6669

2. Hazard Identification

2.1 Classification of the substance or mixture

Carcinogenicity, category 1A
Serious Eye Damage, category 1
Skin Irritation, category 2
Skin Sensitizer, category 1

2.2 Label elements

Symbol(s) of Product

Signal Word

Danger

Named Chemicals on Label

CALCIUM OXIDE, MICROCRYSTALLINE SILICA, PORTLAND CEMENT

GHS HAZARD STATEMENTS

Skin Irritation, category 2	H315	Causes skin irritation.
Skin Sensitizer, category 1	H317	May cause an allergic skin reaction.
Serious Eye Damage, category 1	H318	Causes serious eye damage.
Carcinogenicity, category 1A	H350-1A	May cause cancer.

GHS PRECAUTION PHRASES

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/ face protection.
P284	Wear respiratory protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+352	IF ON SKIN: Wash with plenty of soap and water.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P308+313	IF exposed or concerned: Get medical advice/attention
P332+313	If skin irritation occurs: Get medical advice/attention.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.

2.3 Other hazards

No Information

Results of PBT and vPvB assessment:

The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.

3. Composition/Information On Ingredients

3.2 Mixtures

Hazardous Ingredients

CAS-No.	Chemical Name	%
65997-15-1	PORTLAND CEMENT	50-75
1317-65-3	LIMESTONE	2.5-10
1305-78-8	CALCIUM OXIDE	2.5-10
1309-48-4	MAGNESIUM OXIDE	2.5-10
14808-60-7	MICROCRYSTALLINE SILICA	0.1-1.0

CAS-No.	GHS Symbols	GHS Hazard Statements	M-Factors
65997-15-1	GHS05-GHS07	H315-317-318	0
1305-78-8	GHS05-GHS07	H315-318-335	0

1317-65-3	GHS07	H315-319	0
1309-48-4			0
14808-60-7	GHS08	H350-370	0

Additional Information: The text for GHS Hazard Statements shown above (if any) is given in Section 16.

4. First-aid Measures

4.1 Description of First Aid Measures

AFTER INHALATION: Remove person to fresh air. If signs/symptoms continue, get medical attention.
AFTER SKIN CONTACT: Wash off with soap and plenty of water.
AFTER EYE CONTACT: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
AFTER INGESTION: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If swallowed, call a poison control centre or doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to respiratory system.

4.3 Indication of any immediate medical attention and special treatment needed

No Information

5. Fire-fighting Measures

5.1 Extinguishing Media:

Carbon Dioxide, Dry Chemical, Foam, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: No Information

5.2 Special hazards arising from the substance or mixture

No Information

5.3 Advice for firefighters

The product is not flammable.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Sweep up to prevent slipping hazard. Forms slippery/greasy layers with water.

6.2 Environmental precautions

No Information

6.3 Methods and material for containment and cleaning up

No Information

6.4 Reference to other sections

No Information

7. Handling and Storage

7.1 Precautions for safe handling

INSTRUCTIONS FOR SAFE HANDLING : Avoid breathing dust. Do not breathe vapours or spray mist. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.
PROTECTION AND HYGIENE MEASURES : Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Wash hands before eating, drinking, or smoking.

7.2 Conditions for safe storage, including any incompatibilities

CONDITIONS TO AVOID: Exposure to moisture.
STORAGE CONDITIONS: Keep containers tightly closed in a dry, cool and well-ventilated place.

7.3 Specific end use(s)

No Information

8. Exposure Controls/Personal Protection

8.1 Control parameters

Ingredients with Occupational Exposure Limits (US)

Name	%	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING	OEL Note
PORTLAND CEMENT	50-75	10 MG/M3	N/E	5 MG/M3	N/E	
LIMESTONE	2.5-10	N/E	N/E	5 MGM3	N/E	
CALCIUM OXIDE	2.5-10	2 MGM3	N/E	5 MGM3	N/E	
MAGNESIUM OXIDE	2.5-10	N/E	N/E	N/E	N/E	
MICROCRYSTALLINE SILICA	0.1-1.0	0.025 MG/M3 (respirable)	N/E	0.1 MG/M3 (respirable)	N/E	

FURTHER INFORMATION: No Information

8.2 Exposure controls

Personal Protection

RESPIRATORY PROTECTION: Respirator with a dust filterUse the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Use NIOSH approved respiratory protection.

EYE PROTECTION: Safety glasses with side-shields.

HAND PROTECTION: For prolonged or repeated contact use protective gloves.

OTHER PROTECTIVE EQUIPMENT: Ensure that eyewash stations and safety showers are close to the workstation location.

ENGINEERING CONTROLS: Avoid dust accumulation in enclosed space.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Grey Powder Mixture
Physical State	Solid
Odor	Slight
Odor threshold	N/D
pH	7 to 9 (in water(
Melting point / freezing point (°C)	N/A
Boiling point/range (°C)	N/A - N/A
Flash Point, (°C)	999
Evaporation rate	N/A
Flammability (solid, gas)	Not determined
Upper/lower flammability or explosive limits	N/A - N/A
Vapour Pressure, mmHg	N/A
Vapour density	N/A
Relative density	Not determined
Solubility in / Miscibility with water	Slight

Partition coefficient: n-octanol/water	Not determined
Auto-ignition temperature (°C)	Not determined
Decomposition temperature (°C)	Not determined
Viscosity	Unknown
Explosive properties	Not determined
Oxidising properties	Not determined

9.2 Other information

VOC Content g/l:	0
Specific Gravity (g/cm3)	1.92

10. Stability and Reactivity

10.1 Reactivity
No Information

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous polymerisation does not occur.

10.4 Conditions to avoid
Exposure to moisture.

10.5 Incompatible materials
Strong oxidizing agents.

10.6 Hazardous decomposition products
None known.

11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity:

Oral LD50: N/D

Inhalation LC50: N/D

Irritation: Unknown

Corrosivity: Unknown

Sensitization: Unknown

Repeated dose toxicity: Unknown

Carcinogenicity: Unknown

Mutagenicity: Unknown

Toxicity for reproduction: Unknown

If no information is available above under Acute Toxicity then the acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Chemical Name	Oral LD50	Dermal LD50	Vapor LC50
65997-15-1	PORTLAND CEMENT	Not Available		Not Available
1305-78-8	CALCIUM OXIDE	Not Available		Not Available
1317-65-3	LIMESTONE	6450 mg/kg, oral, rat	Not Available	Not Available
1309-48-4	MAGNESIUM OXIDE	Not Available		Not Available
14808-60-7	MICROCRYSTALLINE SILICA	Not Available	Not Available	Not Available

Additional Information:
Irritating to respiratory system.

12. Ecological Information

12.1 Toxicity:

EC50 48hr (Daphnia): Unknown

IC50 72hr (Algae): Unknown

LC50 96hr (fish): Unknown

12.2 Persistence and degradability: Unknown

12.3 Bioaccumulative potential: Unknown

12.4 Mobility in soil: Unknown

12.5 Results of PBT and vPvB assessment: The product does not meet the criteria for PBT/VPvB in accordance with Annex XIII.

12.6 Other adverse effects: Unknown

CAS-No.	Chemical Name	EC50 48hr	IC50 72hr	LC50 96hr
65997-15-1	PORTLAND CEMENT	No information	No information	No information
1317-65-3	LIMESTONE	No information	No information	No information
1305-78-8	CALCIUM OXIDE	No information	No information	No information
1309-48-4	MAGNESIUM OXIDE	No information	No information	No information
14808-60-7	MICROCRYSTALLINE SILICA	No information	No information	No information

13. Disposal Considerations

13.1 WASTE TREATMENT METHODS: Dispose of in accordance with local regulations.

14. Transport Information

14.1	**UN number**	None
14.2	**UN proper shipping name**	Not Regulated
	Technical name	N/A
14.3	**Transport hazard class(es)**	None
	Subsidiary shipping hazard	N/A
14.4	**Packing group**	N/A
14.5	**Environmental hazards**	No
14.6	**Special precautions for user**	Unknown
	EmS-No.:	None
14.7	**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code**	Unknown

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation for the substance or mixture:

U.S. Federal Regulations: As follows -

CERCLA - Sara Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Chronic Health Hazard

Sara Section 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

No Sara 313 components exist in this product.

Toxic Substances Control Act:

All components of this product are either listed on the TSCA Inventory or are exempt.

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

No TSCA 12(b) components exist in this product.

U.S. State Regulations: As follows -

New Jersey Right-to-Know:

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS-No.
VERMICULITE	1318-00-9
CALCIUM SULFATE	13397-24-5
CELLUOSE	9004-34-6

Pennsylvania Right-To-Know

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS-No.
VERMICULITE	1318-00-9
CALCIUM SULFATE	13397-24-5
CELLUOSE	9004-34-6
No Chemical Name Found	TRADE SECRET
GLASS OXIDE	65997-17-3

California Proposition 65:

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

Chemical Name	CAS-No.
MICROCRYSTALLINE SILICA	14808-60-7

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards.

No Proposition 65 Reproductive Toxins exist in this product.

International Regulations: As follows -

* Canadian DSL:

No Information

15.2 Chemical Safety Assessment:

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16. Other Information

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H350	May cause cancer.
H370	Causes damage to organs.

Reasons for revision

No Information

No Information

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide materials, labor, and equipment necessary to install fireproofing as shown on the drawings and as specified herein, in accordance with contract documents.

1.02 RELATED WORK

A. Specified elsewhere:
1. 01010 - Project Summary
2. 01410 - Testing Laboratory Services
3. 05100 - Structural Metal Framing
4. 05310 - Steel Floor Deck
5. 07270 - Firestopping
6. 09250 - Gypsum Drywall
7. 09800 - Special Coatings
(Note: If steel is required to be primed, or if topcoating is required for harsh environments, contact your Carboline sales representative for compatible coatings).

1.03 QUALITY ASSURANCE

A. Application of fireproofing shall be performed by a qualified applicator acceptable to the Carboline Company, St. Louis, MO.

B. A Certified Installation Certificate must be completed and submitted at end of project.

C. Provide materials and construction for hourly ratings listed in the Underwriters Laboratories, Inc. Fire Resistance Directory or as calculated by the American Iron and Steel Institute formula.

D. Field constructed mock-up: Apply sample section to representative substrates on site. Mock-up should include primer, fireproofing at required thickness, density, and finished surface, and all finish coatings.

1.04 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM E84 Surface Burning Characteristics
2. ASTM E119 Standard Methods of Fire Tests of Building Construction and Materials
3. ASTM E605 Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members
4. ASTM E736 Cohesion/Adhesion of Sprayed Fire-Resistive Material Applied to Structural Members
5. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

C. Underwriters Laboratories Inc. (UL) Fire Resistance Directory (Latest Edition)
1. UL/ANSI 263 Fire Tests of Building Construction Materials
2. UL/ANSI 1715 Fire Test of Interior Finish Material

D. Uniform Building Code (UBC)
1. UBC Standard No. 7-6 – Thickness and Density Determination for Spray Applied Fireproofing
2. UBC Standard No. 26-2 – Test Method for the Evaluation of Thermal Barriers
3. UBC Standard No. 26-3 – Room Fire Test Standard For Interior of Foam Plastic Systems

E. FM Global (FM)
1. FM 4975 – Approval Standard for Fire-Retardant Paints and Coatings Over Combustible Surfaces

F. Association of the Wall and Ceiling Industry (AWCI)
1. AWCI Technical Manual 12-A: Standard Practice for the Testing and Inspection of Spray Applied Fire-Resistive Materials

G. International Building Code (IBC)

1.05 SUBMITTALS

A. Product Data: Submit manufacturer's current Product Data and Application Instructions.

B. Fireproofing manufacturer's certification that the materials to be supplied comply with the specifications and are suitable for the use intended.

C. Fireproofing manufacturer's certification that the minimum performance standards as required under Section 2.01-A can be met and test reports supplied as requested.

D. Schedule of Underwriters Laboratories, Inc. designs or American Iron and Steel Institute calculations to achieve the required hourly ratings.

E. At completion of project, Certified Installation Certificate.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Material shall be delivered in original unopened packages, identified as to manufacturer and type, bearing the proper Underwriters Laboratories, Inc. label for fire resistance construction.

B. Material shall be stored above ground, kept dry until ready for use. Materials shall be used prior to expiration date.

1.07 SITE CONDITIONS

A. Minimum application temperature for air and substrate must be 40ºF. If required for project progress, General Contractor shall provide enclosures with heat to maintain temperatures.

B. General Contractor shall provide ventilation for proper drying of the fireproofing during and after its application. In poorly ventilated areas, forced air shall be used to achieve a total air exchange of four times per hour until the material is substantially dry.

C. After application, fireproofing must be protected from running water or rain for 24 hours at 70ºF or longer at lower temperatures.

1.08 SEQUENCING

A. Coordinate application of fireproofing with related work specified in other sections to comply with the following requirements:
1. Prevent deterioration due to exposure to unfavorable environmental conditions.
2. Protect fireproofing from abrasion and other damage likely to occur during construction operations after its application.
3. Install fireproofing prior to installation of enclosing or concealing work, allowing sufficient time for inspection, testing, and correction of defective fireproofing.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials shall be Southwest Type 7TB Thermal Barrier for use on urethane or styrene foam plastics to provide 15 minute thermal barrier protection.

B. Physical Performance Characteristics: Thermal barrier material shall meet the following physical performance standards:
1. Dry Density: The in place density shall be measured in accordance with ASTM Standard E605. Minimum average density shall be that required by the manufacturer, or as listed in the UL Fire Resistance Directory for each rating indicated, or as required by the authority having jurisdiction, or a minimum average of 22 pcf whichever is greater.
2. Bond Strength: Thermal barrier, when tested in accordance with ASTM E736, shall have a minimum average bond strength of 500 psf and a minimum individual bond strength of 400 psf.
3. Surface Burning Characteristics: Material shall exhibit the following surface burning characteristics when tested in accordance with ASTM E84:
Styrene Foam Substrate
Flame Spread:5 / Smoke Development:0
Urethane Foam Substrate
Flame Spread:10 / Smoke Development:0
4. Resistance to Mold: The thermal barrier material shall be formulated at the time of manufacturing with a mold inhibitor. Thermal barrier material shall be tested in accordance with ASTM G21 and shall show resistance to mold growth for a period of 28 days for general use.

C. Fire Resistance Classification: The spray applied thermal barrier material shall have been tested and reported by Underwriters Laboratories Inc. fire exposure in accordance with the procedures of ANSI/ASTM E119 and UL 1715 and shall be listed in the Underwriters Laboratories Fire Resistance Directory.

D. Mixing water shall be clean, fresh, and suitable for domestic consumption and free from such amounts of mineral or organic substances as would affect the set of the thermal barrier material. Provide water with sufficient pressure and volume to meet the thermal barrier application schedule.

2.02 ACCESSORIES

A. Provide accessories to comply with manufacturer's recommendations and to meet fire resistance design and code requirements. Such accessories include, but are not limited to, any required or optional items such as bonding agents, mechanical attachments; and application aids such as metal lath.

PART 3 EXECUTION

3.01 EXAMINATION

A. All surfaces to be fireproofed shall be cleaned to the satisfaction of the applicator. Surface preparation shall be the responsibility of the steel fabricator, General Contractor, or trade effecting improper adhesion.

B. Primed steel must follow the current Underwriters Laboratories, Inc. application requirements for bond and/or mechanical attachment.

C. Unprimed steel must follow the application requirements of Carboline Company, St. Louis, MO.

D. Verify that objects which will penetrate fireproofing such as clips, hangers, support sleeves, etc. are securely attached to the substrate.

E. Verify that substrates are not obstructed by ducts, piping, equipment, or other construction which might interfere with fireproofing application. If obstruction(s) are evident, General Contractor to have responsible trade remove obstruction until fireproofing is completed in the area.

F. Do not proceed with fireproofing application until all unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean substrates, removing dirt, dust, oil, grease, loose material, incompatible primers, or other substances which may impair bonding of fireproofing to the substrate.

B. Where required, install metal lath and/or reinforcing mesh per the Underwriters Laboratories, Inc. and Carboline Company design and application requirements.

C. Provide drop cloths, masking, or other satisfactory protection for surfaces not to receive fireproofing to prevent damage from overspray.

3.03 APPLICATION

A. Comply with manufacturers current instructions for equipment and application procedures.

B. Apply fireproofing in thickness and density required to achieve fire resistance ratings.

C. Finish surface shall be (as sprayed)

3.04 FIELD QUALITY CONTROL

A. At the owner's expense, the engineer/architect may select an independent testing laboratory to sample and verify the thickness and density of the fireproofing in accordance with provisions of ASTM E605. Fireproofing for density may be sprayed or trowelled in separate, designated containers to minimize patching at site.

B. Results of these tests shall be made available to all concerned at the completion of each floor or area.

3.05 PROTECTION

A. Coordinate installation of fireproofing with other trades in order to minimize the need to cut or remove fireproofing. As other trades successfully complete installation of their work, maintain protection of fireproofed portions of the structure by repairing any areas which have been removed or damaged prior to concealment of fireproofing by other work.

B. Fireproofing applicator shall post SLIPPERY WHEN WET signs in areas of active application. If applicable, the General Contractor shall install barriers to prevent other trades from entering the application area till the material dries or is cleaned.

C. Areas subject to overspray that are to remain permanently exposed as detailed on the drawings, must be covered by drop cloths or other satisfactory protection to prevent contact with fireproofing material.

3.06 PATCHING AND REPAIR

A. Fireproofing damaged by other trades shall be repaired by fireproofing applicator and paid for by the trade(s) causing damage.

3.07 CLEANING

A. Except as detailed, surfaces are to be left in a scraped clean condition.

B. At completion of fireproofing work, application equipment shall be removed from site.

3.08 SCHEDULE

A. Fire resistance rating in hours shall be the following:

	Hour	Rest.	Unrest.
Floor Assembly	_____	_____	_____
Primary Floor Beams	_____	_____	_____
Secondary Floor Beams	_____	_____	_____
Roof Beams	_____	_____	_____
Columns, Supporting Floor			_____
Columns, Supporting Roof			_____
Rapid Rise Fire Exposure			_____

END OF SECTION

BLPR.R8213
Cementitious Cement and Plaster Mixtures

Page Bottom

Cementitious Cement and Plaster Mixtures

See General Information for Cementitious Cement and Plaster Mixtures

SOUTHWEST FIREPROOFING PRODUCTS CO R8213
5119 EDITH BLVD NE
PO BOX 6287
ALBUQUERQUE, NM 87197 USA

	Type 4	Applied to Inorganic Reinforced Cement Board In. a Max Thk of 1/2 In.			
		Type 5	Type 5GP	Type 5EF	Type 5MD
Flame spread	10	10	0	0	0
Smoke developed	0	0	0	0	0

	Type 8GP	Type 9GP	Applied to Inorganic Reinforced Cement Board In. a Max Thk of 1/2 In.			
			Type 8EF	Type 8MD	Type 9EF	Type 9MD
Flame spread	0	10	0	0	10	10
Smoke developed	0	0	0	0	0	0

	Type FP-2	Type 7MP	Type FP-1A	Type TS-40	Type 1AX
Flame spread	5	5	5	5	5
Smoke developed	0	0	0	0	0

	Type FP-1XR	Type 1XR
Flame spread	5	5
Smoke developed	0	0

+Also classified in accordance with ASTM E136, "Standard Test Method For The Behavior of Materials in a Vertical Tube Furnace at 750 degrees C" .

	Applied to Inorganic Reinforced Cement Board In a Max Thk of 1 In. Type 7TB+, ++
Flame Spread	5
Smoke Developed	0

+FOR SURFACE BURNING CHARACTERISTICS APPLIED OVER FOAMED PLASTIC, SEE CLASSIFICATION MARKING OF UNDERWRITERS LABORATORIES INC. ON PRODUCT OR CARTON.

++Systems utilizing cementitious mixture covering over 2 in. thickness of foamed plastic, fire tested in accordance with the International Conference of Building Officials Research Committee Acceptance Criteria for Foam Plastics under Section 1717 (b) of the 1976 Uniform Building Code.

	Applied Over 2 In. Thick Foamed Plastic* In a Min Thk of 1/2 In. Type 7TB+
Flame Spread	10

Smoke Developed	0

*Foamed plastic formed by the simultaneous spraying of two liquid components (CPR-485, Component "A" and CPR-485, Component "B") as manufactured by the Upjohn Company, CPR Division. This foamed plastic has values of Over 200 for flame spread, 15 for fuel contributed and Over 500 for smoke developed.

+Systems utilizing 3/4 in. thick cementitious mixture covering over 2 in. thickness of foamed plastic, fire tested in accordance with the International Conference of Building Officials Research Committee Acceptance Criteria for Foam Plastics under Section 1717(b) of the 1976 Uniform Building Code.

	Applied Over 2 In. Thick Foamed Plastic* In a Min Thk of 1/2 In. Type 7TB+
Flame Spread	5
Smoke Developed	0

*Foamed plastic in the form of boards identified as Type B and manufactured by Zonolite Construction Products Div., W. R. Grace Co. and bearing the Fire Hazard Classification Marking of Underwriters Laboratories Inc. The 2 in. thickness of foamed plastic exhibited values of 5 for flame spread, not determinable for fuel contributed, and 40 for smoke developed, while material remained in original test position; ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated Flame Spread Classification of 100 and Smoke Developed Classification of Over 500.

Last Updated on 2006-02-16

LEED® v4 Technical Bulletin
Building Design + Construction

Background
This document outlines Carboline's contributions towards available LEED v4 credits. Carboline is committed to developing and manufacturing environmentally compliant coatings and fire protection products. Carboline fireproofing products can contribute towards points under the LEED Green Building Rating System. The LEED Green Building Rating System does not certify construction products and materials. Instead, entire projects are certified on the basis of the environmental impact of the building materials employed and the overall building design.

What is LEED?
Leadership in Energy and Environmental Design (LEED) is the most widely used green building rating system in the world. LEED was developed by the United States Green Building Council (USGBC) to evaluate the environmental performance of buildings and promote sustainable design methods. LEED certification provides independent verification of environmental features which allow for efficient, high performance, cost-effective building design and construction. There are four levels of certification that can be reached for LEED v4 which are awarded based on achieving a minimum number of points (Certified, Silver, Gold and Platinum).

Carboline products can contribute toward the following LEED v4 credit categories:

Energy & Atmosphere
- ✓ EA Prerequisite – Minimum Energy Performance
- ✓ EA Credit – Optimize Energy Performance

Materials and Resources
Materials and Resources
- ✓ MR Prerequisite: Construction and Demolition Waste Management Planning
- ✓ MR Credit: Building Life Cycle Impact Reduction
- ✓ MR Credit: Building Product Disclosure and Optimization – Sourcing of Raw Materials
- ✓ MR Credit: Building Product Disclosure and Optimization – Material Ingredients

Indoor Environmental Quality
- ✓ EQ Credit: Low-Emitting Materials

Energy and Atmosphere

EA Prerequisite: Minimum Energy Performance

Intent: To reduce the environmental and economic harm of excessive energy use by achieving a minimum level of energy efficiency for the building and its systems.

Requirements: Follow the criteria in the LEED New Construction Energy Design Guide as specified in LEED v4 (page 66).

Carboline Contributions: Carboline wet mix materials provide thermal resistance and noise reduction coefficient values. This will reduce the amount of energy needed for climate control and any added materials needed for soundproofing. This credit only applies to Carboline materials when used within the building envelope.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500

EA Credit: Optimize Energy Performance (1-18 points)

Note: This credit requires that an energy analysis be done that includes all energy costs within and associated with the building project. Points for this credit are assigned from 1-18 based on the percentage of energy cost savings the building materials or systems will provide.

Intent: Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

Requirements: Follow the criteria in EA Prerequisite Minimum Energy Performance to demonstrate a percentage improvement in the proposed building performance rating compared with the baseline. Points are awarded according to Table 1 in LEED v4 (page 75). Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building.

Carboline Contributions: Carboline wet mix materials provide thermal resistance and noise reduction coefficient values. This will reduce the amount of energy needed for climate control and reduce any added materials needed for soundproofing. This credit only applies to Carboline materials when used within the building envelope.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500

Materials and Resources

MR Prerequisite: Construction and Demolition Waste Management Planning

Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials.

Requirements:
Option 1 (page 106) Diversion (1–2 points)
Path1: Divert 50% and Three Material Streams (1 point)
Divert at least 50% of the total construction and demolition material; diverted materials must include at least three material streams.

OR

Path 2: Divert 75% and Four Material Streams (2 points)
Divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams. The minimum percentage debris to be recycled or salvaged for each point threshold is as follows: 50%: 1 point, 75%: 2 points

Carboline Contributions: Carboline products are supplied in paper bags, plastic pails or metal pails which can be recycled. The pallets used for shipment are also recyclable.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime® 775 WB, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

MR Credit: Building Life-Cycle Impact Reduction (2-5 points)

Intent: To encourage adaptive reuse and optimize the environmental performance of products and materials.

Requirements: Reuse or salvage building materials from offsite or onsite as a percentage of the surface area as listed in Table 1 (page 91). Include structural elements (e.g., floors, roof decking), enclosure materials (e.g., skin, framing), and permanently installed interior elements (e.g., walls, doors, floor coverings, ceiling systems). Exclude from the calculation window assemblies and any hazardous materials that are remediated as a part of the project.

Materials contributing toward this credit may not contribute toward MR Credit Material Disclosure and Optimization.

Percentage of completed project surface area reused	Points BD&C	Points BD&C (Core and Shell)
25%	2	2
50%	3	3
75%	4	5

Carboline Contributions: Carboline wet mix and intumescent materials are utilized for retrofit and rehab construction. These materials provide fire resistance ratings to unprotected structural members which will bring the existing building up to code. This will eliminate the need to replace the structural elements that were not code compliant.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1 XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK3 Spattercoat, A/D Type TC-55, Pyroprime® 775 WB, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

MR Credit: Building Product Disclosure and Optimization-Sourcing of Raw Materials (1-2 points)

Intent: To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

Requirements:
Option 1 (page 95) Raw Material Source and Extraction Reporting (1 point)
Use at least 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria

Carboline Contributions: Carboline has publicly released reports from their raw material suppliers which include raw material supplier extraction locations for our wet mix and intumescent materials fire resistive materials.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

Option 2 (page 95). Leadership Extraction Practices (1 point)
Use products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project.

Recycled content: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost. Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement calculation.

Carboline Contributions: Carboline wet-mix products are manufactured with post-consumer recycled materials.

Carboline Products That Contribute: Southwest™ Type 5GP (10% recycled content), Southwest™ Type 5MD (10% recycled content), Southwest™ Type 5EF (10% recycled content).

MR Credit: Building Product Disclosure and Optimization-Material Ingredients (1-2 points)

Intent: To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

Requirements:
Option 1 (Page 97) Material Ingredient Reporting (1 point)
Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product.

Carboline Contributions: Carboline wet mix and intumescent products have complete Declare Health Product Declaration: The end use product has a published, complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration open standard.

Carboline Products That Contribute: Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 241, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

MR Credit: Construction and Demolition Waste Management (1-2 points)

Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials.

Requirements:
Option 1 (page 106) Diversion (1–2 points)
Path 1: Divert 50% and Three Material Streams (1 point)
Divert at least 50% of the total construction and demolition material; diverted materials must include at least three material streams.

OR

Path 2: Divert 75% and Four Material Streams (2 points)
Divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams. The minimum percentage debris to be recycled or salvaged for each point threshold is as follows: 50%: 1 point, 75%: 2 points

Carboline Contributions: Carboline products are supplied in paper bags, plastic pails or metal pails which can be recycled. The pallets used for shipment are also recyclable.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime® 775 WB, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

Indoor Environmental Quality

EQ Credit: Low Emitting Materials (1-3 points)

Intent: To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

Requirements: This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions in the indoor air and the VOC content of materials as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system such as waterproofing membranes and air- and water-resistive barrier materials.

Option 1 (Page 118) Product Category Calculations (1-3 points)

Achieve the threshold level of compliance with emissions and content standards for the number of product categories listed in Table 2 (page 118).

Category	Threshold	Emission & Content Requirements
Interior paints and coatings applied onsite	At least 90% by volume for emissions, 100% for VOC content	• General Emissions Evaluation for paints and coatings applied to walls, floors and ceilings • VOC content requirements for wet applied products
Interior adhesives and sealants applied onsite	At least 90% by volume, for emissions 100% for VOC content	• General Emissions Evaluation • VOC content requirements for wet applied products
Ceilings, walls, thermal and acoustic insulation	100%	• General Emissions Evaluation • Healthcare, schools only
Healthcare and schools projects only: Exterior applied products	At least 90% by volume	• General Emissions Evaluation • Exterior applied products

Emissions and Content Requirements

To demonstrate compliance, a product or layer must meet all of the following requirements, as applicable.

Inherently non-emitting sources: Products that are inherently non-emitting sources of VOCs (stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, and unfinished or untreated solid wood flooring) are considered fully compliant without any VOC emissions testing if they do not include integral organic-based surface coatings, binders, or sealants.

General emissions evaluation: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1–2010, using the applicable exposure scenario. The default scenario is the private office scenario. The manufacturer's or third-party certification must state the exposure scenario used to determine compliance. Claims of compliance for wet-applied products must state the amount applied in mass per surface area.

Manufacturers' claims of compliance with the above requirements must also state the range of total VOCs after 14 days (336 hours), measured as specified in the CDPH Standard Method v1.1:

- 0.5 mg/m3 or less;
- between 0.5 and 5.0 mg/m3; or
- 5.0 mg/m3 or more.

Additional VOC content requirements for wet-applied products: In addition to meeting the general requirements for VOC emissions (above), on-site wet-applied products must not contain excessive levels of VOCs, for the health of the installers and other trade workers who are exposed to these products. To demonstrate compliance, a product or layer must meet the following requirements, as applicable. Disclosure of VOC content must be made by the manufacturer. Any testing must follow the test method specified in the applicable regulation.

- All paints and coatings wet-applied on site must meet the applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective June 3, 2011.
- All adhesives and sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD Rule 1168, July 1, 2005, Adhesive and Sealant Applications as analyzed by the methods specified in Rule 1168. The provisions of SCAQMD Rule 1168 do not apply to adhesives and sealants subject to state or federal consumer product VOC regulations.
- For projects outside the U.S., all paints, coatings, adhesives, and sealants wet-applied on site must either meet the technical requirements of the above regulations or comply with applicable national VOC control regulations such as the European Decopaint Directive (2004/42/EC), the Canadian VOC Concentration Limits for Architectural Coatings, or the Hong Kong Air Pollution Control (VOC) Regulation.

As there is no fireproofing category in the LEED v4, the SCAQMD regulations are commonly used to designate specialty coatings classifications for LEED applications. The SCAQMD (Rule #1113) outlines the current VOC limits as of January 1, 2014 for several categories of specialty coatings as follows:

Specialty Coating Type	Current VOC Limit (g/l)
Concrete surface retarders	50
Driveway Sealers	50
Faux finishing coatings	200
Fireproofing coatings	**150**
Graphic art coatings	150
Mastic coatings	100
Metallic pigmented coatings	150
Anti-graffiti coatings	50

The following Carboline products meet current VOC requirements:

Carboline Compliant Fireproofing Products	VOC Limit (EPA Method 24) (g/l)
A/D Firefilm® III	20 g/l
A/D Firefilm® III C	20 g/l
Firefilm® IV	4 g/l
Thermo-Sorb® VOC	142 g/l
Thermo-Sorb® E	147 g/l
Thermo-Sorb® 263	148 g/l
Thermo-Lag® E100	13 g/l
Thermo-Lag® E100 S	64 g/l
Thermo-Lag® 3000 A	13 g/l
Thermo-Lag® 3000 SA	64 g/l
A/D Type TC-55	0 g/l
Pyroprime® 775 WB	81 g/l
Southwest™ Series	0 g/l
Pyrolite® Series	0 g/l
Pyrocrete® Series	0 g/l

Carboline Contributions: Carboline has wet mix and intumescent materials that meet the required VOC limits and VOC emissions requirements for this credit.

Carboline Products That Contribute: Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, A/D Type TC-55, Pyroprime® 775 WB, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500, A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

Manufacturing Locations

Products manufactured in Louisa, VA:
Pyrolite® 15, Pyrolite® 22, Southwest™ Type 5GP, Southwest™ Type 5MD, Southwest™ Type 5EF, Southwest™ Type 1XR, Southwest™ Type 7GP, Southwest™ Type 7HD, Southwest™ Type 7TB, Southwest™ Type DK 3 Spattercoat, Pyrocrete® 239, Pyrocrete® 40, Pyrocrete® 240 HY, Pyrocrete® 241, Pyrocrete® 241 HD, Hardcoat 4500

Products manufactured in Green Bay, WI:
Pyroprime® 775, Thermo-Sorb® E, Thermo-Sorb® 263,

Products manufactured in Dayton, NV:
Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

Products manufactured in Lake Charles, LA:
A/D Firefilm® III, A/D Firefilm® III C, Firefilm® IV, A/D Type TC-55, Thermo-Sorb®, Thermo-Sorb® VOC, Thermo-Sorb® E, Thermo-Sorb® 263, Thermo-Lag® 3000, Thermo-Lag® E100, Thermo-Lag® E100 S

Raw Material Extraction Locations

NOTE: For raw material extraction locations and distance to manufacturing plants, please contact your local Carboline technical sales representative or Carboline fireproofing technical service.