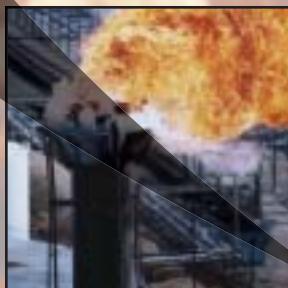


FIREPROOFING SYSTEMS

Carboline and A/D fireproofing systems offer solutions for all types of projects where steel is required to be protected from fire. We have the range and depth of product offering to solve the toughest design challenges facing the industry.



carboline[®]
Protective Coatings and Linings

A/D



The Right Fireproofing...

Why Protect Steel from Fire?

Steel retains approximately 50% of its strength when it reaches 1100°F (600°C). Temperatures during fires can be much hotter - a standard fire test reaches 1300°F (704°C) in the first 10 minutes. If left unprotected, the structure may collapse when exposed to fire.

Building codes require certain beam, column, floor, wall and roof assemblies to have fire resistance ratings which are determined on the basis of standard fire tests. Fire resistance ratings can be accomplished with the application of sprayed fire resistive materials (fireproofing) to those assemblies.



Columns exposed to a standard ASTM E119 (UL263) fire exposure



A/D FIREFILM on structural steel



Southwest Fireproofing Type 5GP on steel beams & decking

Performance Requirements

	A/D FIREFILM III	THERMO-SORB	Nullifire S605	Nullifire S606	Nullifire S607	THERMO-LAG 3000-A/SA	A/D Type 5 GP	A/D Type 5 MD	Pyrolite 15	A/D Type 7 GP	A/D Type 7 HD	Pyrolite 22	Pyrocrete 239	Pyrocrete 40	Pyrocrete 240 High Yield	Pyrocrete 241	THERMO-LAG-P/SP
Up to 2 hrs Fire Rating	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Up to 3 hrs Fire Rating	•	•		•		•	•	•	•	•	•	•	•	•	•	•	•
Up to 4 hrs Fire Rating				•			•	•	•	•	•	•	•	•	•	•	•
Internal Steelwork	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
External Steelwork			•			•							•	•	•	•	•
High Humidity			•			•			•	•	•	•	•	•	•	•	•
Semi-External Steelwork		2	•	2	•				2	2	•	2	•	•	•	•	•
Steel Exposed to View	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Steel Hidden from View	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Highly Decorative Finish	•	•	•	•	•	•											•
Non-Dusting Finish	•	•	•	•	•	•											•
Impact Resistant	1	1	1	1	1	•	•	•	•	•	•	•	•	•	•	•	•
Suitable for Shop Application	3	3	3	3	3	•								•	•	•	•
Acoustic Requirement									•			•					

1 = Intumescent coatings can be easily repaired if damaged.
 2 = Suitable during construction only.
 3 = Contact Carboline Fireproofing Technical Service for further information.

■ architectural intumescent ■ architectural cementitious
■ industrial cementitious ■ industrial intumescent

...Right Where You Need It!

Carboline Company, a world leader in industrial fire protection and high performance coatings, and A/D Fire Protection Systems, a world leader in intumescent fire resistive coatings, together offer the most complete fireproofing package available from any single source.

ARCHITECTURAL

- A** ● ● ● ●
Atrium/Steel
- B** ● ● ● ●
Elevator Shaft/Stairwell
- C** ● ● ● ●
Support Structural Steel
- D** ● ● ● ●
Roof Truss
- E** ● ● ● ●
Floor/Beam Assembly
- F** ● ● ● ●
Parking Garage
- G** ● ● ● ●
Arenas/Mechanical Room
- H** ● ● ● ●
Drop Ceiling

INDUSTRIAL

- I** ● ● ● ●
Tank
- J** ● ● ● ●
Tank Support Skid
- K** ● ● ● ●
Electrical Raceway
- L** ● ● ● ●
Pipe Rack
- M** ● ● ● ●
Structural Support



FIREPROOFING PRODUCT SELECTION KEY

- Architectural Intumescent
- Architectural Cementitious
- Industrial Cementitious
- Industrial Intumescent

We have a team of trained applicators available to apply the products ensuring a high quality of workmanship. In addition, a helpful and knowledgeable technical staff is always available to help you plan your project, or to answer any questions that you may have.

Just Call Us (In USA: 800-848-4645 - In Canada: 800-263-4087)

Intumescent Fireproofing...

Decorative, Intumescent Fire Resistive Coatings for Structural Steel

A/D FIREFILM III, THERMO-SORB, Nullifire, and THERMO-LAG 3000 Intumescent Fireproofing Systems allow designers to express the steel structure as an art form in buildings where fire resistance ratings are required. With multiple product choices and a wide spectrum of primers and finishes, specifications can be developed for all building types, project requirements and conditions.

Project planners now have flexibility to create unique exposed steel designs where fire resistance ratings are required, with aesthetically pleasing, durable and cost effective alternatives.

Aesthetics:

- Thin film
- Virtually unlimited colors
- Painted steel appearance
- Smoothest fire protection finish

Security:

- Superior bond strength
- Hammer hard
- High impact resistance
- Abrasion resistance
- High compressive strength

Functionality:

- Space saving, smaller column footprints for ease of pedestrian movement
- Lightweight
- Low maintenance
- Water, solvent and epoxy-based available

Approvals:

- Extensive approvals - UL, ULC, ITS, FM, MEA, LA
- Fire ratings up to 4 hours
- VOC compliant



JFK International Arrivals, New York, NY

Architect: Skidmore Owings & Merrill, Photo: A/D Fire Protection Systems

Product Comparison

	A/D FIREFILM III	THERMO-SORB	Nullifire S605	Nullifire S606	Nullifire S607	THERMO-LAG 3000
Fire Ratings (Columns)	Up to 3 hours	Up to 3 hours	Up to 2 hours	Up to 4 hours	Up to 1 hour	Up to 3 hour
Fire Rating (Beams)	Up to 2 hours	Up to 2 hours	Up to 2 hours	Up to 4 hours	Up to 2 hours	Up to 3 hours
Generic Type	Water-Based	Solvent-Based	Solvent-Based	Solvent-Based	Water-Based	Epoxy-Based
Color*	White	White	Pale Green	Pale Pink	White	Medium Gray
Hardness (Shore D)	72	72	70	70	75	55
VOC lbs/gal	.17	2.87	2.44	2.49	.44	.53
Primer Required	Yes	Yes	Yes	Yes	Yes	Yes
Topcoat - Interior General Purpose	Required	Required	Required	Required	Required	Required
Topcoat - Interior Conditioned Space	Required	Optional	Optional	Optional	Optional	Optional
Suitable for Exterior Applications	No	No	Yes	No	No	Yes

*Topcoats available in wide range of colors.

Fire Test Designs and Approvals

Steel Member	A/D FIREFILM III	THERMO-SORB	Nullifire S605	Nullifire S606	Nullifire S607	THERMO-LAG 3000
W-Shape Columns	UL X639, X641, X643, X645, X669, X670 ULC Z608, Z610, Z612, Z617, Z626, Z627	UL X660	UL X629	UL X632	UL X635	OPL C 301
Tube Columns	UL X642, X671, X672, X673 ULC Z611, Z628, Z629, Z630	UL X661	UL X630	UL X633	UL X636	OPL C 304 NPD
Pipe Columns	UL X642, X645, X673 ULC Z611, Z617, Z630	UL X662	UL X631	UL X634	UL X637	OPL C 304 NPD
Beams	WH AD/FCA 120-01 ULC F906, F910, F912, UL D941, D948	UL N619 & D946	UL N609, D784 & D935	UL N610, D785 & D936	UL N611, D786 & D937	OPL B 303
MEA (New York City)	108-94-S, 242-92-S,	58-04-M	171-00-M, 172-00-M 173-00-M	174-00-M, 175-00-M 97-00-M	176-00-M, 177-00-M 178-00-M	64-01-M
City of Los Angeles	RR 25440	RR 25484	RR 25464	RR 25464	RR 25464	RR 25484
Factory Mutual	Column Protection Methods 3, 4, & 5 Floor/Ceiling Design FM #31	N/A	Column Protection Methods 11, 12 & 13	Column Protection Methods 11, 12 & 13	Column Protection Methods 11, 12 & 13	3029584



Walt Disney Concert Hall, Los Angeles, CA
Architect: Frank Gehry, Photo: Bruno Stieg



American Museum of Natural History, NY, NY
Architect: Kenneth E. Nisch, JGA Inc.



Harvard Medical School, New Research Building, Boston, MA
Architect: Architectural Resources Cambridge

Low/Medium Density Cementitious Fireproofing

...Southwest Fireproofing™ and **Pyrolite®**

...Listed in Over 150 U.L. Designs

Southwest Fireproofing Type 5GP, 5MD, 7GP, 7HD, Pyrolite 15, 22 and Pyrocrete 239 are listed in over 150 U.L. Designs, offering the specifier flexibility in design and construction. Follow Up Service for consistent quality in every bag.

Type 5GP™ and Pyrolite 15:

- 15 lb. Low density, cementitious, spray on fireproofing for structural steel columns, beams, joists, floor deck, roof deck and walls.
- Single component, user friendly, good film build and manufactured under strict Quality Standards with U.L.
- Used in a variety of commercial applications including hospitals, schools, parking structures, pharmaceutical plants and other commercial buildings.

Type 5MD™ & Type 7GP™ and Pyrolite 22:

- 22 lb. Medium density, cementitious, spray on fireproofing for structural steel columns, beams, joists, floor deck, roof deck and walls.
- Single component, user friendly, good film build and manufactured under strict Quality Standards with U.L.
- Used in a variety of commercial applications where a more durable fireproofing is required such as, elevator shafts, mechanical rooms, warehouse areas, parking structures.

Pyrocrete 239:

- 28 lb. Medium density, portland cement base fireproofing can be sprayed or trowelled for protection for structural steel columns, beams, joists, floor deck, roof deck or walls.
- Single component, user friendly, good film build and manufactured under strict ISO 9000 Quality Standards with U.L.
- Used in a variety of commercial applications where a more durable fireproofing is required such as, elevator shafts, mechanical rooms, warehouse areas, parking structures.
- U.L. Exterior Rated - Requires no topcoat
- Factory Mutual Approval for 15 minute protection of urethane foam.
- Excellent Acoustical Ratings - NRC (Noise Reduction Co-efficient) 0.75

Southwest Fireproofing™ Type 7HD™

Listed in more than 100 UL Designs. Higher density, harder and stronger than general fireproofing, for those demanding building construction uses that require the physical properties of a high density product, but without the extra requirements of petrochemical environments.



Product Comparison

		Type 5GP	Pyrolite 15	Pyrolite 22	Type 5MD	Type 7GP	Pyrocrete 239
Density	ASTM E605	15 PCF	15.5 PCF	22 PCF	22-26 PCF	22 PCF	28 PCF
Shore "D" Hardness	ASTM D2240	N/A	N/A	N/A	N/A	20.1	15
Bond Strength	ASTM E736	>200 psf	515/314 psf	653 psf	400 psf	>2000 psf	550 psf
Compressive Strength	ASTM E761	2,340 psf	2,232 psf	6,019 psf	16,992 psf	17,136 psf	15,120 psf
Impact Resistance	ASTM E760	Pass	Pass	Pass	Pass	Pass	Pass
Deflection	ASTM E759	Pass	Pass	Pass	Pass	Pass	Pass
Corrosion	ASTM E937	0.00 g/mm	0.00 g/mm	0.00 g/mm	0.00 g/mm	0.00 g/mm	0.00 g/mm
Flame Spread	ASTM E84	0	10	10	0	0	2
Smoke Development	ASTM E84	0	0	0	0	0	0

Industrial Fireproofing...Pyrocrete® and THERMO-LAG®

...The Best Protection Under Fire

Carboline's Pyrocrete and THERMO-LAG products offer a level of unparalleled performance in the refinery and petrochemical industries. Pyrocrete 241 has been the industry leader for over 30 years and is the most widely specified fireproofing product in the industry today. Pyrocrete 240 High Yield and Pyrocrete 40 offer the same level of fire resistance at a more competitive price. THERMO-LAG has been an industry leader in the epoxy intumescent market for over 15 years. Pyrocrete and THERMO-LAG products are UL "Exterior Rated", hard, durable and impact resistant.

UL 1709 TEMPERATURE RISE RATINGS:

Pyrocrete 241

- XR701- (contour design) 1-4 hour protection
- XR702- (boxed design) 1-4 hour protection
- Three Bar Overblast Test
- Jet Fire Tested and Certified
- Factory Mutual Approved for 2-hour protection of LP Gas Vessels
- Factory Mutual Structures Test including Hose Stream
- Bulkhead Ratings - Tested by FIRTO
Approved by: Det Norske Veritas
Approved by: Lloyd's Register of Shipping

Pyrocrete 240 High Yield

- XR716- (contour design) 1-4 hour protection
- XR717- (boxed design) 1-4 hour protection

Pyrocrete 40

- XR705- (contour design) 1-4 hour protection
- XR706- (boxed design) 1-4 hour protection
- XR707- (contour / no lath design) 1-4 hour protection



THERMO-LAG products are two-component, epoxy-based intumescent fire resistive coatings. THERMO-LAG products are listed or classified by UL, FM, LRS, DNV, ABS, iBMB and other leading certifying authorities.

THERMO-LAG

THERMO-LAG 3000 is the most efficient epoxy-based intumescent coating in the market based on UL 1709 and offshore certification.

- XR618 - 1-4 hour protection
- XR620 - 1-2.5 hour protection
- Explosion Testing Available
- Jet Fire Tested and Approved
- LRS, DNV, and ABS Certified
- Offshore - 1-3 hour protection
I section columns and beams, tubulars, - H-0, H-60, and H-120 bulkheads and underdecks



THERMO-LAG PRODUCTS IN-

THERMO-LAG 3000 : Hydrocarbon Pool Fire Rated

THERMO-LAG 440 : Tanks and Spheres

THERMO-LAG 3000/3002 : Jet Fire Rated

THERMO-LAG 2000 : Bulkhead Protection

Product Comparison

		Pyrocrete 241	Pyrocrete 240HY	Pyrocrete 40	THERMO-LAG 3000
Density	ASTM E605	55 PCF	47-50 PCF	40 PCF	82 PCF
Shore "D" Hardness	ASTM D2240	55	50-55	40	55
Bond Strength	ASTM E736	1146 psf	2097 psf	1317 psf	57,000 psf
Compressive Strength	ASTM E761	817 psi	836 psi	594 psi	2,850 psi
Impact Resistance	ASTM E760	Pass	Pass	Pass	Pass
Deflection	ASTM E759	Pass	Pass	Pass	Pass
Corrosion	ASTM E937	0.00 g/mm	0.00 g/mm	0.00 g/mm	0.00 g/mm
Flame Spread	ASTM E84	0	0	0	0
Smoke Development	ASTM E84	0	0	0	20



**Together, we offer
the specifying community
and the specialty applicator:**

The Most Products

The Best Technology

The Best Ratings

The Best Appearance

The Best Service

The Best Technical Support

**low-risk solutions...
for high-risk environments**

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