

Pyrocrete[®] Shop Application

High Density Spray Applied Fire Resistive Materials (SFRM)



Exceptional Durability and Performance for Petrochemical and Industrial Application.

Pyrocrete materials are heavy duty, exterior grade Portland cement based products suitable for shop or field application. The high durability and resilience of Pyrocrete lends itself to be an ideal material for shop application with minimal damage during handling and shipping to the project site. Pyrocrete shop application methods have been validated by over 35 years of successful off-site installations and the most rigorous fire and dynamic physical property tests in the industry.

Pyrocrete Shop Application Benefits

- > Allows for a more consistent application of the material
- > Minimal interference with other trades
- Least amount of shipping damage (typically less than 1% surface area)
- High resilience to physical abuse
- Unique, crack-free formulation

Pyrocrete Specification

	Fylociele Selles
Туре	Cementitious
Environment	Onshore Petrochemical
Hydrocarbon Protection	Up to 4 Hours
Jet Fire Protection	Up to 2 hours
Cryogenic Protection	Up to 90 Minutes
Environmental Protection	UL 2431 Environmental Program
Topcoat Requirement	No
Explosion Resistance (No cracking or disbondment)	Up to 4 Bar
Primary Certification	UL 1709 Hydrocarbon Fire ISO 22899-1 Jet Fire ISO 20088-1 Cryogenic
Offsite/Onsite Application	Yes
	1. Pyrocrete Series includes: Pyrocrete 341, Pyrocrete 241 HD Pyrocrete 241, Pyrocrete 241 HY, and Pyrocrete 40

Shop Application Introduction

The following guidelines detail the proper techniques for Pyrocrete shop application including project setup, substrate preparation, lath requirements, spray and trowel application, finishing, caulking, curing and handling and completion of the block-out connections in the field.



BLOCK-OUT DIMENSIONS MASKED OFF

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Project Set-up

- Stage steel to have access to all sides being protected.
- Determine swing radius of the members needed to erect completed steel. Typically, a minimum of a 12" block-out on each side of the holes of primary member.
- Prior to application, define and cover block-outs.
 Dimensions to be determined by the project team.
- > Ensure application conditions in shop facility are within Carboline's prescribed tolerances.



STEEL STAGED FOR APPLICATION

2 Substrate Preparation

- > Substrates shall be free of dirt, oil, grease, release agent, and loose mill scale.
- > Pyrocrete can be applied directly to galvanized steel.
- For carbon steel application requiring a primer, follow surface preparation requirements for approved primer system and/or project specification.



CLEAN GALVANIZED STEEL WITH LATH AND CORNER BEAD

3 Primers

- Any corrosion protection or alkaline resistant primers must be approved by Carboline prior to application.
- > Use Carboguard surface tolerant epoxies or Carbozinc zinc-rich epoxies.
- > Galvanized metal is an acceptable primer for corrosion protection.



STEEL READY FOR PRIMER APPLICATION

4 Lathing & Fasteners

- Latining & Fasteners
- > Use minimum gauge galvanized metal lath as shown in published fire test design(s).
- > Anchoring fasteners must conform with specifications listed in the Pyrocrete fire test design.
- > Typical application utilizes 100% lath cover for Pyrocrete shop and field applications.
- > Pyrocrete shall be terminated 6"-12" from the end of the member, or 6"-12" from bolt holes to allow for field erection without damage.
- > Lath is overlapped 1" and tie wired 12" O.C.
- Lath shall extended a minimum of 1" beyond the block-out termination to allow for lath overlap when installing field block-outs.



PRE-CUT LATH PRIOR TO APPLICATION



CORNER BEAD INSTALLED FOR THICKNESS CONTROL

5 Pyrocrete Application

- Pyrocrete shall be mixed and applied in full compliance with the product data sheet and Carboline's written application procedures.
- > Pyrocrete thickness can be determined by the use of temporary forms or cornerbead, set to the required depth prior to application.
- > Pyrocrete is installed in one or more lifts to achieve the required thickness.



FORMS SET TO REQUIRED THICKNESS

- > Pyrocrete thickness shall be measured from the lath.
- > Pyrocrete shall be applied within stated recoat times. Minimum thickness per coat of 1/4".
- > All terminations left as 90° butt joints.



PYROCRETE SPRAY APPLIED TO REQUIRED THICKNESS



APPLIED PYROCRETE FINISHED WITH A TROWEL



FINISH PYROCRETE WITH USE OF FORM GUIDES

FINISHING

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Finishing

- Pyrocrete may be installed by spray or trowel.
- Finish using a hand trowel technique for smooth and even texture.
- Finish to match mock-up sample for project.





Mock-Up Sample

- Representative sample should be created prior to any shop or field application.
- Sample to include lath, anchors and material thickness to meet project requirements.
- Finish by hand trowel technique.
- Prior to starting work the sample must be approved in writing by the contractor, general contractor, engineer, owner or owner representative.



PYROCRETE MOCK-UP SAMPLE WITH 90° BUTT JOINT AND 1" LATH EXTENDED FOR OVERLAP

Sealer/Topcoating

- > Pyrocrete sealer and topcoat are optional.
- When sealing Pyrocrete, use Carboguard 1340 in compliance with product data sheet instructions. Carboguard 1340 shall be thinned 25%.
- > Seal coat can applied 24 hours after the final application of Pyrocrete.
- > Additional chemical or moisture resistance topcoats can then be utilized to meet project requirements.
- > Additional topcoats can be applied once material reaches sufficient Shore D hardness.
- > Contact Carboline Fireproofing Technical Service for specific product recommendations.



8 Caulking

- Terminations of Pyrocrete to non-fireproofed steel or dissimilar materials shall be caulked with Acrilast Silicone Caulk II or approved alternate.
- Block-out terminations are left as 90° butt joints and left uncaulked.
- Areas where water may enter such as; top flanges of pipe racks and upper level of vertical column terminations, shall be caulked.
- Terminations to non-fireproofed steel or dissimilar materials shall have the Pyrocrete sloped or chamfered downward to create a positive watershed and facilitate drainage.



TERMINATIONS CAULKED WITH ACRILAST CAULK



CURING, HANDLING & ERECTION

9 Curing, Handling & Erection

- Pyrocrete is ready to ship when material has sufficient hardness to withstand handling, transportation and off-loading.
- > An average Shore DO surface hardness of 64 is required using a Type DO Durometer hardness gauge.
- Steel should be rigged at a block-out or nonfireproofed area.
- > Shackles at end holes are safest method for unloading members.
- Stage members on proper dunnage with webs vertical to avoid exposure to ground moisture, ponding water or snow.
- > If stacking, use dunnage at non-fireproofed areas to prevent damage.
- Lift from block-outs or shackle to erection tabs or bolt holes. Avoid using chokers against fireproofed surfaces.
- We do not recommend the use of chokers for lifting, transporting or erecting steel areas protected with Pyrocrete, however, if used, preformed wooden sections must be placed against the Pyrocrete to distribute the load.



PYROCRETE LOADED ON TRUCK



WOODEN SECTIONS AGAINST THE PYROCRETE TO DISTRIBUTE THE LOAD





- > Pyrocrete can be installed to modular construction or stick steel.
- > Modular application will reduce the amount of blockouts and field work.
- > Can improve overall schedule and reduce labor costs.

PYROCRETE INSTALLED IN MODULAR FORM TO REDUCE BLOCK-OUTS AND HANDLING





11 Field Block-outs

- Field applied Pyrocrete shall be mixed and applied in full compliance with the product data sheet and Carboline's written application procedures.
- Substrate shall be free of all contaminants prior to installing galvanized metal lath. Galvanized metal lath shall be installed to entire surface of the block-out and overlapped with shop applied lath - 1".
- > A 90° butt joint termination to the shop applied fireproofing.
- Mechanically attach lath over bolted connections with lath firmly against the bolts and bolt heads.
- Prior to the application of Pyrocrete to block-outs, the butt surfaces surrounding block-outs shall be

thoroughly wetted to prevent dehydration of the fresh material applied in the field.

- > The completed thickness of the fireproofing at blockouts shall match the thickness and finish of the shop applied section.
- When sealing Pyrocrete, apply Carboguard 1340 in compliance with product application instructions and Section 7 of this document. Sealer can be applied 24 hours after the final application of Pyrocrete.
- All terminations onto non-fireproofed steel or dissimilar materials shall be caulked with Acrilast Caulk II or approved alternate.



SHOP APPLIED BLOCK-OUT WITH 1" LATH EXTENDED

LATH INSTALLED TO BLOCK-OUT IN THE FIELD

PYROCRETE INSTALLED TO BLOCK-OUT AREA

History of Performance

Pyrocrete is the industry leader for shop and field applied cementitious passive fire protection. It is the global benchmark for high performance cementitious fireproofing in the refining and petrochemical industries and continues to be the most widely specified and highly regarded cementitious fireproofing product line in the world. Our versatile range of products allow us to provide trusted solutions to meet and exceed any specified density and performance criteria.

GLOBAL COATINGS LEADERS[™] RIGHT PEOPLE • RIGHT PRODUCTS • RIGHT LOCATIONS



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