

SÉLECTION & CARACTÉRISTIQUES

Type générique	High density cementitious fireproofing designed for the fire protection of exterior and interior structural steel.
Description	A 40 lb./ft ³ (640 kg/m ³) density, Portland cement based, cementitious fireproofing. It provides both hydrocarbon and cellulosic fire protection for structural steel and can also be used to upgrade the fire resistance of existing concrete. Recommended areas of application include refineries, petrochemical, pharmaceutical facilities, pulp and paper mills, offshore platforms, nuclear and conventional power plants, factories, warehouses, institutional and biomedical facilities.
Caractéristiques	<ul style="list-style-type: none"> • Cost effective fireproofing solution • Outstanding coverage, high build • Exceptional durability and toughness • UL 1709 hydrocarbon fire rated up to 4 hours • BS 476 hydrocarbon fire rated up to 4 hours • ISO 22899-1 jet fire rated up to 2 hours • ASTM E119 cellulosic fire rated up to 4 hours • Cryogenic protection against LNG spills and immersion exposures • Resistant to 3 bar blast overpressure • Hose stream resistant • Tolerant to wide range of climates • Lightweight – one-fifth the weight of concrete for equal fire protection • Easy application by spray or trowel • Nonflammable – during or after application • Chloride and sulfide free – no special priming required • Non-friable – high impact strength
Couleur	Non-Uniform Speckled Gray Product color may vary due to variations in color of Portland cement.
Finition	Texturé If a smooth finish is required, this may be done by trowel, roller or brush typically within 1 to 2 hours after final application of Pyrocrete 40.
Primaire	Pyrocrete 40 neither promotes nor prevents corrosion. The fireproofing should not be considered as part of the corrosion protection system. For applications where primers are required, use a Carboline approved, alkaline resistant primer. Pyrocrete 40 must meet minimum UL bond strength criteria for contour applications where primers are used. Contact the Carboline Fireproofing Technical Service for further information and approved primers.
Epaisseur d'application	1/2" - 5/8" (12.7 - 15.9 mm) on initial pass
Rendement théorique	17.9 board foot per bag @ 40 pcf (1.66 m ² at 25.4 mm thick @ 640 kg/m ³) Field results will vary depending upon application parameters. Coverage based on theoretical gross yield without loss. Material losses during mixing and application must be taken into account when estimating project requirements. Coverage based on 50 lb. (22.7 kg) bags (one board ft = one ft ² of material at one inch thick or 0.09 m ² of material at 25.4 mm thick.
Limites	Not recommended for use as a refractory cement or where continuous operating temperatures exceed 200°F (93°C).

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Finitions	<p>Generally not required. In severely corrosive atmospheres, topcoats may be used for added durability and chemical resistance. consult Carboline Fireproofing Technical Service for selection of the coating most suitable for the operating environment.</p> <p>Seal Coat – In corrosive environments, use an appropriate topcoat. If topcoating is required, apply Carboguard 1340 as a seal coat. Carboguard 1340 shall be thinned 25% with Carboline Thinner #2. Carboguard 1340 may be applied after 24 hours of final application of Pyrocrete 40. Consult the Carboguard 1340 Product Data Sheet for minimum and maximum cure times.</p> <p>Top Coat – Surface hardness should be a minimum Shore DO 64 as measured with a durometer prior to application of the topcoat. Normally, this minimum dry time is 10 days at 70°F (21°C) and 40 days at 40°F (4°C), for thickness of 1" (25.4 mm) or less.</p> <p>Caulking – For exterior installations, Acrilast caulk should be applied at all termination joints between Pyrocrete 40 and the substrate. Contact Carboline Fireproofing Technical Service for full information.</p>
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SUPPORTS & PRÉPARATION DE SURFACE

Général	Before applying Pyrocrete 40, the substrate coating must be free of all oil, grease, condensation, or other contamination.
Béton	The recommended primer to seal concrete prior to applying Pyrocrete 40 is Carboguard 1340.

DONNÉES DE PERFORMANCE

Toutes les données des tests sont obtenues en conditions de laboratoire. Les résultats sur site peuvent varier.

Méthode d'essai	Résultats
ASTM D2240 Durometer Hardness (Shore DO)	64
ASTM D2794 Impact Resistance	Pass (no cracking at 20 foot pounds)
ASTM E136 Combustibility	Pass (non-combustible)
ASTM E605 Density ¹	40 lbs./ft ³ (640 kg/m ³) (minimum average)
ASTM E736 Bond Strength (unprimed Steel) ²	10,267 psf (491 kPa)
ASTM E759 Deflection	Pass
ASTM E760 Bond Impact	Pass
ASTM E761 Compressive Strength	456 psi (3.1 MPa)
ASTM E84 Flame Spread	0
ASTM E84 Smoke Development	10
ASTM E937 Corrosion	0.00 g/mm ²
Coverage 50 lb. (22.7 kg) bag	17.9 Bd.Ft. (1.66 m ² @ 25 mm)
Explosion Resistance	3 bar
Hose Stream Resistance	Pass
Shrinkage	<0.5%

1 Air dry at ambient conditions until constant weight is achieved. Do not force dry. Use ASTM E605 Positive Bead Displacement modified to use 1 mm ceramic beads.

2 Bond strength testing performed utilizing ASTM E736 with AWCI Technical Manual 12-A modifications.

All test data above was generated under laboratory conditions. Field testing results may vary. Physical property data was derived using 4.75 gallons of water per 50 lb. (22.7 kg) bag.

Material shall reach a hardness of Shore DO 64 prior to handling and topcoating.

Test reports and additional data available upon written request.

MÉLANGE & DILUTION

Mixer	Use a heavy-duty mortar mixer rotating at 40 rpm with rubber tipped blades that will scrape the sides and bottom of the mixer. A 50 lb. (22.7 kg) bag of Pyrocrete 40 typically requires a mixer volume of 8 ft ³ (227 L) minimum. Do not use pan type mixers.
Mélange	Target water level: 4.75 gallons (18 liters) Add clean, potable water to a mortar mixer with rubber tipped blades. With mixer running slowly, add powder and mix for 5 minutes until a homogeneous mortar-like consistency is achieved. Longer mixing times may result in lower densities. Total water must not exceed 5.5 gallons (20 liters) per 50 lb. (22.7 kg) bag. In cool weather, warm water may be used to enhance application. In hot weather, cold water may be used.
Durée de vie du mélange	2 hours at 70°F (21°C) and less at higher temperatures. Pot life ends when the material thickens and becomes unusable.
Densité	Target wet density: 56 - 60 lbs/ft ³ (897 - 961 kg/m ³). Wet density measurements are critical to obtaining correct dry densities. When checking wet densities, use the following procedures: Equipment needed: <ul style="list-style-type: none"> • 1 liter (1000 cc) polyethylene cup • Small metal spatula • Scale accurate to 1 gram Determination of Pyrocrete wet density: <ul style="list-style-type: none"> • Weigh the empty cup to the nearest gram, then tare the scale. • Use the spatula to fill the cup completely with mixed material (do not tamp cup). • Remove the excess material on top by placing the vertical edge of the spatula on the top edge of the cup. Use a sawing motion to level the mixed Pyrocrete material flush with the top of the cup. • Weigh the filled cup to the nearest gram. • Record the weight of material in grams. This value equals the wet density in grams/liter and kg/m³ • To calculate the wet density of the material in lb./ft³, multiply the value in grams/liter by 0.0624. <p>Contact Carboline Fireproofing Technical Service for additional details.</p>

EQUIPEMENT D'APPLICATION

Ci-dessous informations générales de l'équipement à utiliser. Les conditions sur site peuvent demander la modification de ces caractéristiques pour l'obtention du résultat souhaité.

Pompe	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)
Ball Valves	Ball valves must be fitted on at least one end of the spray hose to facilitate cleaning.
Diamètre Tuyaux (Produit)	Minimum 1" (25.4 mm) I.D. hose with 300 psi minimum bursting pressure. For lengths over 50' (15 m) use 1½" (38 mm) I.D. hose. Do not reduce hose diameter by more than ¼" (6.4 mm) per 25' (7.6 m) unless a tapered conical reducer equipped with swivel fitting is used. A 10' (3m) length of 1" (25.4 mm) I.D. hose may be added at the gun for use as a whip.

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Buses/Pistolet	Binks - part# 7E2 (47-49 fluid tip / 3/8"-1/2" air cap) Graco - part# 204000(3/8" - 1/2" fluid tip / air cap) Speeflow - part# 701(3/8" - 1/2" fluid tip / air cap) Airtech - Internal mix with 3/8" - 1/2" fluid tip Standard plasterers gun with 3/8" - 1/2" fluid tip
Compresseur	Be certain that the air supply is a minimum 22 cfm at 100 psi (689 kPa) and higher when distances longer than 75' (22 m) are required.
Air Line	Use 1/2" (12.7 mm) I.D. line, with a minimum bursting pressure of 100 psi (689 kPa).
Spray Lance	Maximum length of 600mm and minimum inner diameter of 25mm, with a material shut-off ball valve and air shut-off valve.

PROCÉDURES D'APPLICATION

Général	<p>Pyrocrete 40 may be applied by spray and/or trowel. Material build will depend on application method, weather conditions and equipment used. For application overhead, a scratch coat of up to 1/2" (12.7 mm) is recommended to key into the lath. Allow to set for approximately 1 to 2 hours at 70°F (21°C) before applying the subsequent coats. It is recommended that the total required thickness be applied within a 24 hour period. If this is not possible, the preceding coats should be left as sprayed or scored after application. Product must be dampened with water before application of additional coats.</p> <ul style="list-style-type: none"> • Maximum time to achieve the full thickness is 3 days at 70°F (21°) and 50% relative humidity. This would be less at higher temperatures. • All additional coats are applied monolithically to the entire perimeter of the member. • At no time shall Pyrocrete 40 be applied at a thickness less than 1/4" (6.4 mm) or "skim" coated.
Finition	Material can be left as sprayed or finished with a trowel for better aesthetics.

CONDITIONS D'APPLICATION

Condition	Matériau	Surface	Ambiante	Humidité
Minimum	4°C (40°F)	4°C (40°F)	4°C (40°F)	0%
Maximum	38°C (100°F)	52°C (125°F)	43°C (110°F)	95%

TEMPS DE SÉCHAGE

Temp. de surface	Sec pour être surcouché
21°C (70°F)	2 Heures

Fresh Pyrocrete 40 must be protected from rain or running water for 24 hours at 70°F (21°C). In low humidity, high temperature, direct sun or wind, the Pyrocrete surface should be kept damp for at least 12 hours by applying a water mist or wrapping in plastic sheets to reduce rapid water loss.

Caution: Do not start work if ambient temperatures are expected to drop below 35°F (2°C) for 24 hours after application. Material shall reach a hardness of Shore DO 64 prior to handling and topcoating.

NETTOYAGE & SÉCURITÉ

Nettoyage	Pump, mixer and hose should be cleaned with clean, potable water at least once every 4 hours at 70°F (21°C), and more often at higher temperatures. Sponges should be run through the hoses to remove residual material. Wet Pyrocrete 40 overspray must be cleaned up with soapy or clean, potable water. Cured overspray may require chipping and/or scraping to remove.
Sécurité	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. Cured overspray may require chipping and/or scraping to remove.
Ventilation	In enclosed areas, ventilation shall be 4 complete air exchanges per hour until the material is dry.

CONDITIONNEMENT, MANUTENTION & STOCKAGE

Durée de vie	24 months (minimum) when kept at recommended storage conditions.
Poids (Approximatif)	50 lb. (22.7 kg)
Stockage	Store indoors in a dry environment between -20°F - 150°F (-29°C - 66°C) Material must be kept dry or clumping may occur.
Conditionnement	50 lb. (22.7 kg) bags

GARANTIE

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