carboline® FIREPROOFING PRODUCTS DIV.

PYROCRETE® 241

SELECTION DATA

GENERIC TYPE: Cementitious inorganic formulation. Single powder component mixed with water prior to application.

GENERAL PROPERTIES: Tested in accordance with ASTM E-119 and U.L. 1709 Rapid Temperature Rise and rated by Underwriters Laboratories, Inc. Also tested and approved by Factory Mutual Engineering and Research for LP steel gas storage vessels.

- **Easily** applied by spray and/or trowel finish
- **Lightweight** — one-third the weight of concrete for equal fire protection
- **Excellent** physical properties — hard, durable.
- **Nonflammable** — during or after application.
- **Asbestos-free** — complies with EPA and OSHA regulations.
- **Chloride-** and sulfide-free.
- **Non-friable** — high impact strength.
- **Single package** — mixed with water at the job site.
- **Weathering** — investigated for exterior use by Underwriters Laboratories, Inc.
- **Manufacture** — under strict Carboline quality standards, U.L. and FM factory inspection service.
- **Proven** in real fire situations.

RECOMMENDED USES: Fire protection of structural steel, bulkheads, wood, LPG vessels and upgrading of existing concrete:

Refineries/petrochemical
Chemical/pharmaceutical
Pulp and paper mills
Offshore installations
Nuclear power plants
Conventional power plants
Factories/warehouses
Architectural designs
Where a hard, durable asbestos-free fireproofing is required.

May 86 Replaces Dec. 85

NOT RECOMMENDED FOR: Use on non-ferrous metals, such as aluminum
Use as a refractory cement
Operating temperatures exceeding 200°F (93°C).

APPROVALS: PYROCRETE 241 has been tested in accordance with ASTME-119 by Underwriters Laboratories and is rated for exterior use. It is listed under the following U.L. designs:

Columns — X732, X733, X735, X736, X743, X744
Beams — N715, N716, N717, N718, S706

U.L. 1709 Rapid Temperature Rise (simulated hydrocarbon exposure)
Columns — XR-701, XR-702

PYROCRETE 241 has been tested by Factory Mutual for LP vessels at 3/8" (10mm) thickness for two hour rating, including hose stream endurance test.

Bulkhead Ratings: Tested by Fire Insurers' Research and Testing Organization (FIRTO) London, England for standard and hydrocarbon exposure.

Approved by the following agencies:

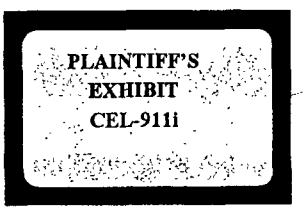
Det Norske Veritas — Certification #F-6052, F-6053, F-6054, F-6055, F-6056

Lloyds Register of Shipping — Certification #ICD/F84/027, ICD/F84/028, ICD/F84/029, ICD/F84/030, ICD/F84/031

Code Reviews
NYC MEA
172-80

173-80

174-80
City of San Francisco
164 C57.7A
Los Angeles
RR 24469



carboline
FIREPROOFING PRODUCTS DIV.®

PYROCRETE® 241

SELECTION DATA

GENERIC TYPE: Cementitious inorganic formulation. Single powder component mixed with water prior to application.

GENERAL PROPERTIES: A chloride-free, sulfide-free, reinforced, fire resistive material for protection of structural steel in exterior or heavy duty use locations. Its lower density and ease of application make it preferred over poured-in-place concrete. PYROCRETE 241's high compressive strength, impact resistance, and hardness make it suitable for installations where softer materials cannot be used. PYROCRETE 241 meets all applicable EPA and OSHA regulations and contains no asbestos.

RECOMMENDED USES: Currently used in refineries, pulp and paper mills, offshore installations, conventional power plants, petrochemical plants, nuclear power plants, architectural designs or where a hard durable asbestos-free fireproofing is required.

NOT RECOMMENDED FOR: Use over non-ferrous metals, such as aluminum. PYROCRETE 241 should not be used as a refractory cement (ambient temperatures exceeding 200°F (93°C)).

PHYSICAL DATA (Typical Properties)

Dry Cured Density	50-55 lbs/ft^3
Hardness (Shore D)	45-55
Compressive Strength	550 psi
Coefficient of Thermal Expansion	1.2 x 10^{-5} inch/inch/°F (2.2x10^{-5} cm/cm/°C)
Impact Resistance	20 foot pounds
Average Flexural Strength	425 psi
Maximum Strain	0.0020-0.0023 inches/inch
Insulation "K" factor	6.2 BTU inch/hour ft^2°F at 75°F.
Shrinkage	0.5%
Coverage (50 lb. (22.7 kg) bag)*	12.8 board feet

*NOTE: Material losses during mixing and application will vary and must be taken into consideration when estimating job requirements.

SUBSTRATES: Apply over properly primed steel.

PRIMER REQUIRED: Primer is not normally required unless substrate is exposed to a corrosive atmosphere.

For applications where chlorides and/or sulfates are present, either in the mixing water or by exposure to salt environments, use an appropriate alkaline resistant primer.

Substrate	Suitable Primers
Steel or CARBO ZINC®	CARBOLINE 193 Primer
Galvanizing or Stainless Steel	Pyroprep 773 and CARBOLINE 190HB
Wood	Seal with CARBOLINE 193 Primer or CARBOLINE 1340 Clear to prevent water absorption.

TOPCOAT REQUIRED: Investigated by Underwriters' Laboratories for exterior use. In severely corrosive atmosphere, or where appearance of usr ctates, use an appropriate topcoat. If topcoating or sealing desired, prime PYROCRETE 241 with CARBOLINE 13 Clear before applying the recommended finish. Consult Carboline's Technical Service Department for selection of the finish most suitable for the operating environment.

COMPATABILITY OF OTHER COATINGS: Consult Carboline Technical Service for suitable use of other coating systems.

APPROVALS: PYROCRETE 241 has been tested in accordance with ASTM E-119 by Underwriters' Laboratories and is rated for exterior use. It is listed under the following U.L. designs: X-732, X-733, X-736, X-735, X-743, X-744, N-715, N-716, N-717, N-718 and S-706. PYROCRETE 241 has also been tested and approved by Factory Mutual for LPG tanks at 3/8" (10 mm) thickness for two hours rating, including hose stream endurance test.

SPECIFICATION DATA

RECOMMENDED THICKNESS: Depends on desired rating and assembly fireproofed. Consult attached design detail. At no time shall PYROCRETE 241 by applied at a thickness less than 1/4 inch (7 mm) wet.

SHELF LIFE: Two years minimum.

COLORS: Non-uniform speckled gray.

ORDERING INFORMATION

Prices may be obtained from Carboline Fireproofing Sales Representative or Main Office.

APPROXIMATE SHIPPING WEIGHT: 50 lb. (22.7 kg) bag. Shipped on pallets of 50 bags/pallet.

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