

UL Solutions Evaluation Report

UL ER8213-01

Issued: 2024-09-30

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UL Category Code: ULFE – Fire and Smoke Protection

CSI MasterFormat®

DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION

Sub-level : 07 80 00 – Fire and Smoke Protection

Sub-level: 07 81 00 – Applied Fireproofing

Sub-level: 07 81 16 – Cementitious Fire Protection

Company:

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1. Subject

Carboline Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD spray-applied fire resistive coatings for fireproofing of columns, beams, joists, decks, walls, roofs, girders, floors and pre-cast concrete units.



2. Scope of Evaluation

- 2024 and 2021 *International Building Code*® (IBC)
- 2022 *California Building Code* (CBC)

The products were evaluated for the following properties:

- Fire-resistance-rated construction (UL 263)
- Surface burning characteristics (UL 723/ASTM E84)

3. Referenced documents

- ANSI/UL263, Standard for Fire Tests of Building Construction and Materials
- ANSI/UL 723, Test for Surface Burning Characteristics of Building Materials
- ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
- AC10, ICC-ES Acceptance Criteria for Quality Documentation
- AC23, ICC-ES Acceptance Criteria for Sprayed Fire-resistant Materials (SFRMs), Intumescent Fire-resistance Coating and Mastic Fire-resistant Coatings Used to Protect Structural Steel Members

4. Uses

Carboline Types 5GP, 5MD, 5AR, and 5EF are SFRM coatings used for the fire protection of interior steel work with fire resistive ratings up to and including 4 hours depending on the rating of the UL rated fire resistive assembly.

Carboline Types 7GP and 7HD are SFRM coatings used for the fire protection of structural steel in either unconditioned or conditioned areas with fire resistive ratings up to and including 4 hours depending on the rating of the UL rated fire resistive assembly.

5. Product description

Types 5GP, 5MD, 5AR, 5EF, 7GP and 7HD are cementitious spray-applied fire resistant materials which have been evaluated for use in various UL fire-resistance rated assemblies in accordance with Section 703.2 of the IBC and CBC. The materials covered in this report are of various densities that are specified in UL Solutions' Product iQ® Online Directory under CHPX.R8213.

In accordance with the IBC and CBC Section 603.1, Exception No. 21, the Carboline Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD materials may be installed in building of Type I or II construction. The products described in this report meet a Class A interior finish materials as defined in Section 803.1.2 of the IBC and CBC with Flame Spread value less than 25 and a Smoke Developed less than 50.

6. Installation

6.1 General

The spray-applied fire resistive materials covered in this report must be installed in accordance with this report and the manufacturer's published installation instructions, which must be available to the applicators during installation at the jobsite.

6.2 Preparation of Substrate, Site and Surface Conditions

Prior to the application of material, the substrate to receive the coatings shall be free of any substances or conditions that interfere with adhesion of the materials as described in IBC Section 704.12.3. Primers, paints and encapsulants are permitted provided they comply with IBC Sections 704.12.3.1 and 704.12.3.2.

In accordance with the manufacturer's installation instructions, environmental conditions must be a minimum of 40°F (4°C), a maximum of 110°F (43°C), a maximum relative humidity of 95%, the surface temperature of the steel member to be treated must be a minimum of 40°F (4°C), and a maximum of 125°F (52°C). Air and substrate temperatures shall be maintained 24 hours before, during and 24 hours after application.

Application of Types 5GP, 5MD, 5AR, and 5EF must be in a dry interior, controlled environment that is not subject to exterior weathering or freeze/thaw conditions. Application of Types 7GP and 7HD may be in a dry interior, controlled environment or in unconditioned areas. The materials shall be a minimum of 40°F (4°C) and a maximum of 100°F (38°C) prior to spraying.

6.3 Fire-Resistive Assemblies

The spray-applied fire resistive materials covered in this report shall be installed as specified in the UL Solutions Fire Resistive Designs shown under CHPX.R8213 in UL Solutions' Product iQ® Online Certifications Directory. Thicknesses of Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD shall be as specified in the individual fire-resistive designs.

6.4 Thickness Tolerances

The minus tolerance of an individual spray-applied fire resistive material coating thickness must not exceed ¼ in. (6.4 mm) or more than 25% for a design thickness of less than 1 in (25.4 mm). The calculated average thickness must not be less than that required by the recognized design. If needed, additional material must be applied to meet this tolerance.

If an individually measured spray-applied fire resistive material coating thickness exceed the design thickness by ¼ in. (6.4 mm) or more, the thickness shall be recorded as the design thickness plus ¼ in (6.4 mm). The average thickness shall not exceed the maximum tested thickness specified in the UL fire resistive designs by more than 10%.

6.5 Special Inspections

Special inspections are required for spray-applied fire resistive materials in accordance with IBC Section 1705.15.

7. Conditions of use

Carboline Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 2 of this report, subject to the following conditions:

- 7.1 The products must be manufactured, identified, and installed in accordance with this report, the manufacturer's published installation instructions, and the applicable code. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 7.2 All assemblies shall be built in accordance with the applicable published UL designs, or as otherwise described in this report.

- 7.3** For a listing of applicable UL Solutions Certifications for Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD, see UL Solutions' Product iQ® for the following categories:
- Spray-applied Fire-resistive Materials evaluated as part of fire-resistance-rated assemblies in accordance with UL 263 ([CHPX](#))
 - Cementitious Cement and Plaster mixtures for surface burning characteristics in accordance with UL 723 ([BLPR](#)). (Types 5GP, 5MD, 5AR, and 5EF only)
- 7.4** Types 5GP, 5MD, 5AR, and 5EF recognized in this report have been evaluated for use in high-rise buildings up to 420 feet (128 m) in height in accordance with IBC Section 403.2.4 and Table 403.2.4.
- 7.5** Types 7GP and 7HD recognized in this report have been evaluated for use in high-rise buildings up to and greater than 420 feet (128 m) in height in accordance with IBC Section 403.2.4 and IBC Table 403.2.4.
- 7.6** Carboline Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD are manufactured at the following locations under the UL Solutions Certification and Follow-Up Service Program, which includes audits in accordance with the quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

City, State	Factory Identification
Louisa, VA	VA

8. Supporting evidence

- 8.1** Manufacturer's descriptive product literature, including installation instructions.
- 8.2** UL Classification reports in accordance with UL 263 and UL 723.
- 8.4** Data in accordance with ASTM E84.
- 8.5** Data in accordance with ICC-ES Acceptance Criteria for Sprayed Fire-Resistant Materials (SFRMs), Intumescent Fire-Resistance Coatings and Mastic Fire-Resistance Coatings Used to Protect Structural Steel Members (AC23)
- 8.6** Documentation of quality system elements described in ICC-ES Acceptance Criteria for Quality Documentation (AC10)

9. Identification

Carboline Types 5GP, 5MD, 5AR, 5EF, 7GP, and 7HD as described in this evaluation report, are identified by a marking bearing the report holder's name (Carboline Global Inc.), the plant identification, the product designation, the UL Solutions Classification Mark, and the evaluation report number "UL ER8213-01". The validity of the evaluation report is contingent upon this identification appearing on the product or on the smallest unit container in which the product is packaged.

10. Use of UL Evaluation Report

- 10.1 The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.
- 10.2 UL Solutions Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.
- 10.3 The current status of this report, as well as a complete directory of UL Solutions Evaluation Reports may be found at UL.com via our UL Product iQ®:

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