

Alternate Temperature Assessment

Issued: November 29, 2019

UL Category Code: CHPX

Product: Type 40 Spray-Applied Fire Resistive Materials

Report ID: XR733-1

COMPANY:

CARBOLINE CO
350 HANLEY INDUSTRIAL CT
SAINT LOUIS, MO, 63144-1510
US



Type 40 spray-applied fire resistive material is a cementitious mixture applied for fire resistance protection of structural steel framing members. This report is limited to the analysis and alternate limiting temperature thicknesses for the type of structural steel (e.g. column) as shown in the table here within. During the UL 1709 evaluation, the thickness of the fire resistive material is established based on limiting steel temperatures of 1000°F [538°C] (average) /1200°F [649°C] (individual) for columns. Based on the fire tests conducted and the performance of the fire resistive material, alternate limiting temperature thicknesses have been established. The alternate limiting temperature is a UL design specific data point that identifies the appropriate coating thickness for the selected steel size, limiting steel temperature and a specified time duration. The coating thicknesses identified in Table 1 are based on a limiting temperatures of 752°F (400°C) average column temperatures with an additional 952°F (511°C) individual temperature failure point imposed. This table is provided as additional information only for implementation by Authorities Having Jurisdiction. The ANSI/UL 1709 test method has a similar approach for establishing fire resistance ratings and therefore lends itself to this type of engineering analysis. This information is intended to be used in conjunction with the specified UL Design only. All requirements specified in the UL Design shall be met to achieve the appropriate analysis.

Refer to UL File R7209 for product Classification under category Spray-applied Fire-resistive Materials (CHPX), and Column Design No. XR733 for the fire resistance ratings developed in accordance with UL1709. The alternate limiting temperature thicknesses are intended to be used in conjunction with UL Design No. XR733 only. All required components specified in the referenced UL Design shall remain as required components to achieve the time periods shown using the alternate limiting temperature thicknesses. Only the version of UL Design No. XR733 as shown on Product iQ at <http://www.ul.com> is considered current.

Type 40 spray-applied fire resistive material described in this report shall be identified by a marking bearing the report holder's name or UL file number, the product name and the UL Classification Mark. The validity of this alternate temperature assessment is contingent upon this identification appearing on the product.

Table 1 - Alternate Limiting Temperature Thicknesses for UL Design - BYBU.XR733
 Limiting Temperature - 752°F (400°C) Average / 952°F (511°C) Individual based on UL 1709 (4th Edition)

W/D	Hp/A	Rating Period (minutes)				
		45	60	90	120	150
		Required Thickness (mm)				
0.34	396	31.8	31.8	37.8	44.5	47.3
0.35	383	31.8	31.8	37.7	44.4	47.3
0.40	335	31.8	31.8	37.4	44.1	47.2
0.45	298	29.7	29.7	37.0	43.7	47.2
0.50	268	29.2	29.2	36.7	43.3	47.2
0.55	244	28.7	28.7	36.4	43.0	47.2
0.60	223	28.2	28.2	36.1	42.6	47.1
0.65	206	27.7	27.7	35.8	42.2	47.1
0.70	191	27.1	27.1	35.5	41.8	47.1
0.75	179	22.1	26.6	35.2	41.5	47.1
0.80	168	21.5	26.1	34.8	41.1	47.0
0.84	160	21.0	25.7	34.6	40.8	47.0
0.90	149	20.5	25.2	34.0	40.3	46.5
1.00	134	19.8	24.4	33.1	39.4	45.7
1.10	122	19.0	23.6	32.2	38.5	44.8
1.20	112	18.3	22.8	31.3	37.6	44.0
1.30	103	17.6	22.0	30.3	36.7	43.1
1.40	96	16.9	21.2	29.4	35.9	42.3
1.50	89	16.1	20.4	28.5	35.0	41.5
1.60	84	15.4	19.6	27.6	34.1	40.6
1.70	79	14.7	18.8	26.6	33.2	39.8
1.80	74	13.9	17.9	25.7	32.3	38.9
1.90	71	13.2	17.1	24.8	31.4	38.1
2.00	67	12.5	16.3	23.9	30.6	37.2
2.10	64	11.7	15.5	22.9	29.7	36.4
2.20	61	11.0	14.7	22.0	28.8	35.6
2.30	58	10.3	13.9	21.1	27.9	34.7
2.40	56	9.5	13.1	20.2	27.0	33.9
2.50	54	8.8	12.3	19.3	26.1	33.0
2.55	53	8.4	11.9	18.8	25.7	32.6