DC7120

Intumescent Coating for Interior Structural Steel

Product Description

DC7120 is a single component water based intumescent coating specially designed to increase the fire resistance of structural steel. Upon exposure to flame or heat, it immediately foams and intumesces to form a thermal barrier layer that provides a very effective insulation to protect the steel sections from fire and heat.

Uses

Used as interior environments paint for structural steel to provide up to 120 minutes of fire rating on I/H section beams and columns.

Features

- Certifre Listed with Warringtonfire in accordance with BS476 Part 21
- Fire Rating up to 2 hours
- Water borne, environmentally friendly
- Smooth and architecturally pleasing finish
- Very low odour
- Fast drying and rapid recoating properties
- Excellent durability

Physical data

Color / Finish:	White / Matt
Solid content:	69±3% (by weight)
Specific gravity:	1.3~1.5 g/cm^3
Viscosity:	15000~35000 cps (@25℃)
VOC:	2.26g/L
Typical thickness:	700 μm / 27.5 mils (WFT) get 486 μm / 19 mils (DFT)
Theoretical coverage:	5.26M^2/Gal. @500 microns DFT
Thinner / Reducer:	Water
Application method:	Airless spray, roller or brush
Package:	5 Gallons / Pail
Shelf life:	24 months

APPROVED PRODUCT
CF 5770

Application rate

Fire rating	Coating thickness (mm) for column Designed temp. 550℃	Coating thickness (mm) for beam Designed temp. 620℃
1 Hour	0.387~1.71	0.396~2.29
2 Hours	1.318~2.941	1.243~2.625

Application guide

1. Surface Preparation

1.1 All surfaces should be free from rust, grease, oil, moisture or other contaminants that will interfere with proper bonding.

1.2 Steel surfaces should be treated by abrasive blast cleaning in accordance with SSPC-SP10 (Steel Structure Painting Council), or SIS-Sa 2½ (Swedish Standard).

1.3 Where existed old paint film should be removed and re-primed as per manufacturer's recommended application system.

1.4 DC7120 should always be applied over a compatible and anti-corrosive coating primer. It is required to apply a thin layer of primer at 50~75 μm DFT.

1.5 It would be recommended to use a two pack epoxy based zinc phosphate primer.

1.6 Ensure primer is fully cured and the primed surface is clean, dry and free from contamination prior to application of DC7120.

2. Site Condition During Application

2.1 DC7120 can be applied onto dry steelwork when air temperature is not below 5℃(41℉), above 10℃(50℉) is preferred, and steel surface temperature should be a minimum of 3℃(5℉) above the dew point.

2.2 Relative humidity must be below 80%. If relative humidity exceeds 80%, care must be taken to avoid condensation forming on the steel.

2.3 Good ventilation at site should be maintained during and after application to improve drying and speed up the application.

2.4 Rain or water running over the DC7120 can damage the coating and may require removal and recoating. Hence it should be protected if this is a potential risk.

3. Application Procedure

3.1 Due to possible settling of contents during storage. The product should be thoroughly mixed from bottom to top of container until free of lumps. Thinning is not normally required, but if needed, add water up to 3% by weight to adjust consistency.

3.2 DC7120 is best applied using airless spray equipment with specification recommended as following:

- 3.2.1 As a minimum use high pressure electric or hydraulic piston pump equipment capable of delivering at least 1.0 gal (3.7L) per minute of flow at 3000 psi (210kg/cm^2).
- 3.2.2 Suitable Tip size in inch: 0.015~0.025.
- 3.2.3 Hose diameter not less than ⅜", length of hose depending on equipment up to 150".
- 3.2.4 For ease of handling and to reduce sprayer fatigue, the spray gun can be connected with hose coupling by swivel.

3.3 Hold the spray gun 30 cm from the surface. Overlap each pass by approximately 30~40% and spray the coating at the speed of 50~60 cm/sec. Care must be taken not to spray excessive coating in corners, internal angles, edges, etc. to avoid sagging.

3.4 DC7120 can be applied to the desired thickness usually in a single coat up to 700 μm (WFT). The WFT should be checked constantly with a wet film thickness gauge during application to ensure the correct application rate.

3.5 The coating should be allowed to dry for 6~12 hours after application of each single coat to recoat depending on DFT and ambient conditions.

3.6 The finished coating DFT on primer must follow manufacturer's application instruction. Final thickness may be measured using an electronic electromagnetic type thickness gauge.

3.7 For method of thickness determination and tolerances refer to: AWCI Technical Manual 12-B (Standard Practice for the Testing and Inspection of Field Applied Thin Film Intumescent Fire Resistive Materials).

3.8 Be sure that the entire surface is thoroughly coated with a thickness equal to or greater than the specified thickness on all regions of the surface, especially regions that are usually not immediately visible, such as joints or underneath overhangs.

3.9 The final coating should be dry for a minimum of 24 hours depending on ambient conditions before topcoat application.

3.10 DC7120 is susceptible to contact with moisture, rain, dew, condensation etc. and should be protected from such prior to installing a topcoat. If the coating is damaged by contact, the coating may need removal and re-coating.

3.11 Conventional air spray is not suitable or recommended for DC7120 application. Brush or roller is only recommended for small areas or repairs.

4. Application of topcoat

Make sure DC7120 is fully cured, for maximum environmental protection, an optional topcoat can be applied over the fire protective coating. Topcoats are optional for interior conditioned space and required for interior un-conditioned space.

No matter it applies with topcoat or not, DC7120 should be protected from pooling or running water, high humidity or condensation.

5. General Remarks

5.1 Clean all the equipment with clean water immediately following completion of spraying.

5.2 Do not allow material remaining in hoses, gun and spray equipment.

5.3 Do not mix with other paints or use organic solvents.

5.4 All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations.

5.5 All unused materials should be stored in tightly closed container. Partially filled container may show skinning or viscosity increase of the coating after storage.

5.6 DC7120 should be applied only by professional applicators.

5.7 Store indoors in original container at 5~35℃. Protect from freezing at all time during storage and transport.

5.8 The shelf life is 24 months from date of manufacture in original sealed container at 25℃.

6. First Aid Measures and Safety Articles

6.1 In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. Do not use organic solvent.

6.2 If affected by inhalation of vapor or spray mist, remove to fresh air. If symptoms persist or if you feel unwell, seek medical attention.

6.3 If swallowed, get medical attention if you feel unwell.

6.4 Wear suitable absorbent mask/respirator if exposed to vapor or spray mist.

6.5 Wear suitable gloves for hand protection.

6.6 Wear suitable goggles or facemask.

6.7 Wear overall protective clothing and footwear.

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CERTIFICATE OF APPROVAL
No CF 5770

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CERTIFIED PRODUCT
INCA DC7120

TECHNICAL SCHEDULE
TS 15 INTUMESCENT COATINGS FOR STEELWORK

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager

Issued: 11th October 2019
Valid to: 10th October 2024

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I/H Columns and beams(4 sides) Designed temperature 550℃				
Section Factor (m^{-1})	Coating thickness - mm			
	30min	60min	90min	120min
45	0.387	0.387	0.738	1.318
50	0.387	0.387	0.762	1.318
55	0.387	0.387	0.787	1.318
60	0.387	0.387	0.811	1.353
65	0.387	0.398	0.835	1.428
70	0.387	0.413	0.859	1.504
75	0.387	0.427	0.883	1.579
80	0.387	0.442	0.907	1.655
85	0.387	0.457	0.931	1.731
90	0.387	0.472	0.955	1.806
95	0.387	0.487	0.979	1.882
100	0.387	0.502	1.003	1.958
105	0.387	0.517	1.027	2.033
110	0.387	0.532	1.051	2.109
115	0.387	0.547	1.075	2.185
120	0.387	0.562	1.099	2.260
125	0.387	0.577	1.123	2.336
130	0.387	0.592	1.147	2.411
135	0.387	0.607	1.171	2.487
140	0.387	0.622	1.211	2.563
145	0.387	0.636	1.272	2.638
150	0.387	0.651	1.334	2.714
155	0.387	0.666	1.395	2.790
160	0.387	0.681	1.456	2.865
165	0.387	0.696	1.518	2.941
170	0.387	0.711	1.579	
175	0.387	0.726	1.641	
180	0.387	0.741	1.702	
185	0.387	0.756	1.763	
190	0.387	0.771	1.825	
195	0.387	0.786	1.886	
200	0.387	0.801	1.947	
205	0.387	0.816	2.009	
210	0.387	0.831	2.070	
215	0.387	0.846	2.131	
220	0.387	0.860	2.193	
225	0.387	0.875	2.254	
230	0.387	0.890		
235	0.387	0.905		
240	0.387	0.920		
245	0.387	0.935		
250	0.387	0.950		
255	0.387	0.965		
260	0.387	0.980		
265	0.387	0.995		
270	0.387	1.010		
275	0.387	1.025		
280	0.387	1.040		
285	0.387	1.055		
290	0.387	1.069		
295	0.387	1.084		
300	0.387	1.099		
305	0.387	1.114		
310	0.387	1.129		
315	0.387	1.144		
320	0.387	1.159		
325	0.387	1.174		
330	0.387	1.207		
335	0.387	1.291		
340	0.387	1.375		
345	0.387	1.458		
350	0.387	1.542		
355	0.387	1.626		
360	0.387	1.710		

I/H Beams(3 sides) Designed temperature 620℃					
Section Factor (m^{-1})	Coating thickness - mm				
	30min	60min	90min	120min	150min
40	0.396	0.396	1.243	1.243	1.243
45	0.396	0.396	1.243	1.243	1.362
50	0.396	0.396	1.243	1.243	1.438
55	0.396	0.412	1.243	1.259	1.514
60	0.396	0.444	1.243	1.300	1.589
65	0.396	0.477	1.243	1.340	1.665
70	0.396	0.509	1.243	1.381	1.740
75	0.396	0.541	1.243	1.422	1.816
80	0.396	0.574	1.243	1.463	1.892
85	0.396	0.606	1.243	1.503	1.967
90	0.396	0.639	1.243	1.544	2.043
95	0.396	0.671	1.243	1.585	2.118
100	0.396	0.703	1.243	1.625	2.194
105	0.396	0.736	1.243	1.666	2.260
110	0.396	0.768	1.243	1.707	2.316
115	0.396	0.800	1.243	1.747	2.371
120	0.396	0.833	1.243	1.788	2.426
125	0.396	0.865	1.243	1.829	2.481
130	0.396	0.898	1.243	1.870	2.536
135	0.396	0.930	1.251	1.910	2.592
140	0.396	0.962	1.298	1.951	2.647
145	0.396	0.995	1.346	1.992	2.702
150	0.396	1.027	1.394	2.032	2.757
155	0.396	1.060	1.442	2.073	2.812
160	0.396	1.092	1.490	2.114	2.868
165	0.396	1.124	1.538	2.154	2.923
170	0.396	1.157	1.585	2.195	
175	0.396	1.189	1.633	2.236	
180	0.396	1.222	1.681	2.301	
185	0.396	1.254	1.729	2.366	
190	0.396	1.286	1.777	2.431	
195	0.396	1.319	1.825	2.496	
200	0.396	1.351	1.872	2.561	
205	0.396	1.384	1.920	2.625	
210	0.396	1.416			
215	0.396	1.448			
220	0.396	1.481			
225	0.396	1.513			
230	0.396	1.545			
235	0.396	1.578			
240	0.396	1.610			
245	0.396	1.643			
250	0.396	1.675			
255	0.396	1.707			
260	0.396	1.740			
265	0.396	1.772			
270	0.396	1.805			
275	0.396	1.837			
280	0.396	1.869			
285	0.396	1.902			
290	0.396	1.934			
295	0.396	1.967			
300	0.396	1.999			
305	0.396	2.031			
310	0.396	2.064			
315	0.396	2.096			
320	0.396	2.128			
325	0.396	2.161			
330	0.396	2.193			
335	0.396	2.226			
340	0.396	2.258			
345	0.396	2.29			