

FIREPRO

FIRE PROTECTIVE BUILDING PRODUCTS

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CI/SfB

PST-100 DATASHEET - 1/3/2009

Product specifications
can change. Contact
us to ensure you have
our latest datasheet

FIREPRO PST-100

Waterborne Intumescent Coating for Fire Protection of Structural Steel

• Environmentally Friendly:

- Waterborne PST-100 intumescent coating.
- Ideal for application in occupied buildings.
- Cleans up is with water.
- VOC 75g/Litre.

• Easy to Specify:

Specify Firepro PST-100 intumescent system to achieve the required fire rating period.

DESCRIPTION

PST-100 is a water borne intumescent coating used as part of a fire rating system for internal structural steel which enables the steel to be highlighted as a feature of the building design. Additionally, the intumescent system is often the most cost effective method of fulfilling the fire rating requirements of the steel.

The PST-100 basecoat is applied to primed steel as a paint. In a fire the coating expands to insulate and protect the substrate from the effects of a fire. The Topseal protects the Basecoat against moisture, high humidity and damage, and provides a decorative finish which can be cleaned.

PST-100 provides 30 & 60 minutes fire protection to universal and hollow section beams and columns. Limited 90 & 120 minute protection is also available.

SPECIFICATION

Apply Firepro PST-100 to achieve 30 or 60 minutes Fire Resistance. Overcoat with Firepro Topseal to colour finish.

QUANTITY OF BASECOAT REQUIRED

HP/A CALCULATIONS AND THE CORRECT THICKNESS OF PST-100 TO USE CAN BE PREPARED FOR YOU BY FIREPRO CENTABUILD LTD.

The HP/A or Section Factor formula, is a calculation used to quantify the heating rate of a steel member in a fire. Steel will begin to lose its structural strength at temperatures around 600°C.

The HP/A value is a ratio of heated perimeter length, to cross section area.

To calculate the loadings the following information is required:

1. Time period of Fire Rating required.
2. Steel section specification.
3. Is the steel section used as a beam or column?
4. The number of sides exposed to fire? Example: A steel beam with one side in contact with a concrete floor requires less thickness of protective coating than the same steel beam with all four sides exposed to flame.

STEEL PREPARATION AND PRIMERS

Firepro PST-100 is applied over primed surfaces that have been suitably prepared.

Primed steel should have grease, oil, other paint coatings and any contaminants removed before basecoat application.

Before priming, it is recommended that steel surfaces be blast cleaned to a minimum standard of "Second Quality" BS4232 1967 or SA2½. Where blast cleaning is not practical, millscale, rust and old coatings should be removed by power tools such as power wire brushing to grade ST3 according to ISO 8501/1+2, taking care not to burnish the steel.

PRIMERS: Recommended primers for non galvanised steel are Firepro C628 Quick Dry Primer or Firepro C627 High Performance Primer. Primers based on chlorinated rubber or bitumen are not suitable. Other primers may be suitable but Firepro can not guarantee their performance.

APPLICATION

Firepro PST-100 is a universal grade and may be applied by brush, roller or airless spray. Application by airless spray will give the best standard of finish. It can be applied by any competent painter with correct equipment. Registered and Licenced Applicators available. See separate application notes.

COLOUR AND TOPSEAL

Stock colour - white.

DURABILITY

Firepro PST-100 has good resistance to impact and abrasion. As with any intumescent coating, durability is provided by the protective topseal.

APPROVALS & TESTING

Fully tested to BS476 Part 21 for up to two hours fire protection.

CERTIFICATE OF SUPPLY

Firepro Centabuild Ltd provides a registered Certificate of Supply. The Certificate includes confirmation signed by the Applicator that the product has been applied in accordance with Firepro Centabuild Ltd specifications.

NOTE: The technical information and suggestions for use and application presented herein represent the best information available to us and are believed to be reliable. They should not however be construed as controlling suggestions and there is no warranty of performance of our materials either expressed or implied. We urge that users of our materials conduct confirmatory tests to determine final suitability for their specific end uses. All dimensions are nominal. **We reserve the right to make changes or to withdraw designs and products without notice.**

Loading Tables for Firepro PST-100

All Tables Show Dry Film Thickness (DFT) in mm.

I SECTION

30 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 105	0.3	0.3	0.2
106 – 165	0.3	0.3	0.3
166 – 195	0.4	0.3	0.3
196 – 300	0.4	0.4	0.3

HOLLOW SECTION

30 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 275	0.5	0.5	0.5

I SECTION

60 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 100	0.7	0.6	0.6
101 – 105	0.8	0.7	0.6
106 – 115	0.8	0.7	0.7
116 – 120	0.9	0.7	0.7
121 – 130	0.9	0.8	0.7
131 – 135	0.9	0.8	0.8
136 – 140	1	0.8	0.8
141 – 150	1	0.9	0.8
151 – 155	1.1	0.9	0.8
156 – 170	1.1	0.9	0.9
171 – 175	1.1	1	0.9
176 – 190	1.2	1	0.9
191 – 205	1.2	1	1
206 – 300	1.3	1	1

HOLLOW SECTION

60 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 70	1	0.8	0.8
71 – 75	1.1	0.9	0.8
76 – 80	1.1	0.9	0.9
81 – 85	1.2	1	0.9
86 – 90	1.2	1	1
91 – 100	1.3	1.1	1
101 – 105	1.4	1.2	1.1
106 – 115	1.5	1.2	1.1
116 – 130	1.6	1.3	1.2
131 – 135	1.7	1.3	1.2
136 – 140	1.7	1.4	1.3
141 – 175	1.8	1.4	1.3
176 – 275	1.9	1.4	1.3

For longer fire rating time periods contact Firepro's Technical Manager

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PST-100 APPLICATION NOTES -1/3/2009

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FIREPRO PST-100 APPLICATION NOTES

Water borne Intumescent Coating for Fire Protection of Structural Steel

PRODUCT STORAGE

Firepro PST-100 Basecoat and Topseals should be stored in unopened containers in covered, dry conditions away from direct sunlight. Ideal storage temperatures are between 15-25°C. Protect from frost, and do not allow to freeze at any time. This product is not hazardous according to 91/155/EWG.

STEEL PREPARATION

Firepro PST-100 is applied over primed surfaces that have been suitably prepared.

Primed steel should have grease, oil, other paint coatings and any contaminants removed before basecoat application.

Before priming, it is recommended that steel surfaces be blast cleaned to a minimum standard of "Second Quality" BS4232 1967 or SA2½. Where blast cleaning is not practical, millscale, rust and old coatings should be removed by power tools such as power wire brushing to grade ST3 according to ISO 8501/1+2, taking care not to burnish the steel.

PRIMERS

The primer is an integral part of all intumescent fire protection for steel. It must be chemically compatible with the intumescent and perform satisfactorily in a fire.

Recommended primers for non galvanised steel are Firepro C628 Quick Dry Primer or Firepro C627 High Performance Primer. Primers based on chlorinated rubber or bitumen are not suitable. Other primers may be suitable but Firepro can not guarantee their performance.

APPLICATION GUIDELINES

Stir thoroughly before use.

Power stirring is recommended.

Do not dilute.

Do not apply at temperatures below 5°C (product surface air) and a relative air humidity over 80%.

Steel surfaces must be dry and free from condensation throughout the period of application and drying.

Apply at temperatures between 10°C and 30°C.

High humidity or low temperatures can increase drying times and/or cause poor adhesion and damage to the coating.

APPLICATION METHODS

Brush: apply at least 2 coats to obtain an even film thickness 600g/M² may be applied in one coat.

Roller: 400g/M² may be applied in one coat.

Airless Spray: first coat up to 1400g/M² subsequent coats 1000g/M².

Drying time between coats: at least 12 hours.

GUIDELINES FOR AIRLESS SPRAYING

Use spray equipment with a piston pump.

Operating pressure at least 200-250 bar.

Remove all filters

Use nozzles of size 0.018 – 0.027 inches.

Use 3/8" hose. Hose length up to approx 40M.

Distance between spray pistol and steel should be approx 300 - 400mm.

APPLICATION RATE

Film thickness depends upon the steel section to be protected and the fire rating required.

Check with Firepro for correct loadings.

More than one coat may be required to achieve the total film build.

FILM THICKNESS CONTROL

A wet film thickness gauge can be used during application.

Before application of topseal measure the dry film thickness.

Application rate loading in g/M² = 1.886 x dry film thickness (µm).

CLEAN UP

Clean up with water.

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Loading Tables for Firepro PST-100

All Tables Show Dry Film Thickness (DFT) in mm.

I SECTION

90 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 95	1.40	1.20	1.10
96 – 100	1.50	1.30	1.20
101 – 105	1.60	1.40	1.30
106 – 110	1.70	1.40	1.30
111 – 115	1.80	1.50	1.40
116 – 120	1.90	1.60	1.50
121 – 125	2.10	1.70	1.50
126 – 130	2.20	1.70	1.60
131 – 135	2.30	1.80	1.70
136 – 140	2.50	1.90	1.80
141 – 145	2.60	2.00	1.80
146 – 150	2.80	2.10	1.90
151 – 155	2.90	2.20	2.00
156 – 160	3.10	2.30	2.10
161 – 165	3.30	2.40	2.20
166 – 170	3.60	2.50	2.30
171 – 175	3.80	2.60	2.40
176 – 180	4.10	2.80	2.50
181 – 185		2.90	2.60
186 – 190		3.10	2.70
191 – 195		3.20	2.80
196 – 200		3.40	2.90
201 – 205		3.60	3.00
206 – 210		3.80	3.20
211 – 215		4.00	3.30
216 – 220		4.30	3.50
221 – 225			3.70
226 – 230			3.90
231 – 235			4.10

HOLLOW SECTION

90 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 70	2.10	1.70	1.60
71 – 75	2.30	1.90	1.70
76 – 80	2.60	2.00	1.90
81 – 85	2.80	2.20	2.00
86 – 90	3.10	2.40	2.20
91 – 95		2.60	2.30
96 – 100		2.70	2.50
101 – 105		2.90	2.60
106 – 110		3.20	2.80
111 – 115			3.00
116 – 120			3.20

I SECTION

120 min Fire-Rating

Note: Use 550°C temperature table unless specified otherwise.

Section Factor	Limiting Steel Temperature		
	550°C	600°C	620°C
M ⁻¹			
up to 95	2.8	2.2	2
96 – 100	3.1	2.4	2.2
101 – 105	3.4	2.65	2.4
106 – 110	3.8	2.8	2.6
111 – 115	4.3	3.1	2.8
116 – 120		3.4	3
121 – 125		3.7	3.2
126 – 130		4	3.5
131 – 135			3.8
136 – 140			4.1