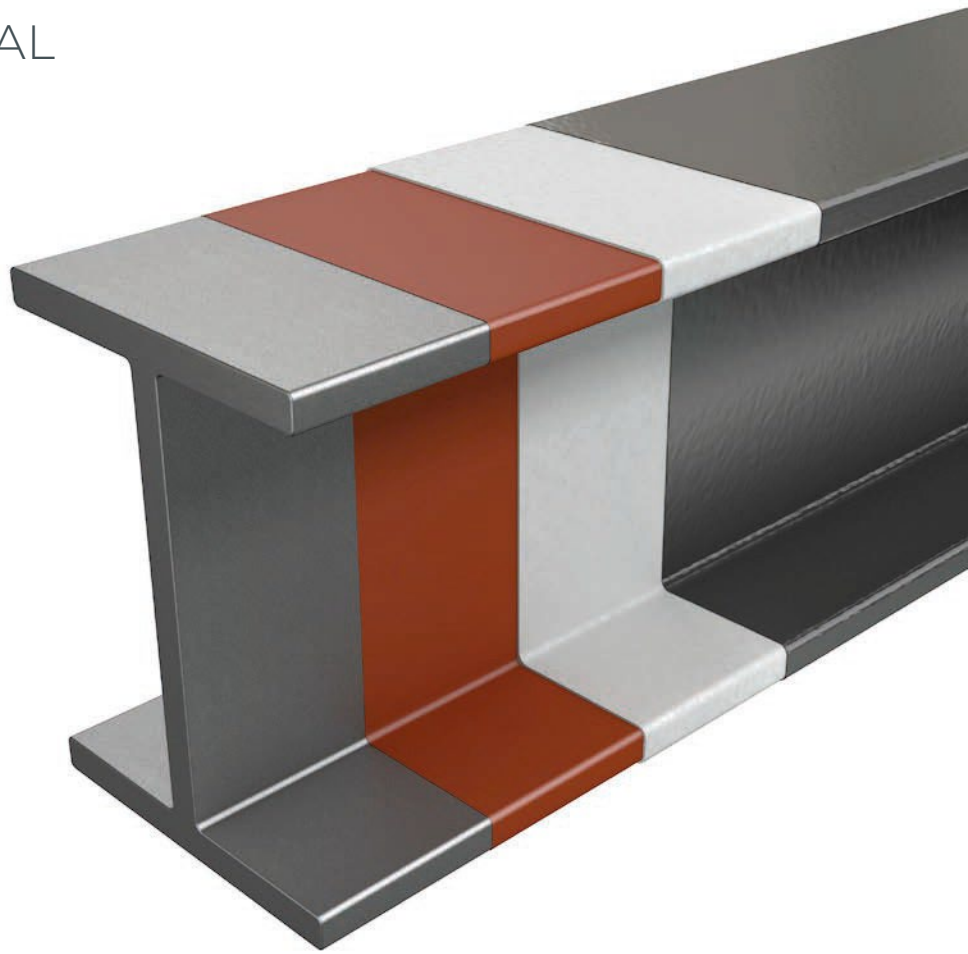


**SHERWIN
WILLIAMS®**

FIRETEX FX6002

APPLICATION MANUAL



FIRETEX®

INTUMESCENT PASSIVE
FIRE PROTECTION

FROM SPEC TO PROTECT

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FIRETEX[®] FX6002 APPLICATION MANUAL

FIRETEX® FX6002 APPLICATION MANUAL

The purpose of this manual is to ensure correct application of FIRETEX® FX6002.

For the safe handling and use of FIRETEX® FX6002 reference must also be made to both the technical and safety data sheets.

FIRETEX® FX6002 is fully tested and certified and this information is available to design architects and engineers on request.

The information contained in this application manual is based upon independent test data, comprehensive research, and field experience, and is considered accurate at the time of publication. However, the contents will be subject to revision from time to time due to our policy of continuously improving our products, processes, and service.

Only the electronic copy of this manual is a 'controlled document' and all paper versions are 'uncontrolled'. Thus, the user is advised to ensure they have the latest issue of the manual by contacting Sherwin-Williams.

Sherwin-Williams do not assume responsibility for any direct or consequential damages resulting from the information contained in this manual. It is assumed that application contractors are professional, have been correctly trained in the use of the equipment and are familiar with handling of intumescent coatings.

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1.0 Introduction

FIRETEX® FX6002 is an ultra-fast drying and durable intumescent coating. It has been designed for cellulosic fire protection to give the shortest possible time from application to handling for fire resistance periods up to three hours.

1.1 What is FIRETEX® FX6002 and where is it used?

FIRETEX® FX6002 is a three-component material based on patented technology:

1. Additive (grey) Part A
2. Base (white) Part B
3. Peroxide (catalyst white). Part C

Peroxide (Part C) is mixed into additive (Part A component) prior to loading into the appropriate hopper on the spray equipment. The base and additive are then applied through plural component equipment, designed to apply at a 1:1 by volume ratio.

Main advantages of FIRETEX® FX6002

- Ultra-fast drying e.g. 80 mils (2 mm) DFT dry to handle in 1 hour at 73°F.
- Solvent Free
- 92% Solids volume, where solvent based intumescent coatings are around 70%
- Loadings generally lower than epoxies
- FIRETEX® FX6002 represents a significant advance in terms of speed of cure over epoxy and single component intumescent coatings
- No mesh requirement.
- High quality, aesthetic finish

FIRETEX® FX6002 is used to enhance the fire resistance of structural steel members by providing a layer of insulation, which is formed as a result of a chemical reaction initiated by fire. This insulation reduces the rate of heat transfer and extends the time period for which the structural member can resist the weakening effects of the heat.

FIRETEX® FX6002 has been designed for cellulosic fire resistance periods up to three hours. It has been tested in accordance with a range of national and international fire testing standards; please consult the product data sheet or Sherwin-Williams for details.

The aim of this manual is to provide relevant technical information to the applicator of FIRETEX® FX6002, helping to ensure that the completed project is fit for purpose.

Since product failure could threaten life in an emergency fire situation, applicators must not deviate from these guidelines without written agreement from Sherwin-Williams.

1.2 Product quality assurance

Sherwin-Williams operates quality systems to ISO 9001:2015.

FIRETEX® FX6002 is subjected to annual audit and follow up service inspections by

globally recognized bodies such as UL, Intertek and Certifire.

All raw materials are subjected to quality testing before being released for manufacture.

Representative batches of FIRETEX® FX6002 are routinely selected from production and subjected to fire testing.

1.3 Technical support

Our specialist teams of engineers, chemists and other industry professional's coordinate the front line technical and sales focus for FIRETEX® FX6002. To support our customers in the field, we have experienced technical service teams working in conjunction with a dedicated fire research department.

Please Note: FIRETEX® FX6002 must only be applied by Qualified FX6002 Manufacturer Trained Applicators. Training may be scheduled with the Sherwin-Williams FIRETEX Technical Service Department. Pre-qualifications include, not limited to, having approved spray equipment and enclosed area in which to carry out work.

2.0 Surface preparation and priming

2.1 Surface preparation

Surface preparation and painting should be carried out in line with best industry practice as indicated in many publications by organizations such as NACE, SSPC, ICORR, ISO, etc. The standards of surface preparation contained herein are to be considered minimum requirements. Where other client or project specifications demand a higher level, then the higher level should be adopted.

All structural steel surfaces to be protected by FIRETEX® FX6002 must be correctly prepared and primed. The substrate should be prepared to a minimum standard of SSPC SP6 / NACE 3.

2.1a Surface Preparation of Galvanized Steel

When galvanized steel is required to be fireproofed, the galvanizing becomes the foundation of the fireproofing system. Therefore, the integrity of the galvanizing must be thoroughly evaluated across all surfaces to be fireproofed, and the following actions, at minimum, must be taken:

- Solvent clean the galvanized surface, per SSPC SP-1 Solvent Cleaning, to remove all visible oil, grease, soil, drawing and cutting fluids, wet storage stains, and other contaminants that may be present. If the galvanizing contains soluble salt contamination, it must not exceed 30 µg/cm, as verified per SSPC-Guide 15, Field Methods for Extraction and Analysis of Soluble Salts on Steel and Other Nonporous Substrate.
- Using a stout knife, per ASTM A123/A123M-17 Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products, section 8.3, to confirm proper adhesion of the galvanizing, both within the galvanized film and at the steel surface. Remove defects which may compromise bonding, such as: flaking (poor adhesion to the steel), peeling (intercoat adhesion failure within the galvanized film), and blisters.
- Remove excessive galvanizing that may contribute to detachment, such as: puddles, drainage spikes, zinc sagging as a result of uneven zinc flow off the surface of the steel. Ideally, the galvanizing DFT will be below 304µm (12 mils).
- Abrasive sweep blast, using a non-metallic abrasive, to achieve a minimum angular profile height of 50-90 microns (2-3.5 mils) with an approximate peak count density of 35-50 peaks per linear centimeter (90-120 peaks per linear inch). Using a Bristle Blaster is also acceptable for areas not suitable or permitted to be abrasive blasted. It is recommended to confirmed surface roughness per ASTM D7127-17.
- Section 5.4.1 within ASTM D6386-16a Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting shall be followed.
- Confirm that the galvanized surface is free from passivators, per SSPC-SP 16 Brush Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals, Section 4.3.3.

Blast cleaned galvanized steel must be primed within same day as blasting has occurred to

prevent oxidization once the level of surface preparation has been confirmed as being within compliance. Primer shall be Sherwin-Williams Recoatable Epoxy Primer, applied at 50 to 125 μm (2.0 to 5.0 mils).

FIRETEX FX6002 Intumescent Coating may be applied, according to the minimum required dry film thickness stated on the Sherwin-Williams FDE Client Schedule, within the recoat window of the Recoatable Epoxy Primer, being 28 days when overcoated with FIRETEX FX6002.

2.2 Priming

Only qualified primers are to be used with FIRETEX FX6002. Please consult your Sherwin-Williams fire protection representative for details of approved primers. Always follow the application instructions on the most current product data sheet / application guidance for the primer.

2.2.1 Recommended primer

For in-shop application it is recommended to use Recoatable Epoxy Primer (typically, between 3-5 mils / 75-125 μm DFT). Note: Applying FIRETEX[®] FX6002 on to over applied or un-cured primer may lead to adhesion issues.

2.3 Overcoating of approved primers with FIRETEX[®] FX6002

Before application of FIRETEX[®] FX6002, ensure the primer to be coated is dry and free from all traces of surface contaminants, especially grease and soluble salts.

Special care must be exercised in the removal of dry overspray dust prior to the application of FIRETEX[®] FX6002.

Ensure that the overcoating time/temperature intervals are in line with the primer manufacturer's data sheet and the FIRETEX[®] FX6002 primer approval.

Contact your Sherwin-Williams fire protection representative for a list of approved primers.

3.0 Product storage

Consult product health and safety data sheet for information on safe storage, handling, and application of this product.

3.1 Storage precautions for peroxide

Observe the label precautions.

Store separately from the base and additive components, and any other paints and chemicals.

Store in closed original container at temperatures between 41°F and 77°F.

Store in a cool and well-ventilated place.

Keep away from sources of ignition.

No smoking.

Containers which are open should be properly re-sealed and kept upright to prevent leakage.

Store in flame proof/combustion proof equipment, away from other flammable materials.

Keep away from reducing materials, heat and flames.

Avoid contact with reducing agents.

Keep away from heat, sparks and open flame.

Store in accordance with local regulations.

3.2 Storage class

Oxidizer storage.

Store in accordance with local regulations. See MSDS for details.

4.0 Application

The FIRETEX® FX6002 technical data sheet also contains essential information regarding application parameters and must be read in conjunction with this manual. A copy of the data sheet can be obtained from Sherwin-Williams.

FIRETEX® FX6002 must be applied at a minimum dry film thickness of 16 mils (400µm) to ensure correct cure.

Where a low film thickness is required it may be beneficial to use a smaller aperture spray tip to obtain finer atomization and thereby greater control.

In all circumstances it is the applicators sole responsibility to ensure that the material is applied as a continuous film. The coating should be applied to a dry film thickness equal to or greater than that indicated client schedule provided by Sherwin-Williams, but never above the maximum tested and certified thickness as detailed below:

Wide flange beams: 160 mils (4mm)

Wide flange columns: 420 mils (10.7mm)

Hollow rectangular steel column: 385 mils (9.85mm)

Hollow circular steel column: 430 mils (11mm)

4.1 Recommended equipment

GRACO plural component unit, WIWA DUOMIX plural component unit or other similar suitable spray equipment

100ft (28.5m) of 3/8" (9.5 mm) fluid line.

6ft (1.8m) of 1/4" whip hose.

Total hose length 106 ft (30m).

With these spray pumps and the above setup, some applicators have found two guns can be attached to double productivity.

WIWA DUOMIX 270**GRACO XP70**

GRACO XTR7 or WIWA 500F spray gun equipped with XHD 419 - 423 thou spray tip. Spray tip may vary depending on ambient temperatures, complexity of steelwork, and thickness required.

To minimize dry spray, select the correct spray tip and spray at lowest possible pressure to atomize the material. This will vary dependent on equipment. For further advice on application equipment seek advice from Sherwin-Williams.

Note: All dry spray must be removed, by brush or airline, from the substrate/coating surface prior to and during application. Ineffective removal of dry spray may lead to some disbondment on curing of the coating system.

Note: FIRETEX® FX6002 can NOT be applied through any standard single component application equipment.

Reference should be made to the relevant application equipment user manual. Operator must be trained and competent in the use of the application equipment.

4.2 Mixing instructions

For a 9.5 gallon unit.

Prior to mixing the product, ensure the application equipment has been thoroughly flushed with Sherwin-Williams Cleanser No. 9 (R7K112).

For optimum cure rate and productivity, the FX6002 should be stored at 59°F or above for a period of 24 hours to stabilize prior to mixing.

FIRETEX® FX6002 Catalyst Part C (peroxide) must be incorporated into FIRETEX® FX6002 Additive Part A (grey).

DO NOT ADD FIRETEX® FX6002 CATALYST PART C TO FIRETEX® FX6002 PART B (WHITE)

Mix thoroughly using a mechanical stirrer with a stainless steel paddle.

Pot life of mixture = 48 hours at 73°F.

Using a separate mechanical stirrer, thoroughly stir FIRETEX® FX6002 Base Part B (white) until homogenous.

Keep all mixing equipment separate and **DO NOT CROSS CONTAMINATE COMPONENTS.**

Once both base and additive mixture are homogenous, transfer to the respective holding tanks on the application equipment or use transfer pumps and pump from the 5 gallon pails. Purge the application unit to remove any solvent in the system. Any excessive residual solvent in the system will impede on the curing time.

Notes:

A minimum dry film thickness of 16 mils (400µm) must be achieved. At film thicknesses below this figure, retarded curing will be evident.

If the peroxide catalyst is not mixed into the grey additive the FIRETEX® FX6002 will not cure.

FIRETEX® FX6002 MUST NOT be thinned, as this will severely impair/extend the curing time of the material.

Mix ratio checks

This is dependent on the application equipment.

Prior to commencing application, ratio checks must be carried out in line with the equipment user manual, to verify that a mix ratio of 1:1 by volume is being achieved. Daily ratio checks are recommended.

NOTE: mixed material in the fluid line has a pot life of approximately five minutes at 73°F.

Equipment fluid lines must be flushed out with Cleanser No.9 prior to any break in application operations.

4.3 Application conditions

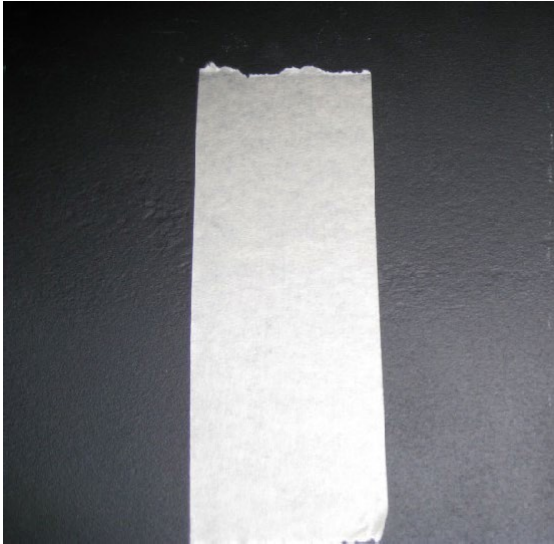
In conditions of high relative humidity, i.e. 80–85% good ventilation conditions are essential. Substrate temperature should be at least 5°F above the dew point and always above 32°F.

Application at ambient air temperatures below 41°F is not recommended.

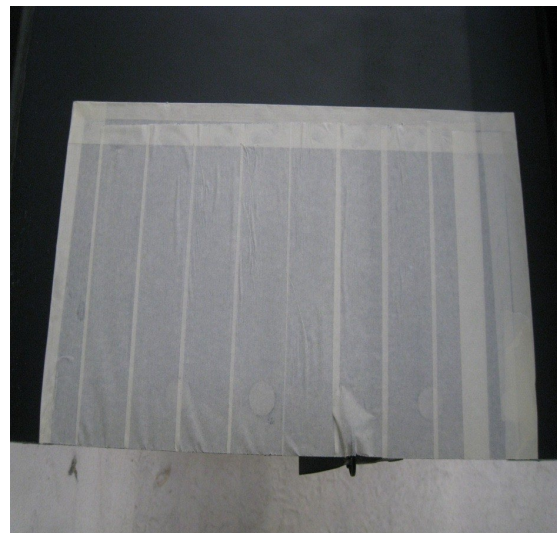
4.4 Masking

All connection points, unpainted areas, bolted connections (drill holes) may need to be masked off with masking tape prior to application of FIRETEX® FX6002. See examples below.

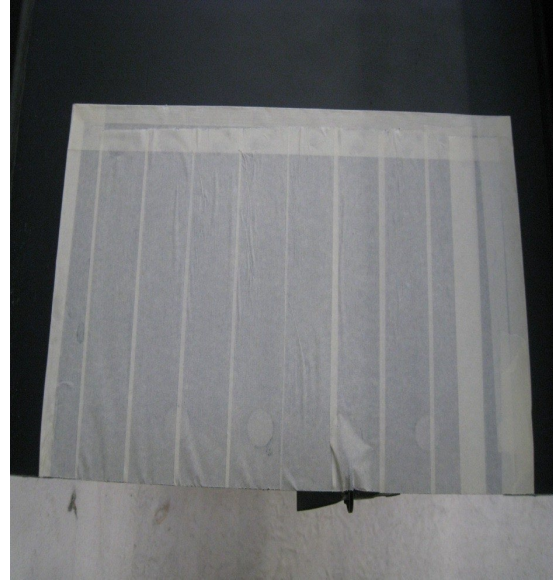
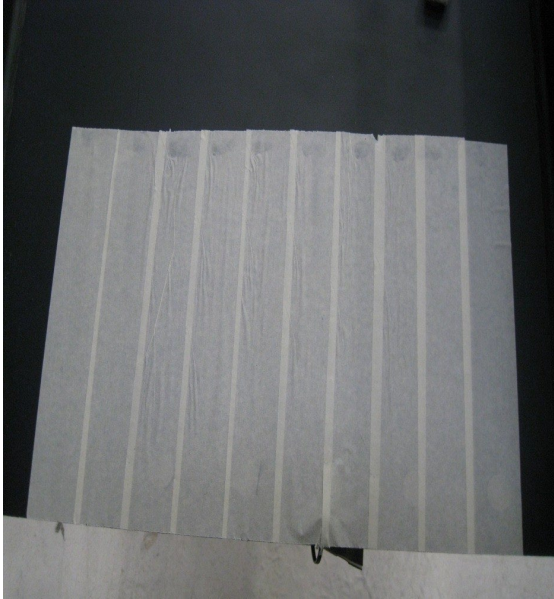
Single masking tape/folded masking tape.



Folded masking tape on perimeter area/folded masking tape area with normal masking infill, (single coat application).



Single masked area/singled masked area with folded masking around edge, (multiple coat application).



Removal of single/multiple coat masking tape.



NOTE: It is very difficult to remove the masking tape once the FIRETEX® FX6002 has fully cured, it is therefore important to remove the masking tape while the FIRETEX® FX6002 is only partially cured. Bolted connections (drill holes) can be cleaned with a pneumatic/battery drill or alternatively use bolt hole plugs.

4.5 Recommended topcoats/sealer coats

FIRETEX® FX6002 may be left without a finish coat. However, in all instances where a topcoat is to be applied, this must be an approved product for use with FIRETEX® FX6002, this includes subsequent finish coats applied later.

For further details refer to the project specification or specification selector document or contact your Sherwin-Williams fire protection representative.

5.0 Repair

The repair procedure must be carried out as soon as possible to prevent further damage and moisture ingress.

5.1 FIRETEX® FX6002 Repair Kit

Supplied in 2.2 quart units, in packs of three.

While FIRETEX® FX6002 will give minimum damage during initial stages of handling, there may be some damage due to handling/transport process. FIRETEX® FX6002 Repair Kit has been specially formulated, to provide the same ultra-fast cure benefits of FIRETEX® FX6002 to the repair procedure. It is supplied as a two-component material, FIRETEX® FX6002 Repair Kit Base (2.2 quarts) and FIRETEX® FX6002 Catalyst (30 cc).

Notes:

All surfaces to be coated shall be prepared in accordance with the guidance given in the product's data sheet and application manual.

Where the damage has exposed the substrate, the affected area should be prepared in accordance with the guidance given in section 2 of this manual.

Providing the FIRETEX® FX6002 can be applied before the prepared clean surface has degraded, it is not necessary to apply a primer for internal dry and internal controlled environments for C1-C3 according to ISO 12944-2:2007.

The topcoat shall be removed in areas where new FIRETEX® FX6002 will be applied over the existing (intact) coating system.

Damaged FIRETEX® FX6002 shall be removed until a firm edge is achieved. Where the existing coatings will be overcoated as part of the repair these should be abraded to ensure good adhesion of the subsequent coats.

Mix FIRETEX® FX6002 Repair Kit Base and FIRETEX® FX6002 Catalyst together until the material is fully homogeneous.

Apply FIRETEX® FX6002 Repair Kit to the area of damage by use of appropriate tools such as brush, scraper, or pallet knife. Care should be taken to ensure that the area of repair satisfies the specified DFT for the structural member under repair. Following application, it is possible to use a dry roller to help blend the finish of the repair area into the original material.

Always ensure that a minimum DFT of 16 mils (400µm) of FIRETEX® FX6002 Repair Kit is applied per coat.

Once the correct DFT has been installed, FIRETEX® FX6002 Repair Kit can be sanded once cured to improve the aesthetic finish of the repair area. If specified, topcoat can then be applied to the finished intumescent repair.

Mixed material is to be used immediately. Usability will vary on ambient conditions; as a guideline material should be used within the first 25 mins of post mixing.

Application can be by brush or scraper or trowel and can be applied at up to 60 mils in one application.

Where there is damage, it is important repairs are carried out.

Note: Do not thin.

Application by brush may result in brush marks in coating surface. However, these can be reduced by rolling or troweling out the brush marks

6.0 Quality of finish

6.1 Definitions as set out in SCI P160 (Blue Book)

R470 The quality of finishes falls under the following categories

(1) Basic finish:

The coating system achieves the required fire performance and corrosion protection performance, but not required to achieve any requirements for standard of finish. A basic finish can be described as evenly applied with a light texture.

(11) Decorative finish:

In addition to the requirements for (1) above, a good standard of cosmetic finish is generally required, when viewed from a distance of 15 feet (~5 m). Minor orange peel or other texture resulting from application or localized repair is acceptable.

(111) High Decorative finish:

In addition to the requirements for (1) above, the coating finish is required to have a standard of evenness, smoothness and gloss agreed between the specifier and contractor
When agreeing a high decorative standard of finish, the specifier and contractor should take account of the effects of steel size, section shape, design complexity and the required period of fire resistance.

The Contractor shall provide for a basic finish unless otherwise noted in the contract.

In all cases, the expected standard of finish should be agreed between all interested parties before application of FIRETEX FX6002 commences.

6.2 Dry film thickness measurement

Measurement procedure/guidance notes.

Calibration:

In accordance with BS EN ISO 2808:2001, calibration of the DFT gauge should be carried out following the manufacturer's instructions using a smooth plate (similar in composition to the substrate being measured) at least 1.2 mm thick. The calibration should be checked using shims above and below the expected DFT.

BS EN ISO 2808 refers to a figure of 1 mil as a correction factor for blast profile. It is intended to use this correction factor for measurements of all coating thicknesses above 2 mils nominal.

Calibration checks should be performed prior to carrying out measurements, in the environment in which the measurements are to be taken. During a series of measurements, the calibration should be rechecked on a regular basis.

6.3 FX6002 film thickness acceptance criteria

For both shop and field application of FIRETEX® FX6002, dry film thickness is to be recorded and confirmed using the criteria stated in either AWCI Technical Manual 12B, or in SSPC-PA2. Details of the DFT measurement methodology shall be agreed by relevant parties on the project prior to commencement.

When measuring intumescent fire protected steelwork, the mean must not exceed the maximum fire tested thickness for that type and orientation/use/geometry of section. See section 4 of this manual for specific details.

7.0 Additional notes

7.1 Trouble shooting

Challenge	Cause
Soft/un-cured material	<ol style="list-style-type: none">1. Peroxide not been added to additive2. Application equipment off ratio3. Insufficient material (less than 16 mils (400µm) of material applied
Slow curing material	<ol style="list-style-type: none">1. FX6002 has been exposed to thinners
Poor adhesion/detachment	<ol style="list-style-type: none">1. FX6002 has been applied over contaminated steelwork2. FX6002 dry overspray has not been removed prior/during coating application

FIRETEX FX6002

APPLICATION MANUAL

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