

FIRESHIELD SYSTEMS CHART

Coating Systems

for

Fire Rated Structural Steel

Single pack and epoxy intumescent coatings systems 30 to 120 minutes fire rating.



Fireshield® Systems Guide

All Fireshield® steel intumescent systems general guide

Introduction

This guide is intended to be the starting point when specifying and deciding which of the available Fireshield® steel intumescent systems is best suited to your project. Fireshield® steel intumescent systems can be used as part of a full Fireshield® system from primer, intumescent through to top coat or alternatively over a variety of approved primers from different Manufacturers. Fireshield® also has options for non fire rated steel to complete the full protective coatings system for your project.

Fire protection of steel is not only limited to the fire rating requirement, the intumescent coating must not detract from the corrosion protection of the steel. Only Fireshield® 920KS can be applied directly to the blasted steel surface and all other Fireshield® intumescent systems will include a primer coat and in some circumstances a top coat, see below for a coating system overview:

Typical Coating Systems

1. Primer Coat:

The primer provides adhesion for the intumescent to the steel surface and corrosion protection of the steel section. For example zinc-rich primers contain high levels of zinc metal which provide high performance corrosion protection. Other types of primers are barrier and inhibitive or a combination of both.

2. Intermediate Intumescent Coat:

Typically the intumescent coat is the second coat in the system, and high build epoxy coatings such as Fireshield® 920KS can add to the corrosion protection and form part of the AS NZS 2312:2014 system.

3. Top Coat:

The topcoat provides UV and environmental protection for the intumescent intermediate coat.

Fireshield® Systems Overview

In Table 1 below you will find each of the available Fireshield® steel intumescent products a high level overview of their capabilities from fire rating through to Greenstar accreditation.

	Fireshield® Product	C1 + C2 Interior Zone	C3 - C5 Exterior Zone	Compliance	On Site Application	Off Site Application	Fire Rating	Timber/Plasterboard Attachments	Korok Wall Study	Greenstar VOC Levels	Fire Rated Bolt Caps
1	Fireshield® Steel 1001			NZBC B1/B2/C6			Up To 60 mins	Yes to 60mins		< 50 grams/litre	
2	Fireshield® Steel 1002			NZBC B1/B2/C6			Up To 120 mins	Yes to 120mins		< 50 grams/litre	
3	Fireshield® 920KS			NZBC B1/B2/C6			Up To 120 mins	Yes to 60mins		< 50 grams/litre	
4	Fireshield® SQ476 (special order only)	+ C3		NZBC B1/B2/C6			Up To 60 mins	Yes to 60mins		Not a Greenstar product	

Table 1 : See Appendix A for details of corrosion zones, on site and off site application, attachments and Greenstar.

Fireshield® Steel 1001

Single pack waterborne intumescent for interior structural steel 30 to 60 minutes fire rating.

Fireshield® System	Code	Primer	Intumescent	Top Coat	Interior	Exterior	C1	C2	C3	C4	C5	Greenstar	On Site	Off Site
Fireshield® Primer + Intumescent	INT-FS03-A	Fireshield 2-pack epoxy	Steel 1001	N/A	✓	✗	✓	✗	✗	✗	✗	✓	✓	✗
Approved Primer + Intumescent	INT-FS03-B	Approved 2-pack epoxy	Steel 1001	N/A	✓	✗	✓	✗	✗	✗	✗	✓	✓	✗
Fireshield® Primer + Intumescent + Fireshield® Top Coat	INT-FS03-C	Fireshield 2-pack epoxy	Steel 1001	Fireshield 2-pack polyurethane	✓	✗	✓	✓	✗	✗	✗	*top coat limitations	✓	✗
Approved Primer + Intumescent + Top Coat	INT-FS03-D	Approved 2-pack epoxy	Steel 1001	Approved Top Coat	✓	✗	✓	✓	✗	✗	✗	*top coat limitations	✓	✗

✓ = Can be used. ✗ = Do not use.

Product Information

Fireshield® Steel 1001 is a waterborne, thin film intumescent coating with a matt white finish, designed for use on interior structural steel open and closed sections providing 30 to 60 minute. Steel 1001 must be applied to a blasted SA2.5 surface that has a primer coat applied.

Primers

Click [here](#) for the list of approved primers for use with Steel 1001

Top Coats

Click [here](#) for the list of approved top coats for use with Steel 1001

Maximum Film Thickness

At +25°C air temperature and 50% relative humidity the recommended maximum wet film thickness is 1000µm per coat.

Application Method

Airless spray is the recommended method of application, brush or roller can be used for small areas and touch up which may result in a textured finish.

Product Limitations

- During the construction phase use Fireshield® WeatherSeal to protect Steel 1001 for up to 6 months protection from the weather.
- Do not let water pool on the coated surface.
- For interior use only. Do not use on steel structure permanently exposed to weather.
- All intumescent coatings require an expansion gap of 50 x the dry film thickness from the coated surface. However Steel 1001 can have timber and plasterboard attached to the coated surface, see the Fireshield® Cladding Guide for full details.

Environmental

Greenstar | Red List Free | Declare



Fireshield® Steel 1002

Single pack waterborne intumescent for interior structural steel 60 to 120 minutes fire rating.

Fireshield® System	Code	Primer	Intumescent	Top Coat	Interior	Exterior	C1	C2	C3	C4	C5	Greenstar	On Site	Off Site
Fireshield® Primer + Intumescent	INT-FS04-A	Fireshield 2-pack epoxy	Steel 1002	N/A	✓	✗	✓	✗	✗	✗	✗	✓	✓	✗
Approved Primer + Intumescent	INT-FS04-B	Approved 2-pack epoxy	Steel 1002	N/A	✓	✗	✓	✗	✗	✗	✗	✓	✓	✗
Fireshield® Primer + Intumescent + Fireshield® Top Coat	INT-FS04-C	Fireshield 2-pack epoxy	Steel 1002	Fireshield® 2-pack polyurethane	✓	✗	✓	✓	✗	✗	✗	*top coat limitations	✓	✗
Approved Primer + Intumescent + Top Coat	INT-FS04-D	Approved 2-pack epoxy	Steel 1002	Approved Top Coat	✓	✗	✓	✓	✗	✗	✗	*top coat limitations	✓	✗

✓ = Can be used. ✗ = Do not use.

Product Information

Fireshield® Steel 1002 is a waterborne, thin film intumescent coating with a matt white finish, designed for use on interior structural steel open and closed sections providing 60 to 120 minute. Steel 1002 must be applied to a blasted SA2.5 surface that has a primer coat applied.

Primers

Click [here](#) for the list of approved primers for use with Steel 1002.

Top Coats

Click [here](#) for the list of approved top coats for use with Steel 1002.

Maximum Film Thickness

At +25°C air temperature and 50% relative humidity the recommended maximum wet film thickness is 1000µm per coat.

Application Method

Airless spray is the recommended method of application, brush or roller can be used for small areas and touch up which may result in a textured finish.

Product Limitations

- During the construction phase use Fireshield® WeatherSeal to protect Steel 1002 for up to 6 months protection from the weather.
- Do not let water pool on the coated surface.
- For interior use only. Do not use on steel structure permanently exposed to weather.
- All intumescent coatings require an expansion gap of 50 x the dry film thickness from the coated surface. However Steel 1002 can have timber and plasterboard attached to the coated surface, see the Fireshield Cladding Guide for full details.

Environmental

Greenstar | Red List Free | Declare



Fireshield® 920KS

Interior and exterior 2-pack epoxy intumescent coating 30 - 120 minutes fire rating.

Fireshield® System	Code	Primer	Intumescent	Top Coat	Interior	Exterior	C1	C2	C3	C4	C5	Greenstar	On Site	Off Site
Intumescent Only	INT-FS02-A	No primer required	920KS	No top coat required	✓	✗	✓	✓	✓	✗	✗	✓	✗	✓
Fireshield® Primer + Intumescent	INT-FS02-B	Fireshield® 2-pack epoxy	920KS	No top coat required	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓
Approved Primer + Intumescent	INT-FS02-C	Approved 2-pack epoxy	920KS	No top coat required	✓	✗	✓	✓	✓	✗	✗	✓	✓	✓
Fireshield® Primer + Intumescent + Fireshield® Top Coat	INT-FS02-D EXT-FS01	Fireshield® 2-pack epoxy	920KS	Fireshield® 2-pack polyurethane	✓	✓	✓	✓	✓	✓	✓	*top coat limitations	✓	✓
Approved Primer + Intumescent + Fireshield® Top Coat	INT-FS02-E EXT-FS01	Approved 2-pack epoxy	920KS	Fireshield® 2-pack polyurethane	✓	✓	✓	✓	✓	✓	✗	*top coat limitations	✓	✓

 = Can be used.
  = Do not use.

Product Information

Fireshield® 920KS is a high build, two-pack solvent-free intumescent coating with a matt grey finish, designed for use on interior and exterior structural steel open and closed sections for 30 to 120 minutes protection from fire. Fireshield® 920KS can be used with Fireshield® [fire rated bolt caps](#), can be applied directly to a SA2.5 blasted surface or to a primed surface.

Primers

Click [here](#) for the list of approved primers for use with Fireshield® 920KS.

Top Coats

Click [here](#) for the list of approved top coats for use with Fireshield® 920KS.

Maximum Film Thickness

At +25°C air temperature and 50% relative humidity the recommended maximum wet film thickness is 2500µm per coat.

Application Method

Airless spray is the recommended method of application, brush or roller can be used for small areas and touch up which may result in a textured finish.

Product Limitations

- All intumescent coatings require an expansion gap of 50 x the dry film thickness from the coated surface. However Fireshield® 920KS can have timber and plasterboard attached to the coated surface for up to 60 minutes FRR, see the Fireshield® Cladding Guide for full details.

Environmental

Greenstar | 100% solvent free AgBB



Fireshield® SQ476

Single pack solvent intumescent for interior structural steel 30 to 120 minutes fire rating. **Special Order Item!**

Fireshield® System	Code	Primer	Intumescent	Top Coat	Interior	Exterior	C1	C2	C3	C4	C5	Greenstar	On Site	Off Site
Fireshield® Primer + Intumescent	INT-FS05-A	Fireshield 2-pack epoxy	SQ476	N/A	✓	✗	✓	✗	✗	✗	✗	✗	✓	✗
Approved Primer + Intumescent	INT-FS05-B	Approved 2-pack epoxy	SQ476	N/A	✓	✗	✓	✗	✗	✗	✗	✗	✓	✗
Fireshield® Primer + Intumescent + Fireshield® Top Coat	INT-FS05-C	Fireshield 2-pack epoxy	SQ476	Fireshield 2-pack polyurethane	✓	✗	✓	✓	✓	✗	✗	✗	✓	✗
Approved Primer + Intumescent + Top Coat	INT-FS05-D	Approved 2-pack epoxy	SQ476	Approved Top Coat	✓	✗	✓	✓	✓	✗	✗	✗	✓	✗

Product Information

Fireshield® SQ476 is a single component, solvent based acrylic thin film intumescent basecoat for the fire protection structural steelwork. Fireshield® SQ476 has been optimised and formulated for 120-minute protection. SQ476 must be applied to a blasted SA2.5 surface that has a primer coat applied.

Primers

Click [here](#) for the list of approved primers for use with SQ476

Top Coats

Click [here](#) for the list of approved top coats for use with SQ476

Maximum Film Thickness

At +25°C air temperature and 50% relative humidity the recommended maximum wet film thickness is 1000µm per coat.

Application Method

Airless spray is the recommended method of application, brush or roller can be used for small areas and touch up which may result in a textured finish.

Product Limitations

- During the construction phase use Fireshield® WeatherSeal to protect SQ476 for up to 6 months protection from the weather.
- Do not let water pool on the coated surface.
- For interior use only. Do not use on steel structure permanently exposed to weather.
- Single pack solvents remain soft when applied in multiple coats, this is normal and to be expected. SQ476 will fully harden once cured.
- All intumescent coatings require an expansion gap of 50 x the dry film thickness from the coated surface. However SQ476 can have timber and plasterboard attached to the coated surface for up to 60 minutes FRR, see the Fireshield® Cladding Guide for full details.
- Special order product only.

✓ = Can be used. ✗ = Do not use.



INTERIOR STEEL
Fire Rated Coatings



Steel 1001
Waterborne single pack.



Steel 1002
Waterborne single pack.



Fireshield 920KS
2-pack epoxy.



SQ476
Solvent single pack.

EXTERIOR STEEL
Fire Rated Coatings



Fireshield 920KS
2-pack epoxy.

Corrosion Zones

The corrosion zones listed in each of the tables is an important part in selecting the correct the intumescent system not only for fire rating but also the time to expected first maintenance which is found in AS NZS 2312.1:2014. An explanation for each of the corrosion zones is included below, for a more in depth definition refer to AS NZS2312.1:2014 and SN TS 34043:XXXX:

C1	Very Low	Environments in this category are most commonly found inside heated or air conditioned buildings with clean atmospheres, such as most commercial buildings.
C2	Low	Dry, rural areas and other regions remote from the coast or sources of pollution and most areas of Australia and New Zealand beyond at least 50 km from the sea. Unheated or non-air conditioned buildings, where some condensation may occur, such as warehouses and sports halls, can be in this category. Proximity to the coast is an important factor.
C3	Medium	This category mainly covers coastal areas with low salinity. Interior environments with Category C3 corrosivity can occur in humid production rooms, such as food-processing plants, laundries, breweries, printing works and dairies.
C4	High	This category occurs mainly on the coast. Damp, contaminated interior environments such as occur with swimming pools, dye works, paper manufacturers, foundries, smelters and chemical processing plants may also extend into this category.
C5	Very High	This category is common offshore and on the beachfront in regions of rough seas and surf beaches.
1*	On Site Application:	
2*	Off Site Application	
3*	Timber Plasterboard attached	
4*	Greenstar VOC Levels	