

# zeroflame®

FIRE RESISTANT AQUASTEEL WB+

## TECHNICAL DATA SHEET

### PRODUCT DESCRIPTION

Zeroflame AquaSteel WB+ is a white thin-film waterborne intumescent coating designed to provide 30 and 60 minutes fire resistance on standard structural steel members in internal environments.

### APPEARANCE

Zeroflame AquaSteel WB+ is white, with a creamy consistency. If a finish is required, either for decoration or protection against moisture, a range of Finishes is available. Please consult Zeroflame for details.

### COVERAGE AND APPLICATION RATES

Zeroflame AquaSteel WB+ is suitable for all types of structural steel, subject to the following minimum steel thicknesses:

| Section                                      | Flange/Wall Thickness    | Hp/A               |
|--|--------------------------|--------------------|
| Universal Beams                              | Flange Thickness - 7.6mm | 300m <sup>-1</sup> |
| Universal Columns                            | Flange Thickness - 6.8mm | 300m <sup>-1</sup> |
| Hollow Sections (½ Hour)                     | Wall Thickness - 3.6mm   | 300m <sup>-1</sup> |
| Rectangular Hollow Sections (1 Hour) 4 Sides | Wall Thickness - 5.0mm   | 205m <sup>-1</sup> |
| Rectangular Hollow Sections (1 Hour) 3 Sides | Wall Thickness - 8.0mm   | 205m <sup>-1</sup> |
| Circular Hollow Sections (1 Hour)            | Wall Thickness - 6.0mm   | 205m <sup>-1</sup> |

The table below gives the recommended coverage rates in m<sup>2</sup>/litre and wet and dry film thicknesses (WFT and DFT) in mm (1mm = 1000 microns):

| Exposure | Horizontal Beams               |      |      | Vertical Columns      |      |      |
|----------|--------------------------------|------|------|-----------------------|------|------|
|          | m <sup>2</sup> /litre          | WFT  | DFT  | m <sup>2</sup> /litre | WFT  | DFT  |
|          | <b>½ Hour Fire Resistance</b>  |      |      |                       |      |      |
| 4-Sided  | 2.30                           | 0.41 | 0.28 | 2.30                  | 0.41 | 0.28 |
| 3-Sided  | 3.00                           | 0.34 | 0.24 | 2.30                  | 0.41 | 0.28 |
|          | <b>1 Hour Fire Resistance</b>  |      |      |                       |      |      |
| 4-Sided  | 1.10                           | 0.90 | 0.63 | 1.10                  | 0.90 | 0.63 |
| 3-Sided  | 1.40                           | 0.70 | 0.49 | 1.10                  | 0.90 | 0.63 |
|          | <b>Hollow Sections</b>         |      |      |                       |      |      |
|          | Square & Rectangular           |      |      | Circular              |      |      |
|          | <b>½ Hour Fire Resistance</b>  |      |      |                       |      |      |
| 4-Sided  | 1.90                           | 0.52 | 0.37 | 1.90                  | 0.52 | 0.37 |
|          | <b>1 Hour Fire Resistance*</b> |      |      |                       |      |      |
| 4-Sided  | 0.55                           | 1.83 | 1268 | 0.55                  | 1.83 | 1.28 |

\*Limited to Hp/A – 205m<sup>-1</sup>

For thinner / lighter members, please consult Zeroflame.  
 Maximum Application Rates per Coat are as follows:

| Application Type | m <sup>2</sup> /litre | Wet Film | Dry Film |
|------------------|-----------------------|----------|----------|
| Brush/Roller     | 1.60                  | 0.61mm   | 0.43mm   |
| Spray            | 1.00                  | 1.00mm   | 0.70mm   |

Theoretical Coverage / 0.43mm DFT: 1.60m<sup>2</sup>/litre; 0.85kg/m<sup>2</sup>.

## PRODUCT SPECIFICATION

|                   |   |
|-------------------|---|
| Specific Gravity: | 1.38 ± 0.02   |
| Volume Solids:    | 70% ± 2%  |
| VOC:              | 6g/litre (conforms to 2010 European maximum of 140g/litre.) |

## STORAGE INSTRUCTIONS

Zeroflame AquaSteel WB+ should be stored internally between 5°C and 30°C. At temperatures above 25°C, the shelf life will be reduced. Shelf life is usually 6 months in sealed containers. PROTECT FROM FROST.

## GENERAL SAFETY

- Ensure good ventilation during application and drying.
- In case of insufficient ventilation, wear suitable respiratory equipment.
- Do not breathe spray.
- Wear suitable protective clothing and gloves.
- In case of contact with skin, wash well with plenty of soap and water.
- In case of contact with eyes, rinse immediately with water and seek medical advice.
- Keep out of reach of children.
- When not in use keep containers tightly closed.

## SURFACE PREPARATION

Steelwork to be coated with Zeroflame AquaSteel WB+ must be primed with an anti-corrosion primer suited to the intended environment of the building and applied to the manufacturer's specification with the exceptions that the Dry Film Thickness does not exceed 100 microns and that thermoplastic, bitumen or chlorinated rubber coatings are not used. If the steel has been galvanised or coated with a zinc-rich primer, a suitable tie-coat should be applied. Consult Zeroflame for guidance.

Before applying Zeroflame AquaSteel WB+, patch prime any damaged areas and ensure the surface is dry, free from rust, oil, grease, dust and other contaminants. Existing decorative finishes must be removed.

## SITE CONDITIONS DURING APPLICATION

Recommended for application to dry, protected, interior structural steels only. If Zeroflame AquaSteel WB+ is allowed to get wet, it is likely to become damaged, and may cause blistering and wrinkling to occur.

Zeroflame AquaSteel WB+ should only be applied when the air and steel temperatures are above 5°C. Relative humidity should be below 80% for successful application. Steel surface temperature should be a minimum of 3°C above the dew point. Ensure the steel is dry and protected from contact with rain or condensation during the application, drying and curing process.

## APPLICATION METHODS

Zeroflame AquaSteel WB+ is supplied ready for use and must not be thinned but should be thoroughly mechanically stirred prior to use. Suggested application equipment:

| Application Type | Details  |
|------------------|--|
| Brush            | 3" Synthetic Filament Brush  |
| Roller           | 4" Roller, 3/8" nap fabric   |
| Airless Spray    | Operating Pressure: 2500-3000 psi<br>Tip Size: 17-20 thou<br>Fan Angle: 20°-40°<br>Hose Diameter: 10mm, internal<br>Hose Length: Not exceeding 60 metres |

### Airless Spraying:

Zeroflame AquaSteel WB+ may be applied up to a maximum wet film thickness (WFT) of 1.0mm in a single spray coat comprising of several quick passes. Achieving maximum loadings will depend on site conditions. It may be possible to apply two coats of Zeroflame AquaSteel WB+ in one day, particularly if the atmospheric temperature is above 20°C and relative humidity below 70%. However, before doing this, ensure that the previously applied coat is dry, particularly in the web/flange junctions.

### Brush/Roller Application:

Low surface temperatures may cause slumping at recommended coverage rates. To achieve maximum thickness when brushing, use a 'laying on' technique with a well-loaded brush.

Drying times between coats (20°C and 60% RH) are as follows:-

Brush/Roller – 4 hours  
Spraying – 6 hours

If applying Zeroflame AquaSteel WB+ off-site, ensure the coating is fully cured, hard and dry before transport and erection, any damaged areas being made good. **PROTECT FROM FROST AND WETTING UNTIL DRY.**

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Telephone: Head Office: +44 (0)28 9262 0300 UK Office: 0845 3838 333

Fax: Head Office: +44 (0)28 9262 0309 UK Office: +44 (0)28 9262 0309

Email: [sales@zeroflame.co](mailto:sales@zeroflame.co)

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