

Nullifire - S707 Waterborne Basecoat

May 2004 - UK-S707-APP
Revision 1

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1. PRODUCT DESCRIPTION

S707 Waterborne Basecoat is a white thin film intumescent coating for the fire protection of internal structural steelwork.

S707 can provide up to 90 minutes fire resistance.

2. APPLICATION CHECK LIST

The following instructions are for on-site application only. For off-site application, refer to Nullifire Ltd.

Ensure that:

- The primer is compatible with S707 and has been applied correctly.
- The overcoating period for the primer has not been exceeded.
- The correct primer is used for galvanised steel.
- All damage to the primer has been repaired & re-primed.
- Site and weather conditions are within specification.
- S707 is stored correctly.
- Surface is clean, dry and free from contamination.
- Correct spray equipment is available, if appropriate.
- Application instructions have been read prior to commencement of work.
- Ensure different basecoats are not applied on the same section of steel.
- Equipment should be clean and free from contaminants or dried material.
- Wet film gauges are available for use.

3. SURFACE PREPARATION

S707 should be applied onto a clean, undamaged, dry and primed steel surface.

Certain types of primers can cause adhesion problems and should be avoided. These include:

- Chlorinated rubbers
- Bitumen
- Thermoplastic primers

Nullifire have carried out compatibility testing on a wide range of primers and can be contacted on +44 (0) 24 7685 5000 for confirmation of compatibility with S707.

Galvanised surfaces should be prepared by an application of T-wash or mordant solution followed by a compatible non-saponifiable primer. The primer should be applied in accordance with the manufacturer's instructions.

If a zinc rich primer is used, it is advisable to seal this with a suitable tie coat or travel coat prior to shipment to site. If the steel is left exposed to the atmosphere with just a zinc rich primer, surface salts may build up on the steel. These salts, if not adequately removed, may cause adhesion problems for any subsequent coating applied. Removal of the salts can be achieved by high-pressure washing. If adequate removal of the salts cannot be guaranteed, a suitable tie coat may have to be applied prior to the application of the S707 Waterborne Basecoat.

Nullifire should be consulted for technical advice when zinc rich primers or the overcoating of existing paints are specified for use.

4. PRODUCT SPECIFICATION

Specific Gravity:	1.35
Volume Solids:	72% ± 2%
VOC:	15 g/litre
Theoretical Coverage:	0.7 litres/m ² @ 0.5mm DFT

Note: The volume solids content of this material has been measured in accordance with the method laid down in ISO 3233: 1998.

APPLICATION INSTRUCTIONS
S707 WATERBORNE BASECOAT

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5. SITE CONDITIONS DURING APPLICATION

Nullifire S707 is recommended for application and use on dry protected structural steel only. If the basecoat is allowed to get wet, it is likely to be damaged – blistering and wrinkling may occur.

S707 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 2°C above the dew point. Ensure the steel is dry and free from contact with rain or condensation during the application and drying of S707.

6. APPLICATION METHODS

S707 is supplied ready for use and must not be thinned but should be thoroughly mechanically stirred prior to use.

Airless Spraying:

S707 may be applied up to a maximum wet film thickness (WFT) of 1.2 mm in a single spray coat comprising of several quick passes. Achieving maximum loadings will depend on site conditions.

Build up thickness to achieve loading required in several quick passes. It may be possible to apply two coats of S707 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.

Airless spray equipment is recommended and should match these guidelines:

Operating Pressure:	2500 - 3000psi (175 - 210 kg/cm ²)
Tip Size	19 - 25 thou
Fan Angle:	20° - 40°
Hose Diameter:	10mm (³ / ₈ " (Internal Diameter)
Hose Length:	Max. 60 metres

Brush/Roller Application:

For brush application use a "laying on" technique to avoid heavy brush marking.

Maximum wet film per coat when applied using a brush or roller is 1.0mm. A short piled roller will produce a light textured finish.

7. THICKNESS REQUIREMENTS

During application, measure the wet film thickness frequently with the WFT gauge provided to ensure the correct thickness is being applied.

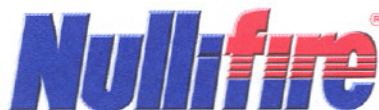
To use the gauge, insert the teeth into the wet basecoat. The last tooth to be coated indicates the wet film thickness achieved.

In the event of over or under applications, adjustments to the loading rates of subsequent coats will be required.

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8. DRYING TIMES

Drying of S707 is dependent upon a number of factors including:

- Temperature
- Air movement
- Humidity
- Method of Application
- Thickness of coating

High humidity and low air movement or low steel temperatures can result in condensation on the steelwork causing prolonged drying times and possibly poor basecoat adhesion.

9. RECOAT TIMES IN HOURS

Indications of recoat or topsealing times taking into account loading areas and application methods are given below:

Hours per application (0.3mm wft) – Thin coat

Hours per application (0.6mm wft) – Medium coat

Hours per application (1.2mm wft) – Thick coat

R/H	Spray	10°C		20°C		30°C	
		Still Air	Air Flow	Still Air	Air Flow	Still Air	Air Flow
30%	Thin	4.5 hrs	2.25 hrs	3.75 hrs	1.5 hrs	2.25 hrs	1.5 hrs
	Medium	6.25 hrs	3.75 hrs	5.25 hrs	3 hrs	4.5 hrs	2.25 hrs
	Thick	9 hrs	4.5 hrs	6 hrs	3.75 hrs	6 hrs	3 hrs
50%	Thin	56 hrs	3 hrs	4.5 hrs	2.25 hrs	3 hrs	1.5 hrs
	Medium	9 hrs	4.5 hrs	6.25 hrs	3.75 hrs	6 hrs	3 hrs
	Thick	12hrs	6 hrs	9 hrs	4.5 hrs	7.5 hrs	3.75 hrs
70%	Thin	11.25 hrs	6 hrs	9 hrs	4.5hrs	6 hrs	3 hrs
	Medium	15 hrs	9 hrs	15 hrs	6.25 hrs	12 hrs	5.25 hrs
	Thick	18 hrs	12 hrs	18 hrs	9 hrs	15 hrs	6 hrs

- Brushing or rolling adds about 20% to drying time (compared to spraying).
- Drying times are doubled at 5°C or at over 75% relative humidity.
- Final drying time before topsealing is a minimum of 16 hours.
- These figures are based on constant conditions, fluctuations up or down will give variations to the drying time.
If overnight condensation causes wetting a further full drying period should be allowed.

10. FINAL THICKNESS CHECK

Take dry film thickness (DFT) readings as soon as the coating is sufficiently hard to allow a reading to be made without indenting the surface.

DFT's may be taken using equipment such as an electronic electromagnetic type Nullifire DFR-1 recorder or an Elcometer 345.

Ensure that the DFT of the primer is deducted from the reading of the basecoat.

Do not apply topseal until the readings are in accordance with the specified thicknesses.

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11. APPLICATION OF TOPSEAL

Once DFT's have been achieved as specified, TS716 Topseal (waterborne), TS715 Topseal (solvent borne) or 2 pack durable topseal Carboxane 2000 can be applied.

Ensure the S707 is completely dry before applying Topseal.

12. MAINTENANCE

Damaged areas should be abraded back to a sound surface. The surface should then be clean and dry before re-applying. System S Filler may be used for repairing scratches and chips. Once repaired topseal should be re-applied. Refer to Nullifire System S Maintenance Instructions.

13. STORAGE

S707 should be stored internally between 5°C and 30°C. Do not store below 5°C. At temperatures above 25°C, the shelf life will be reduced. Shelf life is normally 9 months in sealed containers.

14. TO ORDER

In the U.K., S707 Basecoat can be ordered directly from Nullifire Limited, Coventry on +44 (0) 24 7685 5000.

In other countries, S707 Basecoat can be purchased through a network of Distributors, details of which can be obtained from Nullifire or from our Web site on <http://www.nullifire.com>.

15. TECHNICAL ASSISTANCE

Further assistance can be obtained by calling the Technical Hotline or by e-mail - protect@nullifire.com.

Contract Support is available on request.

Nullifire run a Training School in the U.K. for applicators. Full information can be obtained from Nullifire Ltd.

16. HEALTH and SAFETY

Please refer to H and S Data Sheet Ref: S707-MSDS date: May 2004.

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