

## Substrates & Surface Preparation

**General** Remove all oil or grease from the surface to be coated using Thinner #2 or Carboline Surface Cleaner 3.

**Steel** Steel preparation before priming should be done in accordance with the recommended primers' Product Data Sheet. Nullifire S605 should only be applied over compatible primers. The following primers have been tested as compatible:

Carboguard® 888	Carbocoat® 115 SG
Carboguard® 893	Carbocoat® 150
Carbozinc® 11	Carbocrylic® 120
Carbozinc® 859	Carbomastic® 15
Rustbond® (penetrating sealer)	Nullifire® S620*

\*Made to order only

Other primers may be acceptable. Contact Carboline Technical Service for information. Primers based on chlorinated rubber or bitumen should not be used.

**Galvanized Steel** Follow Product Data Sheet instructions for Rustbond (penetrating sealer).

**Non-Ferrous Metals** Contact Carboline Technical Service for advice.

## Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General Guidelines:

**Mixer** Use a ½" electric or air-driven drill with a slotted paddle or Jiffy mixer.

**Pumps** 30:1 min. to give an operating pressure of 3000 p.s.i. (320 kg/cm<sup>2</sup>).

Pump Ratio 30:1 Minimum\*  
45:1 for cooler temperature or unusual conditions requiring higher pressure.

GPM Output 3.0 (minimum)  
Lower Cylinder ID 1.5" (min.) for 1 spray gun  
1.5-2.0" (min.) for 2 spray guns

Material Hose 3/8" I.D. (minimum)  
1/2" I.D. may be required in cold temperatures.

Tip Size .021 - .030 (.48-.58 mm)  
Hose Length 200' (60 meters) max.

100' (30 meters) for cold temperatures.

Fan Angle 20°- 40° (depending on section being sprayed)

\* Teflon packings are recommended.

**Spray Guns**

Mfg.	Model
Graco	205-591
Graco Silver	208-663

## Mixing & Thinning

**Mixing** Nullifire S605 is supplied ready to use. This product will appear very thick in the can, to the point that the pail can be turned on its side and the material will not move. You must use a Jiffy-type mixing blade for a **minimum** of 5 minutes, to achieve the necessary, smooth texture of the material required before spraying. It may also be thinned up to 5% with Thinner #10. Thinning will affect the film build properties and extend cure time of the coating.

**Pot Life** N/A

## Application Procedures

**Airless Spray:** A single coat built up with a number of quick passes allows greater control over quantities, thickness and finish. In certain conditions, it may be advantageous to apply two thin coats rather than one thick coat. In good weather conditions above 70°F (21°C) and air movement greater than 6 feet per second (2m/sec), it may be possible to apply two coats per day. However, it is necessary to ensure that the first coat is dry, particularly in the webs and flanges.

**Brush/Roller:** For brush application, a fully loaded brush should be used. A laying on technique will reduce the brush marking. A short-nap roller can be used but this will result in a textured finish. Drying time may increase with brush/roller application.

**Application Rates:** At an ambient temperature of 70°F (21°C) the following application rates are applicable per coat:

Method	Optimal Loading
Airless Spray	40 mils WFT, 27 mils DFT
Brush/Roller	15 mils WFT, 10 mils DFT

## Application Conditions

Condition	Surface	Ambient	Humidity
Normal	60°-85°F (15°-29°C)	60°-85°F (15°-29°C)	0-80%
Minimum	32°F (0°C)	32°F (0°C)	0%
Maximum	90°F (32°C)	105°F (40°C)	80%

Steel surface temperature should be a minimum of 5°F above dew point. Heavy rain or water running over the surface of recently applied S605 can cause surface patterning if the material has not formed a skin.

## Protection of Adjacent Surfaces

Finished surfaces shall be protected from damage and overspray.

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# Nullifire® S605

## Thickness Measurement

During application, the wet film thickness should be checked using a wet film gauge. To use the gauge, insert the teeth into the wet basecoat. The last tooth to be coated indicates the thickness achieved.

Prior to topcoating, the dry film thickness should be checked using an electronic gauge (Positector) or a banana gauge (Elcometer 211). Topcoat should not be applied until the correct thickness of S605 has been achieved and cured.

Dry film thickness measurements can be taken as soon as the coating is sufficiently hard enough to allow a reading without indenting the surface.

It is important to ensure that the wet film applied is of sufficient thickness to give the required dry film thickness on drying. During the drying process, the coating will shrink due to the evaporation of solvent. In order to calculate the wet film thickness required the following formula can be used:

$$\text{WFT} = \text{DFT} \div \text{Volume solids (67)} \times 100$$

Example:

DFT	WFT
10 mils	15 mils
20 mils	30 mils
27 mils	40 mils
40 mils	60 mils*

- See Curing Schedule for high film thickness curing needs

## Curing/Drying Schedule

Drying times are dependent upon a number of factors:

- Temperature
- Air Movement
- Humidity
- Thickness of S605
- Method of application

For optimum curing (@ 75°F) it is recommended to apply one coat at 40 mils (wet) per day. **Higher film thicknesses** will require longer times between coats and extended times for topcoating. For films up to 60 mils (wet) it is recommended to wait 48 hours between coats. Material can be heated to achieve quicker recoating and curing schedule. Consult Carboline Technical Service for specific details.

After final completion the Nullifire S605 system may take some weeks to reach its final hardness. During this time the fire performance is not affected.

## Topcoating

Once the S605 Basecoat has been applied to the specified DFT and is sufficiently dry, it can be topcoated with the specified system. The use of a Shore "D" hardness tester is a good indication of dry for topcoating. Hardness should be a minimum of 40 when measured at 75°F. The following chart is to be used as a guideline only. Your specific environmental conditions may vary.

Applied DFT	Surface Temp 35°F	Surface Temp 75°F	Surface Temp 90°F
120 mils (4 cts)	80 days	40 days	35 days

In accordance with good painting practice, S605 should be protected from weathering exposure (water and/or freezing temperatures) until topcoated. If left for extended periods, some surface preparation may be required before topcoating.

For interior, use Carbocoat® 30, Carbothane 133 HB, or Carbothane 134 HG. For exterior, use Carboguard® 1340, (or Rustbond) plus Carbothane® 133 HB. For other topcoats contact Carboline Technical Service.

## Maintenance

Damaged areas should be abraded back to a firm edge by sanding or scraping. Topcoat should be abraded back by approximately 1 inch (2.5cm) from the damage. The surface should be clean and dry before re-applying the S605. The basecoat should be built up to the original thickness allowed to dry and then overcoated with a topcoat. Small scratches and chips can be repaired with System S Filler, which can be applied by putty knife in one application allowed to dry and then overcoated with specified topcoat or system.

## Cleanup & Safety

**Cleanup** Pump, mixer and hose should be cleaned with Carboline Thinner #2 at least once every 4 hours at 70°F (21°C), and more often at higher temperatures.

**Safety** Read and follow all caution statements on this Product Data Sheet and on the Material Safety Data Sheet for this product.

**Caution** This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes. When used in confined areas, workmen must wear appropriate respirator protection. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.



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