

Application Guide
STEEL-IT® 1012B Black Polyurethane Aerosol
Surface Preparation and Application Instructions



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1. PREPARATION

Proper surface preparation is key to the success of any coating job, whether the coating is STEEL-IT or another brand. It's often said in the coatings industry that roughly 85% of all paint failures are due to improper or insufficient surface preparation and application.

STEEL-IT coatings adhere to metal surfaces through mechanical adhesion, meaning the coating holds onto the surface by interlocking with a rough profile established on the bare metal, which is ideally achieved by grit-blasting or power-sanding.

SURFACE PREPARATION

Metal surfaces should be clean and free of all rust, old paint, greases, waxes, salts, dirt, scale, etc.

It's best if the surface being coated can be grit-blasted (e.g. sandblasted) to a 1.5 - 2.0 mils (0.0015" – 0.0020"; 38-50 microns) sharp angular cut profile per SSPC SP-6 (Commercial Blast). STEEL-IT coatings require this rough, "scarified" surface profile in order to have some tooth to bite into and adhere properly.

If blasting is not an option, power-sanding (e.g. with a dual-action sander) using #36 grit sandpaper will achieve similar results on steel. The surface once properly prepared should feel like the striking area on a matchbox.

After grit-blasting, blow any remaining grit material off using an air hose and/or solvent clean the surface with acetone, alcohol, or xylene. Avoid using products that leave behind an oily residue (such as mineral spirits).

Another surface preparation option for the Polyurethane Aerosol is the Monti Bristle Blaster, a power tool that also achieves the proper surface conditions for the successful application of the STEEL-IT brand coatings mentioned. Stainless Steel Coatings, Inc. has no affiliation with Monti; it is merely an available option in the marketplace. For more information, visit: <http://www.monti.de/en/products/bristle-blaster>

REQUIRED AMBIENT CONDITIONS

When using STEEL-IT 1012B Black Polyurethane Aerosol:

- Apply only when ambient and substrate surface temperatures are between 50° F (10° C) and 100° F (38° C)
- Relative humidity is less than 85%
- Substrate surface temperature and the temperature of the coating are at least 5° F (2.75° C) above the dew point.

SAFETY

Apply the coating in a well-ventilated area.

When applying STEEL-IT 1012B Black Polyurethane Aerosol, it is critical to use:

- A NIOSH approved respirator using an organic vapor cartridge
- Nitrile gloves

PROPER COATING PREPARATION - SUFFICIENT AGITATION

Before applying STEEL-IT 1012B Polyurethane Aerosol it is critical that the contents be sufficiently agitated. This agitation is what “thins” the coating and prepares it for spraying. Shake the can vigorously for 2 minutes, ideally with a power shaker, though manually shaking the can is sufficient.

2. APPLICATION

FILM THICKNESS

Typically, two coats of STEEL-IT 1012 Black Polyurethane are recommended in most applications, with each coat measuring 3 mils (0.003"; 75 microns) dry film thickness (DFT). A third coat at 3 mils (0.003"; 75 microns) DFT can be applied in situations where conditions are particularly harsh due to chemical- or abrasion-exposure, for example.

In order to achieve 3 mils (0.003"; 75 microns) DFT of STEEL-IT 1012B Black Polyurethane Aerosol, the following wet film thickness (WFT) should be applied per 3 mil coat:

STEEL-IT BRAND COATING	NUMBER OF MILS (MICRONS) TO APPLY WET TO GET 3 MILS (75 MICRONS) DRY
• STEEL-IT 1012B Black Polyurethane Topcoat	16 mils (.016"; 410 microns)

Spray from a distance of 12"-16" from the part to be coated. Making four to five passes at a moderate speed will deposit roughly 16 mils wet film thickness (WFT). The actual WFT can be verified using the WFT gauge described below.

PROPERLY MEASURING STEEL-IT COATINGS' FILM THICKNESS

The amount applied should be measured when the coating is wet using a wet film thickness gauge, which is a very simple tool. A useful demonstration of how to use such a gauge can be found on YouTube: <http://www.youtube.com/watch?v=DtmEBBzIWQc>.

When using STEEL-IT brand coatings, most electronic gauges used to measure dry film thickness can give seriously inaccurate results. That's because such gauges try to locate the substrate, and then measure the distance from the tool to the substrate and conclude that that is the thickness of the coating. However, because of the abundance of stainless steel in STEEL-IT coatings and the fact that they form a barrier coat of stainless steel near the surface of the coating, most electronic gauges often misinterpret this barrier coat as the substrate and report too little coating has been applied.

Electronic Gauges That Correctly Measure STEEL-IT's DFT

After working with STEEL-IT brand coatings, two leading electronic dry film thickness gauge companies – Defelsko Instruments and Imaginant/PELT – have determined that the following models accurately measure STEEL-IT coatings' DFT:

Defelsko Instruments

1. PosiTector 6000 F1
2. PosiTest FM mechanical (magnetic principle) coating thickness gauge,
3. PosiTest DFT ferrous (magnetic principle) electronic instrument

Imaginant/PELT

1. μ Pts3H Pelt ultrasonic film thickness gauge, coupled with a PELT-XER-M100 transducer and FC-U1STU40 wearcap

Both manufacturers recommend that if customers have difficulty reading STEEL-IT brand coatings thicknesses, that the customer contact them directly for guidance.

EXPECTED COVERAGE

STEEL-IT® COATING	PRACTICAL COVERAGE AT 3 MILS (75 MICRONS) DFT*
STEEL-IT 1012B Black Polyurethane Aerosol	15 sq ft/can (1.4 sq m/can)

* Assumes 20% loss due to overspray and waste

3. CLEANUP

- Use mineral spirits or xylene to clean up after using STEEL-IT 1012B Black Polyurethane Aerosol.