



## Technical Data Sheet

### The STEEL-IT® Polyurethane System

STEEL-IT® 2213 Epoxy Ester Precoat  
STEEL-IT® 1012 Polyurethane Topcoat – Black

The STEEL-IT® Polyurethane System – Black consists of STEEL-IT® 2213 Epoxy Ester Precoat and STEEL-IT® 1012 Polyurethane Topcoat – Black. STEEL-IT® 2213 is a 1K, low-VOC, fast drying precoat with outstanding resistance to corrosion and excellent adhesion. The Epoxy Ester Precoat and the Polyurethane Topcoat, when paired together in the STEEL-IT® Polyurethane System, offer long lasting resistance to corrosion, abrasion, UV-rays, moisture, salt-spray, and harsh chemicals. Utilizing custom-engineered 316L stainless steel leafing pigment, these single-component coatings create a hard, non-toxic, metallic finish. While the data presented in this Technical Data Sheet is specifically for STEEL-IT® 1012 Polyurethane Topcoat – Black, the STEEL-IT® 2213 Epoxy Ester Precoat is compatible with all STEEL-IT® Polyurethane Topcoats. For information on other STEEL-IT® Polyurethane Topcoats, please refer to the appropriate Technical Data Sheet.

<b>Applications</b>	<ul style="list-style-type: none"> <li>Machinery; industrial maintenance; architecture and construction; automotive; food processing and packaging; agriculture; aerospace; marine; other</li> <li>Interior and exterior applications: Provides UV/weathering-resistance</li> </ul>
<b>Surfaces</b>	<ul style="list-style-type: none"> <li>Steel, galvanized steel, aluminum, nickel-plated steel, copper, brass</li> </ul>
<b>System</b>	<ul style="list-style-type: none"> <li>STEEL-IT® 2213 Epoxy Ester Precoat: 1 coat 75 µm Dry Film Thickness (DFT)</li> <li>STEEL-IT® 1012 Polyurethane Topcoat – Black: 1 coat 75 µm Dry Film Thickness (DFT)</li> <li>For particularly harsh conditions, a total dry film thickness of 225 µm is recommended: 1 coat of STEEL-IT® 2213 Epoxy Ester Precoat and 2 coats of STEEL-IT® 1012 Polyurethane Topcoat</li> <li>For touch-ups, apply STEEL-IT® 1012D Polyurethane Aerosol – Black</li> <li>For applications involving welding, the topcoat is applied directly to the metal surface. Please refer to the Technical Data Sheet and Application Instructions for STEEL-IT® 1012 and STEEL-IT® 1012D. STEEL-IT® 2213 Epoxy Ester Precoat is not weldable.</li> </ul>

### Technical Data

	STEEL-IT® 2213	STEEL-IT® 1012 Topcoat
Color (Closest Pantone)	7624 C	Black 6 C
Color (Closest RAL)	3009	9004
Solids by weight	56% ± 2%	53% ± 2%
Solids by volume	39% ± 2%	42% ± 2%
Density (calculated)	1,56 kg/L	1,30 kg/L
VOC (calculated)	49,7 g/L	406 g/L
Coverage* at 75 µm Dry Film Thickness (DFT)	4,13 m²/L	4,42 m²/L

\*Values are considered "practical" coverage, calculated for smooth, non-porous surfaces and assume 20% loss due to overspray and waste

### Accelerated Aging Tests†

Condensing Humidity	ASTM B117	Hours	ASTM D4585
STEEL-IT® 2213 Epoxy Ester Precoat (1 coat)		720	Pass
STEEL-IT® 2213 (1 coat) + STEEL-IT® 1012 (2 coats)		480	Pass

Salt Fog Test: ASTM B117	Hours	Rust at Scribe: ASTM D1654
STEEL-IT® 2213 Epoxy Ester Precoat (1 coat)	2064	9 = <0.5 mm creepage
STEEL-IT® 2213 (1 coat) + STEEL-IT® 1012 (1 coat)	2712	7 = 1.0 – 2.0 mm creepage
STEEL-IT® 2213 (1 coat) + STEEL-IT® 1012 (2 coats)	6552	7 = 1.0 – 2.0 mm creepage

†Coatings prepared on cold rolled steel or grit blasted steel and cured 14 days at room temperature



STEEL-IT 2213 + STEEL-IT 1012 (2 coats)  
Scraped panel, 6552 h

## Technical Data Sheet

### STEEL-IT® Polyurethane System – Black

#### STEEL-IT® 2213 Epoxy Ester Precoat and STEEL-IT® 1012 Polyurethane Topcoat – Black

Surface Preparation	<ul style="list-style-type: none"> <li>Surfaces should be clean and free of all rust, paint, greases, waxes, salts, dirt, scale, etc</li> <li>For best results, grit-blast to SSPC SP-6 (Commercial Blast)</li> <li>Anchor pattern should be cut and angular at 38 50 µm deep</li> <li>Power-sanding with a dual-action sander or random orbital sander using #36 grit sandpaper will achieve similar results</li> </ul>
Conditions	<ul style="list-style-type: none"> <li>Apply only when ambient and substrate surface temperatures are 10-38 °C</li> <li>Relative humidity less than 85%</li> <li>Temperature of substrate surface and of coating at least 5 °F (2.75 °C) above the dew point</li> </ul>
Application	<ul style="list-style-type: none"> <li>Agitate for 5 min with a mechanical paint shaker or a mechanically driven paddle; hand agitation is not sufficient</li> <li>Preferred application method is using an Air, Airless, Air-Assisted Airless, or HVLP spray gun; brush and roller may also be used</li> </ul>
Recommended Wet Film Build	<ul style="list-style-type: none"> <li>To achieve 75 µm Dry Film Thickness (DFT), apply: <ul style="list-style-type: none"> <li>STEEL-IT® 2213 Epoxy Ester Precoat: 205 µm Wet Film Thickness (WFT)</li> <li>STEEL-IT® 1012 Polyurethane Topcoat – Black: 225µm Wet Film Thickness (WFT)</li> </ul> </li> </ul>
Dry Time and Recoat Windows	<ul style="list-style-type: none"> <li>STEEL-IT® 2213 Epoxy Ester Precoat: <ul style="list-style-type: none"> <li>Dry to touch: 1 hour</li> <li>Tack free to handle: 4 hours</li> <li>Dry to recoat window: 4-24 hours</li> </ul> </li> <li>STEEL-IT® 1012 Polyurethane Topcoat – Black: <ul style="list-style-type: none"> <li>Dry to touch: 2 hours</li> <li>Tack free to handle: 4 hours</li> <li>Dry to recoat window: 4-24 hours</li> </ul> </li> <li>If product is not recoated within 24 hours, a light scuff-sanding using #400-600 grit paper is required before applying an additional coat</li> </ul>
Curing	<ul style="list-style-type: none"> <li>Cure at ambient temperatures of 10–49 °C</li> <li>Both temperature and climate conditions (e.g. high humidity or high aridity) will impact cure time</li> <li>Cure time required before part can be packaged or put into service depends on how the part will be used</li> <li>Full cure in 5-7 days after final coat. Corrosion resistance continues to improve with prolonged atmospheric aging over a 4-6 week period</li> </ul>
Safety	<ul style="list-style-type: none"> <li>Wear a NIOSH-approved respirator with an organic vapor cartridge</li> <li>Use nitrile gloves</li> <li>Apply STEEL-IT® in a well-ventilated area.</li> </ul>

For detailed information on surface preparation, application instructions, and recommended spray gun equipment settings please refer to the Application Instructions available online at [STEEL-IT-EUROPE.com](http://STEEL-IT-EUROPE.com).

The latest versions of the Safety Data Sheets (SDS) are also online at [STEEL-IT-EUROPE.com](http://STEEL-IT-EUROPE.com).

The information presented in this Technical Data Sheet is accurate at the date of publication, however the data may be revised as new results become available. The reported values fall within the normal range of measured product properties and should not be used to establish specification limits. All users are responsible for conducting testing to determine the suitability of STEEL-IT Brand Coatings for the specific requirements of their applications.

STEEL-IT® is a registered trademark of Stainless Steel Coatings, Inc.

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