The Valspar Corporation
PO Box 1461
Minneapolis, MN 55440
USA
Phone: 1-612-851-7000

www.valsparindustrialmix.com

General Information: Degree of Purity TI – G 5 / USA

Degree of purity (steel)

The degree of purity describes the purity of mill scale, scale and rust from steel surfaces. Different standards define the degree of purity and are usually required by the paint manufacturer or customer of a project. A steel surface to be painted normally requires the purity of SA 2.5 or better SA 3. In the cleaning process the surface must be cleaned of all ferrous and non-ferrous components. If residues are left on the surface it will warp and affect the adhesion of later coating and the corrosion resistance.

These residues can be:

- Mill scale and scale
- Oil, grease and waxes
- Corrosion/rust
- Soluble salts
- Soiling like e.g. dust

Classification and definition according Swedish Standard (SIS 05 5900 / ISO 8501-1+2):

SA =	Blasting of coated and uncoated steel surfaces
SA 1	**Brush-off Blast Cleaning**
	The surfaces are free of non-ferrous components such as oil, grease, dirt and lose paint. Lose ferrous layers from the producing process as mill scale, scale and rust are removed. The remaining scale, rust and paint are adherent and the surface may be roughened sufficiently to achieve a good adhesion of the following coating.
SA 2	**Commercial Blast Cleaning**
	SA 1 process and extra processes: Rust/scale or adherent coating residues are almost removed. 70% (⅔) of every square inch should be free of visible residues. Depressions in the surface may hold traces of residue.
SA 2.5	**Near White Blast Cleaning**
	As with SA 2. Only traces or shades of type layers may be visible. 95% of every square inch should be free of visible residues.
SA 3	**White Metal Blast Cleaning**
	SA 2.5 process and extra process: The workpieces have a uniform grey-white metal surface. All ferrous and non-ferrous residues are removed by 100%.
P SA 2.5	**Partial removal of damaged areas (existing coatings)**
	Spotty removal of rust, scale, loose coating and contaminants. Remaining exposed areas show light shading corresponding to SA 2.5. Remaining coating must be intact, it is recommended to carry out an adhesion test.

The Valspar Corporation
PO Box 1461
Minneapolis, MN 55440
USA
Phone: 1-612-851-7000

www.valsparindustrialmix.com

General Information: Degree of Purity TI – G 5 / USA

ST =	Hand- or machine tool de-rusting
ST 2	Loose Coatings and loose mill scale and scale are removed; rust is removed to the extent that after the cleaning has a faint metallic luster.
ST 3	Like ST 2, furthermore the metal has a higher metal shine.

Fl	Flame blasting
	Mill scale, scale, rust, paint coatings and foreign matter are removed. Residues may show only as discoloration and shades.
Be	**Pickling with acids (chemical rust removal)**
	All ferrous and non-ferrous components are removed. Before coating the surface must be re-treated with neutral detergents.

Examples of untreated to treated steel surfaces

	Untreated	SA 1	SA 2	SA 2½	SA 3
Rust Grade A					
Rust Grade B					
Rust Grade C					
Rust Grade D					

The Valspar Corporation
PO Box 1461
Minneapolis, MN 55440
USA
Phone: 1-612-851-7000

www.valsparindustrialmix.com

General Information: Degree of Purity TI – G 5 / USA

Blasted steel surfaces prepared to at least SA 2.5 and processed with the recommended coating materials and coating systems according to the technical data sheets provide up to four times longer protection!

The finish of the blasted steel surface is mainly dependent on the blasting technique as such, the abrasives used and the eventual surface roughness. The blast profile or surface roughness may be up to 100µm. For structural steel the value normally lies between 25-60µm, and less common 80µm.

Excellent results are achieved through the use of sharp corundum. Ferrous and non-ferrous components and other types of contaminates are ideally removed and the blasted surface provides good adhesion with the following corrosion protecting coating.

Standards

The table below gives an overview of internationally recognised standards of surface preparation. The mostly used standards are: NACE (National Association of Corrosion Engineers) the Swedish standard – for Europe (SIS 05 5900), SSPC (Steel Structures and Paint Council) and the British Standard (BS 4232). The German standard DIN 55928 and the ISO 8501-1+2 are identical to the Swedish standard.

Degree of purity - Standard – comparison

Sweden Standard SIS 055900 ISO 8501-1 BS7079 / A1	**England (UK)** BS 4232	**USA** SSPC SP	**USA** NACE	**Canada** CGSB	**China** GB 8923	**Japan** SPSS
SA1	Light blast to brush off	SSPC SP 7	NACE 4	31 GP 404 Type 3		Sd1 / Sh2
SA2	Third Quality	SSPC SP 6	NACE 3	31 GP 404 Type 2	SA2	Sd1 / Sh2
SA2.5	Second Quality	SSPC SP 10	NACE 3		SA2½	Sd3
SA3	First Quality	SSPC SP 5	NACE 1	31 GP 404 Type 1	SA3	
ST2		SSPC SP 2			ST2	
ST3		SSPC SP 3			ST3	