

Surface Preparation - Steel

Good Surface Preparation is essential if the full potential of high performance epoxy schemes is to be realised.

Grit blasting is preferable for the preparation of bare steel, however, disk grinding may be used for the preparation of welds and limited areas where blasting is impractical. **Wire brushing is ineffective and should not be used with these painting schemes.**

Abrasive grit blasting

Abrasive Grit Blasting is by far the most effective method for removal of mill scale, rust and old coatings. The commonly used grades of blast cleaning, and the approximate equivalents between various international standards are as follows:

	USA Specs SSPC	NACE	Canadian Government CGSB	British Standards 4232	Swedish Standards SIS 05.5900	Japanese Standards SPSS
White Metal	SSPC-SP.5	NACE #1	31 GP 404 Type 1	First Quality	Sa 3	JASh3 or JASd3
Near White Metal	SSPC-SP 10	NACE #2	—	Second Quality	Sa 2½	JASh2 or JASd2
Commercial Blast	SSPC-SP.6	NACE #3	31 GP 404 Type 2	Third Quality	Sa 2	JASh1 or JASd1

The preparation standard required for any particular coating specification depends upon a number of factors, the most important of which is the type of coating system selected.

Prior to blasting, steelwork should be degreased with Degreaser (ITA080) using a clean cloth and changing it regularly, and weld spatter removed. If grease or oil is present on the surface, it will appear to be removed by the blasting process, but this is not the case and it should be removed. Although not visible, contamination will still be present as a thin layer, and will affect the adhesion of subsequent coatings. Weld seams and sharp edges should be ground down, as paint tends to run away from sharp edges, resulting in thin coatings and reduced protection. Weld spatter is a common cause of premature failure as it is almost impossible to coat evenly and is often loosely adhered.

The surface profile achieved during blasting is important, and will depend upon the abrasive used, the air pressure and the blasting technique. An inadequate profile will not provide sufficient mechanical key for adhesion of the coatings. An excessive profile may result in uneven coverage of high, sharp peaks leading to premature failure, particularly when using thin coatings such as blast primers. Consult your local supplier for details of suitable blasting media. It is essential that all debris be removed by vacuum cleaning before painting commences.

Shop Primed Steel

Steel is frequently supplied ready blasted and primed - these primers are commonly referred to as 'pre-treatment' or 'shop' primers. Care should be taken during fabrication to prevent the primers being damaged. The primers themselves are capable of protecting the steel even in aggressive industrial/marine environments for up to 6 months. Additional coats of these types of primers should **NOT** be applied, as this will compromise the integrity of the painting scheme.

Over-coating of these primers without blasting back to the bare steel is often possible. Consult your International Technical Representative to confirm which primers can be over-coated in this way.

Mechanical Abrasion

Preparation of the steel using an abrasive disk grinder must be preceded with surface degreasing using a clean dry cloth. Disk grind the steel with 24 to 36 grit disks to a uniform, clean bright metal leaving a 50 - 75 micron (2-3 mil) anchor pattern.

Priming Interval

Once the surface has been prepared to the correct standard, it must be over-coated before oxides start to form on the surface. If the coating scheme is not scheduled to be applied immediately following the preparation procedure, a holding primer Interprime 820 thinned 15% should be applied to prevent rusting, preferably within a 6-8 hour period. If the scheme is to be applied directly following the preparation, the Initial Primer can be applied thinned appropriately to promote surface wetting. Refer to Priming Application further on in this section.

Summary

Surface preparation invariably involves blasting to a minimum of Sa 2½. Prior to blasting:

- Steelwork should be degreased and weld splatter removed.
- Weld seams and sharp edges should be ground down to prevent too thin coatings being applied.

The profile achieved will depend on the abrasive used, the air pressure and the blasting technique, Inadequate profile = Insufficient mechanical key.
Excessive profile = Uneven coverage of sharp peaks.

- All debris must be removed by vacuum cleaning prior to painting.
- Compare blast profile to the standard photograph for colour of steel.
- Measure Mean Apparent Amplitude (MAA) using the surface profile gauge making sure the steel is not shadowed, contaminated or containing embedded grit.



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