



BALTIMORE

# spec NEWS

# Felt Tips

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## CLEANING OF STEEL

In steel products direct from the mill, there is a mill scale which adheres to the main body of the product in varying degrees. If the surface needs painting, the first consideration must be the condition of the surface. No coating, no matter how good, will insure proper protection unless the coated surface is free from all contaminants and foreign matter. The integrity of the surface is of prime importance; in painting, all scale must be removed so that no rusting action can start. If the surface of the steel is cleaned by wire brushing, either by hand or power tool, and then painted, eventually moisture will penetrate under the scale still on the product. It will 'pop' the scale thus inducing an optimum start for rusting action.

There are five main methods of cleaning steel. The two most popular are hand tool method and power tool method. The others are: flame cleaning, solvent cleaning, and blast cleaning. (Further specifications can be obtained from Steel Structures Painting Council Specifications, Vol. 2, 1964 printing with 1968 supplement, 4400 Fifth Ave., Pittsburgh, Pennsylvania 15213.)

The Hand Tool method, probably the most widely used method, gives limited cleaning and is used to remove 'loose rust.' It is not effective in removing tight mill scale or heavy rust.

The Power Tool method is not intended to remove all rust and/or mill scale, only loose rust and loose mill scale.

The Flame Method is in limited use by fabricators. It, also, is intended to remove only part of the mill scale, not that which is tightly adhered.

The Solvent Method is in very limited use by structural steel and miscellaneous metal fabricators because of lack of space in their plants and the size of the material handled. It is used to remove oil, grease and other similar foreign matter. It does not remove rust or mill scale.

Blast Cleaning is divided into four specifications and six different methods. The four specifications are listed in order of their descending costs.

White Metal Blast Cleaned surfaces are specified to be free of all visible (without magnification) mill scale, rust, corrosion, and other foreign matter.

Near White Blast Cleaned surfaces are a specification in-between the White Metal Blast Clean and Commercial Blast Clean Methods.

Commercial Blast Cleaned surfaces shall have all mill scale, rust, corrosion and other foreign matter removed except for tightly adhered scale, etc.

Blast cleaning may be done by several different methods.

1. Dry sandblasting, using compressed air and dry sand.
2. Wet sandblasting, using compressed vaporized air and sand.
3. Grit blasting, using compressed air and crushed grit made from iron.
4. Shot blasting, using compressed air and shot.
5. Grit blasting, using centrifugal wheels and crushed grit.
6. Shot blasting, using centrifugal wheels and shot.

All materials using these methods should be further treated or prime coated within twenty-four hours after cleaning.

Hand tool, power tool, flame, and solvent methods of cleaning steel are relatively costly and relatively ineffective. Blast cleaning methods, by contrast, are considerably more effective and generally less expensive.