

SpatFree 113

SpatFree 113 is a new revolutionary product that has changed welding methods. This revolutionary product is non-toxic, non-flammable, non-polluting and Silicone free – water based Anti Spatter & flux in emulsion form.



SpatFree 113, is applied before the welding operation to achieve the following benefits :

- Original surface is retained without any chipping and grinding.
- Better refined weld metal with minimum gaseous & non-metallic inclusion.
- Formation of less quantity of slag that does not stick to the surface thereby, removal of slag becomes easier.
- Cleaning cost is drastically reduced by about 70 %.
- Efficiency of welder is improved tremendously by about 25%.
- Environment friendly product as there is no possibility of dust floating in the working place because of absence of chipping & grinding operation.
- Safety of person is also improved. Suitable for ISO-14000 organization.
- Improved mechanical and metallurgical properties of weld metal, etc.

SpatFree 113 is a further addition to the welding process technology. This is a new concept to improve the quality of weld metal.

Features :

- Non-flammable , Non-toxic & Non-Hazardous
- Non-pollutant & Eco-friendly
- Do not contain Silicone
- Creamy emulsion form – apply with brush or with special spray bottle.
- Easy to apply on exact required area and hence no wastage.
- Very simple and easy to remove from metal surface after welding, for further painting
- Convenient & safe to use
- Brings down Noise & Air Pollution (suspended particulate matter) in the workshop below WHO's limit for industry.
- The depth of penetration is increased as the heat loss from the top of the weld melt is restrained by the film, thereby conserving about 5-10% of energy.
- Can act as a temporary corrosion preventive for 7 – 10 days (useful in welding V-groove preparation and it prevents re-grinding to remove rust in V-groove just before welding)

Metallurgical Aspects Of SpatFree 113 :

- * The steel contains 0.01% to 0.02% Oxygen. The oxygen content in the weld metal is as much as 0.02% to 0.03%. Excess oxygen has an adverse effect on the mechanical properties of the weld metal (specially impact strength) apart from formation of additional Ferrous Oxide.
- * Oxygen content in the weld metal varies with arc length, welding current and the type of shielding employed. The coating of the electrode promotes a shield of slag that is not adequate, even with standard quality of electrode, to have lower level of oxygen in the metal.
- * The contact of air with the weld pool may also increase the nitrogen content in the weld metal and that is very harmful. In open arc welding, the weld metal may contain as much as 0.12% to 0.18% of Nitrogen, while the parent metal contains 0.001% to 0.008% of Nitrogen only. The gaseous inclusions bring down the impact strength of the weld metal which in turn causes weld failure.
- * The coating of **SpatFree 113** helps to remove this problem, in the weld pool. This coating acts as a flux when the arc is formed, developing a film over the weld metal. This film protects this weld pool from the surrounding air, which is by and large very active, thus minimizing the reaction of Nitrogen and oxygen with the surrounding area. This action helps to get a clean and dense weld with improved mechanical and metallurgical properties.

Refinement of Metal :

Apart from protecting the weld pool from the ambient atmosphere, the coating, acting as a flux also partly removes oxygen from the molten metal by de-oxidation. The oxides being lighter than metal formed by de-oxidation of the weld pool floats up and is removed along with the molten slag, **SpatFree 113** helps to refine the weld metal and improves the mechanical properties. Slag does not stick to the surface and is easily removed. Deep penetration of weld metal is yet another achievement.

Suitability :

SpatFree 113 can be applied in any kind of welding including manual, arc, MIG, argon, CO₂, etc. for any type of ferrous materials, including MS, SS, CS and all alloy steels. **SpatFree 113** is perfectly suitable for fabrication of vessels, tanks, pipelines, boilers, industrial equipments, fabricated gears and pinions, etc.

Application Procedure :

1. Stir contents in the container well, before use.
2. The application surface should be free from oil, grease etc.
3. Apply **SpatFree 113** in a thin & uniform film with any brush or sprayed with special spray bottle, on the both sides of welding surface - Any time before welding. (Around 3 – 4 inches where spatters are expected)
4. Start welding after complete drying of **SpatFree 113** applied on the metal surface to be welded.
5. Any time after welding, remove the **SpatFree 113** film along with welding spatter particles using a separate dry brush or fresh cloth.

SpatFree 113 can be used for metal plate gas cutting operation to get rid of metal particles generated during cutting.

SpatFree 113 CAN BE APPLIED ON ANY METAL AND FOR ANY TYPE OF WELDING

APPLY SpatFree 113 ANY TIME BEFORE WELDING & CLEAN IT ANY TIME AFTER WELDING.

Test Results :

SpatFree 113 is tested by NABL accredited laboratory whose results are approved by various Govt. depts. and Third Party Inspection Agencies.

SpatFree 113 is tested and passes all Load, Bend , Tensile , Radiographic tests showing improvement in Weld Seam quality comparing with and without it's usage in tests.

**COMPARATIVE CLEANING COST OF WELDING SPATTERS
IN INDIAN RUPEES PER RUNNING METER**

Sr.No.	Description	<i>Conventional Welding</i> without coating of SpatFree 113	Welding with a coating of SpatFree 113
I.	Cost of grinding wheel @ Rs.70 for 10 Running Meter (R.M.)	Rs.7.00	NIL
II.	Cost of electricity 0.25 KWH @ Rs. 2.6/KW	Rs.0.65	NIL
III.	Cost of SpatFree 113	NIL	<u>Rs.2.5@ 1kg</u> for 70 R.M. of 100mm width
IV.	Labour cost	<u>Rs.4.00 @</u> <u>Rs.12/min/m</u> for chipping and grinding by skilled labour	<u>Rs.1.00 @ Rs.3/min/m</u> for cleaning by unskilled labour
TOTAL		Rs.11.65	Rs.3.5

NET COST SAVING : Rs.8.15 per R.M. i.e. 70% of the cost incurred by *conventional practice*

NOTE : Use of **SpatFree 113** also increases the efficiency of the welder by more than 25%. and cost of which has not been considered above.

***So SpatFree 113 is a REAL FRIEND Technically to a WELDER and
Economically to the company using it***

MAKE IT A HABIT AND ENJOY THE BENEFIT

SpatFree 113

- It provides **dense and clean** weld.
- It helps to **get rid off the chipping and grinding operation to remove the spatters so as to have a clean surface.**

The second feature of this compound has become more pronounced because of its direct impact in maintaining the clean environment at the work place in any industry. This has been noticed by a number of senior executives from different industries particularly the ISO-14000 organizations. It is imperative for them to maintain the work place clean and for that; they need to compromise on a number process/products, which are not **environment friendly**.

In these circumstances the use of **SpatFree 113** helps to avoid a precarious situation because of its anti spatter compound characteristic. It is advantageous since the absence of chipping and grinding operation improves the environment of the working place reducing the noise as well as dust pollution as shown under:-

<i>Categories</i>	Noise pollution	Air pollution (Concentration of SPM *)
Without coating	150 db (A) leq (8h) and above	More than 1200 mg/m ³
With coating of SpatFree 113	50 db (A) leq (8h) and below	Upto 150 mg/m ³
Permissible limit of WHO for industries	Upto 75 db (A) leq (8h)	Upto 200 mg/m ³

* Solid Particulate Matter

As is evident, it reduces the SPM (Solid Particulate Matter) concentration in the working place from as high as 1200 mg/m³ to below 150 mg/m³; though the recommended level is 250 mg/m³. To maintain the **health standard** in a workshop and to improve the environment at the working place, WHO has stipulated a minimum level for noise and air pollution (as shown above) beyond which it creates health hazards. The **manual of ISO-14000** too confirms this aspect.