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Valid From: 23 October 1996

Last Reviewed: August 2020

PREPARATION OF STEEL SUBSTRATES

This specification involves degreasing where required, preparation of sharp edges and welds, and dry blasting to ISO Standard 8501-1 Sa2½ near Sa 3. Equivalent to SSPC specification SP 10.

DECONTAMINATION

The surface to be coated should be free from contamination. Contaminants should be removed by an appropriate method before proceeding with further preparation.

Where surfaces are contaminated with oil or grease, this shall be removed prior to blast cleaning by solvent cleaning. Localised grease or oil spots can be treated by using white spirit or other suitable organic solvent. Larger areas should be treated using a water emulsifier and rinsable solvent. After degreasing, all surfaces should be thoroughly washed with copious amounts of fresh water to remove emulsified contaminants. Surfaces should then be dried before proceeding.

PRELIMINARY WORK

- All sharp edges and protrusions are to be ground to approximately 2mm radius and where appropriate, bracket holes enlarged to accommodate coating. Where fabrication lugs or brackets are removed the area is to be disced smooth.
- All welding and burning within the coating area or adjacent areas is to be completed prior to commencement of grit blasting.
- Welds should be reasonably smooth and all weld slag and spatter shall be removed.
- Where staging is required, this is to be constructed so that within the bounds of good safety procedure, maximum access to the surface is achieved. Care is to be taken that staging poles, ends, and boards do not mask areas to be coated. Tubular staging poles should be plugged prior to grit blasting and should remain plugged until coating work is complete. All staging must be capable of being cleaned of blast residues before application of the coating.
- Areas masked by staging supports should preferably be blasted and primed before erection takes place. Alternatively, procedures and schedules should accommodate treatment of these areas before the final coating application.

MASKING AND PROTECTION

- All bolt holes shall be cleaned and plugged prior to blasting. Precautions should be taken to protect areas not to be coated from blasting, and all openings in equipment, nozzle entries or pipework shall be adequately sealed to prevent ingress of grit or coating.
- Equipment within or adjacent to the blasting/coating area and sensitive to mechanical damage, grit ingress or coating contamination, should be suitably protected. Such items include valve seats, stems, identification plates, instrument glasses, windows, electrical apparatus and connections, breathers and vent pipes, control gear and machined faces.

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EQUIPMENT

- The air should be checked periodically for cleanliness in accordance with ASTM 4285.
- Compressed air should be free of water and oil and, where necessary, suitably cooled. Adequate separators and traps should be used and these, along with receivers and after coolers, purged on a regular basis.
- Air pressure at the blasting nozzle should never be less than 5.6kg/cm² (80 psi) and should preferably be in excess of 7kg/cm² (100 psi). Grit blast nozzles should be discarded and replaced when wear results in an increased diameter of more than 50% of the original size.
- Blasting operatives to wear suitable protective clothing and helmets fed with suitably cleaned air supply.
- In enclosed spaces good general ventilation should be provided, with provision for discharge into a safe area filtered, where necessary, to avoid environmental pollution. At least six air changes an hour should be achieved.
- Clean brushes, air blast nozzles and, in enclosed spaces, vacuum cleaning equipment, shall be provided.

ABRASIVE

- Clean, dry, chloride free blasting abrasive shall be used. The abrasive used will depend on cost, availability and suitability. The types use may include steel or chilled iron, copper or boiler slag, glass, aluminum oxide, garnet etc. Particle size should give a profile between 2-4 mils (50-100 microns) peak to trough with a maximum of 6 mils (150 microns) for rogue peaks, except where different profiles are specified on the product data sheet. Other abrasive types should only be used after consulting with Corrocoat USA and it should be borne in mind that legislation governs the type of abrasive which can be used in certain countries.
- Where recyclable abrasive is used this shall be cleaned and graded before reuse, to remove contaminants and ensure profiles are maintained. Abrasives shall be tested for contaminants on a regular basis.

WEATHER AND SURFACE CONDITIONS

Dry blasting shall only be undertaken when the relative humidity in the immediate vicinity of the work is less than 90% and when the surface temperature of the steel is 37°F (3°C) or more above dew point. Blasting should not be carried out in rain, fog, mist or snow, or where the likelihood of a weather change will result in these conditions, except where blasting is carried out as a pre-cleaning operation and the area is to be re-blasted in more suitable conditions.

BLASTING

It is advisable when blasting large areas to carry out blast tests on areas of approximately 300 x 300m. Once clean, the surface should be tested using a Corrocoat Chloride testing kit for soluble salts. Where there is evidence of soluble salt in excess of the recommended maximum, consideration should be given to the use of grit blasting with subsequent water washing and re-blasting or the use of UHP water blasting and subsequent dry abrasive blasting where necessary.

- Blasting should be carried out in a logical sequence taking into account weather conditions, access, cleaning difficulties and area to be coated. Where large surface areas are involved, the use of the recommended holding primer should be considered in a blast, clean, prime alternating sequence. Where large enclosed areas are to be treated, the use of dehumidification equipment may also be considered.

- All surfaces to be coated should be blast cleaned to the surface cleanliness standard ISO Standard 8501-01 SA2½ near 3 or equivalent as stated in the opening paragraph. All personnel involved in blasting operations shall be familiar with these standards. The blast profile shall generally be between 2-4 mils (50-100 microns) peak to trough unless otherwise specified in the product data sheet, or approved by Corrocoat USA for a specific application.
- During blasting the operator shall periodically stop and inspect the surface for visual conformance using a compairor in adequate lighting conditions. Initial profile readings shall be taken using a profile gauge every square meter to ensure that the standard is being achieved before work progresses to large surface areas. On achieving not less than six satisfactory consecutive results, one measurement every four square meters shall be allowed.
- Particular attention shall be paid to reverse angles etc., to ensure that the standards are met wherever practically possible. No lapse in standard shall be allowed unless specifically approved by both the customer and Corrocoat.
- Where specified, testing is to be carried out for the presence of soluble salts in accordance with Corrocoat Specification Sheet SP4, before blasting is completed and appropriate action taken to deal with contamination as detailed within the Specification.
- Corrocoat Chlor*rid should be utilised for the removal of chlorides or other soluble salts when these are found to be above the recommended limit.

CLEANING

Blast cleaned surfaces shall be cleared of all grit and dust by clean brush, clean air blast or vacuum cleaning. On horizontal surfaces and in enclosed spaces vacuum cleaning shall always be carried out as the final operation before coating application. All staging poles, ladders etc, shall be blown clean, boards should be turned and swept and all locations where residual grit may lodge, cleaned to avoid dislodgement during coating operations. (No grit or dust shall be left on or embedded in the steel surface prior to coating). All personnel entering blast-cleaned zones shall wear suitable clean footwear, overalls and gloves to prevent contamination of the surface.

INSPECTION

The blast standard by way of cleanliness and profile shall be approved by a Corrocoat appointed representative and, wherever possible, a representative of the customer, before final cleaning operations. On approval, final cleaning shall be carried out to the satisfaction of the inspectors before coating commences.

COATING

Following blast cleaning, the surfaces shall be given the first application of the coating system as soon as possible. Coating of the surface may be carried out whenever it is clear that there has been no deterioration from the blast standard and that no contamination has occurred. Should signs of contamination, moisture, rusting or regression of blast standard become apparent, the affected areas shall be re-blasted.

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