

APPLICATION REPORT

INTERNAL COATING OF DEMINERALISED (DM) AND REVERSE OSMOSIS (RO) WATER TANK



AT

**UDAIPUR CEMENT WORKS LIMITED,
SHRIPATINAGAR, UDAIPUR (RAJASTHAN)**

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD successfully completed job work for Internal coating of DM and RO Tank. This job work was carried out for our customer UDAIPUR CEMENT WORKS LIMITED, UDAIPUR (RAJASTHAN). Our customer were facing problem of corrosion inside tank. Coating was done with DIFFGLASS VINSTER.

TOTAL AREA: - 260 SQ. METER.

Demineralised water (DM):-

DM is water that has been purified in such a way that (most of) its mineral- and salt ions are removed. You can think for example of Calcium, Chloride, Sulphate, Magnesium and Sodium. Demineralised water is also known as demi water or deionised water. In this way salt ions are being removed.

Reverse Osmosis water (RO):-

In RO water purifier, it passes water through the pump to increase water pressure then pass that pressured water through RO membrane (semi permeable). During this process dissolved solids and TDS present in water are eliminated.

Process:-

Raw Water is passed via two small polystyrene bead filled (ion exchange resins) beds. While the cations get exchanged with hydrogen ions in first bed, the anions are exchanged with hydroxyl ions, in the second one. In the context of Water purification, ion-exchange is a rapid and reversible process in which impurity ions present in the Water are replaced by ions released by an ion-exchange resin. The impurity ions are taken up by the resin, which must be periodically regenerated to restore it to the original ionic form. (An ion is an atom or group of atoms with an electric charge. Positively-charged ions are called cations and are usually metals; negatively-charged ions are called anions and are usually non-metals).

PROBLEMS:-

During the treatment water wide range of water treatment chemicals are used across a wide range of commercial, industrial and process applications including water cooling systems, cooling towers, condenser and compressor systems, heat exchangers etc. water systems usually requires high pH and high levels of corrosion inhibitors. The pH range of operation generally limits the choice of corrosion inhibitors & other water treatment chemicals. Corrosion is an electrochemical reaction converting the metal into its oxide. Corrosion requires an anode, cathode & an electrolyte. The metal acts as an anode & cathode while water acts as an electrolyte.

1. Cross-section shows that the pits are craters like, which is typical to pits that are formed by impingement.
2. Corrosion, which follows impingement, roughens those pits surface.
3. These pits were mainly formed due to erosion–corrosion mechanism.



PRODUCT RECOMMENDED:-

1. DIFFGLASS VINSTER:

DIFFGLASS VINSTER is vinyl ester resin based Glass Flake Coating designed to meet medium to high corrosive environment. DIFFGLASS VINSTER is excellent resistant to acidic condition.

APPLICATION PROCEDURE:

A.SURFACE PREPARATION

1. Before application of any kind of coating surface preparation is must to activate the base metal so that coating will have better bonding.
2. The surface preparation was done by Grit Blasting. As per ISO standard surface Preparation of SA 2.5 profile to achieve 60-75 microns.



Fig. Surface Preparation done by Grit Blasting.

B.PRODUCT APPLICATION:-

1. After surface preparation First coat of DIFFGLASS VINSTER was applied with slight pressure.

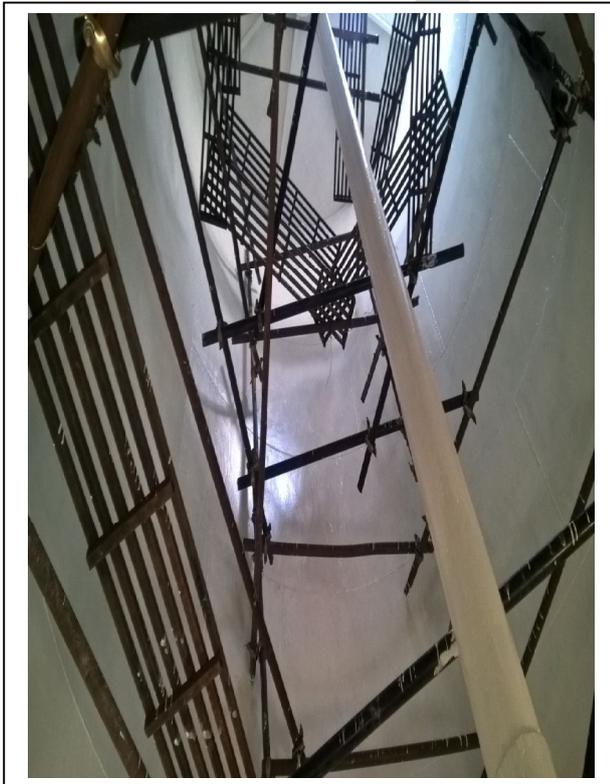


Fig: Application of DIFFGLASS VINSTER as primer

2. Top coat of **DIFFGLASS VINSTER** was applied after that to increase the Corrosion resistance and to level out the pitting surface.

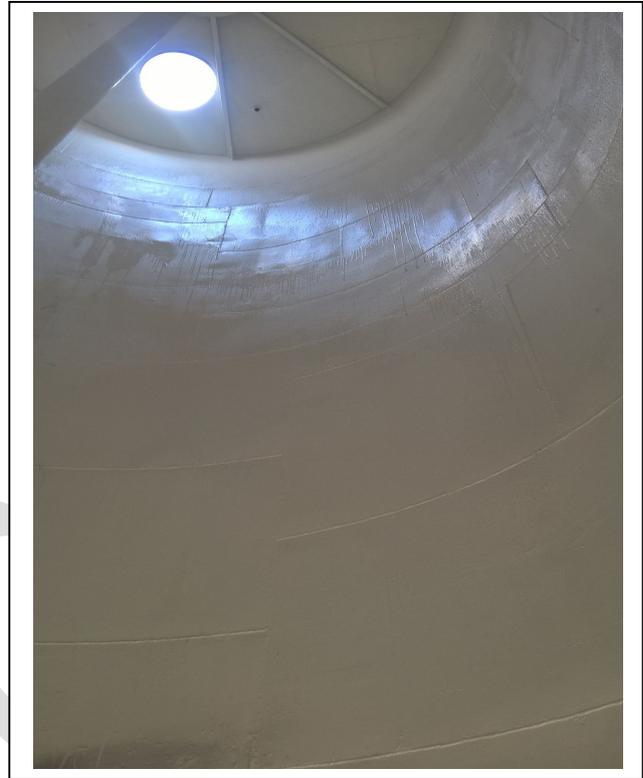


Fig. Application of DIFFGLASS VINSTER as Top coat

ACKNOWLEDGEMENT:

AREA ENGINEER: -

Mr. Himanshu Prabhanjan (Sr. Sales Engineer)

AGENCIES INVOLVED:-

M/s. Udyog Vikas, Udaipur

APPLICATION TEAM: -

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