



Repair procedure with ZINGA®

First Line Maintenance

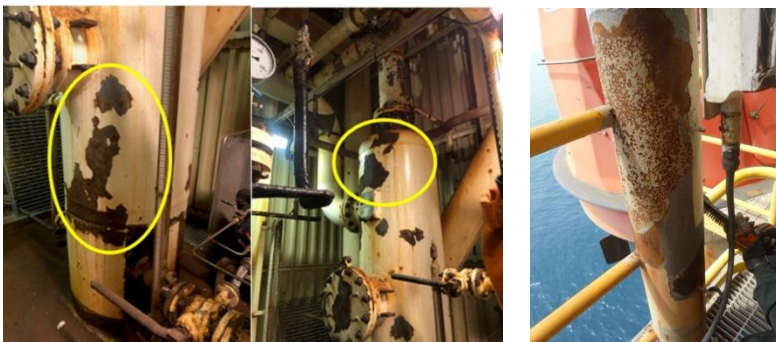
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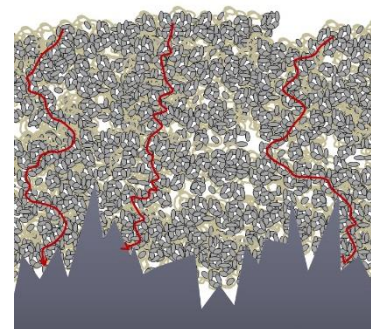
1. Introduction

This procedure document provides the recommended practices to achieving surface preparation and coating/painting for the touch-up and repair of damaged and/or corroded externally coated Carbon Steel surfaces exposed to the atmosphere above ground and above the splash zone for marine based assets.

ZINGA® is a one-component physical drying zinc rich coating that can be applied to Atmospherically exposed Carbon Steel surfaces prepared to ISO 8501-1 St 3 level of surface preparation after pre-cleaning & degreasing. It protects the metal substrate by providing active cathodic protection, which arises from the Zinc (ZINGA®) sacrificing itself in favour of the base metal substrate, resulting in corrosion protection. The Zinc content is min. 96% in the dry film to ensure metal-to-metal contact and thus electrical conductivity.



Pictures 1 & 2. Surfaces to be repaired

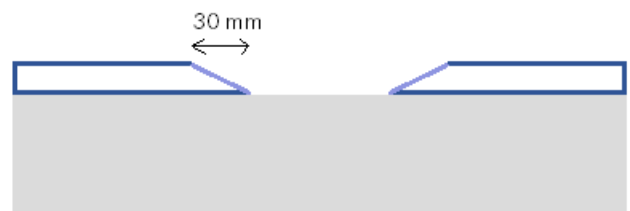
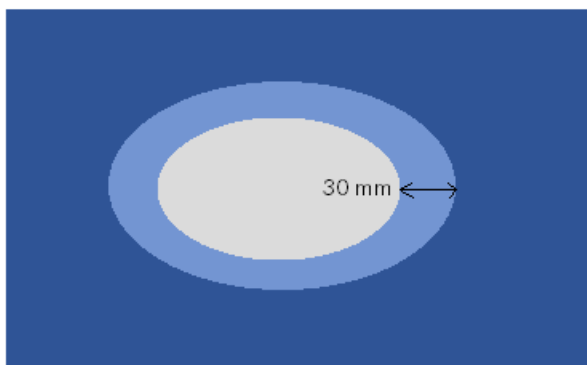
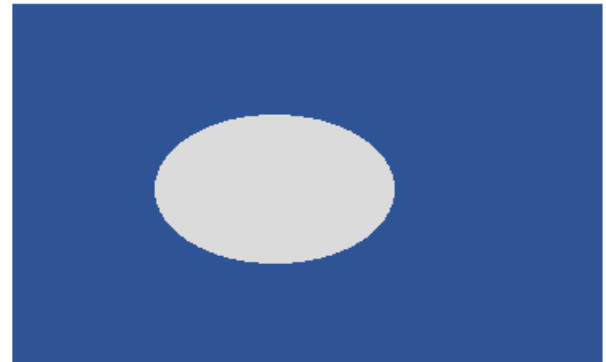


Picture 3. Metal contact & conductivity

2. Surface Preparation and Application

2.1. General

1. Good surface preparation is essential to a long term performance and can prevent more than 80% of any coating failures. (Applicators are to be provided consumables and material to ensure thorough surface preparation to a minimal standard of ISO 8501-1:1988 St3/ (Power Tool preparation).
2. Every possible precaution shall be taken to ensure that the damaged surface(s) shall be thoroughly clean, dry, and free from condensation, moisture, dust, oil grease, rust, dirt and other contaminants before the application of the touch-up/repair processes.
3. Surface Preparation and painting shall not be conducted when the surfaces are less than 3 °C above dew point or when the relative humidity of the air is greater than 95%.
4. The prepared substrate should be free of rust scales and debris prior to ZINGA[®] application.
5. Where the damaged surface being repaired lies adjacent to a previously coated surface, the cleaning shall extend to the surrounding coating on all sides and the edges shall be "chamfered" to a minimum of 30 mm to ensure continuity of the patch coating. The existing paint surfaces have to be sand down with scotch-brite or sandpaper to become rough for adhesion of ZINGA[®].



6. ZINGA[®] applied by brush is most suitable for general & large areas and also where there are strong winds, so to minimize wastage and to prevent airborne losses.
7. ZINGASPRAY (= ZINGA[®] in aerosol) is recommended for spot repairs on piping, bolts and nuts and for applications in hard to reach areas. For general areas ZINGASPRAY is also acceptable.
8. Apply two layers of ZINGA[®] by brush or spray to approximately 220 µm WFT / 120 µm DFT.
9. 5 to 6 passes of ZINGASPRAY are required to achieve 120 µm DFT. Caution must be taken not to spray too close to the substrate to avoid excessive thicknesses. The ZINGASPRAY aerosol must be shaken intermittently in between spray applications to ensure consistency.
After use, the ZINGASPRAY must be turned down to empty the aerosol (by pressing the spray button) to avoid blockage or clogging of the valve upon next use.
10. Recoating time between two layers of ZINGA[®] is minimal 1 hour after touch dry.

2.2. Step by step

1. Prepare the consumables: G80 grit sand paper, power tool with round twisted wire brush, degreaser/buckets, cloth rags, chipping hammers.
2. Ensure proper PPE is in place before start of work.
3. Start process by chipping off loose rust, scales, debris and other contaminants.
4. Use Scraper to scrape off any loose rust, scales, debris, contamination not removed by chipping.
5. Washing:
 - a. Option A: Wash all affected surfaces using biodegradable detergent and water. Ensure all surfaces are free from contaminants, grease, dust and dirt. Rinse thoroughly with clean potable water, using the nylon brush to remove any remaining contaminant and detergent. Let the surface dry before coating application.
 - b. Option B: Wash all affected surfaces with ZINGASOLV.
6. Use Steel wire brush for removing any remaining rust spots, scales, debris and contamination not removed by chipping or scraping. We recommend to use a rotative wire brush with twisted wires.



7. Use G60 or G80 sand paper to rub down surface and smoothen 'hard edges' and roughen smooth surfaces to provide 'key' for coating to adhere to.
8. ZINGASPRAY Aerosol Application: shake the aerosol thoroughly to ensure settled zinc is mixed well in the spray can. Apply with an even hand, approximately 1 foot from the surface in 2 passes. Build thickness after touch dry over, till desired thickness achieved.

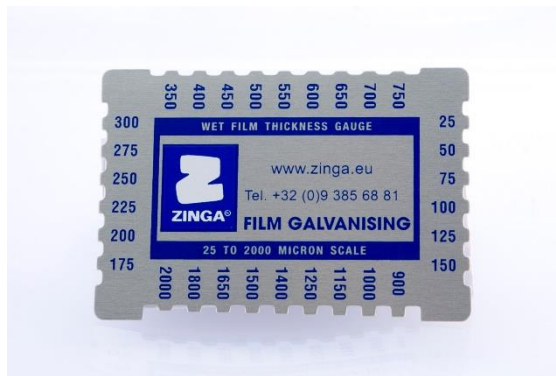
Note: As a rule of thumb, it takes about 6 passes to build a thickness of 100 to 120 μm DFT.

After use, the ZINGASPRAY must be turned down to empty the aerosol (by pressing the spray button) to avoid blockage or clogging of the valve upon next use.

ZINGA[®] Application by brush (natural hair): Open the ZINGA[®] can and mix contents thoroughly before brush application. Brush in with light strokes, ensure to put the ZINGA[®] into crevices and areas with difficult geometry. For better penetration ZINGA[®] should be diluted up to 5%. Apply ZINGA[®] in two layers, the second layer can be applied minimum 1 hour after touch dry.

2.3. Control

1. The WFT is measured by a coating thickness comb immediately after applying.



2. The DFT is measured by a ferromagnetic DFT gauge minimum 6 hours after touch dry.



3. The DFT should be minimal 100 μm and may not exceed 250 μm .
4. Applicators need to be aware that misses or under thickness can lead to corrosion spots, and over thickness can lead to brittleness of the coating.

3. Reference documents

DFT	Dry film thickness: the thickness of the coating applied after fully cured. The measurement can be done by ferromagnetic DFT gauges.
WFT	Wet film thickness: the thickness of the coating immediately after applying. The measurement can be done by a WFT comb.
ISO 8501-1 St 3	Removal of loose rust, loose mill scale, and loose paint to give a metallic sheen arising from the metallic substrate by power tool chipping, chain link descaling, sanding, wire brushing (Bronze or Nylon Based) and/or grinding.