Maflowrap

Application Guidelines

1.0 SCOPE

This document contains general instructions and recommended practices for the application of the Maflowrap cold applied tape coating system. The various coating grades discussed in this document are used for the corrosion protection of piping, girth wields, fittings, pipe reconditioning and pipe fabrication for above or below grade environments. The specifics of where the product can be used are detailed in Section 2.0. For assistance in coating selection, surface preparation, application or inspection, please contact a Chase Protective Coatings Representative.

2.0 MATERIALS

2.1 Primer B400 – A quick drying adhesive used with all Maflowrap tapes. Can be used for both Temperate and Tropical products.

2.2 Maflowrap Moulding Compound 1190 – A hand applied profiling compound to provide a suitable profile prior to tape application. Can be used for pipe fittings such as flanges, valves, spigot and socket type joints and bolted couplings.

2.3 Maflowrap Tapes – A pressure sensitive tape consisting of a self-adhesive, anti-corrosive bitumen rubber compound and a tough, conformable backing.

2.4 Serviwrap Outerwrap Tape – Mechanical protection layers that can be added over the Maflowrap tapes. The Outerwrap is a bonded tape to provide added mechanical and UV protection for above and below grade coatings.

3.0 STORAGE CONDITIONS

3.1 All products should be stored in their original cartons until required for use.

3.2 All products should be stored in dry, cool, well-ventilated conditions, out of direct sunlight and other major sources of heat. The temperature should not exceed 50°C.

3.3 Pallets of material should not be stacked more than 2 high.

3.4 Boxes should be stored horizontally, never vertically.

3.5 Handle cartons with care to avoid damage. Take special care that the cartons are not dropped.

3.6 Stock should be rotated on the first in/first out basis. Material should be used within 6 months of receipt at warehouse or 1 year from date of manufacture, whichever is the latest.

3.7 All flammable materials should be stored according to local hazard regulations.

4.0 SURFACE PREPARATION

4.1 The pipe surface shall be cleaned in accordance with AWWA C214 or to an equivalent standard.

4.2 All substances that will impede bond or otherwise be detrimental to the performance of the coating system must be removed prior to the coating application. This includes all loose surface material, rust, dirt, dust, moisture, grease, oil, sharp edges, burrs, mill scale, welding splatter and shop lacquer. These materials shall be removed by using one or more of the following methods appropriate to the type of contaminant;

4.2.1 Solvent cleaning in accordance with SSPC SP1,

4.2.2 An appropriate high detergent cleaning followed by water wash or steam rinse,

4.2.3 Scraping, wire brushing and or wiping down with clean rags. All cleaning rags should be lint free so as to not leave contamination fibres on the pipe surface

4.3 All surface imperfections such as slivers, scabs, weld spatter and other protrusions etc. shall be removed or made smooth by wire brushing and / or grinding.

4.4 If it is not feasible to prepare the pipe surface by abrasive blast cleaning then mechanical wire brushing using a power tool, in accordance with SSPC-SP11, may be used.

4.5 The coating must be applied as soon as practical after cleaning to keep dirt and rust bloom from re-contaminating the pipe surface.

5.0 APPLICATION

5.1 Primer

5.1.1 Stir the primer well before application. When not in use keep the containers tightly sealed.

5.1.2 Apply primer by brush, roller or spray in an even coat over the pipe surface, working well into welds and seams. Ensure surface is free from runs, drips and bare spots.

5.1.3 The primer coat should not be less than 25 microns Dry Film Thickness (DFT) and not greater than 50 microns DFT.

5.1.4 The primed pipe surface shall be free from any foreign substances such as sand, dirt, grease or oil. Any contaminant should be removed and the affected area re-primed.

5.1.5 The primed surface should then be allowed to dry thoroughly before any attempt is made to apply the Maflowrap Tape. The primed surface should remain clean and dust free immediately before the application of the Maflowrap Tape.

5.2 Wrapping of Pipe Lengths

5.2.1 The grade of Maflowrap Tape shall be specified by Chase Protective Coatings or as defined in the project specification documents or in similar specifications covering the project. The Maflowrap Tape can be applied by hand or machine directly onto a clean, dry, primed surface and in accordance with the manufacturers' instructions.

5.2.2 The tape should be applied spirally with sufficient tension to ensure consistent conformity to the pipe surface and without any narrowing or wrinkling of the PVC backing film. The overlap shall be as specified by Chase Protective Coatings or as defined in the project specification documents or similar specifications covering the project. The tape overlap will typically either be 55% or 25mm. The roll joins shall be overlapped by a minimum 150mm onto the previously applied roll-end to ensure adequate continuity of the coating.

5.2.3 A tight and smooth tape coating must be maintained throughout the application with an absence of any puckers, voids, breaks, wrinkles or folds.

5.3 Wrapping of Pipe Fittings and Attachments

5.3.1 The tape coating adjacent to any fittings or attachments should be feather trimmed at the edges wherever possible, any existing Tape or coating material not firmly bonded to the pipe surface should be removed. The fitting should be thoroughly cleaned in accordance with Section 4.0.

5.3.2 The cleaned, dust free prepared fitting should be primed in accordance with Section 5.1 and the primer allowed to dry.

5.3.3 Maflowrap Moulding Compound 1190 is an inert mouldable profiling compound and should be used to provide a smooth profile around the fitting.

5.3.4 Maflowrap Tape should be applied over the profiled fitting at a minimum overlap of 50% using sufficient tension to ensure adequate conformity with the fitting and profiling compound. A tight and smooth tape coating should be maintained throughout the application with no puckers, voids, breaks, wrinkles or folds.

5.4 Additional Mechanical Protection

5.4.1 Serviwrap Outerwrap can be used overwrap the Maflowrap tape when added mechanical, dielectric or UV protection is needed. The need for an outerwrap shall be as specified by Chase Protective Coatings or as defined in the project specification documents or similar specifications covering the project.

5.4.2 NOTE: All electrical inspection for continuity must be completed prior to the application of the outerwrap.

6.0 INSPECTION AND TESTING OF FIELD APPLIED COATING

6.1 Surface preparation

6.1.1 All surface preparation of pipework and mechanical attachments and fittings must be inspected and tested in accordance with Section 1.0 of this document before primer application is undertaken.

6.2 Visual inspection of coated pipe and fittings

6.2.1 A visual examination shall be conducted to ensure that the Maflowrap Tape coating has been applied in a manner representing quality workmanship. The tape coating shall be free from any puckers, voids, breaks, wrinkles, folds or other defects.

6.3 Inspection using a Holiday Detector

6.3.1 All tape coated pipes and fittings shall be 100% electrically tested for continuity of the coating using a suitable holiday detector. The inspection procedure and voltage levels shall be in accordance with NACE RP-0274. Any holidays detected shall be repaired in accordance with Section 7.0 of this document. The repaired areas shall then be holiday detected to confirm that the repair has been effective.

6.4 Coating adhesion test

6.4.1 This test may be carried out at the discretion of the site engineer / inspector to confirm the coating has bonded to the pipe surface. Note that it is not a suitable test for fittings.

6.4.2 The test should be carried out approximately 48 hours after the Maflowrap tape has been applied.

6.4.3 Two parallel cuts should be made into the tape approximately 25mm apart, one end should then be cut free and gently pried from the pipe surface. A spring balance should then be attached to the free end of the coupon and then the spring balance pulled away from the pipe surface at an angle of 180^{o} to the pipe surface. The spring balance should be pulled gently at a steady rate and not jerked.

6.4.4 Note that ambient temperature of the coating on the site should be taken into account when comparing data generated by this method. It should be noted that the specification documents issued by specifiers refer to completing the test under ideal laboratory conditions. An onsite test is used to give an indication that tape is stuck or not stuck, not a definitive value for adhesion. The site test is affected by, the rate of pull, the force to pull, the angle of pull, and the pipe temperature which may be greater than the ambient due to the effects of direct sunlight.

6.4.5 The area tested in this manner will require repair according to Section 7.0 of this procedure

7.0 REPAIR OF DAMAGED COATING

7.1 Repair should be made to all sections of damaged coating that have been identified by any method of inspection. All coating materials used in the repair work shall be of the same specification as the original material specification.

7.2 All holiday areas shall be prepared by carefully removing the applied coating that has been damaged; the area should then be cleaned with a power wire brush to the surface. Edges of the original coating should be beveled.

7.3 The exposed area shall then be primed as described in Section 4.0 of this procedure; all exposed metal should be covered by the primer.

7.4 The Maflowrap Tape should be spirally (as described in Section 5.0 of this procedure) applied over the damaged area ensuring that this covers the original coating by at least 50mm on all sides of the damaged area. Under certain circumstances it may be necessary to apply a "patch" of tape to the damaged area before the spiral application of tape is made.

7.5 The repair coating should be applied so that it is tight to the pipe surface without puckers, voids, wrinkles or breaks. The repair should then be inspected as described in Section 6.0 of this procedure.

8.0 HANDLING, SHIPPING AND STORAGE

8.1 Care should be taken to handle the coated pipe in such a manner as to prevent exposure to abrasion or damage during handling, shipping, storage or installation.

8.2 Booms, hooks, forklifts, skids and all other devices used to move or handle coated pipe must be padded to prevent damage to the coating. Chains and steel bands should not be used.

8.3 Pipe should be shipped with sufficient padding or dunnage to adequately protect the pipe coating.

9.0 BACKFILL

9.1 Backfill should be free of large rocks, stones, scrap, and debris that could damage the coating.

9.2 Additional Mechanical layers can be used to protect the coating when it is determined that backfill, handling or installation could be detrimental to the integrity of the coating.

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