Technical Data Sheet
December 2019

FerroShield

H2O MARINE
Sustainable Performance

Description:

A two-component, solvent free, 100% solid, epoxy based intermediate coating, pigmented with a high load of micaceous iron oxide (MIO) which exhibits excellent barrier protection. The plate-like structure of MIO provides protection of sharp edges, corners, and welds. Ideal for maintenance painting and fabrication shop application. Can be applied directly to marginally prepared and damp surfaces.

- VOC Free
- No dew point restrictions
- Outstanding resistant against chemicals and solvents
- Excellent adhesion and abrasion resistance
- Discolors in direct sunlight

Recommended Uses:

Coating system for protection of steel surfaces. Developed for environments where high moisture occurs and where chemical and mechanical loads are heavy, specially designed as a maintenance coating.

- Petrol and aviation fuel storage tanks
- Ships, Offshore and Marine structures
- Bilge areas
- Water treatment plants
- Waste water tanks

Specifications:

Finish:	Gloss
Theoretical Spread:	6,6m2 @150 µm
Specific gravity:	1,62 ± 0,05 g/cm^2
Colour:	Grey
Solids (Wt.):	99% ± 1%
Solids (vol.):	99% ± 1%
VOC:	0 gr/litre
Potlife at 20°C:	25 minutes
Shelf life:	24 months, unopened
	Store indoors at 5°C to 40°C
Mixing Ratio:	3,76 : 1 (weight)
Preading rate:	100 µm, max. 500 µm DFT

Qualifications:

PrimeShield applied in a coating system has passed the test requirements as mentioned in NEN-EN-ISO 12944-6 (2018) C5H, NEN-ISO 20340 and NORSOK 501.

Adhesion value (ISO 4624):	> 14 Mpa (pull-off)
Shore D hardness (DIN 53 505):	> 75
Cupping test (ISO 1520):	2,395 mm until break
Bending test (ISO 6860):	< 5 mm
Taber Abrasion CS17 1000/1kg	< 23 mg

Drying Schedule @100 microns wet film thickness:

at 50% RH	10 °C	25 °C	40 °C
To touch	12 hours	8 hours	4 hours
Recoat after: Minimum Maximum	 12 hours 24 hours	 8 hours 16 hours	 4 hours 8 hours
Cured	10 days	7 days	4 days

Preparation of steelwork

Good Practices:

The surface to be coated must be dry, clean, dull and free from dirt, grease, oil, rust, mill scale, salts or any other surface contaminants that interfere with adhesion.

Ensure welds, repair areas, joints, and surface defects exposed by surface preparation are properly cleaned and treated prior to coating application.

Areas of oxidation after surface preparation and prior to coating application, should be prepared to specified standard.

Consult the latest revision, SSPC-PA1 and your H2O Marine Representative for additional information or recommendations.

Preparation of steelwork

Surface contaminants:

Residues of oil, grease, marking inks, cutting oils etc. after fabrication operations will seriously affect the adhesion of applied coatings and must be removed. It is erroneous to think that subsequent cleaning operations will remove such contaminations and it is bad practice to permit them to remain on the surface. Failure to remove these contaminants before blast cleaning results in them being distributed over the steel surface and contaminating the abrasive.

Suitable organic solvents, emulsion degreasing agents or equivalents should be applied to remove contaminants in preparation for subsequent treatments. Further guidance can be obtained from SSPC SP-1

Iron & Steel (immersion service)

Remove all oil and grease from the surface by Solvent cleaning as per SSPS SP-1. Remove all weld spatter and round all sharp edges by grinding. Minimum surface preparation is Near White Metal Blast cleaning Sa2,5. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (50 to 85µm/rz). The blast cleaning operation produces large quantities of dust and debris which must be removed from the abraded surface. Or use waterjet cleaning according to NACE 5 / SSPC SP-12 WJ-2L, see SSPC- VIS4/NACE VIS7 for reference photographs. Waterjet cleaning does not provide the primary anchor pattern on the metallic surface known as "surface profile" and is therefore not applicable on new steel. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Iron & Steel (atmospheric service)

Remove all oil and grease from the surface by Solvent cleaning as per SSPC SP-11. Remove all weld spatter and round all sharp edges by grinding. Minimum surface preparation is Hand/Power tool per SSPC SP-2 and SP2 or ISO St. 2 or St. 3. For better performance use Commercial Blast Cleaning Sa2 or SSPC SP6/NACE 3. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (50 to 85µm/rz). Or use waterjet cleaning according to SSPC SP-12 WJ-2L, see SSPC- VIS4/NACE VIS7 for reference photographs. Waterjet cleaning does not provide the primary anchor pattern on the metallic surface known as "surface profile" and is therefore not applicable on new steel.

Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Previously painted surfaces

In order to prepare a strategy for maintenance painting, it is important to undertake a survey to determine whether part or full re-painting is required, where coatings are found to be firmly adherent to the substrate with no indication of breakdown, they can be considered as a suitable base for the maintenance coats.

The surface condition of the existing paint should be thoroughly washed to remove contaminants, and it may then be necessary to abrade the surface lightly especially of hard and shiny coatings, to enable good adhesion.

Where the breakdown is localized, and the majority of the protective coating is intact and soundly adherent to the substrate, then the small areas of breakdown can be prepared back to the substrate for localized repainting. Ideally, the affected areas should be prepared to a standard as mentioned above, e.g. localized blast cleaning or by manual and mechanical methods where blasting is impractical. Feather the edges to insure proper adhesion of the repainted surface.

In maintenance painting operations after surface cleaning of the substrate, even by dry blast cleaning to Sa 2,5 standard, there may be contamination with salts produced by the corrosion process. Old steel structures that are pitted by corrosion are more likely to have salts of ferrous sulphate and iron chlorides retained within the pitted areas and their presence needs to be determined prior to painting. The maximum allowable contamination is 40 mg/m2.

Application Equipment:

The following is a guide. Changes in pressure and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Use a new set of spray hoses and keep them reserved for 2-k Epoxy coatings, if the equipment is not well cleaned and if there is a foreign reducer or cleaning thinner in the system the coating can react to a chewing gum or simply not dry out.

Reducer/Clean up

Spray :	H2O Solvent
Brush and Roll:	H2O Solvent

Airless Spray

Pump:	Minimum 45:1 ratio
Pressure:	175 – 200 bar (2538 – 2900 psi)
Hose:	¼" ID
Tip:	0.19" – 0.24"
Filter:	No Filter
Reduction:	Do not dilute

Brush

Material:	Natural bristle
Reduction:	as needed up to 5% by volume

Roller

Material:	1/4" natural or synthetic with solvent resistant core
Reduction:	as needed up to 5% by volume

Application Conditions:

Temperature

Air and Surface:	8°C (19.4°F) minimum, 50°C (131°F) maximum.
Material:	10°C (44.6°F) minimum. Do not apply over surface ice or water.
Relative humidity:	Do not apply the product when the relative humidity exceeds 90%.

Application Procedures:

Surface preparation must be completed as indicated.

Premix components with a power mixer at moderate speed to homogenize the container, add the hardener to the base in a mixing rate of 3,76 part base to 1 part hardener by weight (1,78 : 1 by Vol.) and agitate with a power mixer for 2-5 minutes until completely dispersed. NOTE: since the potlife is limited and shortened by high temperatures, do not mix more material than will be used within the potlife period (approx. 25 min. at 20°C).

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas. When using a spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, over thinning, climatic conditions, and excessive film build. Excessive reduction of material can affect film build, appearance, and adhesion.

Clean the tools immediately after use with H2O Solvent. Flushing of spray equipment is essential before any break in work and is recommended at regular intervals throughout the application procedure. Only mix units of Solid FerroShield as they are required for immediate use.

Drying times and curing times should be considered as a guide only.

Safety Precautions:

Danger!

Intended for professional use only. Obtain and Read Unica's Safety Data Sheet for this before using. **Container could be under pressure, take care opening the lit.**

Adequate Ventilation: Do not breathe dust, vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling. Keep away from heat, sparks and flame. Vapor may case flash fire.

Keep out of reach of children

First aid: If affected by inhalation of vapor or spray mist, remove to fresh air. If breathing difficulty persists or occurs later, consult a physician and have label information available. In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If swallowed, do not induce vomiting. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Keep container closed when not in use. If spilled, contain spilled material and remove with inert absorbent. Dispose of contaminated absorbent, container and unused contents in accordance with local, state and federal regulations.

Ordering Information:

Packaging: 20 Liter kits

Product code: 0503701-xx

Weight : 1,62 ± 0,05 Kg/L

Warranty:

H2O Marine B.V. warrants her products to be free of manufacturing defects in accord with applicable H2O Marine quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by H2O Marine B.V. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY H2O Marine B.V., EXPRESSED OR IMPLIED STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Disclaimer:

The information and recommendations set forth in this Technical Data Sheet are based upon tests conducted by or on behalf on the H2O Marine Company, such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication.

Consult your H2O Marine representative to obtain the most recent Technical Data Information.