ADVANCED POLYMERICS, INC
Smart Coatings & Functional Materials

PERMACORR™

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Provisional Data Sheet 02.01.2022

DESCRIPTION	PERMACORR™ hybrid polymeric phosphate-cementitious coating is a waterborne single-coat protective coating which forms two layers, a protective iron phosphate and a cementitious coating.
RECOMMENDED USES	PERMACORR™ is specifically designed for use on carbon steel as an anti-corrosive coating
PRODUCT FEATURES	Carbon steel substrates are passivated to form a non-rusting, insoluble metal phosphate and a tough cementitious layer forms over the passivated carbon steel. The cementitious layer exhibits properties of a self-healing coating: it may be scratched or damaged down to the steel substrate surface without re-rusting of the exposed steel.

TECHNICAL DATA

COMPONENTS	Two (Part A, Part B)
MIXING RATIO	1:1 (See application details; plural feed application only)
VOLUME SOLIDS	85%* (*because of the chemical reaction, final thickness is greater than the solids volume would indicate)
DRYING TIMES	Touch: 0.5-5 minutes Overcoat: 8-12 hours with solvent-based, 4 hours with waterborne Full cure: 24 hours
COVERAGE	128 sq ft per gallon* (3.5M^2 per liter) at 10 mil/250micron
DFT Recommendation	10 mil/250 micron minimum, 15mil/380 micron single coat
VOC	Less than 1g/l
HAPS CONTENT	Zero
WEIGHT PER GALLON	14lbs (Mixed) 1.3kg/l
POT LIFE	Approx. 1-2 minutes
PACKAGING	4.5-gallon plastic pails (9-gallon unit; 2 pails, Approx. 50lbs per pail) 18L
SHELF LIFE	12 months from date of manufacture
STORAGE	Protect from frost, do not store below 32ºF.
THINNER/CLEANER	Distilled/filtered or mains water (Thinning is not recommended)
OUTLINE APPLICATION DETAILS **See separate application instructions**	**Spray:** Plural feed high pressure proportioner with an impingement mixer gun (e.g. Graco Fusion, PMC PX7*). Pressure: 140-180 bar spray nozzle: 17-27 thou. *All Stainless/acid resisting components. (Contact Advanced Polymerics Inc. for details) **Cartridge gun:** e.g. Sulzer Mixpac spray. Atomization air pressure 60psi **Note:** The mixed components are semi-transparent and turn opaque on curing. Curing involves an exothermic chemical reaction; the substrate can become measurably warmer to the touch. Due to pot-life limitations, the product cannot be applied by brush or roller.

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APPLICATION INSTRUCTIONS

Application Conditions:

Temp/Humidity: Material: 50ºF Minimum 85ºF Maximum (Where possible material should be protected from direct sunlight)
Substrate surface: 40ºF Minimum, 100ºF maximum (3ºF above dew point) Visibly wet surfaces or rain precipitation is not allowed.
Note: Permacorr™ is only to be applied to carbon steel. Stainless, high-alloy and galvanized steels do not form the required passivation interaction. Do not apply over zinc-epoxy or zinc silicate.

Surface Preparation:

Grit blast: NACE 3 / SSPC-SP 6 / Swedish/ISO Std Sa2 (Hand tool cleaning by agreement)
Water Jetting, Wet Abrasive Blasting, Vapor Blasting: is acceptable by agreement.

Light to Moderate flash rust with damp surface is accepted. (See NACE No. 5/SSPC-SP 12)
Visible mill scale is not accepted.

Airless Spray:

1:1 ratio plural spray pump with 30:1 ratio or above (Graco XP35*, Wiwa Duomix 230* or equivalent)

Note: Mixed components have a very short pot-life. Mixing manifold and/or whip-lines are not recommended.
Note: *Airless pumps should be specified acid resistant (Stainless steel components, valves, screens, and hoses) wherever possible. Unused materials should not be left in the equipment for prolonged periods and should be flushed with water daily)

Other equipment as recommended by manufacturer.

Gun: Graco Fusion or PMC PX7 or equivalent with impingement mixing.

Spray Tip: 20/20 24/24 thou aperture (Others by agreement)

Cleaning/flushing procedure: Equipment should be cleaned/flushed with clean water for a minimum of 30 minutes followed by flushing with clean water. Acidic residues will damage pump seals and eventually metal components.

Hoses: Standard ¼" or ½" pressure hoses are suitable with standard connectors. Metal parts and connectors (unless stainless) can become clogged during use, due to an accumulation of reactive components. Connections should be visibly checked during cleaning to remove such accumulations. Always purge hoses with water prior to first use.

Low Pressure Spray:

Low Pressure plural component spray systems by agreement. (Contact Advanced Polymerics Inc. for details)

Cartridge Gun: (Small areas only)

Sulzer MIXPAC/MIXCOAT SPRAY; Nordson EFD (or equivalent) with air atomizer and shortest mixer tube (For details contact Advanced Polymerics Inc.)

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Note: PERMACORR ™ cures with an exothermic reaction. There will be a noticeable rise in temperature on the substrate of a few degrees after application. When purging material through lines and spraygun, the residue may become very hot and give off steam. Take car when handling or use thermal gloves. The off gassing is in the form of water vapor and is non-hazardous.

Topcoats:

Whilst the cementitious layer hardens very quickly, it can still release moisture for several hours after application. It is important to follow recoat intervals especially when using solvent-borne topcoats.

Repair Procedure:

Damage, misses, un-cured or under-cured material.

Chip back to firm edge using suitable tools and wire brush. Do not burnish the underlying steel. Re-apply PERMACORR™ according to original specifications/application instructions. Feather edges of repair prior to applying topcoat. For small field repairs, contact Advanced Polymerics Inc.

Cleaning of tools:

Tools and ancillary equipment can be cleaned with water or water-based cleaning agents. Steel tools, nonferrous metals and plated metals may show a degree of permanent discoloration.

Mixing Prior to use:

Part A and Part B both require mixing before use. Do not use carbon steel mixers or steel containers for mixing. Stainless steel mixer paddles are preferred. Both part A and Part B require a high torque mixer for efficient stirring. e.g. ¼ HP air motor or equivalent. Continuous mixing for approx. 5 minutes is required. When mixing in plastic buckets or original containers, take care not to damage the plastic with the mixer paddle. Plastic shards can and will block the spray equipment. Passing through a 30 mesh filter screen is recommended.

If using hopper-feed on proportioners, it is preferred to agitate the components with slow speed mixing. Without mixing gelation can occur and air can be introduced into the outlet/inlet of the pump.

Waste disposal:

Although the components are low toxicity products, local disposal regulations for paint products must be followed. Not regulated for transport.

Warranty:

Limited product warranty can be found on www.api-smartcoat.com

No specific warranty is implied.