Dampney® Protective Coatings

Apexior® Number 1®
Single Component Air Dry Coating
Wet Heat Resistance from 200°F – 700°F
Immersion of Boiling Water/Steam

Description
Apexior Number 1 is a single component, easy to apply air dry coating specifically formulated for the hot water-side corrosion prevention of metal surfaces. It is a coating that excels in severe thermal cyclic immersion service. Apexior Number 1 is resistant to continuous immersion in boiling water and steam from 200°F (93°C) to 700°F (371°C). It aids in the reduction and prevention of tight bonding of hard scale and allows for easy cleaning and removal of any scale buildup in steam generating equipment. Apexior Number 1 prevents pitting corrosion and stops corrosion that has already begun - except for badly pitted areas. It has outstanding wetting properties and adheres well to power tooled cleaned areas. Equipment coated with Apexior Number 1 will also see an increase in heat transfer efficiency. Apexior Number 1 performs ideally with water treatment in steam generating equipment.

Recommended Uses
Apexior Number 1 protects hot water-side surfaces of:
- Steam generating equipment
- Hot condensate return tanks
- De-aerators
- Hot process tanks
- Autoclaves, sterilizing equipment
- Heat recovery system
- Mud and steam drums
- Kilns

Features
- Air dries, easy to apply
- Excellent wettability properties
- Easily re-coatable
- Resistant to boiling water/steam to 700°F (371°C)
- Increases heat transfer efficiency
- Outstanding resistance to thermal shock (immersion)
- Inert to water treatment
- Prevents corrosion in standby service
- Prevents scale buildup
- Surface tolerant features

Not Recommended For
- Hot water tank service with average operating temperature below 200°F (93°C)
- Immersion in solvents or acids
- Interior of boilers held for long periods in cold, wet layup or standby service

Surface Preparation - Carbon Steel
1. To ensure optimum long-term coating system performance, surfaces must be clean, dry and free from dirt, oil, grease, salts, welding flux, mill scale, rust, oxides, old paint, corrosion products, visible and non-visible contaminants or other foreign matter.
2. Remove all surface imperfections that will induce premature coating system failure. Chip or scrape off weld splatter. Grind down sharp and rough welds, edges, gouges, slivers and pits in accordance to NACE SPO178.
3. Abrasive blast surface per specification SSPC-SP-10, (Near-White Metal Blast Cleaning), or per NACE Standard No. 2 to a profile depth of 1.5 - 2.0 mils (38-50µm). Abrasive used in blasting should be selected carefully from materials of mesh type and size required to produce the desired sharp anchor pattern.
4. If abrasive blasting is not permitted, prepare surface by power tool cleaning per SSPC-SP-11 (Power-Tool Cleaning to Bare Metal). Use an MBX Bristle Blaster or other types of power-tools to attain a sharp angular surface profile of 1.5-2.0 mils (38-50µm).
5. ***Note:*** Non-ferrous metals should be prepared in accordance to SSPC-SP-1 (Solvent Cleaning) with non-chlorinated solvents followed by preparation in accordance to SSPC-SP-16 or NACE 4 using non-metallic abrasives. A sharp angular surface profile depth of 1.5-2.0 mils (38-50µm). Consult Dampney Technical Service to determine the appropriate surface profile depth that is needed for the specific non-ferrous metal to be coated.

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Mixing

Redisperse any settled-out pigments by thorough mixing to a uniform homogeneous consistency with an explosion-proof or air-driven power mixer. Do not open containers until ready to use. Keep lid on container when not in use.

Dry Time 70°F (21°C) 50% RH

Apexior Number 1 will air dry in 16 to 24 hours. Allow equipment to air dry for 7 days before placing equipment into service. Ventilate the area with a high volume of air until there is little or no odor of solvent remaining. Coating must be free of solvents prior to being placed into service. Begin ventilation of area during application of Apexior Number 1. For quicker return to service, please consult Dampney Company for an accelerated force cure schedule. Higher film thickness, inadequate ventilation and cooler temperatures will require longer cure times and could cause premature failure of the coating system. A water immersion temperature of 200°F (93°C) must be achieved for the coating system to withstand water temperature below 200°F (93°C). Allow 24-48 hours at the stated dry time of 70°F (21°C) and 50% RH prior to shipping and handling. Institute protective measures when shipping and handling surfaces coated with Apexior Number 1. Do not use chains for tie-downs, instead use nylon straps and rubber padding which are less damaging to the coating system. Avoid mechanical abrasion during shipping and handling. As with any newly applied coating system expect some degree of coating damage when shipped and handled that will require touch-up painting prior to placing equipment in service. Higher temperatures will reduce tack free, recoat and shipping times.

Application Guidelines - Carbon Steel

Surface temperature must be at least 5°F (3°C) above dew point. Apply two coats of Apexior 1 to a dry film thickness of 3.0-4.0 mils (75-100 µm) per coat allowing for proper curing between coats. Allow to dry 16 to 24 hours before applying the second coat. Total recommended dry film thickness is 6.0-8.0 mils (150-200 µm). During spray application, hold gun at the required distance from the surface and at right angles without arching while spraying. Overlap each pass 50% to achieve a uniform finish. During brush and roller application, any settled pigment on the bottom of the can should be reincorporated back into suspension of the liquid coating, prior to being applied to the surface. Stripe coating by brush should be used to coat difficult to coat areas, edges and weld seams prior to the first full coat application. Stripe coat material should be thinned approximately 20% by volume with the recommended Dampney 105 thinner. During application of Apexior Number 1 ventilate area with high volume of air. Always utilize and follow good painting practices. Follow dry time instruction before placing in service.

Application Equipment

Apexior Number 1 may be applied by conventional spray, airless spray, roller or brush. Do not apply Apexior Number 1 in heavier films than specified since blistering or cracking may occur. For conventional spray provide material pot with agitator, regulators for fluid and air pressure and oil and moisture traps in supply line. For airless spray application keep material continuously agitated to prevent settling of pigments. Smaller diameter hose may require increased pressure.

Conventional Spray (Preferred spray method)**:**

Spray gun	DeVilbiss MBC-510
Air Cap	704
Fluid Needle	JGA-402-FF
Fluid tip	FF
Fluid hose*	3/8” ID
Air hose	5/16” ID
Atomizing pressure*	40-50 psi

*Smaller hose diam. or length over 25 ft. may require increased pressure.

Airless Spray:

Spray gun	Graco 205-591, 208-663
Pump	Graco 30:1 or Greater
Fluid tips*	.015 - .019
Fluid hose	3/8” ID with a 1/4” ID whip
Air pressure to pump*	40-60 psi

*Use Reverse-A-Clean® tips for fast, easy clean out. The above recommended air pressures are a guide and should be altered based on the operational condition of the spray pump and ambient climatic conditions. The minimum amount of air pressure should be used that is required to produce a proper spray fan.

Brush: Do not use synthetic bristle brushes. Using the side of the brush, scoop Apexior Number 1 from the container and apply in sweeping strokes, overlapping the brush strokes. Do not attempt to remove brush marks. If the surface to be coated is pitted, work the coating into the porosity of the surface without allowing the coating to puddle. Ensure pigment has not settled on the bottom of the can during application.

Roller: Use solvent resistant 1/4"-1/2” (6mm-12 mm) nap roller cover with phenolic core. Do not flood surface with coating. Roll out excess coating on a suitable, screened surface. Then roll out thoroughly, maintaining a continuous wet edge and uniform appearing paint film. Care should be taken during roller application to ensure the required wet film thickness is being achieved. With

roller application additional coats may be needed in order to achieve the recommended dry film thickness. Excessive rolling is not recommended. Ensure pigment has not settled on the bottom of the can during application.

Thinning

Only thin Apexior Number 1 with Dampney 105 Thinner a maximum of 5% by volume. Dampney 105 can be used if encountering dry spray and for other application related conditions. Do not thin beyond federal, state and/or local VOC (volatile organic compound) emission regulations. Note: Use of other thinner not approved by Dampney may hinder product performance and void product warranty, whether expressed or implied.

Cleanup

Thoroughly flush spray equipment and hoses immediately after use with Dampney 105 Thinner. Dismantle spray equipment and clean parts, brushes and rollers with Dampney 105 Thinner.

Inspection

When Apexior 1 is used in immersion service, the coating should be visually examined prior to placing the coating into service to ensure the film is free of pinholes and voids.

Storage

Store in cool, dry place with temperature between 50°F and 100°F (10°C and 38°C). Keep container closed when not in use.

Precautionary Information

WARNING: Combustible Liquid and Vapor. Keep away from heat, sparks and flame. Vapors may cause flash fire. Do not breathe vapors or spray mist. Avoid contact with eyes, skin and clothing. Use with adequate ventilation during mixing and application. Wear an appropriate, properly fitted organic vapor cartridge-type respirator (NIOSH approved) during and after application unless air monitoring demonstrates vapor/mist levels are below applicable limits. Follow respirator manufacturer's directions for respirator use. Wash thoroughly after handling. Wear protective gloves, chemical safety goggles and impervious protective clothing. Use skin cream. In confined spaces it is required to use a positive pressure supplied-air respirator (NIOSH approved). Use explosion-proof lights and electrical equipment. Use only nonsparking tools and equipment. Wear conductive and nonsparking footwear. Make certain all electrical equipment is grounded. Observe all safety precautions and follow procedures described in OSHA regulations. See Safety Data Sheet (SDS) for complete precautionary and disposal information.

If instructions and warnings cannot be strictly followed, do not use this product.

FOR INDUSTRIAL USE ONLY

0720-Rev.
Replaces issue of 0306

TECHNICAL DATA

Characteristics	Apexior Number 1
Generic Type	Organic
Color	Black
Temperature resistance (wet only)	
Continuous	700°F (371°C) boiling water/steam
Percent (%) Solids by volume	34 (+/-2%)
Dry film thickness per coat	3.0 - 4.0 mils (75 - 100 microns)
Wet film thickness per coat	9.0 - 12.0 mils (250 - 300 microns)
Theoretical coverage at 4.0 mils (100µm) DFT	136 sq./ft. per gallon (3.34 m^2/liter)
Application temp. @ 50% RH (air and surface)	50°F – 120°F (10°C – 50°C)
Drying time @ 50% RH	70°F (21°C)
To touch	6 - 8 hours
To recoat	16 - 24 hours
*Full cure @ 70°F (21°C)	7 days
Weight per gallon	
Apexior Number 1	8.8 lb. (4.0 kg)
Dampney 105 Thinner	6.5 lb. (2.9 kg)
Flash point	110°F (43°C)
Pot life	N/A
Shelf life	1 year (when stored properly in original unopened containers, indoors and out of the weather)
Volatile organic compounds	4.4 lb./gal. (527 g/L)

* A water immersion temperature of 200°F (93°C) must be achieved for the coating system to withstand water temperature below 200°F (93°C).

WARRANTY

Dampney protective coating products are expressly warranted to meet applicable technical and quality specifications. The technical data contained herein are accurate at the date of issuance but are subject to change without prior notification. No warranty of current accuracy is hereby given or implied. User must contact Dampney to verify correctness before ordering. Dampney assumes no responsibility for coverage, performance or injuries resulting from handling or use and **LIABILITY, IF ANY, SHALL BE LIMITED TO PRODUCT REPLACEMENT.** In no event will Dampney be responsible for consequential damages, except insofar as mandated by law. Dampney **DISCLAIMS ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**