Permite

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PERMOX PCS-9043
WET PROCESS EPOXY

DESCRIPTION: PCS-9043 Wet Process Epoxy is a glass filled epoxy coating that can be applied to wet surfaces when the ambient temperature is as low as 35^0 F. It is intended primarily for maintenance use on steel and concrete but is suitable for immersion service in some applications; contact **Permite** for specific recommendations.

PCS-9043 Wet Process Epoxy has been tested and approved by the U.S. Army Corps of Engineers for use on structures such as locks and dams, including gates, reservoir outlets and their recesses, piping systems inside dams, and lock valves. It was subsequently assigned Commercial Item Description# A-A-3130 by The General Services Administration on April 21, 1998.

PCS-9043 Wet Process Epoxy will cure underwater for both fresh and salt water uses. 40-150 mil DFT can be applied by brush or mitt, usually without resorting to burlap or scrim assists.

PCS-9043 Wet Process Epoxy has excellent resistance to most aqueous chemicals. In exterior applications, the erosion rate is less than one half of polyamide cured epoxies and one fourth of amine cured epoxies.

USES: PCS-9043 Wet Process Epoxy is especially suited for wet process in-dustries, such as pulp and paper mills, mining, chemical processing, dairies, marine environments, etc. Specialty uses include piling, submarine pens, buried pipe, and underwater applications.

SURFACE PREPARATION: Steel. Remove oil and/or grease by solvent wipe, detergent wash or steam cleaning. Round all sharp edges, welds, etc. to a minimum of 1/8" radius and remove weld spatter. Abrasive blast clean to SSPC-SP10 (preferred) or SSPC-SP6 (acceptable). Better cleaning results in better performance capabilities. Anchor patter should have a maximum profile of 2.5 – 3 mils. Remove all dust and debris with clean air.

VOC: .3 lbs. per gallon

COLORS: Standard Colors Available

GLOSS: 60^0 Glossmeter: 80+

SUGGESTED FILM THICKNESS:
Two coats, a minimum of 5 mils DFT each.

VOLUME SOLIDS: 97.5% ± 2%

THEORETICAL COVERAGE: 1562 sq. ft. per gallon @ 1 mil

NUMBER OF COMPONENTS: Two

MIXING RATIO: 1 to 1 by volume

INDUCTION PERIOD: 15 minutes.

POT LIFE: 1 hour when not reduced. 4 hrs. @ 77^0 F when reduced to spray (shorter at higher temperatures) .

APPLICATION Temperature:
$35^0 – 120^0$ F

DRY TIME: To touch, 4 hrs. @ 77^0 F; full cure 7 days @ 77^0 F

SERVICE TEMPERATURE: 280^0 F Dry, 180^0 F Wet.

RECOAT: 6-72 hours; longer periods will result in poor intercoat adhesion. **Consult Permite for recoating after 72 hours.**

REDUCER AND CLEAN-UP: #76 Reducer.

PACKAGING: 2 and 10 gallon kit.

SHELF LIFE: 12 months in unopened containers.

DO NOT STORE ABOVE 90^0 F.

Manufacturing and Executive Offices:
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Where OSHA and EPA regulations preclude standard abrasive blasting because of dust, wet abrasive blasting can be utilized; apply PCS-9043 Wet Process Epoxy to the wet surface before rust develops.

In special cases such as structural steel over paper machines, calendar stacks, etc., where no abrasives can be tolerated, water blasting is an effective surface preparation; before recontamination occurs, apply PCS 9043 Wet Process Epoxy to the clean wet surface.

Concrete. (1) **Abrasive blasting** is the preferred preparation. Fill all surface imperfections with grout before coating. (2) **Acid etch** is acceptable; remove any laitance, poorly bonded surfaces, or other chalky materials; fill all surface defects with grout before coating. **DO NOT USE** form release agents, surface hardeners or curing compounds.

Filling surface voids is important. Because of the high viscosity required for film build, some pits will be bridged and later appear as holes in the coating. If the voids are few, PCS 9043 Wet Process Epoxy may be scrubbed into them before coating the entire surface.

MIXING: Mix equal volumes of PCS-9043 Wet Process Epoxy **Base** and **Hardener** for a minimum of three minutes using a power mixer to a uniform color. Allow to stand at least 10 minutes and mix thoroughly once more before proceeding. Do not mix more than can be used in a three hour period, if reduced for spray, or 45 minutes if not reduced.

APPLICATION: Flush all equipment thoroughly with REDUCER #76 before use. **Airless:** minimum of 40:1 pump ratio, .019-inch tip with 3/8" I.D. minimum fluid line. Adjust fluid pressure for proper atomization. Higher pump ratio and/or larger diameter lines may be required when more than 50 ft. of material line is required. Shield long lines from direct sunlight in hot weather. **Conventional Spray:** Devilbiss MBC or JGA gun with 78 to 765 air cap, E fluid tip and nozzle. Use a pressure material pot with separate atomizing air and fluid pressure regulators; 50-70 psi atomizing air and 10-15 psi pot pressure.

Reduce approximately 10% by volume with REDUCER #76 for airless and 20% for conventional spray.

For most applications, 2 coats at 5 mils DFT is sufficient; however, 10-15 mils DFT can be applied in one application by using multiple passes and a cross-hatch pattern. PCS 9043 Wet Process Epoxy may be applied to damp or wet surfaces at temperatures down to 35^0 F. Do not apply when temperatures can be expected to drop to freezing within four hours after application; PCS 9043 Wet Process Epoxy will displace liquid water but not ice. Under these conditions, cure will be slow but not otherwise affected.

When used as a primer or seal coat on masonry surfaces, PCS 9043 Wet Process Epoxy may be reduced 35-40% by volume with REDUCER #76 to facilitate penetration into crevices and voids.

CLEAN-UP: Use REDUCER #76 for clean-up which should be done immediately after use.

UNDERWATER USES: PCS-9043 Wet Process Epoxy may be applied underwater to concrete or to steel in fresh or salt water at temperatures down to freezing.

The ideal surface preparation is abrasive blasting but power brushes and even hand tool cleaning has often proven to be adequate. It is most important that water repellant contaminates such as oil, grease, heavy solvents or waxes be removed. These usually accumulate in the tidal zone, that portion exposed to the surface of the water between high and low tides.

For underwater applications, PCS-9043 Wet Process Epoxy must be mixed without additional solvent. Under these conditions the pot life is about one hour at 75^0 F. Chilling the components before mixing as well as the mixed product will result in a measurable increase in pot life.

Because of the viscosity required to prevent removal by the scrubbing action of tides, a “cosmetic” appearance is difficult to achieve. PCS-9043 Wet Process Epoxy may be applied by brush or mitt; some wiping action is beneficial in displacing water so the coating does not slide off vertical surfaces. A maximum of 100-150 mils may be applied with this wiping action. If the texture of the surface requires a heavier coating or if tidal action is severe through a constricted area during application, the use of burlap or scrim to support the wet film is suggested.

As a starting point, mix about 1 gallon of PCS-9043 Wet Process Epoxy, without reducing, and allow the diver to carry this down to the point of application in an open container.

Protection for eyes and skin must be provided underwater.

At 75^0 F the tack free time will be 3-4 hours with considerable toughness developing overnight and about 5 days required for full cure. At 35^0 F, overnight is required for tack free conditions, 3-5 days for significant toughness and 10-14 days for full cure.

PCS-9043 Wet Process Epoxy is not an antifoulant coating but may be overcoated with the usual vinyl or chlorinated rubber antifoulant coatings if conditions permit.

CHEMICAL RESISTANCE

PCS-9043 Wet Process Epoxy HARDENER is extremely hydrophobic and this accounts for the unique ability of the coating to displace water from the surface being coated. Most ambient temperature curing agents for epoxy coatings are either partially soluble in water or are easily emulsified so that the effective cure in the presence of water is not possible. These curing agents also react with carbon dioxide in the atmosphere to produce the “blush” associated with epoxy systems under wet and/or cold conditions. Except for a minor reduction in rate of cure, PCS-9043 Wet Process Epoxy is unaffected under these same conditions.

The most common cause of coating failure is not the lack of chemical resistance. Usually failures can be traced to inadequate surface preparation or to application under less than ideal conditions. PCS 9043 Wet Process Epoxy has been designed to minimize the importance of surface preparation and ideal application conditions for all types of service, except for immersion. The stresses of immersion service are so great that the best surface preparation possible must be specified; however, even with less than ideal preparation, the excellent wetting properties and inertness to water of PCS 9043 Wet Process Epoxy will result in better performance than is possible with other coatings.

The rate of cure of PCS-9043 Wet Process Epoxy has been retarded to allow adequate time for penetration into voids and crevices before polymerization begins; this allows both chemical and mechanical adhesion to be effective. This relatively slow cure also permits the use of standard single component spray equipment.

PCS-9043 Wet Process Epoxy is suitable for immersion service at 77^0 F in the following:

Citric Acid	10%	Sea Water	
Sulfuric Acid	10%	Tap Water	
Phosphoric Acid	10%	Sodium Sulfite,	1%
Sodium Hydroxide	10%	Zinc Hydrosulfite,	1%
Hydrogen Peroxide	5%	Gasoline	
Distilled Water		Sour Crude Oil	

Spillage conditions at room temperature:

Hydrochloric Acid	10%	Ethyl Alcohol	
Nitric Acid	10%	Butyl Alcohol	
Ammonium Hydroxide	10%	Ethyl Acetate	
Calcium Hypochlorite	5%	Xylene	
Sodium Hypochlorite	5%	Carbon Tetrachloride	

The service temperature of PCS-9043 Wet Process Epoxy is 280^0 F dry and 180^0 F wet. It is extremely well suited for use on steel and concrete in corrosive conditions and where ideal surface preparation is not possible, and/or where cold, humid or wet conditions exist.

Areas of use:
Below grade concrete surfaces; tunnels, etc.
Pulp and paper mills
Wet processes; ore extraction, pigment slurries, etc.
Waste water treatment facilities
Sewer linings

CAUTIONS: PCS-9043 Wet Process Epoxy is not flammable. Components of this product, when combined, may be skin irritants and/or skin sensitizers. The mixed product is presumed to be severely irritating to the eyes. Rubber gloves should be worn to minimize skin contact. Practice caution and good personal cleanliness to avoid skin and eye contact. Avoid breathing vapors of heated material.

See material safety data sheet for full precautions prior to use.

If swallowed, do not induce vomiting. Call a physician immediately. For eye contact, flush with water; if irritation persists, seek medical attention. In case of skin contact, wash thoroughly with soap and water.

PCS-9043 WET PROCESS EPOXY is intended for INDUSTRIAL USE ONLY.

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