# REMR Material Data Sheet CM-PC-1.16

# Concrete Patching Material: Epodur 786

## 1. NAME

Epodur 786

## 2. MANUFACTURER

The Dampney Company
85 Paris Street
Everett, Massachusetts 02149
Telephone: 617-389-2805
Telex II: 710-348-6716

## 3. DESCRIPTION

Epodur 786 is a 100 percent-solids, high-build epoxy coating which can be applied to wet or submerged surfaces and will cure in both fresh and sea water at temperatures as low as 30°F.

## 4. USES & LIMITATIONS

Uses: Epodur 786 is used to repair wet or underwater damaged or eroded concrete. It can be applied to submerged or splash zone steel surfaces of offshore drilling towers, piers, and bulkheads; concrete and hardware in constantly wet or damp environments, such as manholes, tunnels, and other underground structures; acid-resistant floor topping and coating; underground, underwater, or wet piping; structures and equipment in wet process industries; bridge abutments and concrete drainage ditches; and crude oil and seawater ballast tanks. It is effective on the interiors of tanks and lines containing brine, crude oil, petroleum products, sewage or strong alkalies. It is resistant to a wide range of chemical fumes, mists and splashes. Suitability for prolonged immersion in specific chemicals should be determined by tests prior to use.

Epodur 786 can be mixed with sand to make a grout for use in filling cracks in concrete or for repairing eroded areas. See Surface Preparation section for details.

Limitations: Epodur 786 is not recommended for immersion in aromatic or oxygenated solvents, chromic acid, nitric acid, bleaches or oxidizing agents, concentrated mineral acids, or the interior of potable water storage tanks.

## 5. MANUFACTURER'S TECHNICAL DATA

Physical properties:

| Characteristics | | | |
|---|---|---|---|
| Color | Black (For Gray, order Epodur 785.) | | |
| Base to Activator ratio | 2:1 | | |
| Application temperature | Normal | Minimum | Maximum |
| Ambient air | 60 - 90°F | 30°F | 120°F |
| Material | 65 - 80°F | 30°F | 90°F |
| Surface | 65 - 85°F | 30°F | 120°F |
| Humidity | 20 - 75% | 0 | 100% |

(Continued)

Characteristics (Concluded)

| | | | |
|---|---|---|---|
| Temperature resistance | | | |
| Continuous | 200°F (dry) | | |
| Intermittent | 250°F (dry) | | |
| Immersion service | 125°F maximum | | |
| Percent of solids by volume | 100 | | |
| Dry film thickness per coat | 5-10 mil | | |
| Wet film thickness per coat | 5-10 mil | | |
| Theoretical coverage per gallon* | 1,600 mil sq ft | | |
| Weight per gallon | | | |
| Base | 11.7 lb | | |
| Activator | 11.1 lb | | |
| Drying time | at 50°F | at 70°F | at 90°F |
| Set to touch | 20 hours | 8-9 hours | 4 hours |
| Recoat time | 4 days | 48 hours | 24 hours |
| Final cure | | | |
| Nonimmersion service | 4 days | 2 days | 24 hours |
| Immersion service | 7 days | 5 days | 3 days |
| Pot life | 4 hours | 1 hour | 30 minutes |
| Shelf life | 1 year (unmixed components) | | |

* Actual coverage rate will vary depending upon material losses during mixing and application, and upon type and condition of surface to be coated. Allowance must be made for losses when estimating material requirements. See Bulletin 3110 "Calculating Coating Requirement" for additional information.

## 6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: Remove all grease and oil by solvent cleaning per Steel Structures Painting Council Specification SSPC-SP1, "Solvent Cleaning."

Steel: For nonimmersion service abrasive, blast according to Specification SSPC-SP6, "Commercial Blast Cleaning." For immersion service, abrasive blast per Specification SSPC-SP10, "Near-White Blast Cleaning." Power tool cleaning is recommended for dressing down weld splatter and sharp edges.

Concrete: Surface must be clean and dry. Brush-off blast or power-tool clean to roughen surface and remove loose and spalled material. Acid etching and rinsing will also provide a satisfactory surface.

To prepare sand-filled grout, gradually add 2 parts by weight of clean, fine silica sand to 1 part by weight of mixed Epodur 786 (equivalent to 1.5 parts sand to 1 part mixed Epodur 786 by volume). Mix thoroughly, using power mixer, until a smooth uniform trowelling consistency is achieved. Do not mix more grout than can be used in one hour. Discard material that has partially set before use.

Mixing: Storage at 70° to 80°F will aid in the mixing of the two components of Epodur 786. The mixing ratio is 2 parts base to 1 part activator. While stirring base component, slowly add the entire contents of activator component. Stir vigorously for 5 min, with power agitator.

Application: Epodur 786 may be applied by brush or roller. It is self priming and, in most applications, can be used as a complete

one-coat or two-coat system. It can also be used as a top coat for Endcor or Epodur series epoxy or zinc-rich primers.

Steel: For nonimmersion service, apply one coat to a dry film thickness of 8 to 9 mil.

For immersion or underground service, apply one coat Epodur 786 to a film thickness of 8 to 9 mil. Depending on temperature, allow drying time of 12 hr minimum to 96 hr maximum between coats as specified in manufacturer's technical data section. Apply second coat Epodur 786 to a film thickness of 8 to 9 mil. Total system dry film thickness: 16 to 18 mil. Before placing coating system into service, allow it to cure fully as specified.

For maximum corrosion resistance, prime surface with one coat of either Endcor 750 Polyamide-Epoxy Primer (see Bulletin 750) or one coat of Epodur 2755 Urethane-modified Epoxy Primer (see Bulletin 2755) to a dry film thickness of 1 to 1.5 mil. Allow primer to dry as specified in Bulletin. Apply two coats of Epodur 786 in accordance with above recommendations. Total system dry film thickness: 18 to 20 mil.

Concrete: For immersion or underground service, apply two coats of Epodur 786 in accordance with recommendations specified above. Total system dry film thickness: 16 to 18 mil.

Special surface preparation may be required to ensure good intercoat adhesion between Epodur 786 and previously applied, fully cured coats of Endcor 750 Primer, Epodur 2755 Primer or Epodur 786. Consult a Dampney representative for recommendations.

Exposure to high humidity, moisture condensation, or strong sunlight during cure time may cause formation of surface haze or blush. Before recoating, remove this haze by wiping down surface with Endcor 790 Thinner.

Equipment:

Brush - Using the side of the brush, scoop Epodur 786 from container and apply in sweeping strokes, overlapping the brush strokes. Do not brush out to a thin line. Do not thin.

Roller - Use mohair type roller. Keep roller thoroughly saturated to obtain maximum film thickness. Do not squegee coating or apply excessive pressure to roller. Do not thin.

Drying time: Before placing coating system into immersion or underground service, allow it to fully cure per schedule specified in Technical Data section. Exposure to temperature below 50°F will severely retard curing time.

If the coating system is to be used for tank lining, forced curing is recommended.

Clean up: Clean equipment immediately after using Endcor 790 Thinner. Do not use naphtha or xylene; they are not solvents for this product. It is extremely difficult to remove Epodur 786 with solvent once it has cured.

Caution: Epodur 786 contains organic amines. Use only with adequate ventilation. Avoid contact with eyes and skin. Avoid breathing vapor or spray mist. Liquid coating may cause skin sensitization. Do not allow contaminated clothing to contact the skin. For skin, remove contaminated clothing and wash area with soap and plenty of water. Wash clothing thoroughly before reuse.

First aid: In case of contact with skin, flush with plenty of water. For eyes, immediately flush with plenty of water for 15 min and get medical attention. If swallowed, call a

physician immediately. Do not induce vomiting.

In confined spaces, observe safety precautions and follow procedures described in OSHA regulations, Sections 1915.24-Painting and 1915.82-Respiratory Protection.

Provide adequate forced-air ventilation. Require workmen to wear U.S. Bureau of Mines-approved air line respirator. Use protective clothing and skin cream.

For further information on safety precautions, see Bulletin 3122.

## 7. CORPS OF ENGINEERS' EVALUATION

* This material was evaluated by Singleton Laboratories, TVA, through a support agreement with US Army Engineer Waterways Experiment Station.

| Property | Test Method | Results |
|---|---|---|
| Compressive strength, psi | ASTM C 109 | 10,920 |
| Slant-shear bond strength, psi | ASTM C 882 | |
| Dry surfaces | | 3,170 |
| Wet surfaces | | 2,020 |
| Bond capacity in direct tension, psi | ** | 50 |
| Bond capacity under flexural stress, psi | ASTM C 293 | 1,500 |
| Underwater abrasion loss, % | CRD-C 63 | 0 |
| Resistance to cycles of freezing and thawing, % of original weight after 312 cycles | ASTM C 666 Procedure A | 100 |
| Impact resistance, in.-lb | -- | 1,275 |
| Coefficient of thermal expansion, millionths/°F | -- | 27.2 |

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* Best, Floyd J., and McDonald, James E. 1990. "Spall Repair of Wet Concrete Surfaces," Technical Report REMR-CS-25, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

** Causey, F. E. 1984. "Preliminary Evaluation of a Tension Test for Concrete Repairs," Report Gr-83-14, Department of the Interior, Bureau of Reclamation.

## 8. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of activities involving potentially hazardous and toxic chemical substances. Manufacturer's recommendations to protect occupational health and environmental quality should be carefully followed. Material safety data sheets should be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous toxic materials.

## 9. AVAILABILITY AND COST

Epodur 786 is available from the manufacturer in a 1-1/2-qt unit (1 qt base, 1/2 qt activator) that weighs 5 lb. Cost is approximately $16.00/unit plus shipping.

Edcor 790 Thinner can be bought in 8-lb or 42-lb units.