REMR MATERIAL DATA SHEET CM-CR-1.4

EPOXY RESIN SYSTEM FOR DORMANT CRACK REPAIR: DENEPOX 40

1. NAME

Denepox 40

2. MANUFACTURER

De Neef America, Inc.
122 North Mill Street
St. Louis, MI 48880-0034
Telephone: 517-681-5791

3. DESCRIPTION

Denepox 40 is an ultra-low-viscosity, two-component epoxy system.

4. APPLICABLE SPECIFICATIONS

ASTM C 881, "Standard Specification for Epoxy-Resin-Base Bonding Systems" for Concrete," is a guide in specifying the material.

5. USES & LIMITATIONS

Uses: Denepox 40 is designed specifically for pressure injection. This low-viscosity resin is also excellent for repair of cracks by gravity feeding. This 100-percent solids resin is insensitive to the presence of water, allowing application on damp concrete surfaces. When applied with standard injection equipment or with the BICS-System, it will effectively grout and seal cracks in horizontal, vertical, and overhead surfaces.

Limitations: Never mix more material than can be used in 60 min. Do not apply Denepox 40 when ambient or surface temperatures are below 50° F.

6. MANUFACTURER'S TECHNICAL DATA

Physical properties:

Mixing ratio (A/D) by weight	100/30
Pot life (3.5 oz at 77° F)	80 min
Viscosity: Comp. A at 77° F	125 ± 25 centipoises
Comp. B at 77° F	25 ± 5 centipoises

Performance properties:

	7 days at 68° F	7 days at 41° F	7 days at 41° F + 7 days at 68° F
Compressive strength, psi	15,250	1,450	15,515
Compressive modulus, psi	39.15×10^4	--	44.95×10^4
Tensile strength, psi	9,000	1,000	9,500
Tensile elongation, %	9	160	9
Bend strength, psi	14,400	130	14,790

Mixing viscosity:

Temperature (° F)	77	68	59	50	41
Viscosity, centipoises	40	75	95	130	170

Bonding strength to concrete (after 7 days at 77° F):

Dry concrete	870 psi (100-percent crack)
Wet concrete	520 psi (100-percent concrete crack)

7. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: Surfaces to be repaired or sealed must be clean and sound. Concrete must be free of dust, laitance, sealers, grease, and other bond-inhibiting contaminants.

Drilling of cracks for injection ports must be accomplished with a vacuum-attached swivel drill chuck (no drilling necessary with BICS System).

Entry ports for injecting should be approved devices spaced at appropriate intervals to accomplish the full penetration of the resin.

Mixing: Supplied as a two-package system. Material should be mixed with a low-speed drill and paddle for approximately 4 min to ensure a thorough mix.

8. CORPS OF ENGINEERS' EVALUATION

Technical data:

Performance Properties at 73° F	Test Method	Results
Viscosity, centipoises	ASTM D 2393	39.3
Gel time, min	ASTM C 881	78
Nonvolatile content, percent	ASTM D 1259	95.0
Bond to concrete, psi	ASTM D 882	4,280 (concrete failure)
Effect of moisture on bond strength, psi	ASTM C 882	3,310
Compressive strength, psi	ASTM D 695	13,200
Young's modulus of elasticity, psi	ASTM D 695	4.15×10^5
Tensile strength, psi	ASTM D 638	6,690
Tensile elongation, percent	ASTM D 638	3.0
Flexural yield strength, psi	ASTM D 790	14,100
Shrinkage volumetric, percent	--	4.72
Hardness	ASTM D 2240	81
Water absorption, percent	ASTM D 570	0.28

Guidance for application: Protective clothing should always be used when working with epoxy resins and hardeners. If skin contact is made, wash the area with soap and water. If the materials get into the eyes, rinse with quantities of water and consult a physician. Use epoxy resins and hardeners only in well-ventilated areas and avoid breathing vapors.

Part A component may cause skin sensitization or other allergic responses. Avoid inhalation of vapor. Use adequate ventilation particularly if material is heated or sprayed. Prevent contact with skin and eyes. If contact with skin occurs, wash immediately with soap and water. In case of contact with eyes, flush immediately with water and contact a physician.

Part B component can cause severe burns. Contains alkaline amines and is a strong sensitizer. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Resin and curing components may be irritating to the eyes and skin on contact. Vapors may cause headache, dizziness, nausea, and unconsciousness. Area must be ventilated. If inhaled, remove individual to fresh air. Give artificial respiration if person is not breathing. For eye contact, wash with plenty of soap and water at once. Remove contaminated clothing. If swallowed, give large amounts of water to drink. Get medical help immediately.

In case of contact, immediately flush eyes or skin with plenty of water. Remove contaminated clothing and shoes. Call a physician. Wash clothing before reuse. Discard contaminated shoes.

9. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of crack repair 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.

10. AVAILABILITY & COSTS

Availability: Available from De Neef America, Inc., 122 North Mill Street, St. Louis, MI 48880-0034; Telephone: 517-681-5791. Please call or write for local representative.

Costs: The material costs FOB St. Louis, MI, $111.25 per 2-1/2-gal unit, which is $44.50 per gal, as of December 1987.

11. TECHNICAL SERVICE

Contact De Neef America, Inc., at the address above.