

# REC DUR 128

## THIXOTROPIC EPOXY ADHESIVE FOR BONDING REINFORCEMENT

### DESCRIPTION

**REC DUR 128** is a two-component, 100% solids, thixotropic structural epoxy paste adhesive formulated from high-grade epoxy resins and selected fillers. It is designed for bonding external reinforcement (CFRP/composite laminates, steel plates) to concrete, masonry, and timber, and also as a binder for epoxy mortars and surface repairs. The product is moisture tolerant, exhibits high modulus and high mechanical strength, and is suitable for vertical and overhead applications.

### PRIMARY APPLICATIONS

- Bonding of composite laminates (CFRP) to concrete, masonry, and wood.
- Structural bonding of steel plates to concrete.
- Adhesive for securing reinforcement to concrete, masonry, steel, wood, or stone.
- Binder for epoxy mortar repairs and for filling surface imperfections.

### FEATURES/BENEFITS

- Long pot life and open time.
- Excellent adhesion to a variety of substrates.
- High mechanical strength and modulus.
- Thixotropic, non-sag consistency for vertical and overhead applications.
- Moisture-tolerant before, during, and after cure.
- Solvent-free; easy mixing with color-coded components.

### TECHNICAL INFORMATION

| Property                      | Test Method | Value                                                                        |                       |                       |
|-------------------------------|-------------|------------------------------------------------------------------------------|-----------------------|-----------------------|
| Chemical Base                 |             | Epoxy resin                                                                  |                       |                       |
| Density                       |             | 1.65 kg/l $\pm$ 0.1 kg/l (components A+B mixed) (at +23 °C)                  |                       |                       |
| Colour                        | Visual      | Component A: white<br>Component B: black<br>Components A+B mixed: light grey |                       |                       |
| Consistency                   | Visual      | Non-sag paste (thixotropic)                                                  |                       |                       |
| Substrate Moisture Content    |             | Max. 4 % pbw                                                                 |                       |                       |
| Mix ratio (A:B)               | By volume   | 2:1                                                                          |                       |                       |
| Pot life                      | ASTM C-881  | Temperature                                                                  | Pot life              | Open time             |
|                               |             | 10 °C                                                                        | ~120 minutes          | ~150 minutes          |
|                               |             | 23 °C                                                                        | ~70 minutes           | ~90 minutes           |
|                               |             | 35 °C                                                                        | ~25 minutes           | ~45 minutes           |
| Compressive strength          | ASTM D-695  | Curing Time                                                                  | Temperature           |                       |
|                               |             |                                                                              | 10 °C                 | 35 °C                 |
|                               |             | 1 day                                                                        | ~56 N/mm <sup>2</sup> | ~82 N/mm <sup>2</sup> |
|                               |             | 3 days                                                                       | ~72 N/mm <sup>2</sup> | ~88 N/mm <sup>2</sup> |
|                               |             | 7 days                                                                       | ~78 N/mm <sup>2</sup> | ~92 N/mm <sup>2</sup> |
| Modulus of elasticity (7 day) | ASTM D-695  | ~9 600 N/mm <sup>2</sup>                                                     |                       |                       |
| Tensile modulus (7 day)       | ASTM D-638  | ~11 200 N/mm <sup>2</sup>                                                    |                       |                       |
| Shrinkage                     |             | 0.03%                                                                        |                       |                       |
| Flexural strength (14 day)    | ASTM D-790  | ~6,800 psi (46.8 MPa)                                                        |                       |                       |

|                                              |            |                                                                     |                       |                       |
|----------------------------------------------|------------|---------------------------------------------------------------------|-----------------------|-----------------------|
| Coefficient of thermal Expansion             |            | 2.5 x 10 <sup>-5</sup> per °C (Temperature range: -20 °C to +40 °C) |                       |                       |
| Service Temperature                          |            | -20 °C to +51 °C (when cured at +23 °C)                             |                       |                       |
| Tensile strength                             | ASTM D-638 | Curing Time                                                         | Temperature           |                       |
|                                              |            |                                                                     | 10 °C                 | 35 °C                 |
|                                              |            | 1 day                                                               | ~18 N/mm <sup>2</sup> | ~26 N/mm <sup>2</sup> |
|                                              |            | 3 days                                                              | ~21 N/mm <sup>2</sup> | ~27 N/mm <sup>2</sup> |
|                                              |            | 7 days                                                              | ~26 N/mm <sup>2</sup> | ~29 N/mm <sup>2</sup> |
| Shear strength                               | ASTM D-732 | Curing Time                                                         | Temperature           |                       |
|                                              |            |                                                                     | 10 °C                 | 35 °C                 |
|                                              |            | 1 day                                                               | ~4 N/mm <sup>2</sup>  | ~17 N/mm <sup>2</sup> |
|                                              |            | 3 days                                                              | ~15 N/mm <sup>2</sup> | ~18 N/mm <sup>2</sup> |
|                                              |            | 7 days                                                              | ~17 N/mm <sup>2</sup> | ~19 N/mm <sup>2</sup> |
|                                              |            | Concrete Failure (~15 N/mm <sup>2</sup> )                           |                       |                       |
| Tensile adhesion strength<br>7 days @ 23 °C  | ASTM D-638 | Substrate                                                           | Adhesion Strength     |                       |
|                                              |            | Concrete Dry                                                        | >5 N/mm <sup>2</sup>  |                       |
|                                              |            | Steel                                                               | >5 N/mm <sup>2</sup>  |                       |
|                                              |            | 100 % Concrete Failure                                              |                       |                       |
| Elongation at break (7 day)                  | ASTM D-638 | ~1%                                                                 |                       |                       |
| Glass transition temperature                 |            | Curing Time                                                         | Temperature           | TG                    |
|                                              |            | 28 day                                                              | 23 °C                 | +52 °C                |
| Heat deflection temperature (7 day, 1.8 MPa) | ASTM D-648 | ~47 °C (118 °F)                                                     |                       |                       |
| Consumption                                  |            | Refer to Method Statement.                                          |                       |                       |
| Layer Thickness                              |            | 30 mm max.                                                          |                       |                       |

## DIRECTIONS FOR USE

### SURFACE PREPARATION

Concrete: Ensure the surface is sound, clean, and free from dust, oil, laitance, loose particles, or contaminants. Achieve a surface profile of CSP-3 or better using mechanical means such as shot-blasting or grinding. Concrete should be at least 21–28 days old.

Steel: Abrasive blast to a near-white or white metal finish (SSPC-SP10 or equivalent). Remove all rust, scale, grease, and other foreign matter.

CFRP Laminates and Composites: Clean the bonding surface with an approved solvent such as MEK or acetone to remove any release agents or contaminants. Allow to dry completely before bonding.

### MIXING

Pre-mix Component A and Component B separately to re-disperse any settled material. Combine Component A (base) and Component B (hardener) in a 2:1 ratio by volume. Mix thoroughly for at least 3 minutes using a low-speed drill (400–600 rpm) fitted with a mixing paddle until a uniform, streak-free light gray color is achieved. Avoid entraining air during mixing. Only prepare quantities that can be used within the pot life.

### APPLICATION

Apply the mixed adhesive evenly to the prepared substrate using a spatula, notched trowel, or putty knife to form a uniform glue line approximately 1/16 inch (1.5 mm) thick. Also apply a thin layer to the bonding surface of the reinforcement. Press the laminate or steel plate firmly into the adhesive while it is still workable, ensuring full contact. Use a hard rubber roller to expel any trapped air and level the adhesive layer. Maintain the adhesive thickness between 1/16 inch (1.5 mm) and 1/8 inch (3 mm). For epoxy mortars, blend oven-dried aggregate with the mixed adhesive up to a 1:1 volume ratio to achieve the desired consistency. Apply mortar in lifts not exceeding 30 mm per pass.

## CURING AND HANDLING

Do not disturb bonded elements for at least 24 hours. Mechanical design strength is typically achieved after 7 days at normal temperatures. Full cure and maximum mechanical properties are attained within 7–28 days, depending on ambient conditions.

## LIMITATIONS

- Minimum substrate and ambient temperature: 4 °C (40 °F).
- Do not thin with solvents as this will impair cure and strength.
- Use only oven-dried aggregates when preparing epoxy mortars.
- Maximum glue line thickness: 3 mm.
- Protect from UV exposure; product may discolor in sunlight.

## PACKING

**REC DUR 103** is available in 6 kg & 9 Kg packs.

## STORAGE

- All products have a shelf life of 12 months if kept in a dry store in the original, unopened packs. In tropical climates it is essential to store in air-conditioned warehouse.
- Store in dry conditions between 10°C and 30°C, away from sources of heat and naked flames in the original, unopened packs. If stored at high temperatures the shelf life may be reduced.

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