



## **Specification Document**

**Product: RepCon® V/O**

**Section 03 99 20 – Concrete Patching & Resurfacing**

**Section 03 01 00 – Maintenance of Concrete**

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### **Part 1 – General**

#### **1.01 Summary**

This section includes the procedures for vertical and overhead concrete repair using SpecChem RepCon® V/O, a single-component polymer-modified repair mortar. It is designed to ensure comprehensive coverage for specifiers, providing clear understanding of application areas and responsibilities.

#### **1.02 System Description**

RepCon® V/O is formulated for the rapid repair of vertical and overhead concrete surfaces. It is suitable for both interior and exterior applications, known for its fast setting and high build properties.

#### **1.03 Quality Assurance**

- A. Manufacturer qualifications: SpecChem must have an ongoing quality assurance program, independently audited regularly.
- B. Comply with all safety and environmental conditions as recommended by SpecChem and local, state, and federal regulations. Refer to Safety Data Sheets (SDS) for safety and handling practices.

#### **1.04 Delivery, Storage, and Handling**

- A. Materials should be delivered in original, unopened containers labeled with the manufacturer's name, product identification, and batch numbers. Damaged materials must be removed from the site immediately.



B. Store materials off the ground and protect from rain, freezing, or excessive heat until ready for use.

C. Condition the product as recommended by the manufacturer.

### **1.05 Job Conditions**

#### **A. Environmental Conditions:**

- Do not apply the material if it is raining, snowing, or if such conditions are imminent. The minimum application temperature is 45°F (7°C) and rising.

#### **B. Protection:**

- Precautions should be taken to prevent damage to adjacent surfaces during mixing and handling.

### **1.06 Submittals**

A. Submit two copies of the manufacturer's literature, including Technical Data Sheets (TDS) and appropriate Safety Data Sheets (SDS).

B. Submit a copy of the Certificate of Approved Contractor status from the manufacturer.

## **Part 2 – Products**

### **2.01 Manufacturer**

RepCon® V/O, as manufactured by SpecChem, meets the requirements of this specification.

### **2.02 Materials**

A. RepCon® V/O is a single-component, fast-setting, polymer-modified, fiber-reinforced concrete repair mortar with integral corrosion inhibitor.

B. The mortar is designed for high build applications and rapid setting properties.

### **2.03 Performance Criteria**

Typical properties of the mixed polymer-modified, portland cement mortar:



- **Yield:** 0.43 ft<sup>3</sup> per bag
- **Color:** Concrete gray
- **Mixing Ratio:** 6.25 to 6.75 pints (2.96 to 3.2 L) of water per 50 lb (22.7 kg) bag
- **Application Thickness:** Minimum 1/8" (3 mm), Maximum 2" (51 mm) per lift
- **Application Temperature:** > 45°F (7°C)
- **Working Time:** ~15 minutes
- **Compressive Strength (ASTM C109):**
  - 1 day: 3650 psi (25.2 MPa)
  - 7 days: 5470 psi (37.7 MPa)
  - 28 days: 7450 psi (51.4 MPa)
- **Flexural Strength (ASTM C348):**
  - 7 days: 650 psi (4.5 MPa)
  - 28 days: 1210 psi (8.3 MPa)
- **Bond Strength (ASTM C882):**
  - 7 days: 2185 psi (15.1 MPa)
- **Length Change (ASTM C157):**
  - Wet Cure @ 28 days: +0.01%
  - Air Cure @ 28 days: -0.06%
- **Freeze-Thaw Resistance (ASTM C666):**
  - Relative Durability Factor @ 28 days: 95.7
- **Rapid Chloride Permeability (ASTM C1202):**
  - 28 days: 890 coulombs
- **Modulus of Elasticity (ASTM C469):** 4.8 x 10<sup>6</sup> psi (33.1 GPa)
- **Set Time at 70°F (ASTM C266):**
  - Initial Set: 50 min
  - Final Set: 90 min

## Part 3 – Execution

### 3.01 Surface Preparation



#### **A. Cleaning the Surface:**

- Ensure the concrete is sound, and free from oil, grease, dust, laitance, or other contaminants. Saw cut the perimeter of the repair area 1/8" deeper than the repair depth to create a notched, reinforced edge.

#### **B. Abrasive Preparation:**

- Mechanically abrade the surface to a minimum Concrete Surface Profile (CSP) of 5, in line with ICRI 310.2 guidelines. All concrete surfaces must be saturated-surface-damp (SSD) with no standing water present.

#### **C. Steel Reinforcement Treatment:**

- Clean all exposed steel reinforcement of rust and coat with SpecPrep SB. Apply a spray or brush coat of SpecPrep SB to SSD concrete, proceeding with the repair mortar application wet on wet or within the recommended open time as per the SpecPrep SB datasheet.

### **3.02 Mixing and Application**

#### **A. Mixing Procedure:**

- Mix 6.25 to 6.75 pints of clean water per 50 lb bag of RepCon® V/O, adjusting for desired consistency. Use a low-speed drill for mixing, starting with water then gradually adding the RepCon® V/O. Mix for 2 to 3 minutes until homogenous.

#### **B. Application Instructions:**

- For placement, trowel RepCon® V/O firmly into the prepared area ensuring full contact with the bonding surface. Overfill slightly and shape roughly during placement.

#### **C. Shaping:**

- After the initial set when RepCon® V/O is surface hard, shave the material to the final shape using a steel trowel. The maximum depth of neat repair mortar is 2" per lift; additional lifts can be applied after the initial set ensuring the original lift has a rough surface to enhance bond between lifts.



### **3.03 Finishing and Curing**

#### **A. Finishing:**

- Finish the repair material to match the surrounding concrete texture. RepCon® V/O is self-curing under most conditions but in severe drying conditions, an ASTM C309 compliant water-based SpecChem curing compound should be used.

#### **B. Curing:**

- Moist curing is recommended immediately after finishing and should continue for 48 hours. Protect newly applied material from rain, sun, and wind until compressive strength is 70% of the 28-day strength. Cover with insulating material to prevent freezing. Setting time is dependent on temperature and humidity.

### **3.04 Cleaning**

A. Uncured material can be cleaned from tools with water. Cured cement mortar can only be removed mechanically.

B. Leave the finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.