



Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format. The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings. Delete all "Specifier Notes" when editing this section.

## SECTION 003700

### EMBEDDED GALVANIC ANODES

Specifier Notes: This section covers The Euclid Chemical Company "Sentinel-GL" anode that is designed to mitigate the corrosion of reinforcing steel in concrete. Consult Euclid for assistance in editing this section for the specific application.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Anode designed to mitigate the corrosion of reinforcing steel in concrete.

##### 1.2 RELATED SECTIONS

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

- A. Section 03300 - Cast-in-Place Concrete.
- B. Section 03370 - Specially Placed Concrete.

##### 1.3 REFERENCES

- A. ACI Guideline No. 222 - Corrosion of Metals in Concrete.
- B. ACI/ICRI 1999 Concrete Repair Manual.

- C. ASTM B 418 - Standard Specification for Cast and Wrought Galvanic Zinc Anodes.
- D. ASTM A 82 - Specification for Plain Steel Wire to Concrete Reinforcement.
- E. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bar for Concrete Reinforcement.
- F. ICRI Guideline No. 03730 - Guide for Surface Preparation for the Repair of Detriorated Concrete resulting from Reinforcing Steel Corrosin.

#### **1.4 SUBMITTALS**

- A. Comply with Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including surface preparation and placement instructions.
- C. Manufacturer's Certification: Submit manufacturer's ISO 9001/9002 certification.

#### **1.5 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: ISO 9001/9002 registered or provide proof of documented quality assurance system. Quality assurance system shall be registered by independent registrar accredited by ANSI Registrar Accreditation Board (ANSI-RAB) or by another internationally recognized body.

Specifier Notes: Describe requirements for a meeting to coordinate the placement of the andoe and to related work.

- B. Pre-placement Meeting: Convene a pre-placement meeting [2 weeks] [ \_\_\_\_\_ ] before start of placement of concrete repair mortar. Require attendance of parties directly affecting work of this section, including Contractor, Engineer, and manufacturer's representative. Review surface preparation, placement, protection and coordination with other work.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep containers sealed until ready for use. Avoid extreme temperatures.
- C. Handling: Protect materials during handling and placement to prevent damage or contamination.

#### **1.7 ENVIRONMENTAL REQUIREMENTS**

- A. Place in accordance to manufacturer's temperature restrictions anode is being repaired with.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

- A. The Euclid Chemical Company. To Order Call: Ron L. Bishop Associates. Toll Free (800) 773-7699. Phone (408) 428-2828. Fax (408) 428-9616.

### **2.2 GALVANIC ANODES**

- A. Galvanic Anode: Sentinel-GL.
  1. Description: 2.5" wide x 2.25" deep x 1.25" thick, pre-manufactured concrete casing containing zinc, around a pair of galvanized steel tie wires designed to mitigate the corrosion of reinforcing steel in concrete.
  2. Current: Anode will have a current output equal to or greater than 0.4 milliamps at 90 days. Testing maintained at room temperature and about 55% RH and conducted in a concrete block containing not more than 0.3ft<sup>2</sup> (0.028m<sup>2</sup>) of reinforcing steel.
  3. Encasement: High alkaline cementitious shell that shall not contain a high pH chemical which can accelerate ASR reaction.
  4. Designed with special V-notch design configuration that snugly fits any size rebar, requiring no special training.
  5. Formulated with two corrosion inhibitors.
  6. Will not "dump" current into attachment bar extending the coverage area and service life of the cathodic protection device.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Examine surfaces to receive anode. Notify Engineer if surfaces are not acceptable. Do not begin placement until unacceptable conditions are corrected.

### **3.2 SURFACE PREPARATION**

- A. Prepare concrete surfaces in accordance with manufacturer's instructions.
- B. The area to be repaired should be prepared in accordance with ICRI Guidelines.
  1. All unsound concrete should be removed from around and behind steel reinforcement.
  2. Sufficient clearance should be provided between anode and substrate, generally minimum of 3/4" (19 mm) or 1/4" (6 mm) larger than top size aggregate of repair material, whichever is greater.
  3. Rebar is to be prepared to a bright metal only where anodes will be attached.

### **3.4 PLACEMENT**

- A. Place anodes as close as practical to the edge of the repair area (within 6" or 150 mm) while providing sufficient clearance for the anode to be completely surrounded by repair mix.
- B. Anode spacing shall be specified by the designer, however spacing should not exceed 30" (750 mm) on center.
- C. Anode is normally installed top face parallel to the concrete surface, but may be angled down in cases where concrete cover is very shallow.

### **3.7 PROTECTION**

- A. Anodes should be installed and covered with repair material within 24 hours or removal from their original package. Temporarily store in plastic sealed bag for protection if removed from original package.
- B. Although not required, the use of insulating repair coatings such as epoxy coatings in the repair area will increase the effectiveness and service life of the anodes.

**END OF SECTION**