

# ASTM C881

## Adhesives

### Epoxy Resin Systems for Civil Engineering Applications

#### ASTM C881

“Standard Specification for Epoxy-Resin Based Bonding Systems for Concrete”

**Replace or Repair?** A restoration project properly executed and using the correct repair products can add years to the service life of a structure. The cost to properly repair a structure is often significantly less than the cost of replacement or further deterioration. However, a poorly designed repair project using the wrong products can result in a continuing, expensive headache. The American Society for Testing and Materials developed ASTM C881 to assist engineers, architects and contractors select resin systems best suited for a particular application.

This specification defines a classification system for epoxy resins and is routinely referenced in civil engineering projects. Seven **Types** are listed, based on application and physical properties such as compressive strength, modulus and bond strength. For each **Type** of epoxy system, the specification describes three **Grades** according to viscosity and sag resistance.

**Grade 1:** Low Viscosity (2,000 cps max.)

**Grade 2:** Medium Viscosity (2,000 – 10,000 cps)

**Grade 3:** Non-Sag (1/4” sag resistance)

The epoxy systems are further characterized by **Class**, which indicates the temperature range in which the epoxy can be applied. As an example, Class A products are designed for use below 40 degrees F., Class B products are for use between 40-60 degrees F., and Class C products are for use above 60 degrees F. **Epoxy Chemicals, Inc.** provides epoxy curing agents used to formulate the **Types, Grades and Classes** commonly used in civil engineering applications.

**Epoxy Chemicals amine curing agents, A-6 Polyamine, FB-31 Polyamine, and FS-290 Polyamine, are used in the formulation of the following ASTM C881 epoxies:**

**Type I – Bonding hardened concrete to hardened concrete (non-load bearing).**

**Type II – Bonding fresh concrete to hardened concrete (non-load bearing)**

**Type III – Bonding skid resistant materials to hardened concrete (low modulus)**

**Type IV – Bonding hardened concrete to hardened concrete (load bearing)**

**Type V – Bonding fresh concrete to hardened concrete (load bearing)**

**Type VI – Bonding and sealing segmental pre-cast elements with internal tendons and span by span erection.**

**Type VII – Sealing segmental pre-cast elements.**