

CONCRETE CURING

ASTM C309 CURING COMPOUNDS FOR EXTERIOR CONCRETE APPLICATIONS



WHITE PIGMENTED CURING COMPOUNDS (ASTM C309)

- ▶ **Purpose:** Moisture retention + visual coverage + solar reflectivity
- ▶ **Example Products or Equivalent**
 - W.R. Meadows – 1600-WHITE
 - Euclid Chemical – Kurez W VOX
 - SpecChem – Cure White
 - Dayton Superior – J-11W
- ▶ **Differentiation Between Products**
 - Resin Type: Wax-based vs. resin-modified (film durability and breakdown)
 - Solids Content: Higher solids = improved moisture retention and thicker membrane
 - VOC Compliance: VOX/low-VOC formulations for regulatory environments
 - Reflectivity: Pigment loading impacts solar reflectance
 - Application Performance: Sprayability, tip clogging, and consistency
- ▶ **Advantages**
 - Provides visual confirmation of uniform application
 - Reflects sunlight → reduces evaporation rate (ACI 305 relevance)
 - Promotes proper hydration and strength development
 - Reduces risk of plastic shrinkage cracking and surface drying
- ▶ **Limitations**
 - Leaves a temporary surface membrane
 - May require removal prior to coatings or bonded systems
 - Over-application may lead to non-uniform curing or discoloration
- ▶ **Recommended Use**
 - Exterior flatwork (sidewalks, pavements, slabs)
 - Air-entrained concrete exposed to freeze-thaw cycles
 - Projects where coverage verification is critical

DISSIPATING / CLEAR CURING COMPOUNDS (ASTM C309)

- ▶ **Purpose:** Moisture retention without long-term membrane
- ▶ **Example Products or Equivalent**
 - W.R. Meadows – 1100-CLEAR (dissipating)
 - Euclid Chemical – Kurez DR VOX
 - SpecChem – Cure (Dissipating)
 - Dayton Superior – J-10
- ▶ **Differentiation Between Products**
 - Dissipation Rate: Speed of UV breakdown and film loss
 - Clarity: Final appearance (important for decorative applications)
 - Residual Film: Degree of remaining membrane after curing
 - VOC Compliance: Availability of low-VOC formulations
- ▶ **Advantages**
 - Minimal long-term residue → no removal required
 - Compatible with future sealers, coatings, or toppings
 - Maintains curing performance without leaving visible film
- ▶ **Limitations**
 - No reflectivity → higher evaporation risk vs. white cure
 - Limited visual confirmation of coverage
 - Provides no long-term surface protection
- ▶ **Recommended Use**
 - Decorative concrete
 - Surfaces receiving penetrating sealers after curing
 - Applications requiring a clean substrate post-cure

CONCRETE CURING

CURE & SEAL SYSTEMS (ASTM C309 + C1315)
FOR EXTERIOR CONCRETE APPLICATIONS



CURE & SEAL (FILM-FORMING SYSTEMS)

- ▶ **Purpose:** Combined curing and sealing in a single application
- ▶ **Example Products or Equivalent**
 - W.R. Meadows – CS-309-25
 - W.R. Meadows – CS-309-30
 - Euclid Chemical – Super Diamond Clear
 - SpecChem – Cure & Seal 25
 - Dayton Superior – J-19 Cure & Seal
- ▶ **Differentiation Between Products**
 - Solids Content (25% vs. 30%+): Higher solids = thicker film, increased protection, higher sheen
 - Finish Appearance: Matte to gloss depending on formulation
 - UV Stability: Resistance to yellowing or degradation
 - Recoatability: Ease of applying additional coats
 - Slip Resistance Options: Some systems allow additives
- ▶ **Advantages**
 - One-step curing + sealing system
 - Enhances surface appearance (color, depth, sheen)
 - Provides early protection against moisture and contaminants
 - Reduces dusting and improves cleanability
- ▶ **Limitations**
 - Film-forming → may trap moisture if applied improperly
 - Susceptible to whitening, blushing, or delamination in exterior conditions
 - Not recommended as sole long-term protection in freeze-thaw + deicing salt exposure
 - Requires maintenance and reapplication over time

CURE & SEAL (FILM-FORMING SYSTEMS) CONT.

- ▶ **Recommended Use**
 - Decorative concrete (stamped, colored, exposed aggregate)
 - Residential and light commercial exterior
 - Projects prioritizing appearance and initial protection

FIELD APPLICATION GUIDANCE (ALL SYSTEMS)

- ▶ **Timing**
 - Apply immediately after final finishing
 - Typically within 30 minutes of final finish
- ▶ **Coverage Rate**
 - Follow manufacturer recommendations
 - Typical range: 200–300 ft²/gal
- ▶ **Uniform Application**
 - Ensure complete, even coverage
 - Missed areas → localized drying and increased scaling risk
- ▶ **Exterior Durability System (Best Practice)**
 1. Apply ASTM C309 curing compound
 2. Allow concrete to cure (~28 days)
 3. Apply penetrating sealer (silane/siloxane ≥40% solids)
- ▶ **FIELD SELECTION SUMMARY**
 - White Cure (C309): Best for durability, visibility, and evaporation control
 - Dissipating Cure (C309): Best for future treatments and clean substrate conditions
 - Cure & Seal (C1315): Best for appearance and short-term protection