

# CONCRETE CURING

## ASTM C309 CURING COMPOUNDS FOR EXTERIOR CONCRETE APPLICATIONS



### WHITE PIGMENTED CURING COMPOUNDS (ASTM C309 Type 2)

- ▶ **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 Type 1/1D)

- ▶ **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 (ASTM C1315 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 (ASTM C1315 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 ft<sup>2</sup>/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