

# TK Products MCC - April 12, 2018

CURING AND SEALING  
CONCRETE

## CURING

### (ACI-308-81)

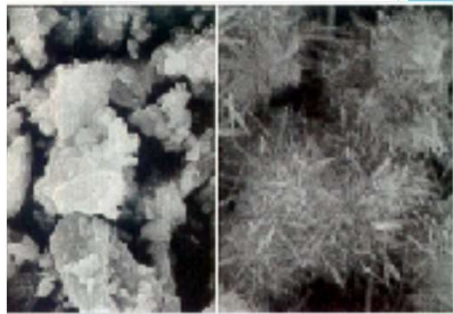
AMERICAN CONCRETE INSTITUTE

- Curing is the maintaining of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties may develop

## Hydration of Cement Portland Cement Association

- ▶ The hydration of portland cement is the chemical reaction between grains of cement and water to form the hydration product, cement gel; and cement gel can be laid down only in water-filled space.

## Cement hydration



## METHODS OF CURING

- ▶ Water
- ▶ Sheet Goods
- ▶ Membranes
- ▶ Hay, Straw or Blankets
- ▶ Damp soil
- ▶ Air /Sunshine

## CURING OR SEALING

- ▶ What's the difference?

## Curing Concrete

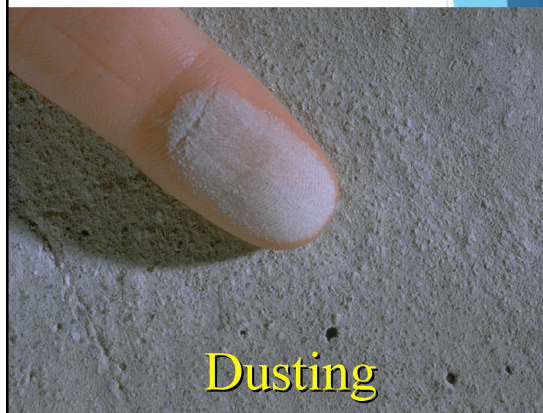
“Holding Water in the Concrete”

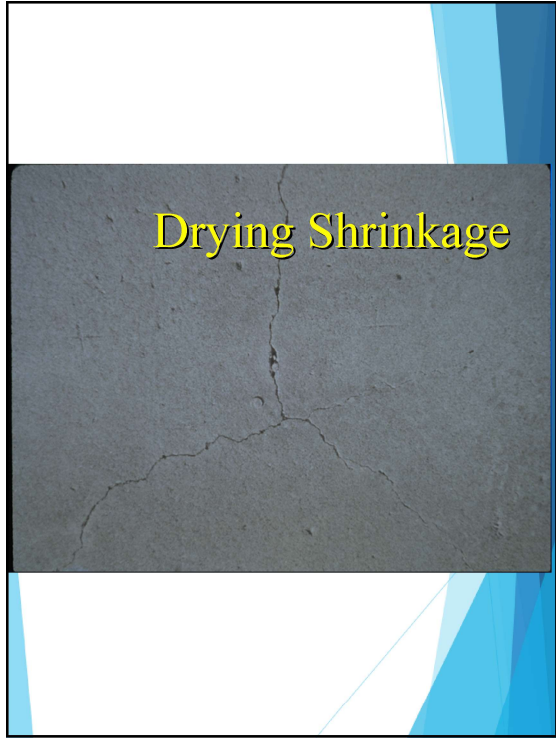


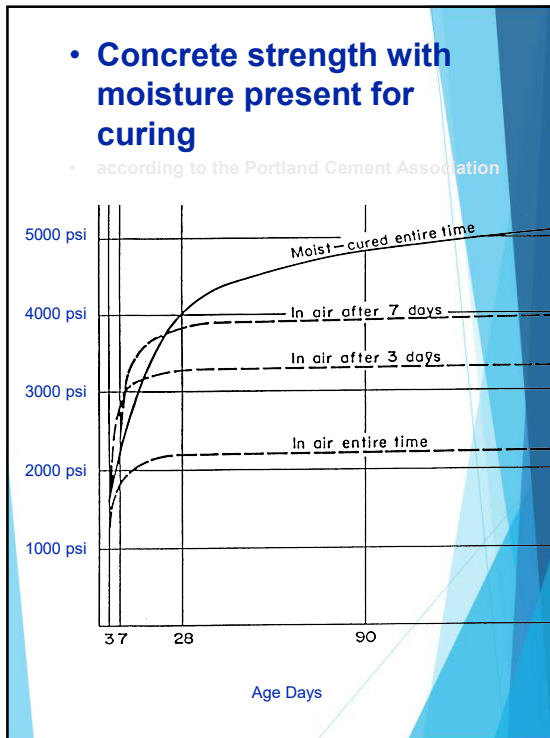
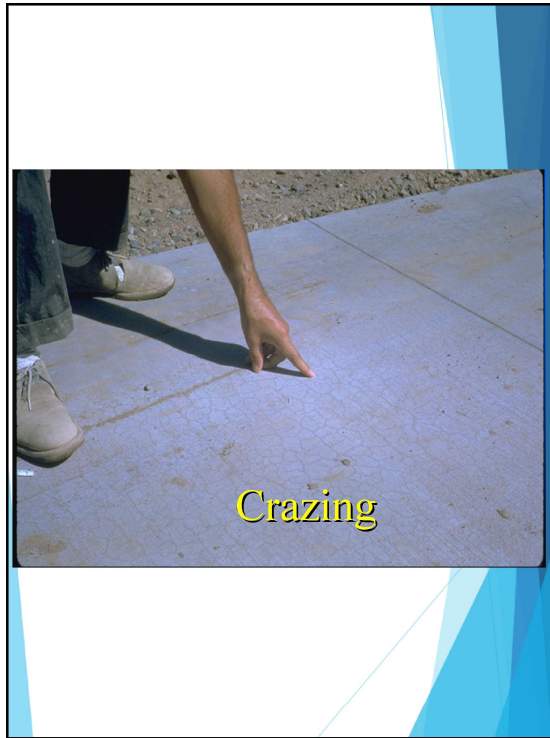
Will:

- Increase concrete strength
- Increase concrete abrasion resistance
- Lessen the chance of concrete scaling
- Lessen the chance of surface dusting
- Lessen the chance of concrete cracking

Good curing is the final step in giving your customer the quality concrete job you intended





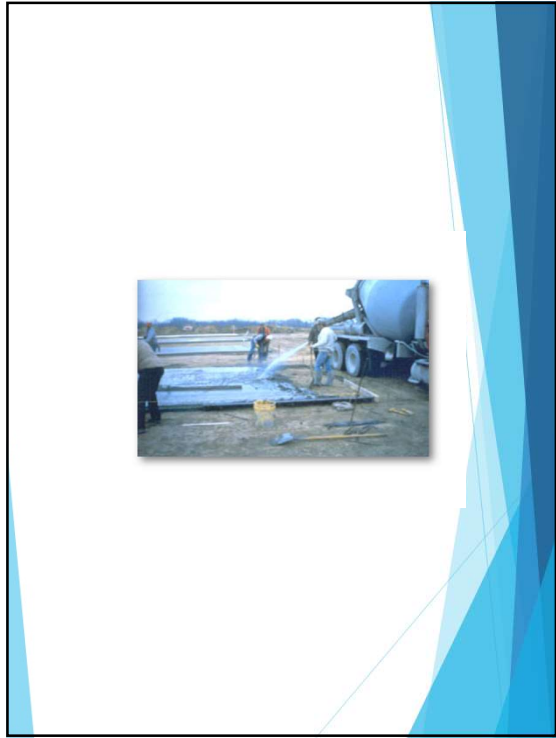


# Membrane curing options

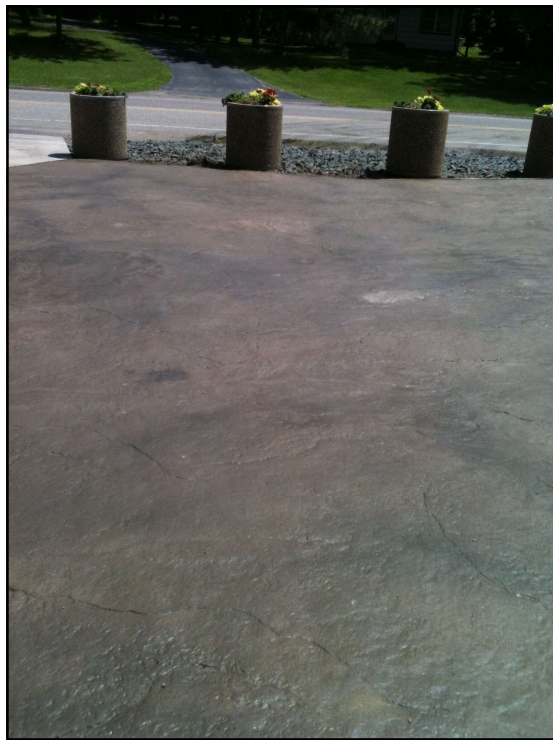
- Water Base Acrylics
- Solvent Base Acrylics
- Methacrylate
- Chlorinated Rubber
- PAMS
- Hydrocarbons

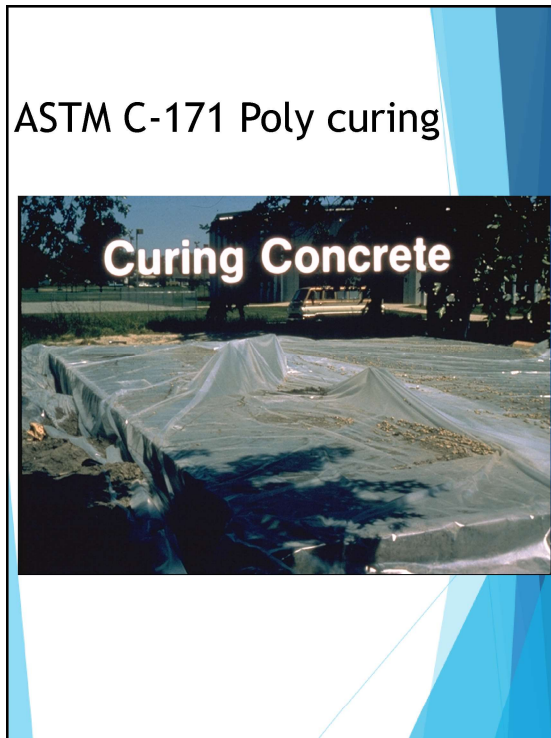
## Water/Cement Ratio











## Curing, and Curing and Sealing Compounds

All Products Need to Meet Federal EPA's VOC Requirements



### Solvent based - ASTM C-1315

- Acrylic resin
- Acrylic & methacrylate resin
- Chlorinated rubber resin
- PAMS

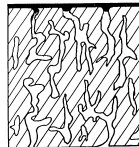
### Water based - ASTM C-309

- Acrylic resin
- Dissipating resin (Hydrocarbon Resin)
- Wax

### Reseal your concrete before winter

to protect it from deicing salts that drip off your car. The Curing and Sealing Compound used by your contractor when applied to newly poured concrete forms a film on the surface to hold the hydration water in for proper curing. When you drive on this film it gets perforated and allows deicing chemicals to enter the concrete. Resealing when the concrete is cured out and dry will allow the cure & seal to penetrate the concrete and seal it from within.

Side view of concrete with Curing and Sealing Compound applied as soon as the concrete is finished.



Coat of curing and sealing compound

Water in the pours and capillaries

You need to recoat the concrete with a Curing and Sealing Compound after the concrete is cured out (it usually takes at least 28 days or more). At this time the concrete is dry so the cure & seal can penetrate into the pours.



Resealing will melt the cure & seal applied by the contractor and allow it to penetrate into pores and capillaries that are open and dry.

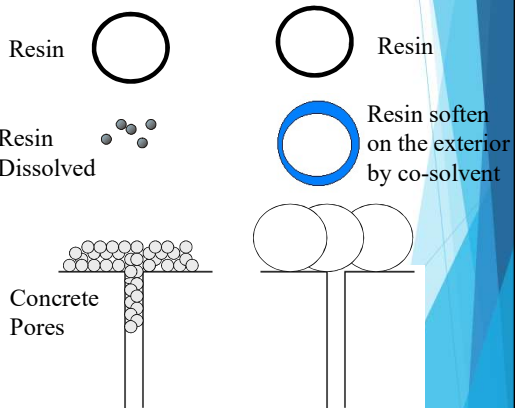
It is important that the concrete has been washed before sealer is applied, so no dust or dirt is on the surface and that it is dry for proper penetration.

**It is recommended to reseal every 3 years after the initial sealing.**

Usually concrete scaling comes from water getting into the capillaries and freezing. By resealing we can get sealer into the capillaries, so water can not get in.

## SEALING OPTIONS

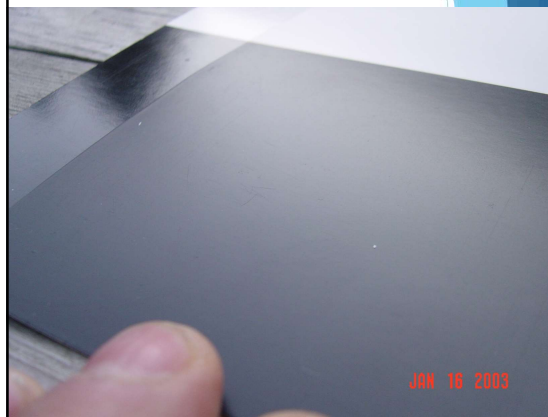
- ▶ Solvent Base Cure and Seal
- ▶ Water Base Cure and Seal
- ▶ Silane or Siloxane (Water Repellents)
- ▶ Silicate or Siliconate (Chemical Hardeners)
- ▶ Epoxy
- ▶ Urethane/Polyaspartic



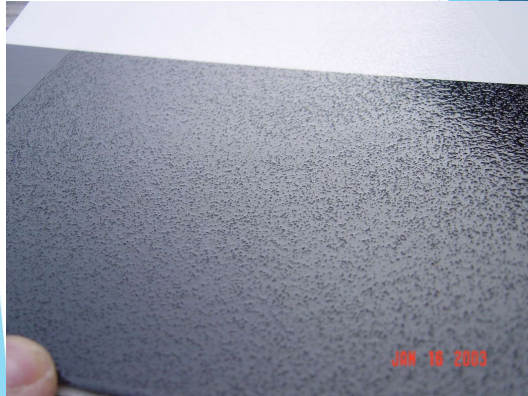
Solvent Based Cure & Seal



Solvent Based Cure & Seal with a matt finish



Solvent Based Cure & Seal with a non-slip aggregate added

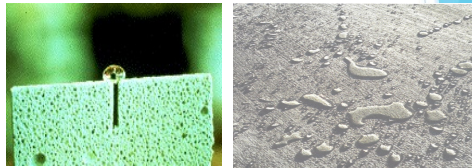


## Water Repellents

Membrane Sealer Silanes and Siloxanes



Silanes and Siloxanes seal by lining the pores and capillaries and making them hydrophobic.

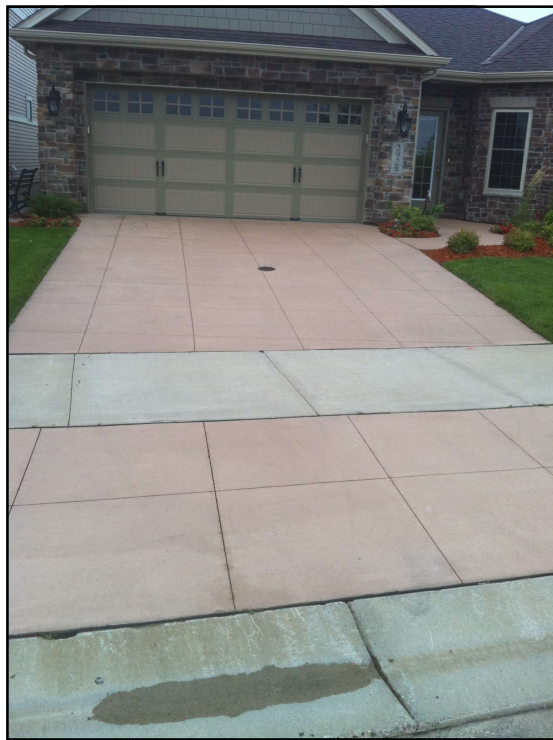


- breathable
- non-darkening and non-glossy unlike membrane sealers
- can be over coated by a membrane coating for double protection

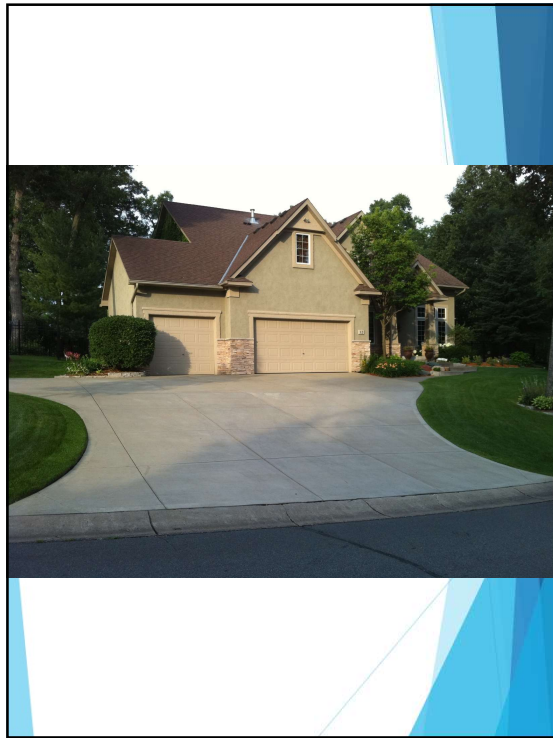
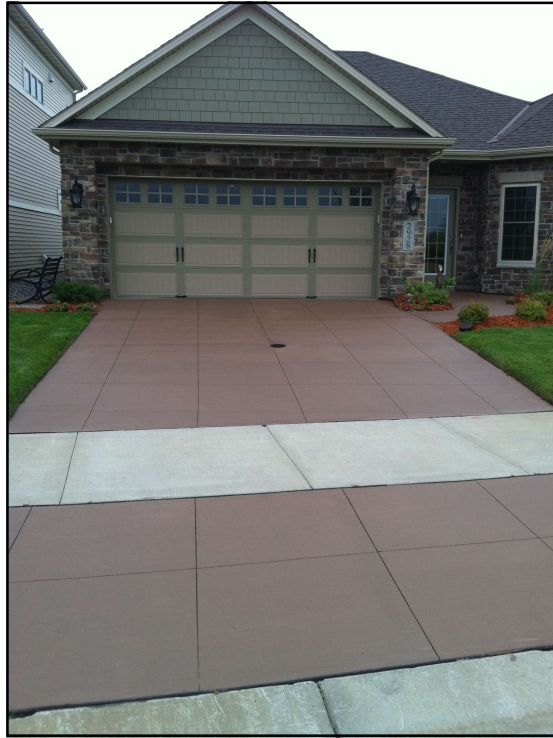


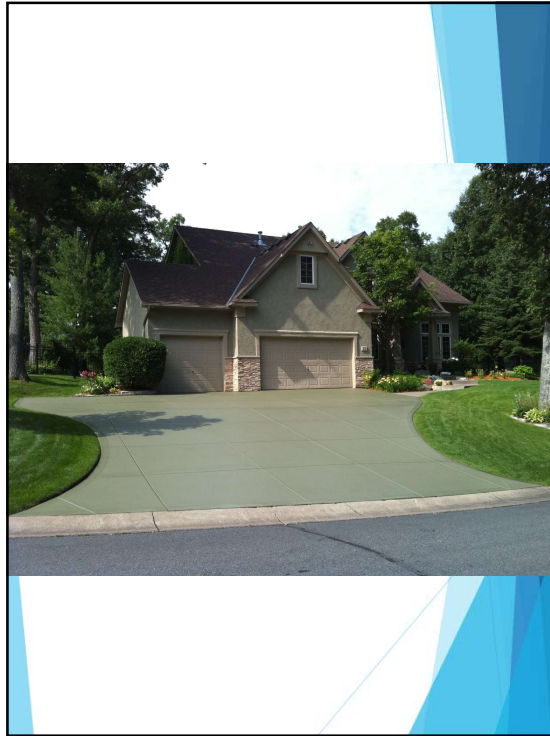
## Siloxane Penetration











## Under Hot/ Dry/ Windy/ Low Humidity Conditions

Tri-  
Film

- Use **Evaporation Retardant**
- Slows water evaporation by 80%.
- Works by putting a molecular film around the water molecule to keep it from evaporating.
- Fresh concrete has a total of 6.33 oz. of water/sq.ft. in the top 1/2 inch of 4" slump concrete.

