

## Penetrating Sealers Webinar – Questions and Answers

The questions submitted during the webinar follow with answers that our speakers have provided.

1. With the move to less permeable concrete with small pore size will penetrating sealers be effective in its use? Hawaii

As permeability decreases, so will sealer penetration depth. The sealer effectiveness is judged by any changes/improvements to the concrete substrate. A greater improvement will be observed for worse concrete. Cracks however, can still exist in less permeable concrete and would arguably be more important to seal because of the general increase in value for structures using low permeability concrete.

2. Are you planning to re-apply the product to the gas station pavements? Iowa

No reapplication required if Pavix is applied at the correct rate of 150-175 sf per gallon. We tried a reapplication on one of our lots and Pavix repealed itself turning the lot white with unpenetrated crystals.

3. I have heard some of the products have cleaned the pavements, have you seen this? Iowa

Because we use Pavix our lot maintenance has been greatly reduced due to wet/dry activity. Every time there is a rain event the contaminants, such as oil, gas, diesel, and chlorides, are pushed out of our parking lot's surface and washed away.

4. Do you seal the entire surface or just the joints? Iowa

We would do the entire surface. I did do both on a couple of jobs, as in sprayed the saw cuts before rope and caulk as a primer.

Joints are the area of highest moisture and salt accumulation and areas with the most problems. If ranked, joints would be the highest priority followed by the entire surface.

5. For Casey's - any concerns or protections required prior to opening to traffic. Is there a curing time needed after application? Kansas

About 1 hour.

The various families and chemistries of penetrating sealers have different drying, curing, and reaction times. Clean and dry concrete with sufficient time before a rainfall is crucial to long-term performance. The manufacturer's recommendations tend to be minimum time for traffic but not for full protection.

6. For Casey's - is there any retreatment or only one-time treatment? Kansas

One-time treatment.

7. Please repeat the name of the product, Kansas and Iowa

ChemCrete Pavix CCC100

8. Can this only be done to new concrete or is there a treatment for older, existing concrete? Colorado

Pavix can be used on new 7-day-old concrete or 20-year-old concrete.

The pore blocking sealers and other non-reactive sealers can be applied to new or existing/older concrete. Anything that reacts with calcium hydroxide work best on relatively young concrete.

9. Does John Kevern have a paper on these issues? Where can I find it? Colorado

Xiao, D., Adil, G., Kevern, J.T., and Owusu-Ababio, S. "Field Performance of Concrete Pavement Joints Protected by Silane Sealer," ASCE Journal of Performance of Constructed Facilities, Vol. 35, No. 6, 2021. DOI: 10.1061/(ASCE)CF.1943-5509.0001662.

Adil, G., Kevern, J.T., and Xiao, D. "The Influence of Penetrating Sealers on the Performance of Concrete Joints," ACI Materials Journal, V. 118, No. 5, September 2021, 10 pgs.

10. What would be the timing of application on sealants to new concrete? Is this in-place of curing compounds? Colorado

Penetrating sealers do not replace conventional curing methods. Any film-forming curing materials should be removed or have dissipated before application. You need to make sure the concrete pores are open and able to accept the product.

11. For Casey's. Anything of note in the diesel fill areas? Iowa

Pavix is a self-cleaning product. The more it rains, the cleaner it will be, as Pavix will push everything out or off, or will make it easier to power wash if you have a dry summer and want to get rid of oil spots. Pavix will go dormant during the dry event and comes to life when wet.

12. In relation to absorption and desorption, is there a position of more importance? Iowa

Absorption is crucial to all applications exposed to water. Desorption is more important where active drying cannot easily happen, like a pavement slab.

13. Has anyone looked at applying a seal to concrete at the ends of runways where rubber removal is an issue? Maybe something that allows a much lower pressure to remove but still provides the necessary friction? Texas

Good question, I'm not aware of anything in particular. A quick look through AC150 would suggest that as long as penetrating sealers do not influence friction, they would be allowable. Since some versions have shown self-cleaning, anti-graffiti, and contaminant flushing abilities, it would be something to investigate.

14. Do people complain about the sidewalk being slicker? Or that's not a factor? Utah

Pavix absorbs into the surface capillary structure leaving no film to wear off the surface.

Since penetrating sealers exist below the surface, micro and macro texture are not influenced. For sidewalks, since the ice buildup doesn't attach as readily to the surface, some can be more slip resistant.

15. How is surface texture affected after application? Florida

Pavix is absorbed into the concrete; does not sit on top. Whatever your finish is, it will stay the same.

Since penetrating sealers exist below the surface, micro and macro texture are not influenced.

16. What equipment is required to apply the surface sealant? Florida

Our applicators use AG and industrial yard sprayers with aluminum side shields to control overspray lines.

Typically, non-atomizing sprayers.

17. What is an average cost per square yd? (a range will be fine) Florida

\$3.06 - \$3.33 per sq yard.

18. Do you need any special preparation for joints? Do you need to clean them out before sealing a roadway, for example? Iowa

The cleaner the better - as in no dust. Pavix is only as good as its surface.

Concrete needs to be clean and dry.

19. Is there a guide or standard for application practice? Or is this just manufacture guidance? Should surface be swept, blown off, water jetted? Iowa

There is not a standard for application and generally the manufacture recommendations are the best starting point. You need to make sure the concrete will accept the product. For new concrete this means removing any residual curing compound and for older concrete, cleaning out dirt and tire grime. Definitely swept and washed as a good practice.

20. What surface prep is needed? Iowa

See 19.

21. If you have existing sidewalks and driveways that have some wear/minor spalling but are still safe/functional, how do you prep these surfaces and is there any intermediate product you would use prior to applying Pavix? Washington

Penetrating sealers do not need a primer. Clean and dry is important.

22. Does the snow removal (scraping the surface) affect how the sealers perform over time? Virginia

No – shouldn't be a factor. It makes snow removal easier by not letting the ice or snow stick down.

23. Did you look at how using 30% fly ash or slag reduces the chloride penetration for comparison? Ontario

We have not. We prepare a proper subgrade with a good concrete mix design. Pavix is the perfect quality control for our surface. Again, the wet/dry purging activity is very useful in keeping our surfaces clean and in good shape.

Yes, a comparison between OPC and Fly ash with sealers is shown in the ACI paper listed above. Not all sealers reduce chloride penetration and one that does should be selected if that is the desired outcome. Otherwise sealers are going to reflect the concrete to which they are applied.

24. Has anyone checked the effectiveness of sealers against petroleum distillates, Oklahoma

On all of our parking lots, gas and diesel have had no effect on the Pavix. Each time it rains, gas, diesel, and oil are purged out of our concrete.