

FloroProof

Moisture vapor transmission (MVT) starts as capillary action in a concrete slab. The moisture migrates from the bottom of the slab towards the surface until the capillary action is stopped by an air void – either from air entrained in the concrete mix, or simply a void from not vibrating the concrete during placement. At this point, the moisture turns into a vapor and continues to migrate to the warmer and drier area above it. When it reaches the cap, or cream, of the slab, the cream acts much like a sponge absorbing the moisture vapor below. Capillary action moves the vapor to the surface where it condenses and becomes a liquid again.

It appears that all the moisture vapor transmission issues revolve around high pH liquids building up beneath the coating; this liquid destroys the bond line of most epoxies. Salt (NaCl) and calcium chloride (CaCl₂) – both are used as additives in concrete mixes – also play a role in MVT. These additives are used to prevent freezing of the slab during cold conditions, and can also enter the concrete when used as a deicer on finished slabs. Salts and calcium chloride will attract moisture and then release it back into the slab; this is why it is important to identify the NaCl/CaCl₂ content in the slab using core testing. If the NaCl/CaCl₂ concentration is too high, the slab is unsafe to coat. It's possible that high concentrations of NaCl/CaCl₂ in concrete will lower the pH and strength of the concrete. Concrete should have a pH of 12 to 12.5 to be considered healthy; a pH below 10 indicates a possible high salt content and a higher than normal water/cement ratio can also weaken concrete, leading to more capillary action and MVT issues.

For floors under warranty, core testing results must be submitted to Florock. If no local lab is available, Florock can provide a list of labs that can perform core testing. Consult your Florock representative for test standards.

Core testing is the responsibility of the building owner.

Relative Humidity Testing Standards

Relative Humidity	Additional testing needed	Suggested Systems	
Up to 75%	No additional testing needed	Any Florock flooring system	
Up to 80%	No additional testing needed	FloroCrete P at 10 mils minimum. Followed by any compatible Florock system	Novolac or MVT Primer at 10 mils minimum. Followed by any compatible Florock system
Up to 85%	No additional testing needed	FloroCrete P at 10 mils followed by Florocrete SLX at 100 mils minimum. Followed by any compatible Florock system	Novolac or MVT primer at 16 mils minimum. Followed by any compatible Florock system
85% and above	MVT Test and Core sample testing needed.	FloroCrete P at 10 mils followed by FloroCrete RT at 185 mils minimum. Followed by any compatible Florock system.	FloroCrete HD at 250 mils minimum, Followed by any compatible Florock system.

Moisture Vapor Transmission Testing Standards

MVT rating stated in Pounds / 1,000sf / 24 hours	Additional testing needed	Suggested Systems	
Up to 3 lbs	No additional testing needed	Any Florock flooring system	
Up to 6 lbs	No additional testing needed	FloroCrete P at 10 mils minimum. Followed by any compatible Florock system	Novolac or MVT Primer at 10 mils minimum. Followed by any compatible Florock system
Up to 8 lbs	No additional testing needed	FloroCrete P at 10 mils followed by Florocrete SLX at 100 mils minimum. Followed by any compatible Florock system	Novolac or MVT Primer at 16 mils minimum. Followed by any compatible Florock system
Up to 12 pounds	R.H. Test and Core sample testing needed.	FloroCrete P at 10 mils followed by FloroCrete RT at 185 mils minimum. Followed by any compatible Florock system.	FloroCrete HD at 250 mils minimum, followed by any compatible Florock system.

Note: These testing standards are to address M.V.T. issues. Other issues such as excessive levels of calcium, potassium, salts and silicas, A.S.R. (Alkali-Silica Reactivity), carbonation, low strength, cracking, slab movement, etc. are NOT covered by these systems.