What happens to acrylic coatings when played on wet: During cure phase and after crosslinking phase

Here is the breakdown of why you should stay off the court during both phases:

After Initial Application (The "Tender" Phase)

In the first 14 to 21 days, the coating is undergoing a chemical process called coalescence. Even if it feels dry, the internal structure is still "soft."

- **Permanent Marks:** Playing on a wet, fresh court is like walking on semi-set concrete. The water softens the top layer of resin, allowing the friction of your shoes to physically displace the sand and pigment, leaving permanent scuffs or "burns" in the finish.
- **Osmotic Blistering:** Moisture trapped on a fresh surface can be pulled *into* the coating. When the sun hits the court, that water turns to vapor; if the bond isn't fully matured, the pressure creates bubbles (blisters) that eventually lead to peeling.
- **Pigment Disturbance:** High-performance pigments need time to lock in. Water can cause "surfactant leaching," leading to unsightly white streaks or uneven color fading that can't be washed away later. In some circumstances, there will be color transfer.

After Full Cross-Linking (The "Mature" Phase)

Once the court is fully cured (usually after 3 weeks), the coating is at its maximum hardness. However, moisture now creates a different set of mechanical and safety issues:

- **Hydroplaning (Safety):** Acrylic coatings use silica sand for grip. When wet, a micro-film of water sits on top of the sand particles. Your shoe loses direct contact with the grit, causing you to slide—much like a car tire on a wet road.
- **Surface Shearing:** Water acts as a lubricant that actually makes the "scuffing" action of a tennis shoe more aggressive. Playing on wet grit acts like a wet-sanding block, accelerating the loss of texture and creating "bald spots" where the court becomes permanently slick.
- **Delamination via Pressure:** When a 180lb player pivots on a wet surface, they exert massive, localized pressure. This can "pump" water into the microscopic pores of the acrylic. Over hundreds of matches, this hydraulic action can eventually snap the cross-linked bonds, causing the coating to flake off.

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