

**TECH NOTE**

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## Xypex Patch'n Plug vs Other Cement Based Water Plug Products

Xypex Patch'n Plug is the most effective rapid-setting-hydraulic-mortar (RSHM) available in what is a very crowded world of competitive products. This opinion is largely based on the distinguishing Xypex crystallization effect that is integral to Xypex Patch'n Plug – a property that elevates the product beyond the normal effectiveness of this family of materials. This is further explained below.



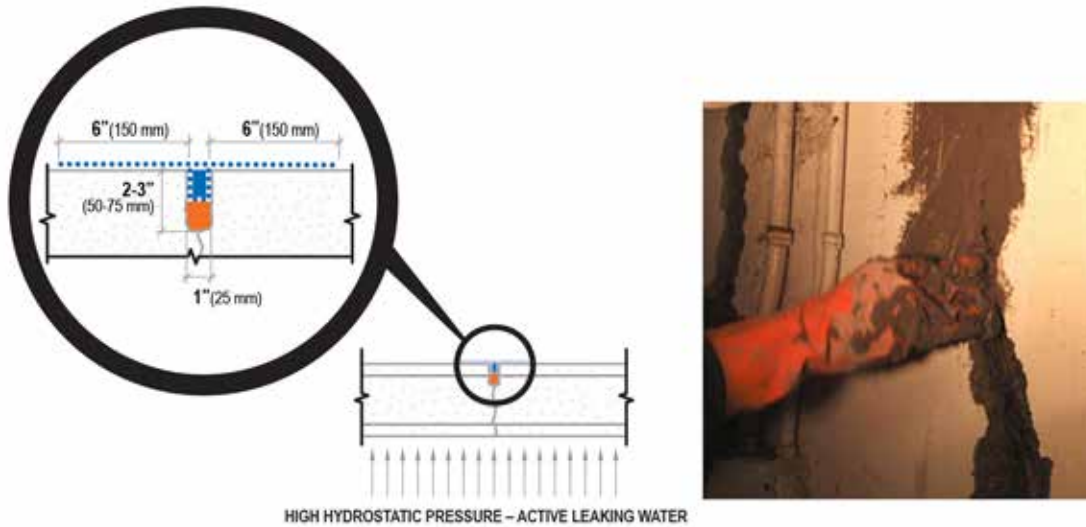
RSHMs are specifically formulated to plug against actively flowing water. The formulation typically results in a very short working time followed by very rapid hardening. Most RSHMs have a working time of between approximately 75 and 195 seconds (1.25 to 3.25 minutes) after mixing for about 45 seconds (.75 minute). The working time of Xypex Patch'n Plug falls in the middle of this range and, though Xypex deems this as a preferred setting time, personal opinion does vary as to whether a short or long working time is better for plugging active leaks.

Most important here is the fact that Xypex Patch'n Plug, unlike all other hydraulic cement products, includes Xypex Crystalline Technology in its formulation. This is a major performance benefit, with Xypex chemicals diffusing from hardened Patch'n Plug into both the crack and the surrounding concrete – a process resulting in a more secure repair of the crack (short and long term). By contrast, competitive RSHMs do not have this crystalline component and rely solely on the 'plug-effect'.

Xypex crystalline development begins with Xypex chemicals diffusing into the water or moisture in the crack area. This initiates the growth of the Xypex crystalline structure within the crack often resulting in a full-depth-repair of the crack. As well, the Xypex crystalline diffusion into the surrounding concrete will cause any subsequent cracks that form around or near this plug area to self-heal. Again, competitive RSHMs do not contain crystalline ingredients. Therefore, any future cracks occurring in the concrete surrounding the repair will be incapable of self-healing and thus would require additional repair.

Finally, the Xypex Crystalline Technology within the Patch'n Plug will enable cracks, that might telegraph through the plug itself or between the plug and the substrate concrete, to heal. This telegraphing of new cracks or pulling away of the plug from the substrate can certainly occur especially in repairs that are subject to periodic movement from seismic activity or from the annual emptying and refilling of a tank. Again, other RSHMs will often not self-heal newly formed cracks and hence any movement events would be expected to cause leakage. While Xypex Patch'n Plug and Xypex crystalline waterproofing is not meant for use on cracks or joints that experience ongoing movement, the crack healing capabilities are helpful in mitigating leaking at those cracks that move on an infrequent basis.

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*Aside from the benefits accruing from the overall quality and outstanding physical properties of Xypex Patch'n Plug, Xypex Crystalline Technology renders Xypex Patch'n Plug a far superior hydraulic cement repair product.*

Xypex Patch'n Plug, and its role in permanently repairing and waterproofing both actively flowing or dry cracks and other leak paths, is part of a fully integrated and complementary Xypex product line uniquely formulated for the waterproofing, protection and repair of concrete. Innovation and quality control has positioned Xypex as a world leader in this field.