TECHNICAL NOTES

FREQUENTLY ASKED QUESTIONS

Every day we receive dozens of questions relating to polyurea and epoxy floor joint fillers, ranging from the significance of various physical properties to proper application and finishing methods. To follow are some of the more frequently asked questions.

1. What does the "Spal-Pro" in your Spal-Pro product line stand for?

When floor joints are subject to hard wheel traffic, the wheel impact and/or the loads imposed can break off or chip away the joint edges. This joint edge deterioration is known in the industry as "spalling". The primary function of an industrial floor joint filler is to support the wheels and loads carried across the joint without deflecting. By supporting the loads the filler protects and supports the joint edges. Thus, Spal-Pro stands for "spall protection."

2. What does Shore A Hardness mean? How is Shore A different from Shore D?

The relative hardness of a material is measured by using a "durometer gauge," the most common being a Shore durometer gauge. There is a needle at the bottom of the gauge, which is pressed against the material to be tested. There are two scale types of Shore gauge. The Shore A gauge has a dull needle and is used to measure the hardness of rubberlike materials. The Shore D gauge has a sharper pointed needle and is used to measure the hardness of harder materials such as plastics.

Shore A Gauge

Back in the late 1960's, when Metzger/McGuire introduced the first semi-rigid epoxy floor joint filler, we provided both "A" and "D" measurements to establish a basic filler criteria. While we still may list the "D" hardness on our data, the truly relevant hardness reading is the Shore A. This is because the "D" reading, due to its pointed needle, doesn't accurately represent the load carrying ability of the filler. Always insist that a filler manufacturer tell you the "A" reading of their product.

The revised ACI 302 and 360 Committee documents will likely drop the D scale criteria and specify only an A reading, which currently calls for fillers to have a minimum hardness of Shore A80. Most filler manufacturers already provide products in the A85-95 range due to the dramatically higher durability demands on industrial floor joint fillers resulting from the increased wheel hardnesses and load carrying capacities of today's material handling vehicles.

3. How clean do the joints have to be? What's the best method of cleaning joints?

The basic criteria for joint cleanliness is that the inner walls of the joint must be cleaned to bare concrete, with no traces of any substance that would reduce filler-bonding (i.e. saw laitance, sealers, etc.). The joint walls must be cleaned to the specified filler depth (the full depth of the saw cut or 2" minimum in thru-slab construction (formed) joints and control joints cut deeper than 2").

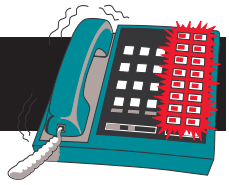
For the Cleanest Joints...
Use a dustless concrete saw with diamond or abrasive blade to clean joint walls/base.

The best method of properly cleaning joints is to "chase" them with a dustless dry-cut concrete saw equipped with a diamond or abrasive blade. While some installers prefer to use a blade slightly wider than the joint, joint width variation makes this problematic. The surest cleaning method is to lean the blade against one wall, then return leaning the blade on the opposite wall. The blade should be set to the depth of the joint. After this chasing process, the joint should once again be vacuumed prior to filler installation.

Inadequate joint preparation is one of the most frequently cited reasons for joint filler applications to be deemed unacceptable by owners and general contractors. While proper preparation is more time consuming and costs money, it is still far cheaper than replacing filler that failed to bond properly or is installed too shallow.

"The greatest portion of floor repair and maintenance is for floor joint deterioration and crack correction."

- PCA Concrete Floors on Ground

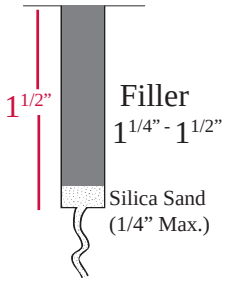


4. Why do you specify a minimum of 2 inches of filler in all joints?

We don't. There is a lot of misunderstanding concerning the 2" minimum standard. It only applies to thru-slab construction (formed) joints which are not saw-cut or control joints saw cut deeper than 2". Our specifications are based on those of the American Concrete Institute and Portland Cement Association. Standard specifications are as follows.

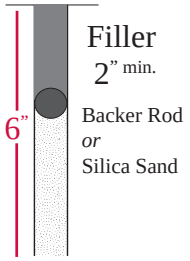
SAW-CUT CONTROL JOINTS

Control joints are saw-cut joints designed to control slab cracking and minimize random cracking. They are generally cut 1/4 slab depth, typically 1 1/4" - 1 1/2" on a 6" slab. Our specifications call for the filler to be placed ***full joint depth or*** 2" minimum. In the case of a 1 1/2" joint, the filler depth would be 1 1/2". The same would apply for a joint of 1/2", 3/4", etc. ***If a control joint is cut deeper than 2"***, then the 2" minimum would apply and the 2" of filler would be placed over either backer rod or sand. In all cases, at the installer's option, a 1/4" maximum bead of silica sand is permitted at the base of the joint to seal off the shrinkage crack and prevent material run-through. ***Foam or compressible backer rods are not permitted in any joint unless the depth exceeds 2".***



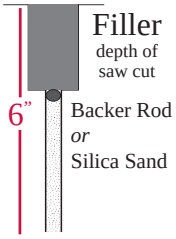
THRU-SLAB CONSTRUCTION (FORMED) JOINTS

Construction joints are joints formed when one slab pour ends and another begins and are usually found at column lines. The joints run the entire depth of the slab, commonly 6-8". If these construction joints are not saw-cut after placement, the filler is to be installed to a depth of 2" minimum over a base of sand or backer rod. The 2" depth is chosen because experience has shown that 2" of bonded filler is required to provide adequate load transfer in the absence of a supportive "shelf" as you would have in a saw cut joint.



SAW-CUT CONSTRUCTION JOINTS

It is common practice to come back and saw-cut a joint through the top of the formed construction joint since the construction joint edges are generally somewhat raveled and the channel between the slabs quite narrow. If the construction joints are saw cut (typically to a depth of 1") then the filler should be installed to the depth of the saw cut and either sand or backer rod be used to "dam" the original joint at the center of the cut. The depth of the new saw cut is not critically important as far as filler depth goes because the filler is being placed on a "shelf" created by the new saw cut and thus has a structurally sound base of support and is not relying on 2" of filler adhesion for load-transfer support.



5. When I shave, the filler is slightly concave or there are "gouges" in the material. Is this normal?

No, it is not normal. Many applicators do not follow the instructions concerning both overfilling the joint and heating the material before shaving (in the case of epoxy joint fillers).

Epoxy Joint Fillers - First, epoxy joint fillers should be installed in a two pass method. The first pass should fill the joint to within 1/2" of the surface, then be allowed to settle for approx. 30-60 minutes. A second pass should then be installed, overfilling the joint slightly. Filling the joint "flush" will result in a low filler profile as the material settles and seeps through the joint base. If the filler is not perfectly flush with the floor surface, the joint edges are exposed and subject to spalling under wheel impact. The overfilled material should be allowed to cure 6-8 hours or until completely tack free. It should not be shaved if the material is still liquid, gooey or gummy. Shaving uncured overfill will also result in a low profile. ***Once the material is cured, heat should be applied with a propane torch (i.e. weed burner) for 2-5 seconds or until material softens slightly but does not turn brown or burn.*** One man should slowly walk over the material with the torch while another follows with a razor scraper shaving the heated overfill. A scraper with disposable blades should be used and the blades should be changed at regular intervals when shaving becomes labored or blade becomes dull. This will eliminate most of the marks and leave a smooth, flush filler profile.

For the Closest Shave...
Crane Model 375 Tile Scraper with 8" Razor Blade and propane torch wand.

Polyurea Joint Fillers - Because polyurea fillers have a more rapid set time, the two pass method of installation is not recommended but filling should be done from the bottom up to minimize the entrapment of air in the joint, which may leave air bubbles in the cured material. If a two pass method is used, the second pass should be placed before the first pass fully cures, generally within 5-15 minutes. Overfilled material should be allowed to cure before shaving. Heat is generally not needed but a scraper with disposable blades should be used for shaving.