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## **Caulks and Sealants**

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Caulks and sealants can be thought of as nearly the same thing. They both fill gaps and some offer better adhesive properties as well.

Caulk has a reputation for being just being a fix, not a solution, and a temporary fix at that. However, as the quality of caulks commonly available has increased some caulks can be considered long term solutions, perhaps not forever, but at least for a few years. Caulks have to perform rather difficult tasks. Those used outside Partially filled gap

have to perform over wide changes in temperature, survive both extreme heat



PDF Version Questions

(click image for larger version)

and intense sun, and remain flexible and elastic so they can bridge gaps created by materials that expand and contract at different rates yet not crack or peel off one of the surfaces. They need to do this year after year. Not many materials can simultaneously meet all these criteria. This is why caulks are formulated for particular applications depending on their primary purpose and the environment where they will be used.

For exterior applications where sealing and caulking are required, probably the best caulks are those formulated with urethane as the primary base chemical. Most urethane caulks are not highly rated for exposure to sunlight; however, they perform well enough and can be reapplied as necessary. Urethane caulks have the following good qualities for many outside applications:

- They are paintable
- They are flexible enough to operate over a wide temperature range.
- They stick (adhere) well to most cleaned surfaces.
- They are easy to use.
- They are reasonably priced.

White urethanes, unless specially formulated, do yellow when exposed to sunlight. This can result in the caulk creating an offensive color mismatch.

## **Using Sealants:**



A long gouge next to a window to be sealed with urethane caulk

(click image for larger version)



Partially sealed gouge (click image for larger version)



Sealed, but not a pretty job (click image for larger version)

Using Sealants:



Final product looks good (click image for larger version)

An obvious key in how well sealants perform has to do with proper installation. The surface must be clean enough so that the sealant actually can stick to the building not just to a layer of dirt, dust, or oil. For urethane sealants and almost all other exterior sealants, the surfaces need to be dry in order for them to adhere. Enough sealant needs to be applied to deal with the changes in dimensions it is expected to accommodate. A sealant of a given thickness or width can only expand and contract so much without cracking or detaching itself. For most house applications the bead of sealant needs to be about 3/16" in diameter in order to perform well.

If you are applying sealant to a smooth surface like aluminum, glass, or vinyl, use a rag to clean any surface that is obviously dirty. Oil must be removed. Make sure the surface is dry. If you are filling a hole or crack then you might apply a small bead of sealant that is pushed into the hole or crack with a finger. This usually does

little more than fill the hole without really adhering to the sides of the hole or crack. Then, assuming aesthetics allow, apply a 3/16" diameter bead of sealant on top. If one is filling a right angle joint or crack of materials that expand and contract in response to temperature differently (e.g. aluminum or vinyl to wood or masonry) apply a little bead of sealant to the joint and work it into both surfaces to assure that it `wets'/adheres to both surfaces. Then apply another larger bead that is at least 3/16-inch in diameter. For maximum effectiveness, the bead should **NOT** be pushed to be concave because that thins it out so much that there might not be enough caulk to absorb dimensional changes caused by temperature. A general rule is that for cracks wider than 3/16", a backer rod must be inserted into the crack. Backer rod is a cylindrically shaped piece of foam that is pushed into a crack and provides a backing to support a caulk/sealant. Home supply stores sell this material. It may be in the area where you would find door seals. If you cannot find backer rod, weather stripping can be used equally well.

Whenever you use caulks or sealants go back the next day to check the thoroughness of your work. You will likely be surprised at the little places you missed.

Because sealants don't last forever and because it is hard to have a perfect installation one should check all seams before hurricane season. Temperature changes between winter and summer and between dry and humid conditions can cause dimensional changes that cause cracks in sealants.

[] When you examine where sealants have been used are there little voids or hollows? Are there places with little or no sealant?

[ ] Is the sealant so thin that there is not really a bead at all, but just a smearing of sealant?

[ ] Is the sealant brittle, easily chipped out?

[ ] Is sealant really every place it needs to be? See the checklist for cracks, gaps and holes.

## Important properties to consider in selecting a sealant:

- ultra violet degradation
- color retention/fading
- expansion/elasticity
- adhesion/wetting
- temperature range
- how water proof it is

Ultra violet degradation, damage by sunlight, applies to almost anything, but some sealants more than others.

White urethane caulks unless specially formulated will turn an unattractive creamy color that can be quite annoying if next to something white. Non-yellowing urethane sealants are available or can be readily ordered at specialty supply stores that cater to contractors and more particularly to commercial as opposed to residential contractors.

Because of the dramatic differences in movement of wood versus aluminum or vinyl that are caused by changes in temperature, sealants applied between these different materials have to be able to accommodate significant movement. For these applications choose a sealant that has considerable elasticity and make sure to apply a thick bead.

Some caulks do not perform well after being exposed to water especially when the exposure occurs before the caulk fully cures. Sometime that may take several days.

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**Questions**