Sashco Savvy
TECHNICAL BULLETIN

Preventing Blisters in Sealants

Blisters in chinking and caulking aren't uncommon, but they can be avoided and are fairly simple to fix. Following is a brief discussion of their causes and solutions.

CAUSES OF BLISTERS

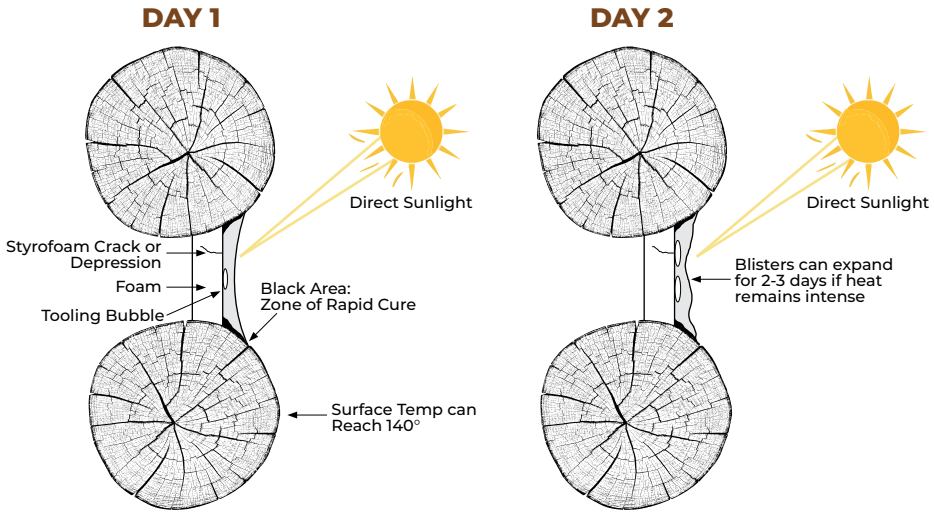
The basic cause of any blister is a build-up of gas between the substrate — a log, wood siding, concrete slab, etc. — or backing surface and the sealant. It occurs during the early curing stages when the sealant is soft but has formed a skin on the surface. Heat, usually in the form of direct sunlight, causes the gas to expand. As the gas expands, it pushes the sealant out, creating a blister. This gas can come from water, wood sap, or even the backing material.

WHAT CIRCUMSTANCES CREATE THE GAS

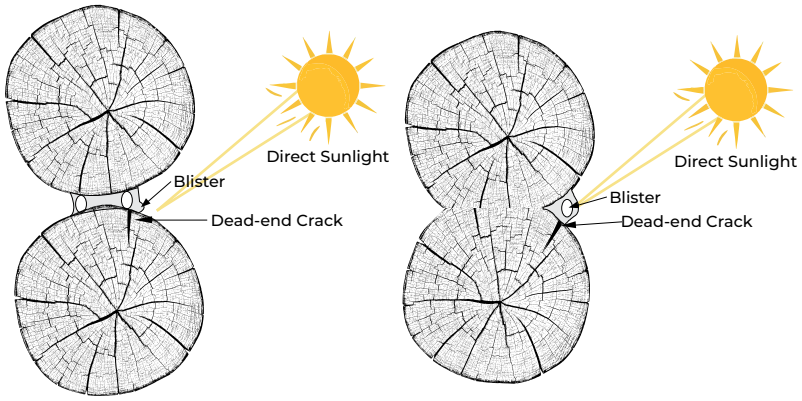
TRAPPED WATER VAPOR: As water-based sealants cure, they give off water vapor. Any physical condition that traps the resulting water vapor could cause a blister, especially if the substrate and the sealant are heated by direct sunlight. Here are some things that could trap this vapor.

1. Crack or indentation in foam backer rod that doesn't go all the way through. Even tiny spaces can trap enough vapor to create a blister big enough to see.

2. Air bubble trapped during the application process against non-porous backer material.



3 Dead-end crack in the substrate where moisture vapor can accumulate and expand when heated.



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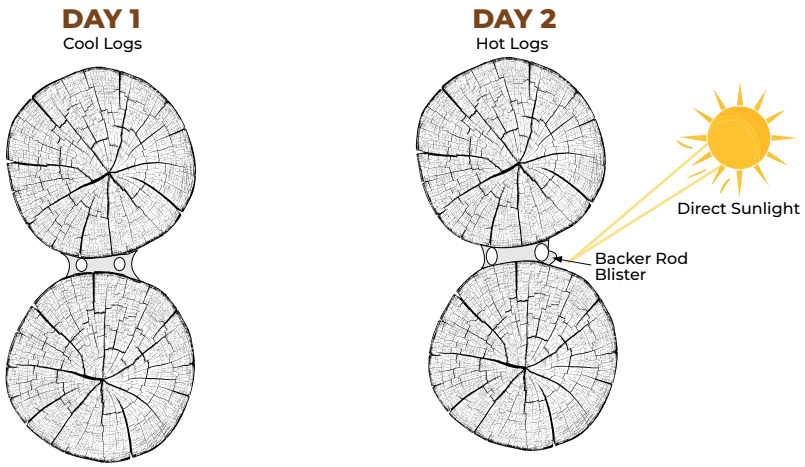
4 **BACKER MATERIAL:** Backer rod out-gassing. If the backer rod is punctured, the gas used in the backer rod manufacturing process is forced out and can create a blister in the sealant.



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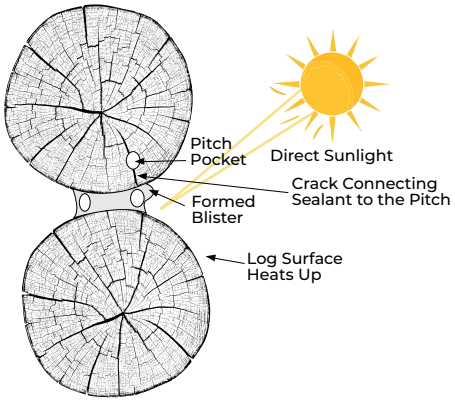
5 **PITCH POCKETS:** Logs in particular often have what is termed “pitch pockets.” These are areas of concentrated pitch, or sap, sometimes containing several gallons! (Pitch pockets of 50 or more gallons are known!)

This sap or its vapor will follow cracks in logs, coming out of the log — almost anywhere. Sap has a volatile component and, when heated, forms a gas which causes blisters



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PREVENTING BLISTERS

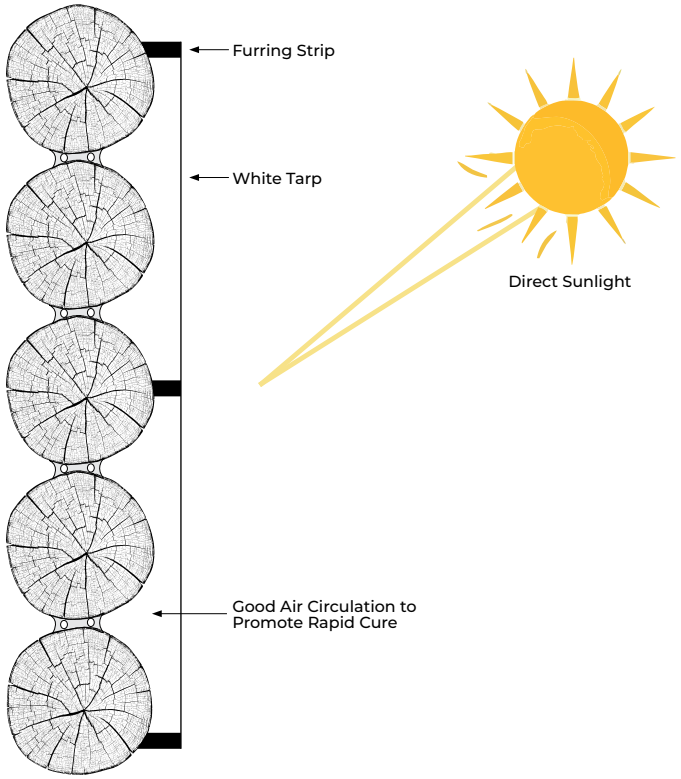
Not all causes can be controlled. (Bummer.) But, two factors can be partially controlled — heat and backer rod selection/preparation. Since heat normally is responsible for turning undetected gas into unsightly blisters, it makes sense to control this element as much as possible. Once the chinking cures further, it can then resist the low pressure from the water or sap vapor and the blisters can be prevented.

CONTROL THE HEAT:

1. Always apply sealants when it's shady and cool. Avoid application to surface temps that are over 90ºF whenever possible. If it's warm to the touch, it's too hot to apply sealants.
2. When necessary (70%+ humidity, air temps above 85ºF), protect surfaces from direct sunlight for a few days by covering with a light-colored tarp, cloth or plastic. Leave plenty of room for ventilation.
3. Prime or stain the substrate first. This can help to close some of the dead-end cracks first.

CONTROL THE BACKING MATERIAL:

4. Use blunt tools to install closed cell backing materials, being careful to avoid punctures.
5. When applying sealants over flat insulation (styrofoam, bead board or foil-faced foam board), surface cracks, holes or dents should be covered with clear packing tape.



HOW TO REPAIR BLISTERS

WHEN FRESH:

1. Puncture the surface skin to release the gasses.
2. Push the sealant down and back into place.
3. Two to three days later, apply a skim coat over the blistered area and smooth out to blend it in.

WHEN CURED / DRIED ALL THE WAY THROUGH:

1. Cut out the dry blister with a razor blade.
2. Apply more sealant.
3. If it shrinks a bit and isn't quite flush with the rest of the bead, apply another skim coat 2-3 days later to ensure the whole bead matches.

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