

Recommendations for Selecting and Using Caulks and Sealants in Pest Management Operations

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The terms caulk and sealant are sometimes used interchangeably, but they are actually two different things. Caulks or caulking compounds are non-elastomeric. This means they do not return to their original size and shape after being stretched or compressed. Caulk materials are used for filling small joints [1/4" (6mm or less)] where little or no movement is expected. Sealants are elastomeric materials used to seal joints where movement is expected (typically 25 to 50%). A third type of material that is used in pest exclusion is a sealer. A sealer is a liquid coating applied to surfaces for filling pores and hairline cracks. All of these materials provide a weather-tight (and pest proof) means of closing openings in structures.

Choosing caulks and sealants

Those involved in attempting to seal pests out of buildings need to know how to choose the right caulk or sealant for each situation. The choice of material might not seem too important because any of the materials will fill a crack or a gap. The question is how long the crack or gap will need to remain filled. Choosing the material best suited to each situation will help ensure a long-lasting repair. The following factors should be considered when choosing a caulk or sealant.

- **Amount of movement expected at the joint.** Generally, less movement is expected at a joint between the same materials (e.g., wood-to-wood) than between different materials (e.g., wood-to-glass). One obvious exception is concrete-to-concrete expansion joints, especially on surfaces that have vehicular traffic (e.g., warehouse floor).
- **Compatibility between the surface and the caulk/sealant materials.** Some surfaces are inherently difficult to get materials to adhere to (e.g., wet, frozen, deteriorated, oil contaminated).
- **Life expectancy of the caulk/sealant** (i.e., resistance to moisture, wear, oxidation, high temperatures and UV light).
- **Service and application temperature ranges.**
- **Appearance** (especially paintability).
- **Ease of handling and application.**

These characteristics for the common caulks and sealants are summarized in Table 1, page 2.

Table 1. Characteristics of caulks and sealants used in pest exclusion.

Material*	Max. Joint Movement	Surface Compatibility**	Life Expectancy (Years)***	Service Temp.	Application Temp.	Paintable
CAULKS						
Oil Based	2%	non-porous	1-2 ext 10 int.	-20 to 180F (-30 to 82C)	>40 F (4 C)	yes
Butyl	7.5%	most, esp. masonry concrete	7-10	-20 to 200F (-30 to 93C)	>40 F (4 C)	yes, slow cure
Latex	2%	most	3-5 int	-20 to 150F (-30 to 65C)	>40 F (4 C)	yes, fast cure
Acrylic Latex	2%	most	1-2 ext 3-10 int	-20 to 180F (-30 to 82C)	>40 F (4 C)	yes
Urethane Foam	0%	most	10-20, if protected	-20 to 250F (-30 to 120C)	>70 F (21 C)	yes
SEALANTS						
Siliconized Acrylic Latex	25%	most, except plastics	20-30	-20 to 180F (-30 to 82C)	>32 F (0 C)	yes
Ethylene Copolymer (Geocel™)	25%	most, except plastics	10-20	-20 to 200F (-30 to 93C)	>0 F (-18 C)	yes
Polysulfide	25%	varies	10-20	-40 to 250F (-40 to 120C)	>60 F (15 C)	unknown
Urethane	25%	most, except glass	20-30	-40 to 250F (-40 to 120C)	>40 F (4 C)	unknown
Silicone	12-50%	varies	20-30	-65 to 350F (-54 to 175C)	>0 F (-18 C)	no

* Except ethylene copolymer, materials listed in this column are manufactured and sold by several companies.

**How well the material adheres to different substrates. "Varies" indicates much variability in surface compatibilities among the products within a certain class of material. Manufacturers should be consulted for specific information on the suitability of their products for different uses.

*** ext=exterior use, int=interior use --- materials with shorter exterior than interior life are subject to accelerated breakdown by UV light, oxidation and weathering

Examples of Recommended Caulks and sealants, continued 2023 ¹

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Commercial Hi-Performance Sealants

A multi-purpose sealant should be resistant to weathering, extreme temperatures, moisture, and vibrations. Compatible with multi-surfaces: aluminum, ceramic, glass, metal, wood, plastic, granite, and more.

Use sealants with a technical spec rating: of Elastomeric shift rating +/- 35%

Examples of High-Performance qualities for sustainable pest proofing of most types of structural issues. ²

Check all safety, fire and LEED code clearances for desired use.

1. MasterSeal™ NP 1 High-Performance Polyurethane Sealant

(LEED Approved, Meets current VOC requirements eliminating compliance issues; UL listed and is suitable for fire rated joints / USDA compliant allowing for use in meat / poultry plants.

2. Geocel 4300 High-Performance Sealant

3. Rustoleum Industrial Grade Caulk* / Sealant

(Note: RIGCS meets criteria of a high performance sealant (“caulk” is labeled for maximum sales (i.e. many people use generic word “caulk” not knowing the technical difference).

¹ Note: Despite labels on cans, spray foams are NOT Sealants. Technically, these foams are ‘space fillers’ and should not be used in pest proofing excepting for use as fillers of large holes and gaps with the intention such holes/spaces will be sealed over with a quality hi-performance sealant.

² No endorsement is implied of any product listed and any products not listed, but meeting the technical specifications of a high-performance sealant may be equal or exceed the performance of those products listed in this fact sheet.