



PSI-641

Low Modulus Silicone Sealant

Product description

PSI-641 is a one-part, low-modulus, RTV, neutral-cure silicone sealant with an unusual capacity to recover from large extensions and compressions, allowing it to compensate for $\pm 50\%$ joint movement. Upon curing, PSI-641 forms a durable, flexible, watertight bond to most common building materials, including concrete, masonry, glass, ceramic, many metals, wood and most plastics. In most cases primer is not required. It is gunnable at all temperatures and has a long tooling time.

Basic uses

PSI-641 is ideal for sealing expansion and control joints; perimeters of door and window frames; glazing of glass, metal and plastic; curtain wall and mullion joints, and many other types of construction joints, especially those subject to severe dynamic movement. It is virtually unaffected by long term exposure to rain, snow, sleet, ice, sunlight, ultraviolet radiation and atmospheric pollution.

Benefits

- Highly flexible over a wide temperature range.
- UV- and ozone-resistant.
- Excellent weatherability, durability and recovery after movement.
- Accommodates joint movement of $\pm 50\%$.
- Low-VOCs (56.4 g/L)

Application limitations

- Should not be used for structural or butt glazing, nor in expansion joints less than 1/4" in width or depth.
- Should not be applied to areas that will be totally confined during cure as atmospheric moisture is required for cure.
- Not recommended for horizontal joints subject to abrasion such as decks, walks, driveways,

etc., unless properly recessed.

- Not recommended for application to materials that might bleed oils or solvents.
- Should not be applied to joints to be painted or surfaces with reflective or protective coatings without prior testing.
- Although there are no toxic leachable materials in cured PSI-641, some of the ingredients are not included in the FDA list of acceptable materials for food contact (21 CFR 177.2600).

Color

Clear, White, Bronze. Custom colors available; minimum order 100 gallons.

Packaging

Available in 10.3 fl. oz. (305 ml) polyethylene cartridges, 12 cartridges per carton. It is also available in 2-gallon pails, 5-gallon pails and 55-gallon drums on special order.

Applicable standards

PSI-641 meets the requirements of Federal Specification TT-S-001543A, Class A; Federal Specification TT-S-00230C, Type II, Class A; ASTM C920, Type S, Grade NS, Class 25, use NT, G, A, M, O; MIL-A-46106B, Group I, Type I; Canadian Specification CAN/CGSB 19.13-M87.

Installation

Joint Design: Good construction industry joint design dictates 4 times the anticipated movement of building components be used when calculating joint width. The theoretically derived 2:1 movement factor is based on thermal movement alone and doesn't allow for variances found at the jobsite and therefore should not be used. The 4:1 design factor accommodates both thermal movement and wide variations in tolerances of construction materials, fabrication and erection often found in the field. This will also accommodate joints installed narrower than originally designed.

Joint dimension: Minimum allowable joint width and depth is 1/4" and should not exceed 1/2" deep or 1" wide.

Panels and lights of less than 100 united inches should allow a minimum width of 1/4" for the sealant bead. Larger panels and lights and those made of plastic require at least 4 times the postulated movement.

Surface preparation: Clean all joints and glazing areas by removing foreign matter and contaminants such as moisture, frost, dirt, dust, oil, grease, protective coatings and previously applied sealant or glazing compound. For expansion joint applications, install compatible backing material.

Priming: PSI-641 adheres strongly to most surfaces without priming. A primer is not usually required on non-reflective glass and most metal surfaces, although better adhesion to concrete and steel is obtained using a primer. A bead of sealant applied to the substrate and allowed to fully cure, then tested for adhesion, will usually indicate whether a primer is required. Where priming is indicated, PSI-690 Primer is recommended.

Consult primer data sheet and MSDS for additional information and safety precautions.

Method of application: PSI-641 is applied using air-operated or conventional guns after the joint has been prepared to receive the sealant. The sealant should be tooled immediately to ensure intimate contact with and wetting out of the substrate in the entire rabbet area. Sill-area sealant should be struck off at an angle so that water will not pool. Excess sealant and smears on surrounding areas should be wiped away immediately with xylene or mineral spirits while still uncured. Consult the manufacturer's MSDS for safety precautions.

Curing characteristics: PSI-641 has a tack-free time of 15 to 30 minutes. Air temperature and moisture content has a direct influence on work life and cure speed. Drier, colder climates require more cure time. PSI-641 can be applied outdoors at temperatures down to -35°F (-37°C) provided that surfaces are clean and frost free. After cure it remains rubbery to -80°F (-62°C) and will retain its properties after extended exposure up to 400°F (204°C).

Shelf life: One year from date of shipment when stored in original, unopened container in a dry area at temperatures below 80°F (27°C).

Maintenance

If the sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the old sealant, clean and prepare the joint in accordance with instructions under "Surface Preparation" and recaulk.

Performance Data*		
Properties	Results	Test Method
Uncured Properties		
Skin-over time	15 to 30 minutes	ASTM C679
Cure time, 1/8" bead	24 hours	PSI S202
Sag/slump	Nil	ASTM C639
VOC content	0.47 lb/gl	
Specific gravity	1.1	
Density	9.2 lb/gl	
Cured Properties		
Hardness, Shore A	20	ASTM C661
Tensile strength	150 psi	ASTM D412
Ultimate elongation	450%	ASTM D412
Service temperature, cured bead	-80 to 400°F (-62 to 204°C)	PSI S406
Adhesion-in-peel, aluminum, glass & concrete	20 to 25 lb/in	ASTM C794
Cured Construction Properties		
Weight loss	<5% maximum	ASTM C792
Cracking & chalking after heat aging	None	
Durability (bond & cohesion) joint movement on glass, aluminum & concrete	±50%	TT-S-001543A
UV resistance	Excellent	ASTM C794
Weathering	Excellent	ASTM C793
Staining	None	ASTM C510

* Typical properties are for information only, not for purposes of specification.

Health precautions

- Product contains chemicals that are skin sensitizers and may cause severe eye injury. Avoid skin/eye contact.
- Remove contact lenses before using product. Wear eye protection. After use, do not handle contact lenses until product is cleaned from fingertips, nails, and cuticles. Product can transfer to contact lenses and cause eye irritation or injury. For eye contact, immediately flush eyes with water for 15 minutes; seek immediate medical attention
- For skin contact, remove product from skin with dry cloth; wash skin with soap and water.
- If swallowed, seek medical attention.
- Product forms methanol and MEKO during application and cure. Methanol is flammable; both are skin, eye, and respiratory tract irritants. Use only in well-ventilated areas.
- KEEP OUT OF REACH OF CHILDREN.

For additional health and safety information consult a Material Safety Data Sheet.

Technical services

PSI provides field service, performance data, specification assistance and use evaluations.

Adhesion testing by PSI: This program is intended to eliminate potential field application problems by pre-testing the adhesion of PSI's construction sealants on samples of building materials submitted by the customer. The tests will aid in determining the proper surface preparation method, effective solvents for cleaning and whether priming is necessary to achieve optimum adhesion. Following this procedure will remove many of the variables that affect field success.

Test samples should be identified as to manufacturer, origin, designed use, building project, person and firm originating the request. Appropriate sketches of drawings showing the intended use can be helpful. They should be sent to the attention of PSI's Technical Director.

Jobsite testing of substrates: A field test can be performed by applying several feet of the sealant to a representative joint and letting it reach full cure. Make a cut in the cured sealant across the joint the entire depth of the sealant. Make two vertical cuts several inches long, paralleling the sides of the joint as closely as possible and extending down from the cross cut. Grasp the free length of sealant and pull at a 90° angle to determine if a good bond has developed. With good adhesion, the sealant will usually tear cohesively or be difficult to remove from the surface.

Availability and cost

Polymeric Systems, Inc., is a part of Whitford Worldwide. For more information, please contact Polymeric Systems or Whitford Plastics Ltd. at:

Polymeric Systems, Inc.
47 Park Avenue
Elverson, PA, USA 19520
800-CAULK IT (800-228-5548)
Tel: [1] 610-286-2500
Email: sales@polymericsystems.com
Website: polymericsystems.com

In the EU contact:

Whitford Plastics Ltd.
10, Christleton Court, Manor Park
Runcorn, Cheshire, UK WA7 1ST
Tel: [44] (1928) 571000
Email: salesuk@whitfordww.com
Website: whitfordww.com

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