70991

One-Component, Non-Sag, Polyurethane Sealant

Technical Data

PRODUCT DESCRIPTION

70991 sealant is a one-component, contractor construction grade, smooth polyurethane sealant capable of dynamic joint movement totaling 50% of original joint geometry (±25%). The sealant cures to a tough, flexible rubber when exposed to moisture present in the atmosphere.

The polyurethane sealant has a consistency like toothpaste, its physical properties will remain relatively stable over time and in varying weather conditions. Its physical properties are relatively unchanged over a wide temperature range, -40°F to 150°F (-40°C to 66°C).

APPLICABLE STANDARDS

- ASTM C920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND M.
- US Federal Specification TT-S 00230C (COMB-NBS) for one-component sealants as Class A, non-sag.
- Canadian Specification CAN/CGSB 19.13-M87.
- CARB and SCAQMD Compliant.
- Meets VOC requirements for OTC Regulation.

BASIC USES

- Designed for sealing expansion and control joints in pre-cast concrete panels, for sealing various roofing and siding applictions, and for sealing perimeters of doors, windows, and other wall penetrations.
- Sealant cures to form a durable, flexible bond with most building materials in any combination including stone, masonry, ceramic, marble, wood, steel, aluminum, fiber cement board and many other synthetic materials.

TYPICAL UNCURED PROPERTIES*

Property	Value
Tool/Work Time	60 minutes
Skin Time	4 hours
Curing Time @ 77°F	2 - 7 days
Flow, Sag or Slump	0.1 inch

* Values given above are not intended to be used in specification preparation purposes.

TYPICAL CURED PROPERTIES*

(After 14 days cure at 77°F and 50% RH)

Property	Value	Test Method/Note
Hardness (Shore A)	42	ASTM D 2240
Modulus @ 100% Elongation	65 psi	ASTM D 412
@ 25% Elongation	45 psi	ASTM D 412
Tensile Strength @ Break	133 psi	ASTM D 412
Elongation @ Break	685%	ASTM D 412
Adhesion Peel	>5 piw	TT-S-00230C/ASTM C 794
Joint Movement Capability	+25%	TT-S-00230C/ASTM C 719
UV Resistance	Pass	ASTM C 793
VOC	43 g/L (2.8%)	Calculated

* Values given above are not intended to be used in specification preparation purposes.

FEATURES & BENEFITS

- Easy Gunning - Helps reduce installer's fatigue
- Tenacious Bonding to Most Common Building Materials - Helps Maintain a Weatherseal to Seal Out the Elements
- Quicker skin and cure times - Helps reduce jobsite dirt pickup

APPLICATION LIMITATIONS

- Construction substrates have become complex and diverse by nature and origin. Substrate chemistries and structures can interfere with adhesive performances of the sealant. Adhesion to Substrate Pretest (ASP) is therefore highly recommended to assess any adhesion and sealing characteristics—see Adhesion to Substrates Pretest section and see Installation Protocol section. This should be done pre-installation to avoid potential failures.
- Do not apply over damp, contaminated, loose surfaces (See Installation Protocol and Surface Preparation), old sealants or other foreign substances that may impair the adhesion bond. Avoid air entrapment.
- Dampness and substrates with high moisture content will trigger extensive curing of the sealant within a very short period of time. This may cause an excess of bubbling and foaming within the sealant and at the bottom of the bead.
- High temperature/humidity can cause the sealant to develop bubbles during the curing process.
- Sealant installation is not recommended when the dew point of the substrate is close to ambient temperature or a moisture-vapor transmission condition is present increasing the potential for bubbling to form during cure.
- Porous substrates such as, but not limited to, marble, limestone, and granite might absorb components of 70991, leading to staining of the substrate. ASP with sufficient aging is necessary to assess this potential issue.
- The ultimate performance of 70991 depends on proper joint design and proper application with joint surfaces properly prepared (See Installation Protocol). 70991 is not recommended for joints with dimensions less than or greater than what is recommended below. (See Installation Protocol—Joint Design section.)
- 70991 must not be used to seal narrow joints, fillet joints and face nail holes.
- Smearing and feathering 70991 over joints is not recommended.
- 70991 is not recommended **by itself** for horizontal joints or traffic-bearing joints where abrasion resistance is required (walkways, driveways, runways, etc.).
- 70991 is not recommended for continuous immersion in water or any other fluid. When fully cured, avoid exposure, even incidental, to fuels, chlorinated, acid and alkaline solutions. 70991 is not recommended for exterior or interior sealing below the waterline.
- Contact of 70991 with asphalts and other filler compounds impregnated with oil, asphalt, tar, etc., may deteriorate the cohesive strength of the substrate and ultimately compromise the seal.
- During the curing of 70991, do not expose to curing silicone sealants, alcohol, acids or solvent-based materials.
- Do not apply 70991 to copper substrates.
- Lower relative humidity and temperature will significantly extend the curing time. Confined areas, deep joints and moisture barrier substrates may also affect the full cure time and extend it by many days.

- 70991 may remain tacky for a few hours and attract dust and dirt from the jobsite which may affect the appearance of the sealant. Check tack-free time to prevent dirt pickup.
- 70991 is not recommended for glazing applications. Bond line strength can be affected by UV rays through the clear material (glass, acrylic glass, polycarbonate, etc.).
- 70991 is suitable for painting with latex based paints. Paint chemistries and flexibility characteristics of the paint films over the sealant may affect wetting, adhesion and integrity of the paint layer; and it is therefore mandatory to pretest the paint or other coating over the 70991 sealant to ensure the successful compatibility between the sealant and the paint/coating after a sufficient amount of time. In general, oil-based paints are not recommended because of their poor elastic properties and because of their potential interaction with the sealant chemistry, which may create non-curing conditions for the sealant. Do not paint over the polyurethane sealant until it has fully cured.
- The surface of a 70991 when exposed to UV rays and sunlight will not retain the original color or gloss. This phenomenon can occur within a few weeks after exposure. The change of color is limited to the surface layer of the seal and should not compromise the sealing properties of the 70991 if the dimensions of the joint are proper and the sealant is otherwise properly applied.

INSTALLATION PROTOCOL

Joint Design:

In general, more joint movement can be accommodated in a thin bead of sealant than a thick bead. 70991 polyurethane sealant should be no thicker than 1/2" (12.7mm) and no thinner than 1/4" (6.4mm). In joints between 1/2" and 1", the ratio of sealant width to depth should be approximately 2:1. Sealant depth in joints between 1/4" and 1/2" should be 1/4" deep. Joints with dynamic movement should not be designed in widths less than 1/4".

Maximum recommended joint width is 1".

Surface Preparation:

See limitations about surface preparation. Surfaces must be structurally clean, dry (no frost) and structurally sound, free of contaminants, including, but not limited to, dust, dirt, loose particles, tar, asphalt, rust, mill oil, etc. If substrate is painted or coated, scrape away all loose and weakly bonded paint or coating. Any paint or coating that cannot be removed must be tested to verify adhesion of the sealant or to determine the appropriate surface preparation if needed. (See ASP section for details.)

To remove laitance and any other loose material, clean concrete, stone or other masonry materials with non-alcoholic based solvent by washing, grinding, sandblasting or wire brushing as necessary. Do not use water to clean substrates. Dust must be thoroughly removed after cleaning.

Alcohol is **not** compatible with polyurethanes and its use can cause irreparable damage to the sealant.

Backer Rods and Bond Breaker Tapes:

Bond breakers including, but not limited to, closed-cell polyethylene backer rods are used to control depth of the sealant bead, provide a firm tooling surface and avoid three-sided adhesion. Where the depth of joint prevents use of backer rods, a polyethylene strip or tape must be used as a bond breaker to prevent 3-sided adhesion. Do not prime or damage the surface of the bond breaker. Refer to instructions given by rod and tape manufacturers for the correct backer rod and tape size related to joint size.

Priming:

In general, application of 70991 does not require priming the substrates. However, it is the user's responsibility to check adhesion of the cured sealant on typical test joints at the project site before and also during application as weather conditions may affect the adhesion results (See ASP section on next page.).

Tooling:

70991 comes ready-to-use. Cut spout or tip to desired bead size. Apply moderate pressure to break seal inside the nozzle. Apply by using a professional caulking gun. Use opened cartridges and sausages the same day they are opened. Apply 70991 Polyurethane Sealant in a continuous operation using positive pressure to the bottom of the joint to properly fill and seal the joint. When applying, avoid air entrapment and overlapping. Tool the sealant before the skin forms with adequate pressure to spread the sealant against the backup material at the bottom and sides of the joint. A dry tool with a concave profile is recommended for that operation. Do not use water or soapy water for this operation. Avoid smearing and feathering of the sealant to allow full performance of the cured seam. Excess sealant should be dry-wiped or joints should be properly taped.

Cleanup:

Excess sealant should be dry-wiped from all surfaces while still uncured, and followed with a xylene, toluene or similar aromatic solvent wipe. Refer to the MSDS's provided for these solvents before use. Should sealant accidentally begin to cure on adjacent porous surfaces, the excess sealant should be allowed to progress through the initial cure or setup. It should be removed promptly by abrasion or other mechanical means. CURED SEALANT IS USUALLY VERY DIFFICULT TO REMOVE WITHOUT ALTERING OR DAMAGING THE SURFACE TO WHICH THE SEALANT HAS BEEN MISAPPLIED.

Curing Time:

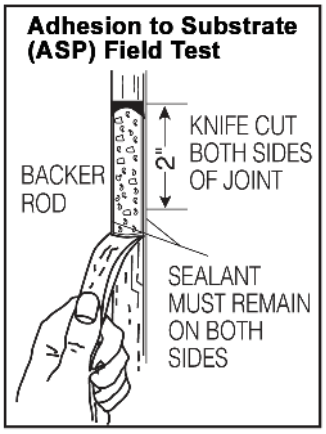
70991 is a moisture cure, Advanced Polyurethane Sealant. With ambient air at 50% relative humidity and at 73°F, polyurethane sealants will generally skin within four hours and cure 1/16 of an inch per day. Lower temperature and lower relative humidity will significantly increase the skin time and cure time of a polyurethane sealant.

ADHESION TO SUBSTRATES PRETEST (ASP)

A hand pull test should be run before the job starts and at regular intervals during the job. It should be run on the job site after the sealant is fully cured, usually within 7 to 21 days. (Adhesion may develop fully after at least 14 days.)

The hand pull test procedure is as follows:

1. Make a knife cut horizontally from one side of the joint to the other.
2. Make two vertical cuts approximately two inches long, at the sides of the joint, meeting the horizontal cut at the top of the two-inch cuts.
3. Grasp the two-inch piece of sealant firmly between the fingers and pull down at a 90° angle or more, and try to pull the uncut sealant out of the joint.



4. If adhesion is sufficient, the sealant should tear cohesively in itself.
5. Sealant may be replaced by applying more sealant in the same manner as it was originally applied. Care should be taken to ensure that the new sealant is in contact with the original, and that the original sealant surfaces are clean, so that a proper bond between the new and old sealant will be obtained.

STORAGE • PACKAGING • SHELF LIFE

Shelf life of 70991 must be checked prior to using the product; do not use past its shelf life. 70991 past its shelf life may not perform or adhere as described by this data sheet. High temperature and high relative humidity may significantly reduce the shelf life of polyurethane sealants. If you are unsure of the expiration date of your NEOGARD product, please call customer service at 1-800-321-6588 to check if the product is still within its shelf life.

COLORS

White Light Gray Tan

HEALTH AND SAFETY

Read the Material Safety Data Sheet (MSDS) and container labels for detailed health and safety information. This product is intended for industrial use by properly trained professional applicators only.

COVERAGE FOR 10.1 FL. OZ. CARTRIDGE

		Width							
		1/8"	**1/4"**	**3/8"**	**1/2"**	**5/8"**	**3/4"**	**7/8"**	**1"**
Depth	**1/8"**	99	49	33	24	20	16	14	12
	1/4"		24	20	12	10	8	7	6
	3/8"			11	8	6	5	5	4
	1/2"				6	5	4	3	3

LINEAR FEET PER 10.1 FL. OZ. CARTRIDGE

COVERAGE FOR 20 FL. OZ. SAUSAGE

		Width							
		1/8"	**1/4"**	**3/8"**	**1/2"**	**5/8"**	**3/4"**	**7/8"**	**1"**
Depth	**1/8"**	288	145	95	71	58	48	40	36
	1/4"		71	58	36	29	23	20	17
	3/8"			32	23	17	16	13	11
	1/2"				17	14	11	10	8

LINEAR FEET PER 20 FL. OZ. SAUSAGE

Note: All values in coverage tables above are approximations and can vary due to joint dimension variations, porosity, and texture of substrates. Yield per cartridge/sausage is approximate due to variables beyond NEOGARD's control such as irregular joint configuration and installation techniques.

NEOGARD Div. of JONES-BLAIR

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