

Chem-Calk® GPS1 General Purpose Sealant

ONE-COMPONENT, URETHANE SEALANT, GAP FILLING—ROOFING GRADE

DATE OF LAST REVISION: 06/06/07

PRODUCT

Bostik® Chem-Calk® GPS1 —A one-component, moisture curing urethane sealant.

MANUFACTURER

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APPLICABLE STANDARDS

- ASTM C920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND M
- CARB and SCAQMD Compliant
Meets VOC Requirements for OTC Regulation

PRODUCT DESCRIPTION

Chem-Calk GPS1 is a one-component, moisture curing, water-free, gun-grade POLYURETHANE-based, non-sag elastomeric sealant. Polyurethane sealants in general can withstand a wide range of temperature exposure in the range of -40°F to 150°F (-40°C to 65°C). GPS1 can be used for indoor and outdoor applications. Chem-Calk GPS1 is durable and flexible. GPS1 typically does not require priming to achieve a watertight seal on common construction materials such as stone, concrete, masonry, cedar, wood, anodized aluminum, galvanized steel, vinyl, fiber-cement board, etc. (See Installation Protocol for achieving proper seal.) GPS1 exhibits superior sealing to most typical roofing and flashing materials. Where textured appearance is needed, please use Bostik® Chem-Calk® 916.

BASIC USES

- Roof penetrations
- Soffit / Fascia sealing
- General purpose sealing of dissimilar building materials
- Sealing roofing materials such as metal flashing, gutters, downspouts, roof tile and non-asphalt shingle



TABLE 1: TYPICAL UNCURED PROPERTIES*

Property	Value	Test Method/Note
Skin Time, (ambient conditions)	~1 hr.	Bostik Test
Extrusion Rate (70°F @ 50 psi)	150 g/min.	Bostik Test
Sag Test	0.2 inch	Bostik Test
Flash Point	143°F (62°C)	

TABLE 2 TYPICAL CURED PROPERTIES*
(After 14 days cure at 77°F and 50% RH)

Property	Value	Test Method/Note
Hardness (Shore A)	35	ASTM D 2240
Tensile Strength @ Break	135 psi	ASTM D 412
Elongation @ Break	550%	ASTM D 412

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

FEATURES & BENEFITS

- Non-sag Formula Excellent for critical vertical applications
- Low Odor Installer friendly
- Low VOC, PVC-free Environmentally compliant
- Moisture Reactive Multi-environmental use
- Low Solvent Shrinkage minimal
- Low Temperature Extrusion Can be applied at temperatures as low as 32° F

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 MANDATORY to assess any adhesion and sealing characteristics—see Adhesion to Substrates Pretest section and see Installation Protocol section. This must be done pre-installation to avoid potential failures. Call Technical Service for more information about surface preparation and possible priming.
- 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 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.
- Porous substrates such as but not limited to marble, limestone and granite might absorb components of the Bostik Chem-Calk GPS1 leading to staining of the substrate. ASP with sufficient aging is mandatory to assess this potential issue.
- The ultimate performance of Bostik Chem-Calk GPS1 depends on proper joint design and proper application with joint surfaces properly prepared (See Installation Protocol). Bostik Chem-Calk GPS1 is not recommended for joints with dimension less than or greater than what is recommended below. (See Installation Protocol—Joint Design section.)
- Bostik Chem-Calk GPS1 must not be used to seal narrow joints, fillet joints and face nail holes.
- Smearing and feathering Bostik Chem-Calk GPS1 over joints is not recommended.
- Bostik Chem-Calk GPS1 is not recommended for horizontal joints or traffic-bearing joints where abrasion resistance is required (walkways, driveways, runways, etc.). Please refer to Chem-Calk 950 for this application.
- Bostik Chem-Calk GPS1 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. Bostik GPS1 is not recommended for exterior or interior sealing below the waterline; please refer to Bostik 940 Fast Set for marine applications.
- Contact of Bostik Chem-Calk GPS1 with asphalts (i.e., back coating of window flashing, etc.) 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 Bostik GPS1, do not expose to curing silicone sealants, curing Bostik Chem-Calk 2000, alcohol, acids or solvent-based materials.
- 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.
- Until the sealant is fully cured, do not expose the sealant to any mechanical stress. Uncured sealant will not respond properly to cyclic expansion and contraction of the joint specified for the cured sealant only.
- The surface of a Bostik Chem-Calk GPS1 seal when exposed to UV rays and sunlight will yellow and not retain its 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 Bostik Chem-Calk GPS1 if the dimensions of the joint are proper and the sealant is otherwise properly applied. In areas where color retention is critical, please refer to Chem-Calk® 2000. Bostik Chem-Calk GPS1 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.

- Bostik Chem-Calk GPS1 is not recommended for glazing applications. Bond line strength can be affected by UV rays through the clear material (glass, acrylic glass, polycarbonate, etc.).
- Bostik Chem-Calk GPS1 is not RTV silicone and therefore 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 Bostik Chem-Calk GPS1 to ensure the successful compatibility between the sealant and the paint/coating after a sufficient amount of time. See your paint manufacturer for specifications and limitations and call our Technical Service for more information. 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.

INSTALLATION PROTOCOL

Joint Design:

In general, more joint movement can be accommodated in a thin bead of sealant than a thick bead. Bostik Chem-Calk GPS1 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".

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 on next page for details.)

To remove laitance and any other loose material, clean concrete, stone or other masonry materials with nonalcoholic-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.

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 Bostik Chem-Calk GPS1 does not require priming the substrates. However, some substrates may require a Bostik primer. 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.). Refer to Bostik Primer product data sheet or call Technical Service for proper selection and application of Bostik Primers.

Tooling:

Bostik Chem-Calk GPS1 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 such as Bostik K410042TG. Use opened cartridges and sausages the same day they are opened. Apply Bostik Chem-Calk GPS1 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.

Cleaning:

After dry-wiping uncured sealant from substrates and tools, remaining uncured sealant can be removed by using Xylene, Toluene or similar aromatic solvents. Please refer to the MSDS's provided for these solvents before use. Bostik Hand and Tool towels can also remove uncured sealant. Cured sealant is usually very difficult to remove without altering or damaging the surface to which the sealant has been misapplied. Cured sealant can be removed by abrasion or other mechanical means (scrapers, putty knives).

Curing Time:

Bostik Chem-Calk GPS1 is a moisture cure, polyurethane sealant. On wood, with ambient air at 50% relative humidity and at 73°F, polyurethane sealants will generally skin within one hour 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.

Painting and Coating:

Bostik Chem-Calk GPS1 is not RTV silicone and therefore 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 Bostik GPS1 to ensure the successful compatibility between the sealant and the paint/coating after a sufficient amount of time. See your paint manufacturer for specifications and limitations and call our Technical Service for more information. 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.

Maintenance:

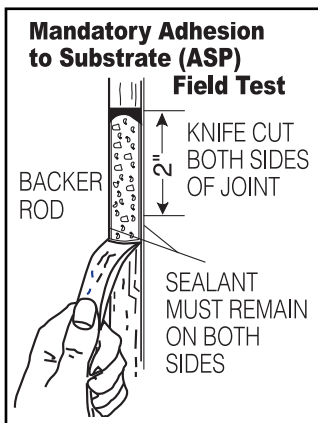
If the sealant becomes damaged, replace the damaged portion by removing the old sealant completely, cleaning the surfaces and reapplying a fresh and appropriate amount of new sealant in accordance with the directions and information contained in this data sheet.

MANDATORY ADHESION TO SUBSTRATES PRETEST— (ASP)

during the job. It must 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 Bostik Chem-Calk GPS1 must be checked prior to using the product; do not use past its shelf life of 9 months. Caulk past its shelf life may not perform or adhere as described by this data sheet. High temperature and high relative humidity may reduce significantly the shelf life of polyurethane sealants. If you are unsure of the expiration date of your Bostik product, please call customer service at 1-888-603-8556 to check if the product is still within its shelf life.

COLORS

White Stone Bronze Black Limestone

AVAILABILITY

Available from authorized Bostik distributors. Go to www.bostik-us.com and check on our distributor locator for the closest distributor in your location or call customer service at 1-888-603-8556.

HEALTH AND SAFETY

Please refer to the MSDS for First Aid Information. Most current MSDS's can be found on Bostik's website at www.bostik-us.com or call customer service at 1-888-603-8556.

TECHNICAL SERVICE

TECH SERVICE phone number: 1-800-523-2678.

Field visits by Bostik personnel, Bostik manufacturer representatives or Bostik authorized distributor personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

WARRANTY (LIMITED WARRANTY) — IMPORTANT NOTICE

All statements, technical information and recommendations set forth herein are based on tests which Bostik believes to be reliable. However, Bostik does not guarantee their accuracy or completeness. The buyer and/or user should conduct its own tests of this product before use to determine proper preparation technique and suitability for proposed application. Any sales of this product shall be on terms and conditions set forth on Bostik's order acknowledgment. Bostik warrants that the product conforms with Bostik written specifications and is free from defects at the time it leaves Bostik's control. BOSTIK DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED AND/OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE BUYER'S SOLE REMEDY FOR NONCOMPLIANCE WITH THIS WARRANTY SHALL BE FOR THE REPLACEMENT OF THE PRODUCT OR REFUND OF THE BUYER'S PURCHASE PRICE. IN NO CASE WILL BOSTIK BE LIABLE FOR DIRECT, CONSEQUENTIAL ECONOMIC OR OTHER DAMAGES.

Bostik Coverage Charts

COVERAGE FOR 10.1 FL. OZ. CARTRIDGE (298 mL)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"	97	49	32	24	19	16	13	12
	1/4"		24	19	12	9	7	6	5
	3/8"			10	7	6	5	4.5	4
	1/2"				5.5	5	4	3.5	3

LINEAR FEET PER 10.1 FL. OZ. CARTRIDGE

COVERAGE CHART FOR 5 GALLON PAIL (18.9 L)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"	6150	3100	2050	1540	1230	1025	870	770
	1/4"		1540	1240	770	615	510	440	370
	3/8"			680	510	410	310	290	245
	1/2"				370	305	245	220	185

LINEAR FEET PER 5 GALLON PAIL

COVERAGE FOR 28 FL. OZ. CARTRIDGE (828 mL)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"	268	137	88	66	53	44	36	33
	1/4"		66	53	33	25	19	17	14
	3/8"			27	19	17	14	12	11
	1/2"				15	14	11	10	8

LINEAR FEET PER 28 FL. OZ. CARTRIDGE

COVERAGE CHART FOR 52 GALLON DRUM (196.8 L)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"		63960	32240	16016	12792	10660	9048	8008
	1/4"			12896	8008	6396	5304	4523	3848
	3/8"			7072	5304	4264	3224	2907	2548
	1/2"				3848	3172	2548	2261	1294

LINEAR FEET PER 52 GALLON DRUM

COVERAGE FOR 20 FL. OZ. SAUSAGE (591 mL)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"	192	97	63	48	39	31	27	24
	1/4"		48	39	24	19	15	14	12
	3/8"			21	15	11	10	9	7
	1/2"				11	10	8	7	5

LINEAR FEET PER 20 FL. OZ. SAUSAGE

PRIMER COVERAGE RECOMMENDATIONS

For one (1) quart of primer, coverage is as follows:

1 unit	5 gallon pail
5 units	1.5 gallon unit
7 gallons	1 gallon unit
103 cartridges	10.1 fl.oz. cartridge
35 cartridges	28 fl.oz. cartridge

NOTE: All values are approximations and can vary due to joint dimension variations, porosity, and texture of substrates.