

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.
- Chem-Calk 505 must not be used to seal narrow joints, fillet joints and face nail holes.
- When applying Chem-Calk 505 to copper substrates, contact Bostik Technical Service for detailed application instructions prior to application.
- Smearing and feathering Chem-Calk 505 over joints is not recommended.
- Chem-Calk 505 sealant is not recommended for use in sealing submerged joints, particularly where porous surfaces permit water infiltration to bond surfaces.
- Chem-Calk 505 sealant is not recommended for exterior or interior structural submerged applications.
- Chem-Calk 505 sealant should not be applied with wet tooling techniques; using solvents, water or detergent/soap solutions is not recommended.
- Chem-Calk 505 sealant should not be applied to surfaces with special protective or cosmetic coatings without prior consultation with the manufacturer. Such surfaces include, but are not limited to, mirrors, reflective glass, or surfaces coated with Teflon®, polyethylene or polypropylene.
- Chem-Calk 505 sealant should not be applied to unpredictably absorptive surfaces such as marble, limestone, or granite unless a standard appearance has been agreed on. ASP with sufficient aging is mandatory to assess this potential issue.
- Chem-Calk 505 sealant cures by chemical means. All components used can be affected by water before or during cure. The sealant should not be stored, applied or cured in areas where unusually high humidity or free water are present during the application or initial cure.
- The surface of Chem-Calk 505, in light colors, including White, 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 in color is limited to the surface layer of the seal and should not compromise the performance properties of the Chem-Calk 505 if the dimension of the joint is proper and the sealant is otherwise properly applied.
- The Flex-Pak Colorants are an integral part of each mixed unit of Chem-Calk 505 and contribute to the long term performance of the product. Flex-Pak Colorant use is mandatory.
- 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.
- The ultimate performance of Chem-Calk 505 depends on proper joint design and proper application with joint surfaces properly prepared (See Installation Protocol). Chem-Calk 505 is not recommended for joints with dimensions less than or greater than what is recommended below. (See Installation Protocol—Joint Design section.)
- Chem-Calk 505 is not recommended for continuous immersion in water or any other fluid. When fully cured avoid exposure, even incidental, to fuels, chlorinated solvents, acid and alkaline solutions. Chem-Calk 505 is not recommended for exterior or interior sealing below the waterline; please refer to Bostik® 940

Fast Set for marine applications.

- Contact of Chem-Calk 505 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 Chem-Calk 505, do not expose to curing silicone sealants, curing Chem-Calk® 2000, alcohol, acids or solvent-based materials.
- 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.
- Chem-Calk 505 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.
- Chem-Calk 505 is not recommended for glazing applications. Bond line strength can be affected by UV rays through the clear material (glass, acrylic glass, polycarbonate, etc.).
- Chem-Calk 505 is not an 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 Chem-Calk 505 to ensure the successful compatibility between the sealant and the paint/coating after a sufficient amount of time. See your paint manufacturer for specifications or 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:

More joint movement can be accommodated in a thin bead of sealant than in a thick bead. Chem-Calk 505 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".

Principles of Joint Design:

The use of a bond breaker or backer rod prevents undesirable three-sided adhesion. Two-sided adhesion typically maximizes a sealant's extension and compression capability. Polyurethane open cell or polyethylene closed cell is the recommended backup for deep joints and a bond breaker tape is typically recommended for joints too shallow to allow a backer rod to be used.

Sealants usually need be no thicker than 1/2" (12.7mm) and no thinner than 1/4" (6.4mm).

Polyurethane open cell or polyethylene closed cell foam rod is the recommended backup for deep joints; polyethylene tape for joints too shallow to allow foam rod. These materials allow a bead of sealant to be applied and obtain two-sided adhesion, which will maximize a sealant's extension and compression capability.

Under certain conditions, the use of closed cell type backup materials can result in bubble formation and deformation in the surface of the sealant bead. This usually does not affect the performance of the sealant, but can be unattractive. The use of open cell backup materials minimizes this condition.

In remedial work where it is impossible to remove old, failed sealant and restore the surfaces to a like-new condition, the band-aid approach may be utilized. A bond-breaker tape is applied to bridge over the existing joint

and old sealant so that the tape extends beyond the edges of the original joint. This also has the effect of increasing the joint width and decreasing the percentage movement that the sealant must accommodate. The technique is also useful in new construction where the designed width is determined to be inadequate for the actual movement.

The longevity of on or below grade sealant installations subject to traffic or extended water immersion conditions will be less than those exposed to no traffic, intermittent water immersion or similar above grade installations.

Joint Dimensions:

The width of building expansion joints varies due to seasonal and daily changes in temperature. Chem-Calk 505 polyurethane sealant should be installed when the design width is approximately halfway between the dimensional extremes, typically at 65°F to 80°F.

Joint width should not be less than 1/4" (6.4mm). The joint depth must allow a sealant depth, after installation of bond breaker material (backer rod/bond breaker tape), of a minimum of 1/4" (6.4mm). Lap shear joints should have a bead width equal to, or greater than twice the anticipated movement.

Small curtain wall panels should allow a minimum width of 1/4" (6.4mm) for the sealant bead. Sealing of panels fabricated from plastic requires larger than usual joint dimensions due to plastic's higher coefficient of thermal expansion.

A conservative design practice, which uses a portion of the sealant's movement capability as a safety factor is recommended. Sealants are subject to cohesive failure when the actual movement is greater than their rated capability. Also, sealants applied under conditions resulting in less than optimum adhesion to the joint surfaces may fail adhesively within the limits of their rated capability. For all applications requiring a high degree of dynamic movement, the designed joint width should be at least four times the total anticipated joint movement.

Preparatory Work:

Product should be stored in 50°F and rising for optimal mixing properties. Surfaces to receive sealant and surrounding environment should be 40°F and rising for optimal performance.

Clean all joints by removing foreign matter and contaminants such as oil, dust, grease, frost, water, surface dirt, old sealants and any protective coating.

Porous substrates should be cleaned as necessary by grinding, saw cutting, blast cleaning (sand or water), mechanical abrading or a combination of these methods that will be required to provide a sound, clean and dry surface for sealant application. Dust, loose particles, etc., should be blown out of joints with oil-free compressed air or vacuum cleaned.

Nonporous and plastic surfaces should be cleaned by a solvent procedure or by mechanical means.

DETERGENT OR SOAP AND WATER CLEANING TREATMENTS ARE NOT RECOMMENDED.

Protective films must be removed by a solvent recommended by the manufacturer of the component or other means that leave no residue. In all cases where used, solvents should be applied with one clean cloth or lintless paper towel and the solvent wiped clean with a second cloth or towel. Cleaning solvents should not be allowed to air dry or evaporate without being wiped. Architectural coatings, paints and plastics should be cleaned with a solvent approved by the manufacturer of that product. Cleaning of all surfaces should be done on the same day in which the sealant is applied.

CAUTION! SOLVENTS MAY BE FLAMMABLE AND ARE TOXIC.

Priming:

Chem-Calk 505 polyurethane weatherproofing sealant generally does not require priming for many common building materials. Joints in porous materials (concrete or wood) that are subjected to intermittent water immersion or that are weak and/or friable should be primed with Bostik® Prime Coat Primer. Prime no more than you can caulk

within 1-3 hours by the clock. Most coatings and plastics and some metals will also require priming; the selection of the appropriate primer must be done after review of the Chem-Calk Primer Selection Guide or after contact with Bostik Technical Service. It is important to realize that primers are intended for use only on certain substrate materials, and that the use of the wrong primer for a substrate may result in joint sealing failure. Prior to any use, however, it is always recommended that a field adhesion test be performed. See Mandatory Adhesion to Substrates Pre-test (ASP).

Masking:

Masking should be done after priming to avoid wicking primer under tape applied on rough surfaces or tape that is not tightly adhered to the surface.

All areas adjacent to joints can be masked to assure a neat appearance. The masking tape should not be allowed to touch the clean surfaces to which the sealant is to adhere. Soon after sealant application and before a skin forms, tooling should be completed in one continuous stroke.

REMOVE MASKING TAPE IMMEDIATELY AFTER TOOLING IS COMPLETED.

Mixing:

Chem-Calk 505 is a multi-part sealant provided as base, activator (or curing agent) and Flex-Pak Color Pack. All the accelerator and appropriate color pack must be thoroughly mixed with the base to avoid uncured areas and/or color streaks. Failure to follow mixing instructions implicitly can result in spotty cure, random cure or complete lack of cure of the sealant. Do not attempt to mix partial units, as the exact ratio of curing agent to base is essential for optimum performance.

Mixing Instructions:

1. Remove the zip-top lid from the activator can and add the entire contents, scraping out all residue in the can. Add the entire contents of the accompanying Flex-Pak Color Pack.
2. Five minutes of thorough mixing is required to obtain optimum cure. Due to the critical nature of the mix, blend with a slow speed (80-150 rpm) drill for a full five minutes by the watch. Five-minute minimum is required to properly blend the color and the activator into the sealant base. Use a timer to time your mixing. Consult Bostik Technical Services for specific mixing paddle recommendations, call 800-523-2678.

The color paste should all be blended into the sealant with no streaks. The material is improperly mixed if it is not uniform in color. The color may disperse evenly in less than five minutes. Continue mixing for the five minute minimum.
3. Stop at least once during mixing and scrape the bottom and sides of the container as well as the blades of the mixing paddle. Failure to follow mixing instructions implicitly can result in spotty cure, random cure or complete lack of cure.

Temperature has a direct bearing on the work life and cure rate of chemically curing sealants. High temperatures result in a shortened work life and cure rate, while low temperatures extend both.

Bulk caulking guns are used to install the sealant into the joints to be caulked. Special nozzle tips are available to dispense the sealant. Install backup material or joint filler as specified. Apply Chem-Calk 505 polyurethane sealant in a continuous operation using a positive pressure adequate to properly fill and seal the joint. Tool the non-sag grade sealant with adequate pressure to spread the sealant against the backup material and onto the joint surfaces. A tool with a concave profile is recommended to keep the sealant within the joint.

Tooling:

Apply Chem-Calk 505 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 commercial solvent wipe. Contact Technical Service for solvent recommendations. 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.

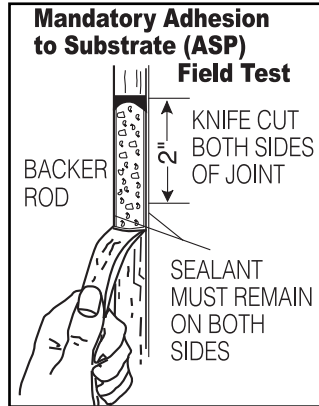
Bostik recommends the use of Bostik® Hand Towels & Specialty Sealant Remover for easy removal of uncured Chem-Calk 505 from surfaces, hands and tools.

MANDATORY ADHESION TO SUBSTRATES PRETEST— (ASP)

A hand pull test must be run before the job starts and at regular intervals 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 Chem-Calk 505 must be checked prior to using the product; do not use past its shelf life. 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 1-800-7/BOSTIK (1-800-726-7845) to check if the product is still within its shelf life.

NO FOOD CONTACT STATUS

Chem-Calk 505 has no food contact status. Consult with Bostik Technical Service at 1-800-7/BOSTIK (1-800-726-7845).

COLORS

2C Black	2C Aluminum Gray
2C Tan	2C Off-White
2C Limestone	2C Medium Bronze
2C Stone	2C Redwood Tan
2C White	2C Special Bronze

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 1-800-7/BOSTIK (1-800-726-7845).

Note: Chem-Calk 505 is available in its own exclusive color selection. Consult the Bostik Chem-Calk Two-Component Color Chart (C100) for color availability. For special colors, contact your local Bostik representative.

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 1-800-7/BOSTIK (1-800-726-7845).

TECHNICAL SERVICE

TECH SERVICE phone number: 1-800-7/BOSTIK (1-800-726-7845).

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.

COVERAGE CHART FOR 1.5 GALLON PAIL (5.67 L)

		Width							
		1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Depth	1/8"	1848	924	615	462	369	308	264	231
	1/4"		412	308	231	185	153	132	116
	3/8"			204	153	123	102	87	77
	1/2"				116	92	77	66	57

LINEAR FEET PER 1.5 GALLON PAIL