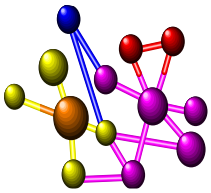
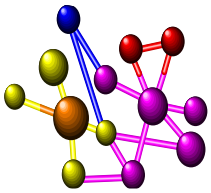
BRAND CROSS-REFERENCE



We're making a cross-reference table for you to find the Geocel product that can be used in place of another brand.

Watch for it in the next edition.



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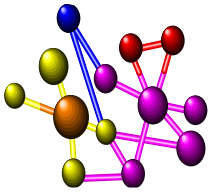

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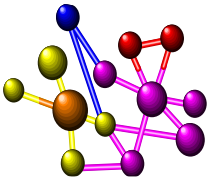


This section explains how to read the ASTM specifications that sealants must often meet when used on government projects.

ASTM SPECIFICATIONS

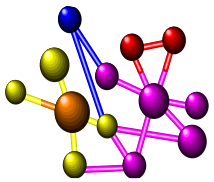
ASTM C920:

- Sample Specification: ASTM C920-96, Type S, Grade NS, Class 25.
- "920": ASTM specification number 920 covers physical properties and test methods of the sealant.
- "96" : The year that specification was adopted or last revised.
- "Type S": Type of sealant. S = single component; M = multi-component.
- "Grade NS": Sealant flow. NS = non-sag; P = pourable.
- "Class 25": Tolerance to joint movement. 25 = capable of withstanding ± 25% cyclic movement; 12-1/2 = capable of withstanding ± 12-1/2% cyclic movement. Always refers to each substrate (i.e., ± 25% means 50% total movement).

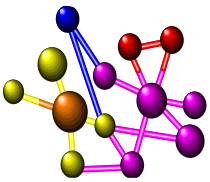
TT-S-00-230C:

- Sample Specification: TT-S-00230C, Class A, Type II.
- "TT-S-00-230C": The specification number covers guidelines for physical properties, test methods and sampling procedures, and packaging / labeling of the sealant.
- "Class A": Tolerance to joint movement. A = capable of withstanding ± 25% cyclic movement; B = capable of withstanding ± 12-1/2% cyclic movement. This refers to each substrate (i.e., ± 25% means 50% total movement).
- "Type II": Suitability for horizontal or vertical use. Type I = self-leveling; Type II = non-sag.

GEOCEL & ASTM TEST METHODS



ASTM test methods and specs will be ready in the next edition.



Use these tables to determine the quantity of sealant that you will need for their projects..

PRODUCT YIELD

CARTRIDGE GRADE PRODUCTS

BEAD SIZE (W X D IN.)	10	10.3	10.48	10.6	11.0	29.0
1/4 x 1/4	24	24.7	25.2	25.5	26.5	69.8
1/4 x 3/8	16	16.5	16.8	16.9	17.6	46.5
1/4 x 1/2	12	12.3	12.6	12.7	13.2	34.8
1/2 x 3/8	8	8.2	8.4	8.4	8.8	23.2
1/2 x 1/2	6	6.2	6.3	6.4	6.6	17.4
3/4 x 1/2	4	4.1	4.2	4.2	4.4	11.6
1 x 1/2	3	3.1	3.2	3.2	3.3	8.7
1 1/4 x 5/8	1.9	1.98	2	2	2.1	5.6
1/8 BEAD	122	125	129.6	134	354	
3/16 BEAD	54.4	56.12				
1/4 BEAD	30.7	31.6	32.7	32.5	33.8	89
3/8 BEAD	13.7	14	14.5	15	39.6	
1/2 BEAD	7.7	7.9	8.1	8.4	22.2	

BRUSHABLE SEALANTS:

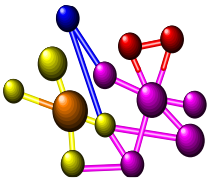
SURFACE	SQUARE FEET / GALLON
Smooth, non-porous (metal)	50 - 100
Semi-rough, moderately porous (concrete)	25 - 70
Rough, highly porous (wood shingles)	25 - 50

EXPANDING FOAM:

PRODUCT SIZE	CUBIC FEET
12 oz. can	.33 - .40
20 oz. can	.66 - .79

MINIMAL EXPANDING FOAM:

PRODUCT SIZE	CUBIC FEET
12 oz. can	.26
20 oz. can	.65
10 lb. cannister	3.53



This section will help you familiarize yourself with the terms of the trade.

GLOSSARY OF TERMS

ACRYLIC SEALANT. A sealant made from acrylic acid or its derivatives. Acrylic sealants are known for durability and clarity, good adhesion to wide range of surfaces, and paintability.

ADHESION. The bond between a sealant and the substrate. See Cohesion.

ADHESION-IN-PEEL. A test that measures the strength of a sealant's bond to various substrates.

ADHESIVE. A chemical substance capable of holding two materials together by surface attachment.

ADHESIVE SEALANT. A multi-purpose product that functions as both a sealant and an adhesive.

AERATED SEALANT. A sealant (typically expanding foam) propelled from its container by compressed air or gas.

ANTIOXIDANT. An additive used to slow down the natural deterioration of a sealant, caused by exposure to oxygen.

ASPHALTIC SEALANT. An asphalt-based sealant, typically used for roof, gutter, and driveway repairs.

ASTM. American Society for Testing Materials. ASTM writes testing procedures, performance standards, and recommended practices for a wide variety of products and materials, including sealants.

BACKER ROD. A flexible polyurethane foam rod used to limit the depth of the sealant, prevent three-point adhesion, and provide the best bead shape for long-term performance.

BEAD. An extruded strip of sealant.

BOND. The attachment between a sealant and the material it has been applied to.

BOND BREAKER. A special tape, typically placed at the bottom of a shallow joint, to prevent the sealant from adhering to the bottom of the joint.

BRUSHABLE SEALANT. Brushable sealants may be spread as a film with a brush, roller, squeegee, or trowel.

BUTYL SEALANT. A sealant formulated from butyl rubber. Butyl sealants provide fair ultraviolet and abrasion resistance, and are impermeable to gases and vapors, but remain tacky and are stringy when applied.

CAULK. Any pliable, flexible, compressible or formable material used to fill a cavity and provide a barrier to liquids, gases, or solids.

CEMENTIOUS SEALANT. A cement-like sealant used for repairing masonry. Some are very rigid and do not bond well; others, typically modified with acrylic resins, offer longer and better performance.

CHALKING. A powdery coating that develops on a sealant due to weathering.

CHEMICAL-CURED SEALANT. A sealant that cures by chemical reaction as opposed to evaporation. Chemical-cured sealants are high in solids, and as a result, shrink less than other types of sealants. They include silicones, urethanes, and polysulfides.

COHESION. The bond between particles of the sealant itself.

COPOLYMER. A substance formed by the reaction of two or more different materials. For example, SBR is a common copolymer made from Styrene and Butadiene.

CRAZING. A network of fine cracks in a cured or partially cured sealant, typically seen when the sealant has been subjected to stress at low temperatures.

CURE. The process of changing a sealant from its wet state to its finished condition, by chemical reaction, vulcanization, or evaporation (of solvents or water).

DEGRADATION. A change in the chemical structure of a sealant that causes its appearance or performance to deteriorate. The most common causes are heat, water, oxygen, joint movement, chemicals, and ultraviolet light.

DURABILITY. The measure of how long a sealant will perform as intended.

ELASTOMER. A sealant material that, at room temperature, can be stretched repeatedly to twice its original length and return to its approximate shape.

ELONGATION. The increase in length of a bead of sealant as it is pulled apart, measured as a percentage of its original length.

EMULSION. A stable mixture of two or more liquids held in suspension by emulsifiers.

EXTRUDE. To force a sealant through a tube tip or cartridge nozzle to give it a specific shape. Also called "gunning."

EXTRUDABILITY. The measure of how easily a sealant can be applied with a cartridge gun.

FLAME SPREAD. The measure of a product's flammability. Underwriter's Laboratories (UL) has established three classes (I, II, and III) to measure

flammability, with Class I being the least flammable.

FLAMMABILITY. The extent to which a sealant will support combustion and burn.

FLASH POINT. The lowest temperature at which the vapors above a sealant will ignite when exposed to a flame in a controlled test. Sealants with a flash point below 100°F are considered flammable.

FREEZE / THAW STABILITY. A test of how well a sealant maintains its original properties after being frozen and thawed repeatedly

GUN GRADE. A sealant that can be extruded through a caulking gun, but is stiff enough not to run or sag.

GUTTER & LAP SEALANT. Sealants that are typically rubber-based and designed for use on gutters, downspouts, storm windows, siding, awnings, and vents.

HARDNESS. A measure of a sealant's resistance to indentation.

HOT MELT SEALANT. A sealant that must be heated to between 180°F and 350°F before application. Hot melt sealants cure as they cool.

JOINT. The space between two or more adjoining substrates. The design of a joint and the use of an appropriate sealant are primary factors in determining sealant performance in a given joint.

KNIFE GRADE. A sealant or adhesive that is too stiff to be extruded through a caulking gun. Knife grade sealants are applied with a trowel or putty knife.

LATEX. A rubber and water emulsion.

LATEX CAULK. A caulk formulated with water as the primary liquid. The quality can vary widely, depending on the formulation and the type of emulsion used.

MASTIC. A thick, putty-like sealant, usually without good adhesion properties.

MIGRATION. The extraction of an ingredient of one material by another material. For example, a plasticizer in a sealant may migrate to the material to which the sealant has been applied.

MILDEW RESISTANCE. A measure of a sealant's ability to withstand the growth of mildew. Water-based sealants are generally susceptible to mildew growth.

MOISTURE VAPOR TRANSMISSION. See Permeability.

NON-SAG SEALANT. A sealant designed to retain its shape after it has been extruded, typically tooled to the desired shape.

OLEORESINOUS CAULK. See Oil-based Caulk.

OIL-BASED CAULK. Oil-based, or oleoresinous, caulks use vegetable or fish oils as a base. They are among the least expensive and lowest performing sealants.

OXIDATION. The deterioration of a sealant due to oxygen or ozone. Some sealants contain anti-oxidants to retard degradation.

PAINTABILITY. A measure of a sealant's ability to accept and hold paint without affecting its appearance or performance.

PERMEABILITY. A measure of how well a sealant resists moisture transmission caused by temperature differences on either side of the sealant.

PIGMENT. A substance added to a sealant to give it color.

PLASTICIZER. A substance added to most sealants to increase toughness and flexibility. Some plasticizers are relatively permanent, while others migrate quickly, causing brittleness and cracking.

POLYMER. A large, heavy molecule formed by joining simple molecules called monomers. When two or more types of monomers are used, the product is called a copolymer. Most sealants are based on polymers.

POLYSULFIDE SEALANT. Sealants based on polysulfide rubber, which was the first synthetic rubber. Polysulfide sealants have been replaced by polyurethane sealants in most general construction applications.

POLYURETHANE SEALANT. Sealants based on polyurethane rubber, also called urethanes. They have excellent weathering and abrasion-resistance qualities, good tensile strength, tear resistance, elasticity, and flexibility. Because they cure by contact with moisture in the air, they may cure slowly in arid conditions. (also see Urethane Sealant)

PREFORMED SEALANT. A sealant that has been shaped in manufacturing, such as a rope caulk or extruded tape.

PRIMER. A coating applied to the substrate before a sealant is applied, to improve adhesion. Priming may be recommended for oily woods (e.g., cedar), weathering steel, coated aluminum, dense concrete, or when a chemical reaction may occur between the sealant and the substrate. Shellac, epoxies, and acrylic latex paints are commonly used as primers.

SUBSTRATE. The material to which a sealant is applied.

PUTTY. A trowelable sealant, typically made from linseed oil and powdered

chalk.

RECOVERY. The ability of a sealant to return to its original shape after being stretched or deformed.

RESIN. Any of a large class of natural or synthetic products used as the basis for plastics. Resins typically have a high molecular weight and will not dissolve in water.

SAG. A measure of the flow or droop of a sealant bead after it has been applied. Typically used in reference to self-leveling sealants.

SBR SEALANT. A copolymer sealant based on Styrene and Butadiene. Many of the newer solvent-based clear sealants are SBR-based. They typically have good tensile strength and moderate weathering ability, but may not adhere well to glass.

SEALANT. Any material used to fill the gap between two construction materials, to keep out liquids, gases, or solid particles. They include caulks, putties, preformed tapes, and weatherstripping.

SEALER. A liquid surface coating applied to protect a substrate and cover cracks, pores, or voids.

SELF-LEVELING SEALANT. A sealant designed to flow into a horizontal joint. See Non-sag Sealant.

SHELF LIFE. The period of time that a packaged sealant can be stored and remain suitable for use. High temperatures dramatically reduce the shelf life of most sealants; temperatures below freezing may degrade water-based sealants.

SHRINKAGE. Sealants shrink during the curing process. Shrinkage may affect the sealant's performance, depending on the size of the joint, the adhesion to the substrate, and the tensile strength of the sealant.

SILICONE SEALANTS. Sealants based on organosilioxane polymers, with excellent ultraviolet and weathering resistance, good tensile properties, and good heat resistance. They are generally not paintable, tend to lose adhesion in standing water, and will not bond to damp or dirty surfaces.

SLUMP. See Sag.

SOLIDS CONTENT. The amount of solid (non-volatile) material in a sealant determines how much shrinkage will occur as the sealant cures.

SOLVENT. The volatile liquid content of a sealant. Its primary purpose is to keep the sealant at the correct thickness for application.

SOLVENT-RELEASE SEALANT. A sealant that cures by the evaporation of

solvent.

STRINGINESS. The tendency of a sealant to form sticky threads when the cartridge nozzle is drawn away from contact with a freshly-applied bead.

SUBSTRATE. The material on which a sealant is applied.

SURFACE PREPARATION. The treatment of a substrate to make it suitable for the application of a sealant. It can include physical treatment (e.g., cleaning away dirt and loose material) or chemical treatment (e.g., priming).

TACK. The ability of a sealant or adhesive to bond to the substrate immediately after application, before curing begins.

TACK-FREE TIME. The time required until the surface of the sealant feels dry to the touch.

TAPE SEALANT. A sealant preformed into the shape of a tape during manufacturing. Tape sealants are normally used in joints that will be under compression.

TENSILE STRENGTH. A measure of how well a sealant resists cohesive failure when it is stretched.

THERMOPLASTIC. A material which softens when it is heated and hardens when it cools. In sealants, most vinyls, butyls, and acrylics are thermoplastic.

THERMOSET. A sealant which hardens by chemical reaction and does not re-melt. In sealants, silicones, some polyurethanes, and some polysulfides are thermoset products. In general, thermoset sealants recover their original shape after stretching better than thermoplastic sealants.

THREE-POINT ADHESION. In a U-shaped joint, when the sealant bonds to both sides and the bottom of the joint. Three-point adhesion can cause sealant failure when the joint expands and contracts. It is prevented by using backer rod or a bond breaker at the bottom of the joint.

TOOLING. After sealant is applied, the bead is shaped and forced into the joint to improve adhesion and form a smooth surface.

TOXICITY. Poisonous or dangerous to humans or other animals when swallowed, inhaled, or brought into contact with eyes or skin. Most sealant solvents are toxic; once they cure, the bead is non-toxic.

ULTRAVIOLET LIGHT (UV). A part of the light spectrum, UV radiation is damaging to many polymers in sealants, and may cause discoloration,

brittleness, or cracking. Some sealants contain additives called UV absorbers, to make them more stable.

URETHANE SEALANT. (Commonly referred as polyurethane)

VINYL CAULK. Sealants based on vinyl resins. Vinyl caulks are low-priced and easy to work with, but harden with age, and provide poor durability in exterior applications.

VISCOSITY. A measure of the flow properties of a liquid or paste.

VOLATILE. A measure of how readily a material evaporates. Materials that evaporate quickly (e.g., alcohol) are considered volatile.

VULCANIZATION. The process of curing rubber or similar plastic materials, either chemically or with heat, to make them more elastic, stronger, and / or more stable.