



UNISEAL™ PU

POLYURETHANE JOINT SEALANT



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PRODUCT FEATURES

UNISEAL™ PU is a one-component, high-strength adhesive polyurethane multi-purpose sealant. Polyurethane sealant will moisture-curing at room temperature, high solid content, good weather resistance, excellent elasticity and has high tensile strength, abrasion resistance and cold resistance.

Will not change during curing and after curing and no harmful substances will be produced during and after curing, no pollution to the substrate.

UNISEAL™ PU widely used as caulking and sealing material for buildings, squares, and highways and sealing material for automobile manufacturing, glass installation, and submarines.

ADVANTAGES

- One component, no mixing required
- Excellent adhesion to most building substrates
- Able to be painted over by most types of paints
- Excellent durability and good weather resistance
- High stability, low odor, low environmental pollution
- Abrasion resistance, cold resistance, and water resistance
- Has Anti-aging, no corrosion to the substrate, no penetration pollution
- High elasticity, cures to a tough and flexible consistency with exceptional cut and tear resistance

FIELD OF APPLICATION

Buildings & Balconies	Precast Concrete Joint
Parapet Walls	Sealing of Roads & Bridges
Bathrooms & Kitchen Installation	Airstrips
Wooden Frames Around Doors, Windows & Walls	Structural Glazing & Curtain Wall Joints
Roof Gaps, Floor Gaps & Floor Tiles Laying	Concrete Panels, Subways & Underground Tunnels

PAINTABILITY

UNISEAL™ PU can be painted after fully cured. Paints and coatings containing solvents may cause the sealant to react and become tacky. Some coatings may crack or craze as a direct result of the environmental cyclical movement. It is always recommended to conduct field tests to ensure compatibility with the desired coating.

TECHNICAL PROPERTIES

PROPERTY	VALUES
Appearance	Thixotropic Paste
Cure Method	Moisture Curing
Specific Gravity	1.16 ± 0.03
Curing Rate	> 2mm / 24 hours
Skin Formation	60 to 180 minutes
Shore A hardness (ISO R868 - 3 seconds)	Approx. 25
Tear Resistance (ISO 34)	≤ 6.5 N/mm
Modulus at 100% Elongation (ISO 8339)	≤ 0.4 MPa
Elongation at Break (ASTM D 412)	> 500%
Movement Capability	+25%
Total Joint Movement	50%
Resistance to UV Radiation & Weatherability	Good
Service Temperature	-40°C to +80°C
Application Temperature	+5°C to +35°C
VOC Rating - g/L	35
Suitability of Non-Metalic Products for Use in Contact with Water Intended for Human Consumption with Regard to Their Effect on Quality of the Water (BS 6920-1-2014)	Yes

(Typical properties after cured at 23°C and 50% Relative Humidity Conditions and Environment)

PHYSICAL PROPERTIES

MATERIAL	Polyurethane (PU)
COLOR	White / Grey / Black
SIZE & PACKING	UNISEAL™ PU - 600ml per sausage / 20 sausage per carton UNISEAL™ PU PRIMER - 1 Liter tin
PRIMER COVERAGE	Approximately 25 - 30 Liters sealant per Liters

JOINT DESIGN GEOMETRY

To ensure that the correct joint width to depth ratio is achieved and also to prevent the sealant from adhering to the bottom of the joint, it is highly recommend to use a tight fitting, non-absorbent backing material such as an open cell polyurethane or closed cell polyethylene backer rod.

Open cell polyurethane backer rod has the advantage of allowing ambient moisture access to the front and back of the joint simultaneously allowing faster curing Caution - if using closed cell polyethylene backer rod, it can cause bubbling in uncured sealant as the temperature rises if it's outer skin in punctured.

Do not use oil or tar impregnated backing materials.

Minimum joint depth 6mm : maximum joint width 35mm for vertical installation

Joints up to 12mm wide, width to depth ratio = 1:1	Joints over 12mm wide, width to depth ratio = 2:1
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COVERAGE

Theoretical calculation formula as below :-

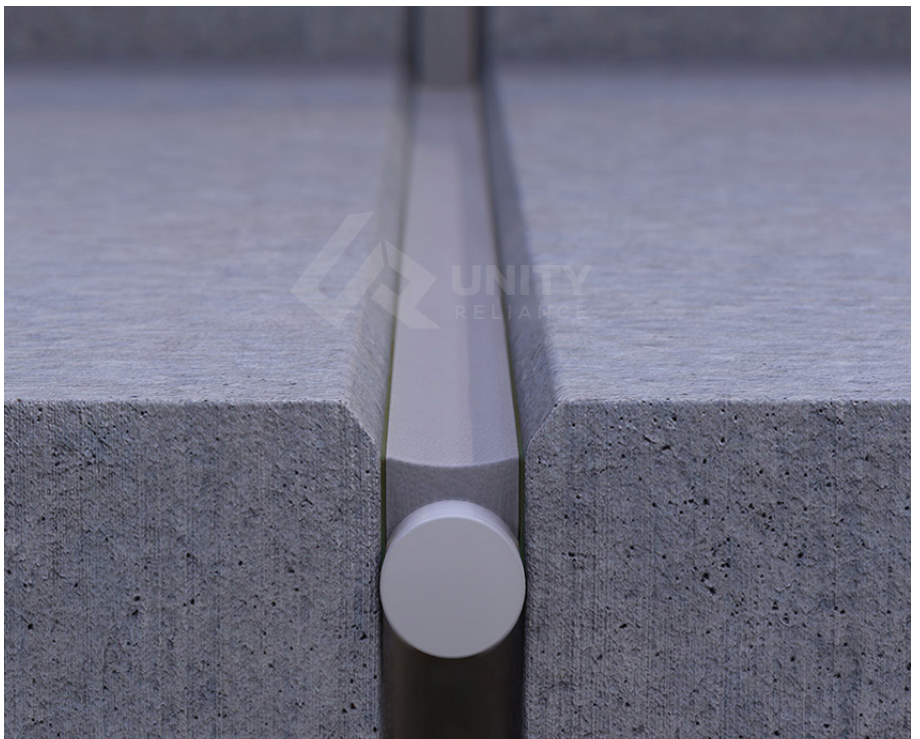
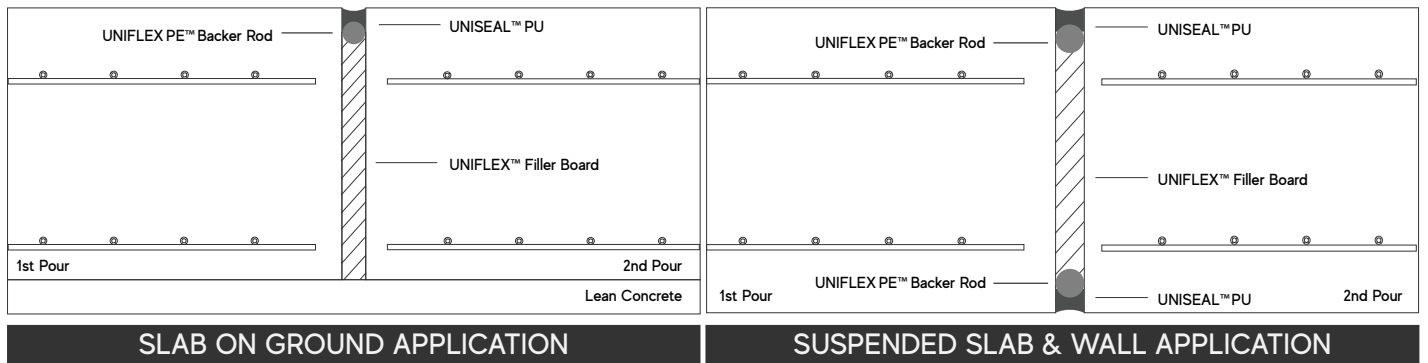
▶ Width (mm) x Depth (mm) x Length (mm) / 1000 = Volume (Litre)

Length of joint in meters filled per sausage of 600ml of **UNISEAL™ PU**

DEPTH (mm)	WIDTH (mm)					
	5	10	15	20	25	30
5	24	12	8	-	-	-
10	-	6	4	3	-	-
15	-	-	2.67	2	1.6	1.34
20	-	-	-	1.5	1.2	1
25	-	-	-	-	0.96	0.8

CALCULATION BASED ON THEORETICAL COVERAGE. ACTUAL MATERIAL CONSUMPTION AT SITE WILL VARY DEPENDING ON THE WASTAGE

TYPICAL APPLICATIONS



INSTALLATION PROCEDURES

▶ JOINT PREPARATION

Apply at a minimum temperature of +5°C to + 35°C **UNISEAL™ PU** can be applied by means of a hand or air operated bulk gun.

When tooling the **UNISEAL™ PU** sausage 600ml - Place in bulk gun, then cut just behind the aluminium clip (removing clip) to open sealant in foil. Fit the bulk gun with a suitable nozzle that has been cut to deliver the right bead size.

The joint edges must be clean, dry, and free from oil, loose particles, cement laitance, and other contaminants, which may affect the adhesion. A thorough wire brushing, grinding, sandblasting or solvent cleaning, maybe required to expose a clean and sound substrate. When applied on glazed surfaces like ceramic or terrazzo tiles or porcelain enamel joint surfaces, the glaze should be removed by abrading with sandpaper or wire brush.

▶ APPLICATION

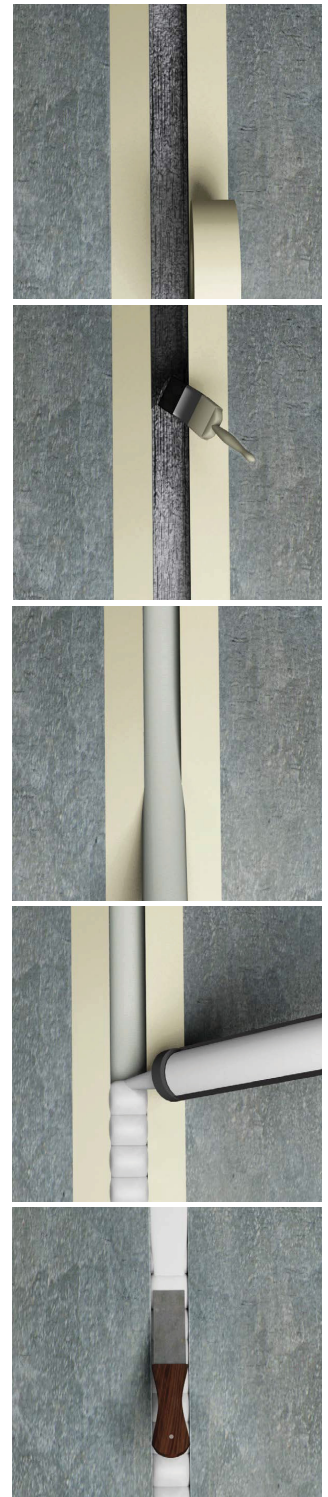
When squeezing the sealant joint into the gap, it should only be on both sides of the gap. If the sealant blocks the sides and bottom surface, the sealant joint, and bottom surface will not move freely. Therefore, when using a **UNISEAL™ PU**, the bottom of the gap must be embedded with **UNIFLEX PE™ BACKER ROD** at least 20% wider than the gap.

To prevent contamination of the left and right surfaces of the joint when applying **UNISEAL™ PU PRIMER** and squeezing the sealant joint, the tape must be pasted and removed after the construction is completed.

Use a brush to connect the **UNISEAL™ PU PRIMER** to the attached surface to increase the adhesion between the sealant and building materials.

Align the front end of the sealant joint cylinder with the seam, cut the tube head with a knife according to the size of the seam, and then squeeze the sealant joint with a squeeze gun to fill the seams and corners. Be careful not to mix in air bubbles, product usage / application recommended as soon as possible after opening.

After filling, use a pressure spoon and a spatula to press the sealant into the seam. When finished, remove the paper tape.



CLEANING

Remove all excess sealant with a scraper. Any spillage can be cleaned using solvent or xylene. Clean all tools and equipment using similar solvents immediately after the tooling. Cured material can only be removed mechanically.

ACCESSORIES



STORAGE & SHELF LIFE

Store in a cool, dry place and keep away from all sources of heat and sunlight. In tropical or hot climates, store in air-conditioned rooms. The shelf life is up to 12 months in un-opened condition and if stored as per recommendations. Excessive exposure to sunlight, heat, and humidity, will result in the deterioration of the quality of the product and reduce its shelf life.

This technical data sheet is given in good faith and does not guarantee the application work. All Unity Reliance technical data sheets & method statements are updated on a regular basis and can be subject to change without notice. It is the users responsibility to obtain the latest version of the information required.



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