

UNISEAL™ PS

POLYSULPHIDE JOINT SEALANT

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PRODUCT FEATURES

UNISEAL™ PS is a non slumping two component, chemically curing polysulphide joint sealant. **UNISEAL™ PS** is specifically designed to be used as a watertight seal for moderate movement and control joints. It is based on a liquid polysulphide polymer which when mixed with the hardener, cures to form a tough, flexible and non staining rubber like seal.

UNISEAL™ PS has excellent adhesion to concrete, stone, metals and other common building substrates. The cured sealant has good resistance to most environmental chemicals & resists deterioration on prolonged exposure to UV.

UNISEAL™ PS is suitable for use in both vertical and horizontal applications. The sealant has a movement accommodation factor (MAF) of $\pm 25\%$.

ADVANTAGES

- Highly Resilient with Excellent Recovery Characteristics
- Provides Permanent and Uniform Watertight Seal
- Non-Staining
- Excellent Resistance to Fatigue and Stays Flexible Throughout its service life-won't become Brittle, Caulk or Crack due to Ultra Violet Exposure
- Prevents Uncontrolled Cracking by allowing Expansion and Contraction during temperature changes
- Excellent Adhesion to most Common Building Substrates
- Good Resistance to Ageing , Retains Joint Soundness once cured
- Resistance Against Mild Chemicals, Hydrocarbon Fuels, Sea Water
- Non-toxic. Can be used in Potable Water Applications, Swimming Pools

FIELD OF APPLICATION

Swimming Pool	Airport Runways and Apron Pavements
Factories Warehouses	Parapet Walls
Metal & Concrete Sea Walls	Sewerage / Waste Water Treatment Plants
Bridge Decks and Highway Pavements	Garages & Workshops
Chemical Plants	Oil & Gas Plants

PAINTABILITY

UNISEAL™ PS 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
Density (g/cc)	1.55 ± 0.05
Consistency	Thixotropic paste
Shrinkage	Negligible
Application life (min)	> 120
Shore 'A' Hardness	20 - 35
Tack free time (hrs)	5
Adhesion to Concrete (N)	> 25
Elongation (%)	> 300
UV Resistance @ 300 hrs	No Deterioration
Water potability (WRC)	Passes
Chemical resistance	pH 2.5 to 11.5, Hydrocarbon fuels, vegetable oil, urea, seawater
Cracking & Chalking after heat ageing @ 70°C	No Deterioration
Initial cure @ standard condition (hrs)	24
Final cure @ standard condition (days)	7
Application temp (°C)	+5 to +40
Service temp (°C)	-20 to +80
Reaction to fire	Class A

(ALL VALUES GIVEN ARE SUBJECT TO 5-10% TOLERANCE)

PHYSICAL PROPERTIES

MATERIAL	Polysulphide (PS)
COLOR	Grey
SIZE & PACKING	UNISEAL™ PS - 2.5 Liters set / 6 sets per carton UNISEAL™ PS PRIMER - 1 Liter tin
PRIMER COVERAGE	Approximately 25 - 30 Liters sealant per Liters

JOINT DESIGN GEOMETRY

The width of the joint should be a minimum of 4 times the anticipated movement but within the maximum width requirements. Joints with cyclic movement should have a width to depth ratio of 2:1 and 1:1 for static joints. The joint depth shall not exceed the width.

The joint width and depth should be maintained as recommended :

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 :-

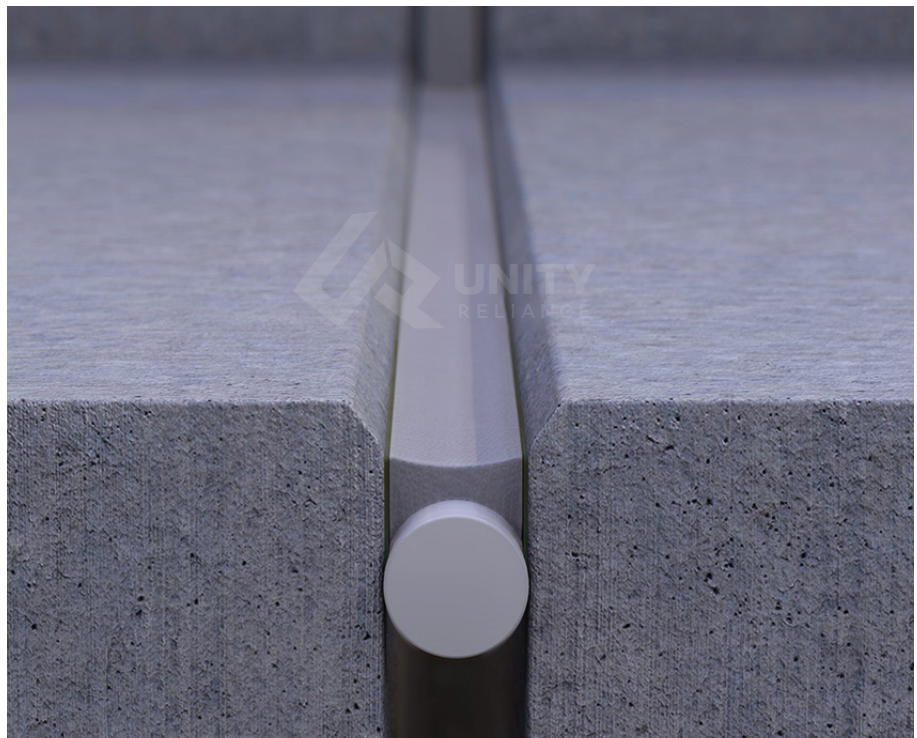
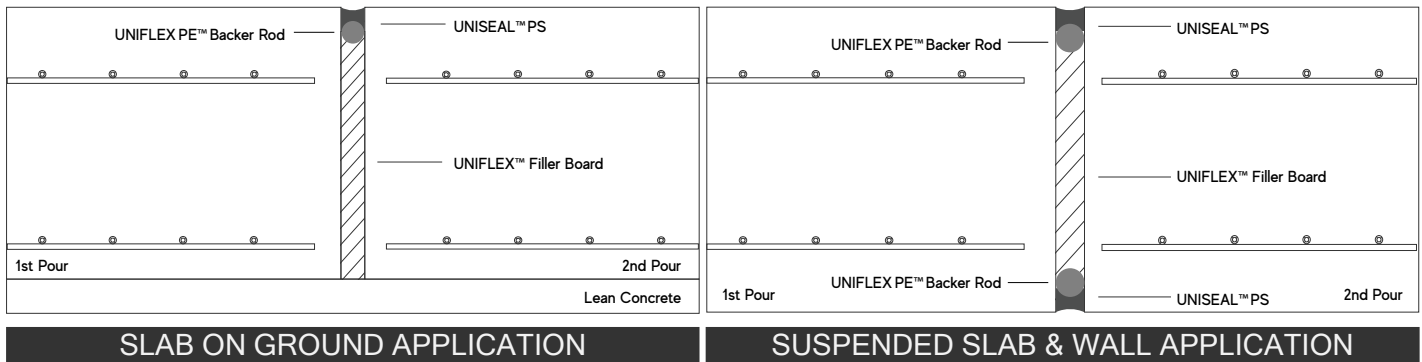
▶ $\text{Width (mm)} \times \text{Depth (mm)} \times \text{Length (mm)} / 1000 = \text{Volume (Litre)}$

Length of joint in meters filled per set of 2.5L of **UNISEAL™ PS**

DEPTH (mm)	WIDTH (mm)					
	6	10	15	20	25	30
6	69	41.5	28	-	-	-
10	-	25	16.5	12.5	-	-
15	-	-	11	8.3	6.7	5.5
20	-	-	-	6.25	5	4.15
25	-	-	-	-	4	3.3

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

TYPICAL APPLICATIONS



INSTALLATION PROCEDURES

▶ JOINT PREPARATION

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, sand blasting or solvent cleaning may be required to expose a clean and sound substrate. The compressible joint filler shall be cut back to expose a uniform joint depth.

▶ PRIMING

Primer shall be applied to a clean and dry surface prior to the installation of backer rod or bond breaking tape.

UNISEAL™ PS PRIMER is recommended to be applied on porous substrates.

The primer shall be applied by a brush in a thin coat application and shall be allowed to become tack free prior to the application of the sealant. The joint edges shall be re-primed if the sealant installation is not carried out within 3 hours of application of the primer.

For obtaining a clean and neat finish, masking tape shall be applied on both the edges of the joint before applying the primer.

▶ BACK-UP MATERIAL

UNIFLEX PE™ BACKER ROD shall be inserted into all movement joints to avoid a three sided adhesion. Use of a backing rod will ensure proper joint depth and at the same time facilitating the formation of an hour glass profile on the applied sealant. The backer rod will also provide resistance to sealant tooling pressure and help to attain proper wetting of the substrate when the sealant is being tooled.

The diameter of the backing rod shall be at least 20% larger but not greater than 33% of the joint width. This will ensure that the backer rod remains in compression and in place during sealant installation.

For static and joints where the depth is not sufficient for the use of the backing rod, a bond breaking tape may be applied to prevent the three side adhesion.

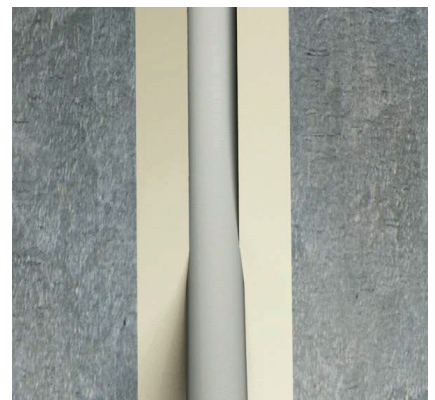
CAUTION : DO NOT DAMAGE OR POKE HOLES IN THE BACKER ROD DURING OR AFTER INSTALLATION, SINCE THIS MAY CAUSE AIR BUBBLES IN THE SEALANT AND AFFECT ITS PERFORMANCE.

▶ MIXING AND APPLICATION

UNISEAL™ PS is available in a ready to mix container, with all the components packed in a single tin. The material shall be mixed thoroughly with a slow speed drill (300-400 rpm) fitted with a flat bladed paddle for 2 - 3 minutes till a uniform colour and consistency is achieved.

▶ DO NOT PART MIX

Since the base and the curing agent ratio controls the ultimate physical properties like adhesion, durability and strength, one complete kit has to be mixed at a time. The side and base of the container shall be periodically scrapped with a scrapper to ensure that the curing agent is properly dispersed and blended into the mix.



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Load the sealant immediately into the barrel gun by a heavy duty follower plate. Remove the cap and nozzle from the gun and ensure that the plunger is pushed all the way forward. The follower plate shall be placed on the flat surface on top of the pail. Place the barrel gun over the lip of the follower plate and depress the release plate and draw the material into the barrel by pulling back the plunger slowly.

Fix the nozzle and start extruding into the joint firmly by maintaining an even pressure on the trigger of the gun. On vertical joints, sealant extrusion shall start from the bottom of the joint and continued to the top. For deep vertical joints, the sealant shall be filled in 2 to 3 applications in order to avoid air entrapment and sagging.

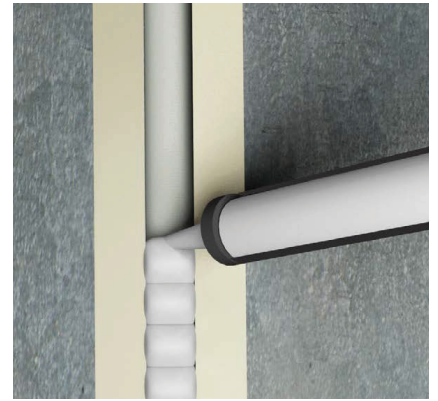
Once the sealant has been installed a suitable rounded tool soaked in a soapy water solution can be used to achieve a smooth hour glass profile. Any masking tape applied should be removed immediately after the sealant is installed.

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.

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.





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