KUT THIOSEAL 227

Two Component Gun And Pouring Grade Polysulfide Sealant

JOS – 01 - 0104

DESCRIPTION

"**KUT THIOSEAL 227**" is a two component joint sealant based on a high quality liquid polysulpfide polymer. The cured sealant is a tough rubber like seal exhibiting excellent adhesion to most surfaces including concrete, glass, aluminium, stainless steel etc., with the use of appropriate primers. "**KUT THIOSEAL 227**" is available in two grades:

1. **Gun Grade :** This is ideal for general application on vertical and horizontal surfaces. This is available in a small range of colours.

2. **Pouring Grade :** This is for application for joints in horizontal surfaces and is available in grey colour only.

USES

Sealing joints subject to expansion and contraction resulting from temperature changes in buildings and civil engineering structures including superstructures, reservoirs, floors, basements, subways. Some of the recommended applications are as follows:

- As a highly elastomeric sealing material for expansion and crack control joints
- For sealing curtain wall panels, tilt-up panels, window glazing, flashing and material setting.
- For joint sealing applications where a short curing period is required such as expansion and contraction joints in shopping centers, side walks or any other trafficked areas.
- For sealing coping joints and deck joints in frequently watered areas such as swimming pool decks, planters pots, etc.,
- For sealing horizontal joints and vertical joints where movement is expected or where other mastics would prove to be ineffective.
- For sealing joints in reinforced concrete structures such as reservoirs, water treatment works, sea walls and roads etc.,
- "**KUT THIOSEAL 227**" is particularly recommended for use in high rise buildings and other applications where access for subsequent maintenance will be difficult and the risk of early movement failure must be minimized. It is also suitable for sealing joints in brickwork, retaining walls, basements and subways.

ADVANTAGES

- A high quality product meeting key international standards.
- It forms a tough elastic rubber like seal
- Outstanding resistance to deterioration due to weathering, ozone, UV Light and attack by chemicals present in industrial atmosphere.
- Ability to withstand continuous and pronounced cyclic movements.
- Excellent adhesion to most of the commonly employed materials in building and construction.

STANDARDS

British standards **BS 4254 – 1983**
British standard **BS 6920 – 1988**
US Federal specification TTS 00227E Type II Class A.
ASTM C (920-2002) Type M Class 25 grade P & NS.
Suitable for potable water use (Grey Gun Grade)

TYPICAL PROPERTIES

1. **Appearance :** multi component pasty compound.
2. **Type :** Gun Grade – grey, white, off-white
3. **Application Temperature :** 5 to 50° C
4. **Solid content :** 100%
5. **Cure Mechanism :** Chemical cure
6. **Movement Accommodation Factor (BS 6093) :**
   25% Butt joints
   50% Lap joints
7. **Pot life :** 2 Hours @ 25° C
   1 Hours @ 35° C
8. **Setting time :** 60 Hours @ 10° C
   18 Hours @ 25° C
   12 Hours @ 35° C
9. **Cure time** :

(Weeks)		
	Grey	White/OffWhite
10° C	3	6
25° C	1	2
35° C	0.5	1

10. **Hardness (Shore A @ 25° C)** :

Gun Grade Grey	22+/-3
Gun Grade White/Off-white	20+/-3
Pouring Grade Grey	16+/-3

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ASPEC
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11. **Density :** 1.53 to 1.68 according to colour and grade.

12. **Chemical Resistance to occasional spillage**

    Resistant to dilute acids, dilute alkalis, petrol, aviation fuels, diesel fuels, kerosene, lubricating oils, Skydrol and White Spirit.

    Not resistant to chlorinated solvents, aromatic solvents and dilute oxidizing acids.

13. **Gun grade :** Grey is preferentially recommended, for resistance in microbiologically active situations and in aerobic conditions.

14. **Water Immersion :** "**KUT THI0SEAL 227**" must be fully cured prior to subjecting it to permanent immersion in water. Use of '**KUT POLYSULFIDE PRIMER NO.3**" is mandatory in such an application.

15. **Flammability :** Burns but does not readily support combustion.

APPLICATION

Joint Preparation :

(a) Concrete & Masonry : Surfaces must be clean and dry. Wire brush thoroughly to remove all contaminants and dust.

(b) Metals : Remove any corrosion or mill scale by grit blasting or shot blasting. Degrease with clean lint free cloths soaked in oil free cleaning solvent.

(c) Wood : Wood surfaces must be clean and dry. Cut back or abrade to expose sound timber.

(d) Glass and Glazed Materials : Thoroughly clean surfaces with clear lint free cloths soaked in oil free cleaning solvent.

(e) Coated surface: Coating should be removed and surface treated as above:

Any expansion joint filler must be checked to ensure it is tightly packed and no gaps or voids exist at the base of the sealing slot before positioning a bond breaker. The use of a bond breaker is not required in expansion joints containing polyethylene expansion joint fillers. For construction or contractions joints a bond breaker tape or back-up strip should be used. Where hydrostatic pressure exists, only bond breaking tapes must be used, not foamed back-up strips. Where a particularly neat finish is required, mask the fade edges of the joint before priming and remove immediately after tooling is completed.

PRIMING : When primers are required they are used oils, as follows:

1. **KUT POLYSULFIDE PRIMER NO.1** :

It is a one part: chemically active clear liquid for brush application to concrete, stone, brickwork. timber and unglazed edges of ceramic tiles. One thin coat should be applied using a clean, dry brush, ensuring complete coverage. Avoid overpriming resulting in an excess of primer in the base of the joint or application beyond faces. The mixed "**KUT THIOSEAL 227**" must be applied when the primer is tack free, that is after the evaporation of the solvent but before the primer film has completely reacted. After three hours @20^{o} C or 90 minutes @35^{o} C the surfaces must be reprimed before applying the sealant. Iron and steel must be protected with an anti-corrosion primer prior to sealing.

2. **KUT POLYSULFIDE PRIMER NO.2** :

For use on glass and ceramics which are to be permanently immersed in water. It is one part chemically active clear liquid for brush or pad application. One thin coat should be applied and allowed to dry for 2 to 5 minutes prior to sealant application.

3. **KUT POL YSULFIDE PRIMER NO.3** :

It is a two component transparent epoxy polysulfide primer. This is especially recommended for use in severe service: requirements such as water reservoirs, sewage treatment plants. areas subject to fuel and oil attack and highly trafficked areas etc.

Mix base component and hardener component thoroughly in the base can and use within 2 to 3 hours @25^{o} C. The coverage is normally 10-14 m^{2}/litre. One thin coat-should be applied by using a clean brush ensuring complete coverage. The mixed sealant is applied when primer is tack free that is after solvent has evaporated but before the film has completely reacted.

MIXING :

1. **Gun Grade**: The base component and curing agent are mixed thoroughly using a slow speed drill (300-500 rpm) fitted with a Paddle Stirrer for 5 minutes. Only thorough mixing, including material right at the bottom of the tin, will result in proper

curing. In cold weather "**KUT THIOSEAL 227**" mixes more easily if stored overnight at room temp. Immediately after mixing load the sealant into a caulking gun using the follower plate, and apply to the joint.

2. **Pouring Grade**: "**KUT THIOSEAL 227**" grade is mixed as per gun grade instructions. The pouring grade may be poured directly into horizontal joints. However for joints less than 15mm wide a caulking-gun may be used,

FINISHING:
"**KUT THIOSEAL 227**" should be tooled to a smooth finish. A minimum of surface lubricant such as dilute detergent solution maybe used to assist the process. Any masking tape should be removed immediately after tooling.

LIMITATIONS

Over-painting of sealants is not recommended because of the inability of paint films to accept movement However, if definitely required, trials should be carried out to determine compatibility.

"**KUT THIOSEAL 227**" should not be used In direct contact with materials containing pitch or bitumen.

Only "**KUT THIOSEAL 227**" Gun grade should be used in vertical or horizontal joints in reservoirs or other water retaining structures with **KUT POLYSULFIDE PRIMER NO. 3**.
"**KUT THIOSEAL 227**" is not recommended for use in highly chlorinated water. If in doubt contact: ALGHANIM SPECIALITIES CO. W.L.L.

JOINT DESIGN CRITERIA :

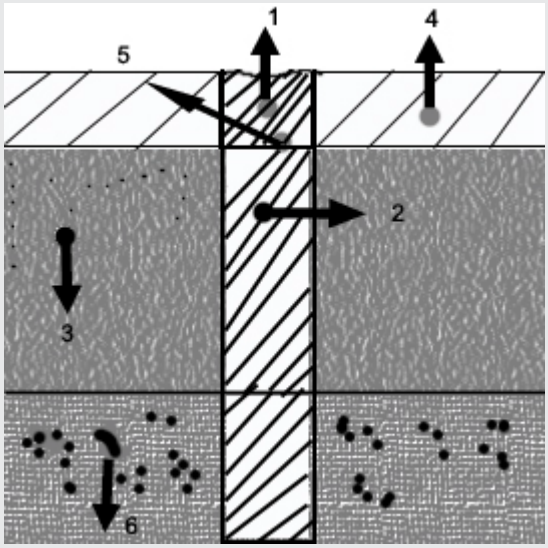
Joint size may range from a minimum of 5mm to a maximum 50mm wide. Joints with cyclic movements should have width : depth ratio 2:1 and designed such that total movement does not exceed the 25% M.AF. related to the joint width in accordance with recommendations of **BS 6093**. Sealant depth shall not exceed joint width.

Minimum sealant depth recommended:

- 5 mm for metals, glass and other impervious surfaces.
- 10 mm for all porous surfaces.
- 20 mm for joints exposed to traffic and hydrostatic pressures.
- 5 mm below flush *for* joints exposed to traffic.

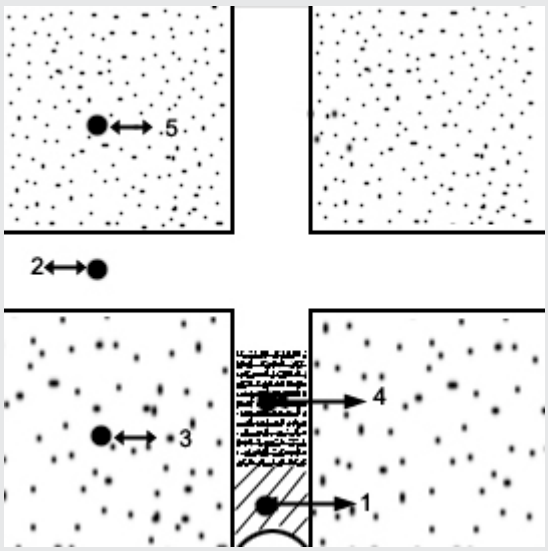
The use of surface primer is recommended on porous surfaces. On non-porous surfaces a primer is not normally required except where glass or glazed surfaces are to be permanently immersed in water.

EXAMPLE OF AN EXPANSION JOINT ACROSS FLOORS OF CLAY TILES



1.**KUT THIOSEAL 227**
2.Compressible Filler board
3.Cement :Sand 1:4 bed
4.Clay floor tiles
5.Separating Strip
6.Concrete base

EXAMPLE OF VERTICAL MOVEMENT JOINT



1.**KUT THIOSEAL 227**
2.Void 20mm wide
3.Granite Cladding unit 40mm thick
4.Expanded rubber OR polyethylene back-up material.
5.Concrete support wall.

ESTIMATION OF QUANTITIES :
"**KUT THIOSEAL 227**" Metre run per 3 litre Pack. In various joints dimensions is tabulated below:

Depth of joint (mm)	Width of joint (mm)							
	5	10	15	20	25	30	40	50
5	120	60	-	-	-	-	-	-
10		30	20	15	12	10	-	-
15			13.3	10	8	6.7	-	-
20				7.4	6	5	3.7	-
25					4.8	4	3	2.4
30						3.3	2.4	1.9
40							1.8	1.5
50								1.2

1 litre of **KUT POLYSULFIDE PRIMER NO. 1** is expected to cover 150m length of 20x10mm joint.

1 litre of **KUT POLYSULFIDE PRIMER NO.2** is to cover 1500m length of 20x10mm joint.

1 litre of **KUT POLYSULFIDE PRIMER NO.3** is expected to cover 150m length of 20x10mm joint.
These are theoretical values. No allowance has been made for variation in joint width *or* wastage.

PACKAGING

- All grades of "**KUT THIOSEAL 227**" are normally supplied in 3 litre cans.
- **KUT POLYSULFIDE PRIMER NO.1** is normally supplied in 0.5 litre cans.
- **KUT POLYSULFIDE PRIMER NO.2** is normally supplied *in* 0.5 litre cans.
- **KUT POLYSULFIDE PRIMER NO.3** is supplied in 0.5 litre and 1 litre packs consisting of base and hardner provided in separate cans.

KUT SOLVENT "PS" a tool cleaner is normally supplied in 5 litre cans.

STORAGE:

"**KUT THIOSEAL 227**" in original containers when kept In dry conditions at 5^{o} C to 27^{o} C has a shelf life of 12 months:

TECHNICAL DATA OF ANCILALARY MATERIALS

	KUT POLYSULFIDE PRIMER NO. 1	KUT POLYSULFIDE PRIMER NO.2	KUT POLYSULFIDE PRIMER NO. 3	KUT Solvent "PS"
Flash Point	23^{o}C	28^{o}C	(-3^{o}C)	29^{o}C
Density Kg/Litre	1.04	0.79 – 0.81	(0.91 – 0.93)	0.86
Coverage	12 to 15m^2/litre	60m^2/litre	12 to 15m^2/litre	-
Application Temp.	5^{o}C to 50^{o}C	5^{o}C to 50^{o}C	5^{o}C to 50^{o}C	5^{o}C to 50^{o}C
Drying time	20 to 60 mins.	2 to 15 mins.	30 to 90 mins	-
Storate life	12 months	6 months	12 months	Indefinite

HEALTH AND SAFETY

"**KUT THIOSEAL 227**" : Harmful if swallowed. The curing agent consists of a heavy metal based oxide. Avoid contact with skin and eyes. Wear suitable protective gloves and eye/face protection. In case of contact with skin, wash immediately with soap and water. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. Hands should be thoroughly washed with soap and water before eating or smoking.

Empty containers should be disposed of in accordance with waste disposal regulations.

KUT POLYSULFIDE PRIMER NO.1 : Highly flammable liquid. Contains isocyanates. Keep away from sources of ignition - No Smoking. Avoid contact with skin and eyes and inhalation of vapours. Wear expected suitable protective, clothing, gloves and eye/face protection. Use only in well ventilated areas.

KUT POLYSULFIDE PRIMER NO.2 : Highly flammable liquid. Keep away from sources of ignition - No Smoking. Avoid contact skin and eyes and inhalation of vapours. Wear suitable protective clothing, gloves and eye/face protection. Use only in well ventilated areas.

KUT POLYSULFIDE, PRIMER NO.3 : Highly flammable should not come in contact with skin and eyes or be swallowed, Avoid inhalation of solvent vapours. Some people are sensitive to epoxy resins, hardners, and solvents. Gloves, goggles and barrier cream should therefore be used. Ensure adequate ventilation and if working in enclosed areas suitable breathing apparatus is recommended. If mixed resin comes in contact with skin it must be removed before it hardens with a resin removing cream or with soap and water**. DO NOT USE SOLVENT**. Contamination of skin with any of the above component products should be removed immediately with soap and water. Should accidental eye contamination occur with any of the above products wash well with plenty of clean water and seek medical attention immediately. **DO NOT INDUCE VOMITING.**

KUT SOLVENT "PS" : Flammable liquid. Flash point 29^{o}C. Store away from hear. Do not use near a naked flame. Use in well ventilated surroundings. Avoid inhalation of the vapours.

Distributor: