

# Expanseal\* 600

**Multi-component, gun and pouring grade, polysulphide sealant**

## Uses

Sealing movement joints in building and civil engineering structures, including superstructures, reservoirs, floors, basements and subways.

## Advantages

A high quality product meeting international standards  
Forms a tough, elastic rubber-like seal  
Accommodates continuous and cyclic movement  
Excellent adhesion to most common substrates  
High resistance to ageing reduces physical damage due to climatic extremes

## Standards compliance

British Standard BS 4254: 1983.  
British Standard BS 6920: 1988 (gun grade grey). U.S. Federal Specification TT-S-00227E November 1969(amended 1970).  
DTp specification for Highway Works Dec 1991 series 1000 clause 1017.  
ASTM C 920-87, Type M & P, Class 25.

## Description

Expanseal\* 600 is a multi-component joint sealant, based on a liquid polysulphide polymer, which when mixed and applied, cures to form a tough, rubber-like seal. The cured sealant exhibits excellent adhesion to most surfaces including primed concrete, glass, aluminium and stainless steel. Expanseal\* 600 is available in gun and pouring grades. The gun grade is ideal for general application. It is packed in ready to mix, 2.5 liter & 4 liter tins containing the base and curing agent in the correct proportions. The pouring grade for joints in horizontal surfaces is supplied in 4 liter & 5 liter packs with the base and curing agent in separate tins. Both these grades are available in Grey colour only.

Expanseal\* 600 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 minimised. It is also suitable for sealing joints in brickwork, retaining walls, reservoirs, basements and subways. Expanseal\* 600 pouring grade is recommended for sealing expansion joints and stress relief joints in floors or other horizontal surfaces.

## Specification

Joints shall be sealed using Expanchem Expanseal\* 600, two part, polysulphide sealant, manufactured by Expanchem to BS 4254 1983, and ASTM C 920 -87. Joints shall be prepared and the sealant mixed and applied in accordance with the manufacturer's current data sheet.

## Design criteria

Expanseal\* 600 may be applied to joints between 5 and 50 mm wide. Joints which are expected to experience cyclic movements should be designed to an optimum width:depth ratio of 2:1, subject to the overriding recommended minimum sealant depths set out below:

5 mm for metals, glass and other non-porous surfaces;  
10 mm for all porous surfaces;  
20 mm for trafficked joints and those subject to hydrostatic pressures.

To ensure that the sealant remains within its stated movement capacity (25% MAF), sealing slot widths should be designed in accordance with the recommendations of BS 6093.

The use of a surface primer is always required 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 a sealed movement joint in brickwork/block work is shown below

- 1 Expanseal\* 600**
- 2 Expancell**
- 3 Brickwork**
- 4 D.P.C.**
- 5 Blockwork**





CONSTRUCTION CHEMISTRY

## Properties

<b>Form</b>	: Grey colour, multi-part, paste compound
<b>Movement accommodation factor (BS 6093)</b>	: 25% butt joints 50% lap joints
<b>Physical or chemical change:</b>	Chemical cure
<b>Pot life</b>	: 2 hours @ 25°C 1 hour @ 35°C
<b>Setting time</b>	: 36 hours @ 15°C 18 hours @ 25°C 2 hours @ 35°C
<b>Cure time</b>	: 2 weeks @ 15°C 1 week @ 25°C 4 days @ 35°C
<b>Application temperature</b>	: 5 to 50°C
<b>Hardness shore 'A' 25°C</b>	: 15 to 23
<b>Water immersion</b>	: Expanseal* 600 must be fully cured before permanent immersion in water.
<b>Biological resistance</b>	: Expanseal* 600 has been evaluated in microbiologically active situations and has been shown to have resistance to aerobic conditions.
<b>Solids content</b>	: 100%
<b>Density</b>	: 1.62 to 1.73 kg/liter according to colour.
<b>Flash point</b>	: Over 65°C
<b>Flammability</b>	: Burns but does not readily support combustion.

## Chemical resistance to occasional spillage:

Dilute acids	resistant
Dilute alkalis	resistant
Petrol	resistant
Aviation fuels	resistant
Diesel fuel	resistant
Kerosene	resistant
Lubricating oils	resistant
Skydrol	resistant
White spirit	resistant
Chlorinated solvents not	resistant
Aromatic solvents not	resistant
Dilute oxidising acids not	resistant

## Instructions for use

### Joint preparation

The joint surfaces must be thoroughly dry, clean and frost free. Remove all dust and laitance by rigorous wire brushing, grinding or grit blasting. Remove all rust, scale and protective lacquers from metal surfaces. Remove any oil or grease with Expanchem Joint Cleaner.

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.

Note: The use of a bond breaker is not required in expansion joints containing Expanchem Expanfill\* or Expanrod\* bitumen impregnated or polyethylene expansion joint fillers. For construction or contraction 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 face edges of the joint before priming and remove immediately after tooling is completed.

### Priming

#### Non-porous surfaces

Use Expanprime 4 on glass, ceramics and metals. The one part chemically active clear liquid is to be applied by brush or pad. One thin coat should be applied and allowed to dry for 2 to 5 minutes prior to sealant application.

#### Porous surfaces

Expanprime 7: It is a one part high performance chemically active non-toxic liquid for brush application to prime all concrete, stone, brickwork, timber and unglazed edges of ceramic tiles. Apply one thin coat using a clean, dry brush, ensuring complete coverage. Avoid over priming resulting in an excess of primer in the base of the joint or application beyond faces. The mixed Expanseal\* 600 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 6 hours @ 20°C, or 3 hours @ 35°C the surfaces must be re-primed before applying the sealant.

#### Steel surfaces

Iron and steel must be protected with an anti-corrosion primer prior to sealing.



## Mixing

### Gun Grade

The base component and curing agent are supplied ready for mixing in a single tin. Mix thoroughly using a slow speed drill (300-500 rpm) fitted with a Expanchem Mixing Paddle for 5 minutes. Only thorough mixing, including material right at the bottom of the tin, will result in proper curing. In cold weather Expanseal\* 600 mixes more easily if stored overnight at room temperature.

Immediately after mixing, load the sealant into a Expanchem 'G' Gun using the follower plate, and apply to the joint.

### Pouring Grade

Expanseal\* 600 Pouring Grade is supplied in two separate containers. The small container contents should be transferred to the other tin, and mixed as per the gun grade instructions. The pouring grade may be poured directly into horizontal joints or for application to horizontal joints less than 15 mm wide loaded into a Expanchem 'G' Gun. For quantity application, a Expanchem 1.5 liter gun is available.

### Finishing

Expanseal\* 600 should be tooled to a smooth finish. A minimum of surface lubricant such as dilute detergent solution may be used to assist the process. Any masking tape should be removed immediately after tooling.

### Cleaning

Clean equipment immediately after use with Expanchem Solvent 102.

### Limitations

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

Expanseal\* 600 should not be used in direct contact with materials containing pitch or bitumen.

Only Expanseal\* 600 Gun Grade should be used in vertical or horizontal joints in reservoirs or other water retaining structures.

Expanseal\* 600 is not recommended for use in highly chlorinated water. If in doubt, contact your local Expanchem technical services department.

## Estimating

### Supply

<b>Expanseal* 600 GG</b>	: 2.5 liter & 4 liter packs
<b>Expanseal* 600 PG</b>	: 5 liter packs
<b>Expanprime 4</b>	: 1 liter can
<b>Expanprime 7</b>	: 1 liter can
<b>Expanchem solvent 102</b>	: 5 liter containers

### Coverage

<b>Expanprime* 4</b>	: 60 m <sup>2</sup> / liter
<b>Expanprime* 7</b>	: 8-10 m <sup>2</sup> / liter

Note: Coverage figures given are theoretical due to wastage factors and the variety and the nature of substrates, practical coverage figures maybe reduced, this will vary with site and application conditions.

### Guide to sealant quantities

Joint size in mm	Liters per Mt. run	Meter run per 2.5 ltr pack	Meter run per 5 ltr pack
5 x 5	0.025	100.00	200.00
5 x 10	0.050	50.00	100.00
10 x 5	0.050	50.00	100.00
10 x 10	0.100	25.00	50.00
20 x 10	0.200	12.50	25.00
20 x 15	0.300	8.30	16.60
20 x 20	0.400	6.20	12.50
40 x 20	0.800	3.10	6.20
40 x 25	1.000	2.50	5.00
40 x 30	1.200	2.00	4.10
40 x 40	1.600	1.50	3.10
50 x 25	1.250	2.00	4.00
50 x 30	1.500	1.60	3.30
50 x 40	2.000	1.25	2.50
50 x 50	2.500	1.00	2.00

1 liter of Expanprime 4 to 1500m length of 10 x 20mm joint.  
1 liter of Expanprime 7 to 150m length of 10 x 20mm joint or 1 liter of Expanprime P7 with 30 Ltr. of sealant

### Formula to calculate sealant quantity:

$$\frac{\text{Joint width mm} \times \text{Joint depth mm} \times \text{Joint length mt.} = \text{Qty in Ltr.}}{1000}$$

These are theoretical yields. No allowance has been made for variation in joint width or wastage.

### Storage

Expanseal\* 600 and Expanprime 7 have a storage life of 12 months and Expanprime\* 4 has a storage life of 6 months when kept in original containers and stored in dry conditions between 5°C and 27°C.



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## Precautions

### Health and safety

Expanseal\* 600, Expanprime 4 and Expanprime\* 7 should not come in contact with skin and eyes or be swallowed. Avoid breathing of vapour. Splashes must be washed off immediately. Wear impervious rubber or PVC gloves and eye protection. Hands should be thoroughly washed with soap and water before eating or smoking. In the case of eye contact seek medical attention immediately.

Expanseal\* 600 curing agent consists of a heavy metal based oxide. Cured sealant should not be burned off due to the generation of toxic fumes. Empty containers must be collected for careful disposal and not left lying about.

### Fire

Expanchem Solvent 102 is flammable. Expanprime 4 and Expanprime 7 are highly flammable, store away from heat. Do not use near naked flames or other sources of ignition. No smoking. Use in well ventilated surroundings. In the event of fire, extinguish with CO<sup>2</sup> foam.

### Flash point

**Expanprime 4** : 70°C

**Expanprime 7** : 80°C

For further information, refer to the Product Material Safety Data Sheet.

\*Denotes the trademark registered.

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