

Expanseal* 99



CONSTRUCTION CHEMISTRY

Hot-poured rubber bitumen horizontal joint sealant

Uses

For sealing joints and cracks in:

- Pavements, sealing asphalt pavements cracks
- Sealing of sheet piles interlock joint.
- Water retaining & water excluding structures

Advantages

- An economic sealant for horizontal and inclined joints up to 1 in 20
- Resists dirt and ingress of grit associated with trafficked pavements
- Good adhesion to concrete and asphalt surfaces

Standards Compliance

BS 2499:1993, ASTM D-6690, ASTM D-1190

Description

Expanseal* hot-poured rubber bitumen horizontal joint sealant is formulated for sealing movement and construction joints in concrete pavements and floor slabs. It possesses good adhesion to concrete and asphaltic materials. Expanseal* sealants are available in choice of three grades:

Expanseal* N2

Complies with BS 2499:1993. A low extension grade for sealing joints in concrete pavements, etc.

Expanseal* 77

A hard grade for sealing low movement joints in factory floors and areas where joints are closely spaced and resistance to grit and traffic is of prime importance.

Expanseal* 99

Similar in composition to Expanseal* 77 but formulated with a higher softening point for use in hot climates for sealing joints on exposed sites such as unreinforced concrete pavements where other grades would be unacceptably soft. At higher ambient temperatures the properties of Expanseal* 99 approximate to those given Expanseal* 77 in temperate climates. It is suitable for use where temperature fall below 4 C, complies with ASTM D1190:1997

Technical Support

Expanchem Fospak offers a comprehensive range of high performance, high quality products all backed by a BS EN ISO 9001 registered quality scheme. Expanchem offers technical support package to specifiers and contractors which includes computer-aided design (CAD), standard details and technical advice from staff with unrivalled experience in the industry.

Design Criteria

Joint Size

Expanseal* compounds are normally considered suitable for joints up to 30 mm wide in trafficked surfaces, but joints up to 65mm wide can be sealed with Expanseal* where the joints are horizontal and are not subject to trafficking. The depth of the joint sealing compound should not exceed 50mm and for most normal uses, 25mm is

Expanseal* can be used on inclined surfaces up to about 1 in 20. Extra care must be taken, however, when pouring. Vertical joints e.g. kerbs, upstands, etc. should be sealed with Expanseal** Putty.

Road and Traffic Surfaces

Expanseal* compounds are recommended for sealing horizontal joints in many types of water retaining structures, including swimming pool substructures and irrigation canal floors. In addition to the Expanseal* surface seal, all immersed joints in water retaining structures should contain waterstops. Movements during construction may exceed those during service life. In addition to the Expanseal* surface seal, all roof joints should include a supplementary means of sealing.

Water Excluding Structures

Expanseal* compounds are suitable for use in joints in building basements, subways, etc. All joints which extend below the high water table level should contain a waterstop in addition to the Expanseal* seal.

Services and Internal Finishes

Expanseal* 77 is suitable for sealing joints in factory floors, other than those subjected to petrol, oils, or fats. Since Expanseal* softens when heated, it should be not used in floors with under-floor heating or in areas where it would be subjected to heat from factory plants or steam cleaning operations.



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Ensure the joint is recessed 3 to 5 mm below the traffic surface.

Expanseal* compounds are suitable for sealing horizontal joints in service duct covers.

Properties

Form : Plastic Solid

Flash point : Over 200°C

Solids content : 100%

Density : 1.02 kg/litre

Colour : Black

Application Temperature: Over 5°C **Product**

pouring Temp.

Expanseal* N2 : 150°C to 175°C

Expanseal* 77 : 160°C to 180°C

Expanseal* 99 : 175°C to 200°C

Safe heating Temperature

Expanseal* N2 : 180°C

Expanseal* 77 : 185°C

Expanseal* 99 : 200°C

Resistance to Spillages

Dilute acids : Resistant

Dilute alkalis : Resistant

Petroleum solvents : Not resistant

Mineral oils : Not resistant

Vegetable oils : Not resistant

Greases : Not resistant

MAF* (Butt joints)

Expanseal* N2 : 12%

Expanseal* 77 : 10%

Expanseal* 99 : 10%

* MAF - Movement Accomodation Factor

Maintenance

No special requirement, damage, should be repaired if and when it occurs.

Instructions to use

Joint preparation

Ensure that the joint surfaces are completely dry, clean and frost free. Remove all dirt, dust, laitance and loose material preferably by grit blasting or by rigorous wire brushing. Immediately prior to priming blow out all remaining loose dust with dry, oil-free compressed air. Where applicable, care must be taken to ensure that compressible filler, such as Flexcell, will provide adequate support for the Expanseal* compound.

Piriming porous surfaces

Use Expanprime* 3 on concrete, stone and brick paving. Allow primer to become touch dry before sealing, normally 1 to 4 hours.

Piriming non-porous surfaces

Metal surfaces do not require priming but should be warmed to ensure satisfactory adhesion. Ferrous metals should be treated with an anti-corrosion primer.

Stripping of sacks

Lay sack on flat surface and cut bottom seam with a sharp knife. Tear away outer layers and then strip off inner layer of paper, working from the bottom of the sack. No paper should be put into the heater.

Heating

The use of the heating vessel with an oil jacket and fitted with stirrer and thermometer is essential.

Cut the compound into small pieces, melt a few pieces then gradually add more pieces to the molten material, stirring continuously. Heat until the compound reaches correct pouring temperature.

Pouring temperatures:

Expanseal* N2 : Upto 175°C

Expanseal* 77 : Upto 180°C

Expanseal* 99 : Upto 200°C

Do not overheat. Use as soon as possible after heating, preferably within 1 hour.



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Safe heating temperatures:

Expanseal* N2 : 180°C
Expanseal* 77 : 185°C
Expanseal* 99 : 200°C

Caution: Heating of compound should be carried out in well ventilated areas.

Extra care should be taken in cold weather. The cold surfaces of the joints may cause rapid chilling of the compound. To help compensate for this, the compound should be poured at the top limit of the pouring temperature range. Frost may give concrete a deceptively

Compound which has been heated and then allowed to cool below 95°C must be scrapped. It must not be remelted for use. In expansion joints. Expanseal* should be poured to a level 3 to 5 mm below the traffic surface to allow for upward displacement when the joints close.

Note: For small jobs, Expanseal* 77 may be used with a small, directly heated vessel, but great care must be taken to avoid over heating the Expanseal* compound. In such cases limited quantities of the material should be cut into small lumps and melted by gradually adding the pieces to the molten mass whilst continually stirring.

Application

Joints should be filled to the surface of the concrete or to the level specified. Joint seals in carriageways are normally recessed 3 to 5 mm to avoid extrusion. A concave finish due to shrinkage on cooling is normal but in a deep or narrow joint the compound may be poured in two layers to produce a uniform finish.

Cleaning

Equipment should be emptied immediately after use. Compound which has been heated and allowed to cool completely must be scrapped.

Limitations

Expanseal* compound are suitable for sealing against bituminous asphalt surfaces. Expanseal* compound do not comply with the fuel resistant requirement of BS 2499:1993 and should not be used in airfield, hardstandings, cargo handling areas, garage forecourts or other paved areas subject to fuel and oil spillage. For these application. Expanseal 200 should be used.

Water excluding substructures

Expanseal* compound are suitable for use in joints in building basements, subways, etc. All joints which extend below the high water table level should contain waterstops in addition to the Expanseal* seal.

Estimating

Packaging

Expanseal* N2	: 50kg steel drums
Expanseal* 77	: 50kg steel drums
Expanseal* 99	: 50 kg steel drums
Expanprime* 3	: 5 or 25 litre cans

Guide to primer quantities

5 litres Expanprime* 3 for 250 kg of Expanseal*.

Guides to Expanseal* quantities

Joint size in mm	Kg per LM	Meter per 25 kg pack	Meter per 50 kg drum
10 x 20	0.20	122	245
10 x 25	0.25	98	196
10 x 30	0.31	81	163
10 x 40	0.41	61	122
15 x 20	0.31	81	163
15 x 25	0.38	65	130
15 x 30	0.46	54	108
15 x 40	0.61	40	81
15 x 50	0.77	32	65
20 x 20	0.41	61	122
20 x 25	0.51	49	98
20 x 30	0.61	40	81
20 x 40	0.82	30	61
30 x 25	0.77	32	65
30 x 30	0.92	27	54
30 x 40	1.20	20	40
30 x 50	1.50	16	32
40 x 25	1.00	24.5	49
40 x 40	1.60	15	30.5
40 x 50	2.00	12	24.5



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Storage**Shelf Life**

2 years

Storage conditions

Expanseal* must be stacked flat not more than six high and covered if stored outside. Expanprime* 3 must be stored in accordance with the Highly Flammable Liquids and Liquefied Petroleum Gases Regulation 1972.

Precautions**Health and Safety**

Expanseal*: Do not melt the compound in a confined space as concentrated fumes may be injurious. Avoid inhalation of vapours and contact with skin and eyes. Wear suitable protective clothing, gloves and eye/face protection. Do not exceed safe heating temperatures.

Exp 3: Highly flammable liquid. Keep away from sources of ignition – No Smoking. Harmful by inhalation and in contact with skin. Avoid contact with skin and eyes and inhalation of vapours. Wear suitable protective clothing, gloves and eyes/face protection. Use only in well ventilated areas.

Additional information**Technical Data – ancillary materials**

Expanprime* 3: A one part black liquid for brush or spray application.

Properties	Expanprime* 3
Flash Point	: 70°C
Density	: 0.85 kg/litre
Storage life	: 12 months plus
Coverage	: 12.6 m ² /litre
Physical/Chemical change	: Solvent release
Application Temperature	: 5°C to 50°C
Drying time	: 1 to 4 hours at 25°C

Equipment – melter pourer machine

Oil jacketed melting vessel or jacketed melted pourer.

Do not use in a confined space as concentrated fumes from melting compounds may be injurious. Always store machine (including overnight) so that water cannot enter the compound container or oil jacket.

Further reading

Department of Transport Specification for Highway Works 1991.

* Denotes the trademark registered.

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