FOAR FUEL PROOF 7116

Fuel Resistant Crack and Joint Sealant For Concrete Pavements

FOAR Fuel Proof 7116 is a hot applied single component elastomeric joint sealant. This polymer modified sealant compound is heated in an approved extruder so it can flow easily into the joints and cracks of a concrete surface at the time of application.

This sealant has been specifically developed for use where fuel and chemical spillages are likely, i.e. the airfield aprons, runways, taxiways, cargo handling areas, parking areas, maintenance areas, etc.

Advantages

- Highly resistant to petrol, oil and jet fuel
- Suitable for all climate conditions as its weathering and UV resistant
- Excellent water resistance
- Resistant to jet blast and penetration from stones and other hard debris
- Outstanding temperature range tolerance
- No primer required

This sealant is NOT asphalt compatible. For an asphalt and concrete compatible sealant that also exhibits water resistance and flow resistance under extremely hot conditions similar to this sealant refer to FOAR Flow Proof 6690.

Standard Compliance

ASTM D 7116-16 Type I (Revised 2016)
ASTM D 3569: Superseded by ASTM D 7116

Substrate Preparation

Joint side walls must be roughened if they are smooth. The joint should then be cleaned using a water/mist jet. A heat lance should then be used to ensure moisture removal. To control and maintain the required joint depth a heat resistant backer rod of an appropriate size should be placed in the joint to the required depth. Care should be taken not to puncture the backer rod during installation as punctures might create bubbling. Air dry joint (if required) after laying of backer rod prior to application of sealant.

Application

It is essential that the approved heating and application equipment is used. The sealant should be poured directly from its container into an oil jacketed thermostatically controlled heater/extruder which has an agitator for continuous mixing to attain uniform temperature.

For best results the heating oil in the application apparatus must be heated to a temperature of 150 to 155 °C (material temperature at 140 to 145 °C) and extruded directly onto the backer rod placed within the joint using a suitable lance. Discard any initial material extruded which will be contaminated with flushing oil.

The maximum safe heating temperature of the heating oil is 170 °C (material temperature at 160 °C) with a maximum safe heating period of six hours.

Cleaning of Equipment

After application, all equipment should be cleaned immediately using flush oil.

Backer Rod Compliance

ASTM D 5249 Type I – Heat Resistant to 200 °C

Heat Shrinkage and Density

Before application (heating): 1.30 kg/L approx.
After application (heating): 1.32 kg/L approx.
Heat shrinkage factor: 1.5% approx.

Calculating Amount Required for Filling

Width (in mm) x sealant depth (in mm) x length (in m) / 1000 = calculated quantity in liters
(add 5-10% to calculated quantity for additional sealant on top and sides of backer rod)

Joint Width	Recommended Minimum Sealant Depth	Width to Depth Ratio	Backer Rod ø	Length filled w/ 1 L
10 mm (3/8“)	20 mm (3/4“)	1 : 2	1/2"	4.75 m
13 mm (1/2“)	20 mm (3/4“)	1 : 1.5	5/8"	3.60 m
19 mm (3/4“)	19 mm (3/4“)	1 : 1	1"	2.50 m
20 mm (3/4“)	20 mm (3/4“)	1 : 1	1"	2.25 m
25 mm (1“)	25 mm (1“)	1 : 1	1 1/4"	1.45 m

Packing

Steel drum with a net capacity of 200 liters

Storage and Shelf Life

One year from date of manufacturing if kept indoors under 40 °C away from sunlight

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FOAR FUEL PROOF 7116 (continued)

Physical Characteristics	ASTM D 3569 (Superseded by ASTM D 7116 Type I)	ASTM D 7116 Type I (Revised version of ASTM D 3569)	ASTM D 7116 Type II (Low resilience version of ASTM D 7116 Type I)
Cone Penetration, Non Immersed	130 dmm maximum	130 dmm maximum	130 dmm maximum
Cone Penetration, Fuel Immersed	Not more than non immersed cone penetration	Not more than non immersed cone penetration	155 dmm maximum and not more than ± 25 dmm from non immersed cone penetration
Softening Point	-	93 °C minimum	93 °C minimum
Bond, Non Immersed	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note A)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note A)	12.7 mm wide specimen, pass 2/3 cycles @ -18 ± 1 °C 50% extension (Note B)
Bond, Water Immersed (immersed for 96 hours)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note A)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note A)	12.7 mm wide specimen, pass 2/3 cycles @ -18 ± 1 °C 50% extension (Note B)
Bond, Fuel Immersed (immersed for 24 hours)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note C)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note C)	12.7 mm wide specimen, pass 3/3 cycles @ -18 ± 1 °C 50% extension (Note C)
Resilience	60% minimum	60% minimum	-
Oven Aged Resilience (@ 70 °C for 168 hours)	60% minimum	60% minimum	-
Tensile Adhesion	500% minimum	500% minimum	-
Artificial Weathering	Pass after 160 hours (Note D)	Pass after 160 hours (Note D)	-
Flexibility at 70 °C after 72 hrs	Pass (Note E)	Pass (Note E)	-
Flow at 70 °C after 72 hrs	No Flow (0 mm max)	-	-
Solubility after fuel immersion	Allowed weight change (±2%), No surface cracking, swelling or softening	-	-

Note A: No specimen shall develop any crack, separation, or other opening in the sealant compound or between the sealant and the concrete blocks.

Note B: At least two out of three specimens shall exhibit no crack, separation, or other opening in the sealant, or between the sealant and the concrete blocks. The third specimen shall exhibit no crack, separation, or other opening in the sealant or between the sealant and the concrete block exceeding 6 mm in depth, and shall exhibit no total area of bare concrete exposed on the face of either concrete block exceeding 160 mm.

Note C: No specimen shall develop any crack, separation, or other opening in the sealant compound or shall develop any separation between the sealant and the concrete deeper than 6 mm when measured perpendicular to the sealant surface and down the interface of the block in the area showing the effect.

Note D: After exposure, the sealant show not flow, show tackiness, the presence of an oil-like film or reversion to a mastic-like substance, form surface blisters, either intact or broken, form internal voids, have surface crazing, cracking or hardening, or loss of rubber like properties. Evidence of physical change in the surface of the material by visual and tactile examination shall constitute failure of the test.

Note E: When conditioned in a forced draft oven maintained at 70 ± 1 C for 72 ± 2 h and bent at 90 degrees over a 6.4 mm (0.25 in.) diameter mandrel, the specimen shall have no indication of surface crazing or cracking.

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