

FOAMSHIELD

All Urethane High Performance Coating System

Product Description

FOAMSHIELD is a composite two component coating system consisting of a brown urethane base coat and a light grey urethane top coat. The **FOAMSHIELD** base coat gives exceptional adhesion to the substrate whilst **FOAMSHIELD** top coat provides a hardwearing and weather resistant top surface.

Uses

The **FOAMSHIELD** system is used for all roofing applications where permanent ponding water is not a problem. The system can withstand 1" of ponded water over 10m² per 48 hours. Ponding conditions in excess of this demand special consideration, and reference should be made to our Technical Department. The system is designed for use on sprayed polyurethane foam, but can be applied to other surfaces provided due consideration is given to priming and joint preparation.

Advantages and Benefits

- Provides a leak free roof.
- Renovates old roofs giving many years of high performance.
- Polyurethane elastomer - means tough and durable, withstands foot traffic.
- Cure within 24 hours, fast application cuts costs.
- Can be applied over numerous substrates.
- High solids and high coverage rates.
- Fast and economical to apply.
- Two colour application ensures optimum coverage.
- Wide service temperature range: -40°C to +95°C.
- Excellent resistance to chemical attack.
- Excellent colour retention.
- Excellent adhesion to freshly sprayed foam -no primer required.
- Easy to apply spray or brush.
- Sag resistant on vertical surfaces.



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Application Instructions

Coverage

The **FOAMSHIELD** system is applied in two coats (see also 'mixing instructions'). 1 litre/m² of base coat and top coat painted onto a perfectly flat surface with no spray losses gives a dry film thickness of 0.72mm.

Recommended **minimum theoretical** coverage ratios are:

Product (Pitched Roof)	Dry Film Thickness	Coverage lts / m ²
ISOTHANE BASE	0.29mm	0.40
ISOTHANE TOP	0.29mm	0.40
TOTAL	0.58mm	0.80

(Flat roof)	Dry Film Thickness	Coverage lts / m ²
ISOTHANE BASE	0.38mm	0.53
ISOTHANE TOP	0.38mm	0.53
TOTAL	0.76mm	1.06

An allowance for spray losses should always be added to the theoretical coverage rate. This is usually at least 15% and can be very much greater if coating is applied in windy conditions, onto poor foam or onto profiled surfaces such as Big Six Asbestos.

Preparation of Substrate

The substrates should be clean and dry and free from grease. Remove all dirt and loose dust particles. Urethane foam should be coated no sooner than 2 hours after application and not longer than 24 hours after application. It is important that polyurethane foam is pinhole free. Application of coating will not necessarily cure the problem, and water can therefore penetrate into the foam. A recommended practice is to apply the coating by brush or roller into pinholed areas.

Primer

No primer is required when coating over new or clean, dry foam. Old foam or previously coated surfaces should be cleaned and primed before coating. Seek advice from Isothane regarding primer recommendations beneath the foam.

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Application Equipment

The **FOAMSHIELD** system is designed for airless or conventional spray equipment or can be applied using a soft brush. Airless spray equipment should be 45:1 or 63:1 ratio used with a compressor delivering 90 -100 psi input air pressure and a capacity of 80 cfm. Using a 63:1 machine, a maximum of 100 feet of 3/8' fluid line can be used. Use a gun tip of 0.025 -0.035" with a spray fan angle of 60° to 80° and ensure overlap on passes.

Mixing

It is absolutely vital that **FOAMSHIELD** is thoroughly mixed, by mechanical means, before application. Failure to do so is likely to lead to poor coatings, with a risk of premature failure. Colour variations and sticky patches frequently identify areas of coating that have been poorly mixed. Choice of mechanical stirrer is important. Suitable equipment is typically a 0.5 HP motor, driving a 10 cm diameter propeller stirrer at 1500 RPM. Thoroughly mix both the components individually. Whilst continually stirring the pigmented component, slowly add the iso, utilizing the hullage space in the pail. Continue mixing the blend. Mixing time depends on temperature but should be not less than 5 minutes; temperatures below 15° C require longer mixing times. The mixing vessel should be cylindrical and attention should be given to possible 'dead' spots. A homogeneous colour does NOT mean the components are completely mixed. Continue for the minimum 5 minutes.

Pot Life

After mixing, the materials have the following pot lives: (Guidance only)

	Temperature	Pot Life (hours)
ISOTHANE FOAMSHIELD	13° C (55° F)	2½ - 5
	24° C (75° F)	1½ - 3½
	35° C (95° F)	¾ - 1½

Thinning

No thinning is normally required. A change of viscosity during pot life can be corrected, if required, by the addition of up to 10% of **ISOTHANE SOLVENT S711** to either material.

Application Temperatures

In dry conditions **FOAMSHIELD** may be applied in temperatures as low as 3° C. However, it is extremely important that low temperatures are not associated with high humidity, i.e. condensation on coating before it is cured must be avoided. At low temperatures damp substrates or rainfall, either during application or for at least 12 hours after coating, could lead to coating failure.

Do not apply **FOAMSHIELD** if the chemical temperature is greater than 43° C or the substrate temperature greater than 71° C.

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Spraying

The **FOAMSHIELD** system is formulated to spray directly without thinning or heating. A spray pressure of 2800 -3000 psi and a wide angle spray tip will provide a good atomisation and a uniformly applied coating. Use a 'cross hatch' spray technique to ensure that all the foam surface is covered evenly. Dry film builds up to (0.5mm) can be obtained in one application when required. It is recommended that before spraying, **ISOTHANE S711** is circulated through the pump and lines for 5 -10 minutes. This will ensure that any loose coating is flushed out prior to filling with material.

Drying Time

The system dries initially by solvent evaporation; the drying time is dependant on temperature, humidity and film thickness.

Recoat Time

The system cures by chemical reaction and can be recoated when cured enough to walk on. The following table is a guide:

ISOTHANE FOAMSHIELD	Temperature	Recoat Time (Hours)
	2° C (35° F)	24 -48
	10° C (50° F)	18 -24
	24° C (75° F)	6 - 8
	32° C (90° F)	4 -6

Repairs

The finished surface can be easily repaired by applying the **FOAMSHIELD** top coat directly to the affected area.

Application Guidelines

- #1. DO NOT apply FOAMSHIELD when the material temperature is below 3° C or above 43° C
- #2. DO NOT apply FOAMSHIELD unless it has been thoroughly mixed using the recommended equipment and procedure.
- #3. DO NOT apply FOAMSHIELD to damp substrate or when rain is likely within a few hours.
- #4. DO NOT apply FOAMSHIELD when dew is likely to form within a few hours after coating.
- #5. DO NOT leave the base coat for more than 7 days without top coating or intercoat adhesion problems may occur.
- #6. DO NOT apply FOAMSHIELD at relative humidity greater than 80%.
- #7. DO NOT apply without adequate air exchange and ventilation in enclosed areas.

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Equipment Clean Up

Use **SOLVENT S711** for both products.
DO NOT allow coating materials to remain in machinery or lines overnight. Rinse lines thoroughly with solvent and leave full of solvent.

Safety

ISOTHANE BASE and ISOTHANE TOP contain flammable solvents -keep away from open flames or sparks. Use earth-bonding leads on equipment to prevent static flash over.

ISOTHANE FOAMSHIELD ISO CONTAINS ISOCYANATES. READ ISOTHANE LTD' S MATERIAL SAFETY DATA SHEETS FOR THESE PRODUCTS BEFORE USE.

Storage

In unopened containers the shelf life is 6 -12 months. The materials should be stored between 4° C and 40° C.



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Typical Performance Properties of ISOTHANE FOAMSHIELD Membrane

Physical Properties	Test Method	Results
Solids Content FOAMSHIELD TOP	(by volume)	72%
Solids Content FOAMSHIELD BASE	(by volume)	72%
Tensile	ASTM D412 (Die C @ 20 inch/mm)	850 psi (60 Kg/cm ²)
Elongation	ASTM D412 (Die C @ 20 inch/mm)	185% ±25 260% ±25 450% ±25
100% Modulus	ASTM D412	408 psi (28.8 Kg/cm ²)
Tear Resistance	ASTM D624	290 psi (51.8 Kg/cm)
Permeability	ASTM E96	0.65 US Perms (20 mils), 0.41 Metric Perms 0.31 Perm inches
Accelerated Weathering		There was no chalking, cracking, delamination, or loss of flexibility after testing.
Ultraviolet Resistance		There was no chalking, Carbon Arc cracking, delamination Weatherometer cracking or loss of flexibility after 2000 hours of testing. Slight change of colour and chalking on surface of film.
Water Absorption	ASTM D471 3 days @ 75° F (23.8° C)	1.5% MAX
Accelerated Heat Ageing	ASTM D573 30 days @ 185° F (85° C)	No significant change in physical properties.
Low Temperature Flexibility	ASTM D1717 ½ mandrel bend	Passes @ -55° F (-47° C)
High Temperature Resistance	ASTM D573	Continuous 200° F (93° C) Intermittent 225° F (107° C)
Abrasion Resistance	ASTM C -501 CS -17	29 mg ± 2mg wheel 1000 rev. with 1000 gram weight.



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