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AUSTRALIAN MEMBRANE INDUSTRIES

ULTRA FLEX HEAT BLOCK

Liquid Insulation & Waterproofing Membrane

Release: 1st November 2010
Review: 7 January 2013

DESCRIPTION:

Ultra Flex Heat Block is a high build elastomeric urethane/acrylic based UV resistant (light) trafficable membrane which incorporates additives which provide remarkable insulation properties, with reports of internal temperature being lowered by 12-15 degrees C.

Heat Block is an off-white membrane which is flexible with excellent bridging capability allowing it to move with the substrate. The matt finish alleviates glare. For a smooth finish, if required, a sealer coat is available from AMI. Heat Block can be tinted within a narrow range of light colours. Heat Block is highly durable adding longer life to the substrate.

Heat Block shows marked building bushfire protection.

FEATURES:

* Outstanding heat re-radiating elastomeric membrane with over 400% stretch.
* Long life and hard wearing for use on all types of roofs, balconies and walls.
* Low cost and efficient it can minimise or eliminate heat damage to goods.

RECOMMENDED USES:

Heat Block is suitable for all roof types, walls and any surface where waterproofing and solar heat re-radiation and insulation is required. Heat Block can be applied to all types of shipping containers, fuel and food trucks. Substrate should be correctly primed before application

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of Heat Block. On refrigeration containers Heat Block reduces heat consumption when cooling unit is on and minimises heat rise when cooling is off. Heat Block is a trafficable urethane/acrylic membrane with similar capabilities to Ultra Flex however, as the coating is white, it will dirty quickly if trafficked. The dirtier it becomes, the less effective it will be.

STORAGE:

Protect from heat and frost. Ideal storage conditions are in the shade at ambient temperatures of between 5° and 25° C.

PROPERTIES:

Classification	Urethane acrylic membrane coating
Coverage	1.5 litre/m2 in 2 coats as a membrane and 0.65/m2 as a single coat, spray system.
Component	One component system
Shelf life	One year minimum in sealed container
Solids by Vol	60+ 2%
Film thickness	Wet 800 micron per coat as a membrane. Dry 0.8 – 1mm in 2 coats.
Drying time	@ 25° C. 50% RH Touch dry 30 minutes.
Handle	2 hour
Recoat	4 hour
Number of coats	2
Finish	Matt
Thinners	Water
Primers	Sealpoxy – waterbased epoxy.
Metal	Metal etch primer and or rust primer.

WHEN USED AS A WATERPROOFING & HEAT INSULATION MEMBRANE:

Substrate Preparation: Substrates should be sound and smooth finished, free from oil and grease, waxes, dust, laitance and all loose matter. Masonry surfaces must be pointed flush and surface defects repaired. Do not apply if rain threatens as acrylics do re-emulsify up to a day after application – depending on the weather conditions. Galvanised metals and steel substrates must be suitably primed (eg. metal etch prime). Painted surfaces should be cleaned and lightly sanded to ensure that the priming system achieves a key. Rusted metal will need the rust treated before the application of a suitable metal etch primer.

CONCRETE/REINFORCED & PRESTRESSED FLOOR SYSTEMS:

When used to waterproof concrete roof systems and any new non wet area concrete slab, it should be noted that new concrete slabs, especially in high rise floor systems, experience shrinkage cracking. The level of cracking is determined by several factors associated with the concrete mix and construction. Some shrinkage cracking is considered acceptable although, any significant shrinkage cracking will readily rupture in-situ membranes. Membranes are not designed to overcome structural faults. Construction engineers can determine the scope of any shrinkage cracking location on the slab. It is important that such information is at hand before waterproofing begins. In pre-determined crack areas, steps need to be taken to overcome the movement of the in-situ membrane. This can be done byway of bond breakers or the construction of a concrete expansion system over the area. If the application is over a concrete roof (new or old), contact Resinflow for a detailed protocol to overcome possible shrinkage or flexural cracks.

Heat Block, like all other membranes, is not is not a cure for bad construction engineering and applicators are warned when undertaking such jobs, that they understand some of the potential issues which may arise.

-VALUE

R-Value: (1 – 4 with 4 being highest resistance) This reading means the 'thermal resistance level'. This is the measure of the thermal resistance to heat transfer displayed by the particular insulating products (batts etc). The reading measures how much heat is being transferred by the insulating product (into the facility being insulated). Heat Block coats a surface and that external surface remains colder as Heat Block works on the heat rejection principle and does not absorb any significant amount of solar heat but re-radiates solar, infrared and ultra violet rays.

It follows therefore that Heat Block cannot have an R-value because it works in an entirely different way to batts or other in roof installed insulating products. Substrate Priming: Prime in accordance with the instructions pertaining to the primer that is being used; however, two-pack waterbased epoxy primers will provide good trouble free adhesion. Ensure that the Heat Block is applied within the application window for the primer being used. Resinflow recommends the use of good quality two-pack epoxy primers for all applications of trafficable membranes.

Single pack primers are typically low solids one-part systems which do not compare favourably with two-packs. If priming base is for a trafficable system, a good quality two-pack system must be used as single packs will not cope with wheel torque pres-

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sure from vehicles and a primer/substrate interface failure will occur.

PRIMING OVER SILICONE:

Where the silicone is the type suitable for painting, prime directly over it. Where it is not, and adhesion is a problem, coat the silicone with 'No More Gaps' (available from most hardware stores) and prime over the top; then apply the membrane.

SUBSTRATES:

CONCRETE:

New (green) concrete will need to be primed with Sealpoxy waterbased epoxy primer after the laitance has been removed. Old concrete will need to be treated (shot blasting, scabbling/diamond grinding or degreasing/ high pressure washed etc) before a primer is applied. We recommend two-pack, water or chemical based epoxy primers. For priming over wood surfaces, use a suitable wood priming system and apply the Heat Block within the application window. All steel surfaces must have all traces of rust treated and then be primed with a suitable metal etch primer. For most surfaces (excluding green concrete and ceramic tiles), a two-pack epoxy primer will suffice. For specific substrate preparation, contact the distributor listed overleaf.

IF IN DOUBT, TEST ADHERE BEFORE YOU UNDERTAKE THE APPLICATION

PRODUCT APPLICATION:

Gently stir. Do not allow bubbles to form in the pail. Product can be applied by an airless spray system (not a fibre-reinforced membrane), roller or brush. At least two coats are required to achieve the necessary dry film thickness. Recoat up to 4 hours at 25°C. The required final dry film thickness is 750 microns to 1mm utilising 1.5 litres of product per square metre. Thicker applications can be undertaken.

Joins, gaps, expansion joints, cracks and holes should be filled/treated and sealed, with the repair being allowed to dry/cure before 50mm bond breaking tape is applied.

When using reinforcing, the reinforcing fibre mesh should be embedded in the first coat of Heat Block which should be applied at the rate of 1 litre per square metre. Ensure all wrinkles in the mesh are levelled out and the mesh is saturated with the product. Apply the second coat as a flood coat ensuring that all mesh has been covered. Apply a third coat in the desired final coat colour. The volume application requirement is 2 to 2.5 litres per square metre. Allow several days curing before vehicular traffic is allowed on the coating.

PRODUCT COVERAGE:

Unreinforced: 1.5 litres per square metre in two coats. Reinforced (not to be used for airless spray application): 2 to 2.5 litres per square metre in 2 to 3 coats. Heat Block with fibre additive is applied at the same rate as unreinforced applications.

APPLICATION TYPES:

Heat Block can be applied by brush for smaller applications and where fibre mesh reinforcing is required. The product is suitable for roller coating by medium nap roller ensuring the second coat is applied at right angles to the first coat. For major applications the product is best applied by airless spray using a .045" tip.

DRYING TIME:

Average drying time between coats is 2 and 4 hours at 25°C per normal coat and up to 48 hours if flood coated.

Normal coats chemically cure within 36 hours at 25°C and the product achieves water resistance after 10 to 12 hours following application. The product may re-emulsify if subjected to heavy rain within 10 to 12 hours of application or is saturated by dew soon after application and subsequently suffers more water contamination before chemical cure is achieved.

WHEN USED AS AN EN CAPSULATING SYSTEM FOR ASBESTOS SHEETING:

Do not disturb the asbestos substrate. Do not pressure wash. Remove any loose material and debris by approved methods and (preferably) spray the Heat Block over the substrate byway of an airless spraying system in as many coats as it takes to apply 1.5 litres of material per square metre. This amount of product will leave a dry coat of at least 1mm and fully encapsulate the asbestos. Ensure that all asbestos has been coated.

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Encapsulating asbestos sheeting with Heat Block

When accessing any asbestos roof for quotation, ensure that the roof has steel mesh under the asbestos sheeting, supporting it. Do not undertake any asbestos roof work if there is no support mesh as all asbestos sheeting is now 30+ years old and in many cases, very brittle. If work is to be undertaken on any asbestos roof that does not have mesh support under the sheeting, independent support structures will need to be installed over the roof in order to do the work. Without a steel support mesh underneath, it is highly dangerous to walk on any asbestos sheeting.

WHEN USED AS HEAT RE-RADIATING PAINT:

In order to achieve uniformity of application and minimize the amount of product used, it is recommended that a piston type airless sprayer be used. Although our heat tests used 300 microns of wet material, that amount of material is not necessary to achieve the stated results. The test samples were brush applied and possibly represent an over application of the product. At a minimalist level, achieving complete coverage will leave an effective heat application where a 100 micron wet coat is sufficient. This enables around 10m2 per litre. It needs to be remembered that as long as the surface is clean, the product will work. It is also worth noting that the thicker the application, the longer the coating will last. A good mid point in terms of long coating life and cost effectiveness is a wet application of 300 microns.

THERMAL INSULATION TESTING:

(a) Typical acrylic coating.

(b) Commercially available insulating roof coating.

(c) Heat Block.

Test 1: 300 micron brush applied film of each coating on galvanised steel plates. Plates were subjected to 5 hours heat soaking at 60°C. The underside temperatures were reported as follows.

A	B	C
59	57	54

Test 2: 300 micron brush applied film of each coating was applied to galvanised steel plates. The plates were heated on a hot plate to 130°C. The recorded topside of the steel plates is as follows:

Time(min)	Bare Plate Temperature	A	B	C
1	127-132	116	104	104
60	127-132	121	110	104
120	127-132	121	110	104
150	127-132	121	110	104

Test 3: A Heat Block coating of approximately 600 microns was applied to an enclosed structure.

For comparison, a duplicate structure was insulated internally with 75mm batts having an R factor of 2.5.

Analysis of the recorded internal temperature over a 24 hour period concluded that the coated structure had a temperature range of 0.9 – 2.3°C lower than the batt insulated structure.

Test 4: Two identical steel sheds had their internal temperature recorded over a 90 day period. One shed was coated with Heat Block, the other was left untreated. During the 90 day period, the untreated shed recorded maximum temperatures of 36°C. During the same period, the Heat Block coated shed recorded a maximum temperature of 29°C. The average temperature differential achieved by the Heat Block coating was 5 – 8°C lower.

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