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DESCRIPTION:

FLOWTHANE is a CSIRO certified CLASS 111- High extensibility (AS4858) ((Report 3259-1)) - 2004, fast cure elasticised, water-based, waterproof membrane available in a variety of colours. FLOWTHANE is designed for use in demanding internal and external waterproofing applications inclusive of areas of significant movement. Properly applied, FLOWTHANE cures to form a durable, elastic, seamless odourless and impervious membrane that will not re-emulsify once it has dried/fully cured even if continually immersed in water. FLOWTHANE is also supplied with reinforcement in the form of non degradable polypropylene fibres.

CSIRO Revaluation: Flowthane was revaluated for compliance with the initial CSIRO evaluation by the CSIRO and passed within the parameters set out by the CSIRO. Test report Number 5282 A.

ADVANTAGES:

FLOWTHANE has a number of positive characteristics encompassing fast curing, water based non hazardous composition with excellent bonding and superior elongation characteristics. The membrane will not re-emulsify once it dries. In a particular reinforced form, avails itself to single coat application achieving the correct dry film membrane thickness in one coat. Flowthane exhibits very high tests results as tested against AS4858 by the CSIRO.

LIMITATION:

Flowthane is not classified as UV resistant and should never be used in any situation where it will be left exposed to sunlight for prolonged periods however, Flowthane can be left exposed for periods of up to 3 months without demonstrated effect. The tints used in Flowthane are highly UV resistant.

APPLICATIONS:

FLOWTHANE has been specifically designed for most waterproofing requirements including the long term waterproofing of wet areas within buildings (shower recesses, bathrooms, laundries), concrete and timber decks, terraces, balconies, roofs, flashings, planter boxes, retaining walls and more. It is suitable for topping. FLOWTHANE must be applied in accordance with all appropriate sections of AS3740/2004 and the Building Code of Australia.

PREPARATION:

Substrates should be smooth, sound and 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 will develop prior to the membrane drying.

SUBSTRATES:

Suitable for cementitious substrates, concrete, masonry, fibre-cement and compressed sheeting, plaster board, *timber, brick and render. Metal surfaces must be suitably primed. FLOWTHANE may be applied to damp surfaces although freedom from surface water and continual dampness is essential. Damp surfaces will increase drying/curing times. Applying the membrane over screeds that are not cured or not using a 2 pack waterbased primer can cause the migration of surfactants from the screeds to the membrane and thereby unsettle the chemical composition and integrity of the membrane and problems may result. Also, applying the membrane on top of the screed is only recommended if there is also membrane application at the bottom of the screed because screeds notoriously crack and break-up under traffic thereby exposing the membrane to stresses for which it was not designed to handle.

*Excludes particle board, applying the membrane system over particle board voids the warranty.

Torch On Membrane: AMI does not recommended applying Flowthane directly to Torch on Membrane. If the applicator selects to coat over Torch on Membrane, then it shall be the applicators responsibility for the outcome. Torch on Membrane contains too many chemicals which work against achieving adhesion. It should also be noted that many failures have been observed where the applicator used one coat of waterbased epoxy as the priming base. It's best to grind off the old Torch on Membrane.

SCREEDS:

If Flowthane is to be used on any screed, it is imperative that the screed is not subject to rain or any other water contamination. Wet screeds will never fully dry and will 'pop' the membrane periodically in random places over the application. An easy solution to this is to waterproof the screed by the use of AMI's Screed Block or GPS. This type of intervention at the time of the screed application negates most of the water issues that arise from wet non

waterproofed screeds. GPS and Screed Block also enhance screeds and significantly resists screed cracking.

If the screed has not been waterproofed, Hydro Static EPOXY should be used to double coat the screed within a day or so or it be laid down. This will seal the screed and negate the possibility of water logging the screed.

Screeds should have expansion joint cuts made so as to avoid screed and membrane rupture if any screed expansion occurs (common). This is especially necessary if the screed is outside.

With regard to under screed waterproofing, AMI only guarantees (screed) applications if the membrane is applied under the screed. Applications on top of the screed are subject to predictable damage by trades people who will be working over the screed / membrane area.

AMI recommends fibreglass matting impregnation through the application where large screed areas are undertaken and surface waterproofing.

CONCRETE/REINFORCED & PRESTRESSED FLOOR SYSTEMS:

When used to waterproof concrete floor 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 slab engineering/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 and 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 by way of bond breakers or the construction of a concrete expansion system over the area.

RI Gilbert (University of NSW)– 2001, has stated that shrinkage cracks in aggressive environments should not exceed 0.1 – 0.2mm. Concrete surfaces in exposed areas should not exceed 0.3mm. For sheltered interior where concrete is not exposed, 0.5mm or larger may be acceptable. Flowthane will contain shrinkage cracks to 0.4mm but variation within crack size may occur so caution should be exercised remembering that shrinkage cracks are engineered construction faults. The only fail safe system for large external new concrete areas is a double application of torch on membrane – 3mm + 3mm sheeting and even that system can not be guaranteed.

Flexural Cracking: These cracks are caused by engineered design structural faults and will readily shear

most membranes. In proper design, expansion joints/ stress relievers are inserted in the area where a flexural crack will develop (engineers can calculate this). In these circumstances, the application of Flowthane is suitable.

Mature Concrete / Slabs: Concrete shrinkage as well as flexural cracks develop early following construction and once the drying process is complete – perhaps up to several years, shrinkage cracks do not develop any further. In these circumstances Flowthane will hold shrinkage cracks up to 1.0mm providing the proper preparation of the concrete is undertaken and no substrate movement occurs. It is however recommended that where shrinkage cracks approach 1mm or more, that these be treated prior to the application of the membrane.

Flowthane, like all other membranes, 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. The construction firm will always sheet the blame back to the applicator/ membrane when in fact, their design and construction methods are at fault. It is very expensive to hire a consultant engineer to prove the builder wrong. The current standard in this area, AS3600-1994 is currently being reviewed as it is considered inadequate.

PRIMING:

Priming systems need to be tested against each membrane before adhesion security can be guaranteed. Resinflow membranes are all tested against our own primers and as such, are guaranteed to achieve satisfactory adhesion to the desired substrate in accordance with this data application sheet.

It is recommended that all concrete, masonry, brick and fibre-cement surfaces be primed with AMI's Taspac series of two part waterbased epoxy, or Resinflow's GP Primer. Diluting Flowthane for use as a primer is highly suspect and not recommended. Primers, by definition, are low in solids thereby enabling substrate penetration. Diluted Flowthane 50/50 is still very high in solids and not suitable for priming.

The use any suitable masonry primer designed for such work is at the discretion and responsibility of the applicator. If in doubt, test adhere first. NOTE: When applied to dry, non primed surfaces, membrane pin holing may occur as the substrate immediately absorbs moisture from the membrane. Either prime the substrate or apply a second coat of Flowthane to alleviate the problem. Pin holing under these circumstances is a normal outcome for waterbased membranes.

The use of solvent based primers (after test adhering), is acceptable providing the primer has cured before applying Flowthane. Never apply a solvent based primer over a dried application of a Flowthane membrane.

AMI Primers that carry the guarantee on the various substrates as per this data sheet:

GP Primer: General economical wet area single pack waterbased latex primer for excellent broad range substrate adhesion in wet area waterproofing.

GPS: General latex priming system used in screed and flooring plus a multitude of other applications, can be diluted and used as a top line single pack wet area primer. See TDS.

Screed Block: As with GPS, Screed Block can also be used as a single pack wet area primer after suitable dilution with water, see TDS.

AMI Bayroot Priming Epoxy: An inexpensive two pack waterbased epoxy designed for wet area priming.

AMI Sealpoxy: High quality inexpensive two part waterbased epoxy specially designed for priming wet area concrete substrates to achieve a fail proof adhesion key. Sealpoxy has strong adhesion to PVC and many other substrates. Using Sealpoxy takes away the possibility of adhesion failure and the priming / substrate interface.

AMI Hydro Static EPOXY: High quality two pack epoxy that can be used for wet area priming where a high quality epoxy is required. Hydro Static EPOXY is primarily developed for reverse tanking and negative pressure applications however, using this epoxy as a primer is highly desirable.

SPECIAL ADHESION ISSUES:

Overcoating Flowthane with an acrylic membrane is not advisable as adhesion between the two types of membranes is not good. The same problem occurs if the membranes are coated in reverse. If an acrylic membrane needs to be coated over Flowthane, then it is essential that a two pack, waterbased epoxy is used to prime between the two membranes in order that a strong bond is achieved.

Smooth surfaces such as FC sheeting may require keying prior to application if a non penetrative primer is used.

Surfaces that are subject to heat/solar induced vapour may cause the membrane to bubble and should be first coated with a suitable primer such as Sealpoxy, two pack, waterbased epoxy.

Metal surfaces need to be etch primed with a suitable metal etch primer such as Resinflow's MC Primer after the removal of any rust and surface contaminant matter.

If in doubt, always test adhere.

Priming over Polyurethane Sealants: Where polyurethane

sealants are solvent based, it is critical to ensure that the sealant cures before any over coating takes place using waterbased primers or membrane. The expelling solvent from the polyurethane will interfere with non cured waterbased primers and waterbased membranes resulting in possible cracking along the bead line. It should be noted that there is a significant degree of tolerance to solvent based pu sealants by Flowthane nevertheless, it is good application practice to allow the polyurethane to flash off the solvent component of the sealant. An alternative sealant that can be used safely is Neutral Silicone.

APPLICATION:

Stir the contents well prior to application. Apply by trowel, brush or long-nap roller to obtain a consistent and even coating. FLOWTHANE can be applied in a single coat (not generally recommended) to any thickness required, the product will not crack if the substrate is suitable. However the membrane needs to be applied to at least 1mm dry film thickness. This is achieved by undertaking two application coats at a rate which utilises 15L of membrane over 8 – 9sm. 10sm if reinforced.

IMPORTANT:

If exposed to weather do not apply if rain is imminent, or temperature is below 5C, however, if the membrane has time to dry, the membrane will not re-emulsify if even submerged by water during subsequent adverse weather. Do not apply membrane if humidity is 85% and above. See Resinflow technical notes on humidity and dew point application problems.

WET AND HIGH MOVEMENT AREAS:

Where potential high movement of the substrate is expected such as floor and wall corners of shower recesses, wet areas, floor joints, cracks and expansion joints a minimum 70mm plastic bond breaker or reinforcing tape should be laid over these areas. A minimum 150mm wide coat of FLOWTHANE should be applied over these areas into which a reinforcing fabric should be embedded followed by a saturating coat (ensure that the reinforcing fabric is completely saturated) and allowed to dry. A second coat should be applied ensuring that the fabric is completely covered. Large or cracked concrete areas should be properly repaired prior to the application of FLOWTHANE .

Applicator judgement on the use of additional reinforcing is necessary in any of the above conditions if using the reinforced version of the product however, applications need to conform to Australian Standards for waterproofing wet areas AS3740.

WASTE OUTLETS:

Flange fittings are recommended. The reinforced membrane should be laid over an area 150mm around the outlet and up and onto the flange plate finishing to an internal clean edge. Where no flange is used the reinforced membrane should be laid in overlapping strips from 150mm around the outlet (which should be cut level with the floor) to 30mm inside it.

COVERAGE:

Non reinforced: 1 - 1.5 litres per square metre in two coats.

Reinforced: (with fibreglass) 1.5 – 2.0 litres per square metre.

(Variation may occur depending on the porosity of the substrate.)

DRYING TIME:

Average drying time is 1 – 2 hours at 25 degrees C in low humidity with airflow.

Damp surfaces, low ventilation and cooler weather will increase drying times. The use of fans in internal and below ground situations accelerates the drying process however, cold weather, low temperatures, moisture saturated atmosphere will slow the drying of all waterbased membranes, sealers and paints.

ADHESIVES:

We do not recommend tiling directly over Flowthane as damage to the membrane by tilers can occur. We recommend that the membrane be topped with a screed however, suitable waterbased tile adhesives such as Monoflex, Cemflex, Gripflex, Kemflex, Ultima or Kemgrip mixed with Elastacrete from the Dribond range can be used when tiling over the membrane. If using non-Dribond tile adhesives, make sure to consult the relevant tiling guide. Do not use solvent based adhesives as failure of the membrane and adhesive will occur.

RLA/ATLAS ADHESIVE TESTING RESULTS:

PRODUCT NAME	24 hours	3 Days
Atlas Ezy-Fix	fair - good	good
Atlas Just-2-Ezy	fair - good	good
RLA Tilebond Extra	good	good
RLA Tilebond Extra + Uniflex Additive	Fair - good	Very good
RLA Unibond	Very good	Excellent

CONCLUSION & RECOMMENDATIONS

For General Purpose interior/exterior tiling applications where Flowthane has been used on concrete walls and floors, use the following products: RLA Unibond, RLA Tilebond Extra with Uniflex additive, Atlas Addflex, Atlas

Ezy-fix and Atlas Just-2-Ezy. Tilebond Extra is suitable for concrete or cement rendered walls.

For General Purpose interior/exterior tiling applications where Flowthane has been used on Fibre Cement Sheet, use the following products: RLA Unibond, Atlas Addflex, Atlas Ezy-fix and Atlas Just-2-Ezy. Note that these products may require 2 days to properly cure and should be protected from rain and water during curing.

NOTE: AMI does not endorse or promote RLA or Atlas tiling products, in fact, AMI uses NO RLA Polymers materials in any production. Testing data was provided by RLA Polymers free of charge and as such, should be considered with some degree of skepticism. Most firms who manufacture tiling glues and grouts have their own membranes and generally are reluctant to test membranes from competitors.

For interior walls where very fast curing is required use Atlas Ezy Fix.

TABLE OF ATLAS/RLA EQUIVALENTS

Atlas Tile Adhesive	RLA Polymers
Ezy Fix	Flexibond
Just-2-Ezy	Ezyflex
Addflex	Q-Bond
	Unibond
Super Tilefix	Tilebond Extra
Uniflex Additive	Uniflex Additive

STORAGE:

Can be stored for up to 18 months in sealed containers. The product is not freeze/thaw proof, do not allow to freeze.

CLEAN UP:

Utensils and minor spills can be cleaned with water if still wet. Cured FLOWTHANE can be cleaned with Xylene or an alcohol based cleaner. Equipment may need to be soaked in the clean up solution for several hours before the membrane can be removed.

PACKAGING AND COLOUR:

5Lt and 15 Lt Plastic Pails: Available in blue, and grey – standard or reinforced. Special colours require a minimum quantity order.

TILING, TOPPING, TOP COATING AND PROTECTION:

FLOWTHANE is not trafficable but can, when dry, be covered by tiles (not recommended) or other suitable toppings or resin applications.

Toppings: It is essential to understand that external toppings made from a sand/cement mixture are like a sponge and will absorb water readily. We believe that the only safe way to waterproof toppings is to waterproof the topping at the time of application. (see Screed Block), and finally, the surface must be waterproofed. Toppings must be dry before any overcoating is attempted. If the topping is external and has been exposed to heavy rain, it is doubtful full drying can ever occur. A non fully dried topping bed will cause membrane blistering and bubbling via hydrostatic pressure. If it is essential to overcoat toppings that have been wet, use two to three coats of Hydro Static EPOXY, two part waterbased epoxy, prior to applying the membrane but do it only after the bed looks completely dry.

RECOMMENDED AMI METHOD FOR TOPPINGS:

Mix AMI's Screed Block or GPS into the topping mix (see TDS for both products)

Tiling: When tiling, use a two pack, flexible, cement based, solvent free adhesive or 3:1 sand: cement wet with primer. Tile within 7 days. On areas of +50 square metres, lay a plastic slip sheet over the membrane before tiling or topping.

Top Coating: FLOWTHANE is fully compatible with the Ultra Tuff range of water based urethane anti slip treatments. Once over coated with an Ultra Tuff system the treated area is suitable for full pedestrian trafficking without risk of membrane damage.

A heavy duty trafficable surface can be applied byway of use of a variety of available aggregates dressed over AMI's SL 2 Pack Urethane binder, applied as a roll coat.

NB: If over coated with Ultra Tuff or an SL Urethane to form a fully trafficable surface geo textile reinforcement is not warranted during membrane application.

Protection: For best results in exposed areas such as roof tops Resinflow recommends a uv protection coat of Ultra Tuff Sealer or pigmented UV protection sealer however, the product of choice for outdoor exposed environments, is Ultra Flex, trafficable polyurethane waterproofing membrane that is UV stable..

SCYON FLOORING:

James Hardie describes the product as: "A heavy-duty but lightweight structural flooring substrate that does double duty – it can be easily used for tile, vinyl and carpet finishes over timber or steel floor joists in both residential general interiors and wet areas. Simple and fast to install, Scyon™ Secura™ interior flooring is the easiest way to get top protection against moisture damage in all interior floors".

The sheeting displays a course lattice material (bluish) back and a smoother, with some shine, top face. There

are no adhesion issues with this product on either side.

ADHESION TESTING:

	Ultra Flex	Flowthane / P96
1)Adhesion Promoter:	Good	Good
2)Sealpoxy	Very Good	Very Good
3)Hydrostatic Epoxy	Very Good	Very Good
4)Membrane 50% Diluted with Water	Good	Good
5)Membrane – neat	Good	Good

Good = solid adhesion

Very Good = requires top layer ripping to take membrane off.

PRECAUTIONS:

FLOWTHANE is safe and user friendly however, avoid contact with the skin and eyes. If poisoning occurs contact a doctor or the poison information centre. Do not induce vomiting. Give water to drink. The use of gloves and eye protection is recommended. Call the Poisons Information Centre 131 126

PHYSICAL PROPERTIES:

CSIRO Test Report: 3062-1 8th August, 2005

AS 4858:2004 Wet Area Membranes

Durability of Membranes: Elongation to break:

	Strain %
Control:	770%
Class 111	
Water Immersion	1151% (56 days)
	Pass
Bleach Immersion	919% (56 days)
	Pass
Detergent Immersion	967% (56 days)
	Pass
Heat ageing	685% (7 days)
	Pass

Control Set – Elongation at Break:

Sample Thickness	Max Load	Max Extension
1.25mm	22.30 (N)	254.21mm
Max Stress	Max Strain	
3.06 MPa	770%	

Water Immersion – Elongation at Break – 56 days:

Sample Thickness	Max Load	Max Extension
1.20mm	21.01N	379.9mm
Max Stress	Max Strain	
2.92MPa	1151%	

Bleach Immersion – Elongation at Break – 56 days.

Sample Thickness	Max Load	Max Extension
1.20mm	17.11N	303.12mm
Max Tensile	Max Strain	
2.30MPa	919%	

Detergent Immersion – Elongation at Break – 56 days.

Sample Thickness	Max Load	Max Extension
1.20mm	13.74N	319.02mm
Max Stress	Max Strain	
1.91MPa	967%	

Heat Ageing – Elongation at Break – 7 days.

Sample Thickness	Max Load	Max Extension
1.10mm	23.61N	225.98mm
Max Stress	Max Strain	
3.52MPa	685%	

CSIRO Test Report No 3062-1

Water Vapour Transmission (WVT) - 0.37g/m²/24 hours.
(mean)

Moving Joint Test – 50 cycles - PASS

Water Absorption – AS 3558: 0.58% - Method AS 3558.1-1999

Assessment of Water Absorption – AS 3558.1-1999
- Result: Maximum Mass difference (%) 0.52%

Series 904 Vertical Sealant Tester:

Number of cycles completed:	50
Surface Crazing:	Nil
Surface Tears:	Nil
Membrane Rupture:	Nil

VOC CONTENT CERTIFICATION:

Test Method: SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168. Test Data:

Specification Green Building Council of Australia Green Star Office Design V2 IEQ-13
Green Star Office Interiors V1.1 IEQ-11

Flowthane 60 grams per Litre.
Architectural Sealant 250 grams per Litre

Specification Green Building Council of Australia Green Star Office Design V3 IEQ-13

Flowthane 60 grams per Litre.
Architectural Sealant 250 grams per Litre.

AMI POLICY ON CLAIMED FAULTY MEMBRANE & MEMBRANE WARRANTY

The AMI policy on claimed membrane faults or problems is available however, this is a brief outline of what is required / offered:

Any alleged fault must be reported immediately (and not months after the event, when outstanding accounts are being chased). The applicator must provide photos and answer a series of question pertaining to the application. The applicator account must also be in good standing, owing money outside AMI's trading terms voids AMI's product responsibility. Unless there is full compliance to AMI's requirements, all AMI product responsibility will be voided.

MEMBRANE WARRANTY - SITES:

Job specific warranties are given by AMI in writing. Each application requiring a warranty is undertake separately. Applicators need to approach the company to arrange a job specific product warranty.

MEMBRANE WARRANTY - GENERAL:

Flowthane is generally warranted up to 15 years when applied in wet areas under the guidelines of AS 3740 and this data sheet. Some of the relevant issues (but not restricted to) that negate our membrane warranty are:

- Applicator's account with AMI not in good standing.
- AMI must be contacted as soon as the waterproofing problem is discovered.

- Tiling (membrane) damage. The tiling must comply with tiling application standards.
- Structural problems with building / excessive movement.
- Inappropriate application of membrane.
- Reinforcement of cement beds placed directly on the membrane.
- Third party (trades) damage.
- Diluting the membrane.
- Applying the membrane under the minimum dry film thickness.
- Forcing grates into outlets.
- Plumbers must use silicone between tile and tap spindle.
- Cutting of membrane or angle.
- Applicator not qualified or licensed.

AMI's membrane warranty policy is available upon request.
Other AMI water based Wet Area
Certified Membranes:

Ultra Flex Class 111 Polyurethane. Top of the line acrylic urethane blend which is also light pedestrian trafficable.

Ultra Flex 50 Class 111 Polyurethane. High performance 50% pure urethane membrane.

P96 Class 11. Reinforced robust membrane for retaining walls and where economy is sought.

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