Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

AMI Priming & Concrete Repair Systems

(Rendering / Polymer Modified Industrial Floors + Many Other Applications)

This technical sales bulletin is concerned with the variety of applications and methods available using Resinflow's GPS plus it also includes the GP primer and Screed Block data sheets.

Primer – Latex/Cement Mix:

GPS

Applications:

-Consolidation of sandy and dusty substrates (cementitious floorings, underlayments etc)

- Substrate preparation for renovation and coatings.

- Priming of porous substrates, gypsum, limestone.

- Substrate barrier for following layers such as self leveling applications.

- Corrosion Protection of Steel

- Waterproofing.

- General purpose building adhesives.

- As a bonding agent.

Substrate:

The substrate should be free of dust and dry. Surface contaminants, eg, oil, rubber and flaking paint, should first be removed. Depending on the suction of the substrate, it is enough to apply the primer one or two times with a dilution of 1:5 up to 1: 8. The diluted dispersion can be applied by broom, brush or roller. Portland cement should be fresh and cool. Cement containing air set lumps should not be used.

Cleaning of Equipment: All tools should be cleaned immediately as the hardened product will have excellent adhesion and therefore difficult to remove. Solvents such as white spirits used with wire wool will help to remove partially hardened material.

Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

To obtain maximum performance from Selection of Materials:

Mixes modified with GPS it is important that attention be paid to the choice of materials used.

SAND: Should be well washed and sharp, the grade of sand will depend on the thickness of each layer applied.

CEMENT: Portland, High Alumina and sulfate resisting cements are compatible with GPS Y22. Masonry cement may lead to excessive air entrainment in these mixes. Portland cement should be fresh but cool. Cement containing air set lumps should not be used.

AIR ENTRAINMENT AGENTS: These should not be used. Other additives, contact AMI.

Primer Mix Formulation: (all parts are by volume)

Portland cement 1 to 2 parts

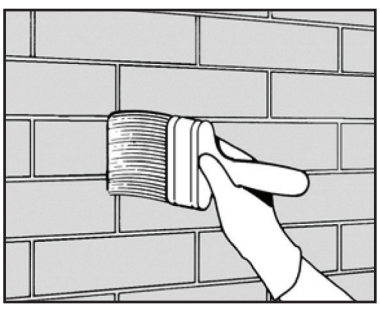
GPS Latex 1 part

(Portland cement should be fresh and cool, cement containing air set lumps should not be used)
The level of cement may vary to obtain the required consistency.
Pot Life: The mix has a pot life of 2 hours at 20 degrees C.

The application of primer/bond coat is recommended in order to obtain reliable adhesion of a subsequent applied render repair mix or floor topping or membranes. Additionally, latex can be very effective in improving the adhesion of plaster to difficult substrates.

Preparation of Surface:

Before using the GPS solution it is important to ensure that the surface onto which it is going is clean and free from dust and loose material and of sufficient integrity and mechanical strength.



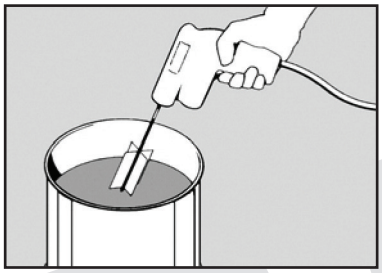
Concrete and masonry surfaces need to be dampened an hour or so before priming (unless already damp, eg, basement walls). Should be damp but surface dry when the primer coat is applied.

AUSTRALIAN MEMBRANE INDUSTRIES

Coverage Rate:

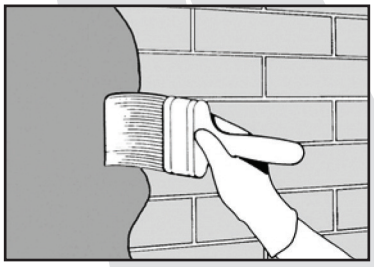
Coverage will depend on the latex / cement ratio and the type and condition of the substrate. Typical coverage on rough concrete is 0.3 to 0.4 litres of latex per square metre per coat or 2 to 3sm per litre.

When used as a coating, as opposed to a bonding agent, the thickness of each coat should not exceed 0.5mm to minimize the risk of cracking.



Mixing:

Add the cement gradually to the latex, stirring continuously. A slow speed electric drill fitted with a stirring paddle.



Application:

When used as a bonding agent under mortars, renders, screeds and toppings, the primer mix must be vigorously brushed into the prepared substrate and mortar, etc, applied while the priming coat is still wet and tacky, usually this should be within 20 minutes depending on conditions.

The substrate has to be sound and stable. Surface contaminants like oil, rubber and flaking paint, should first be removed. Before applying the bonding agent, the surface should be thoroughly wetted with clean water for several hours. The surface should be free of glistening water, when the primer is applied. The following mortar layer should be laid while the primer is still tacky, but not yet completely dried.

Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

Cementitious Primer & Bonding Aid Formulae:

The optimal composition of a cementitious primer using GPS latex, depends very much on the intended application. Good adhesion properties are already achieved by adding diluted GPS Y22 Latex to the mortar. As a general rule a dilution factor of 1:1 to 1:3 can be used.

PORTLAND CEMENT	1 VOLUME
SAND 1-2MM	1 VOLUME
GPS	0.5 – 1 VOLUME

Application:

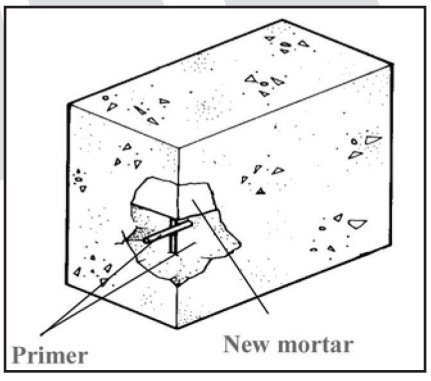
The substrate has to be sound and stable. Surface contaminants, eg. oil, rubber and flaking paint should first be removed. Before applying the bonding agent, the surface should be thoroughly wetted with clean water for several hours. The surface should be free of glistening water, when the primer is applied. The following mortar layer should be laid, while the primer still is tacky, but not yet completely dried.

Concrete Repairs:

The system provided here is for small patch repairs of reinforced concrete. The system is also suitable for larger concrete repairs however, such undertakings should be done by specialist concrete repairs firms.

Uses:

- Improved adhesion to substrates.
- Corrosion protection of steel.
- Improve crack resistance.
- Reduce thermal stress because the coefficient of thermal expansion is similar to that of unmodified concrete.
- Protection of background concrete from carbonation.
- Improve durability.



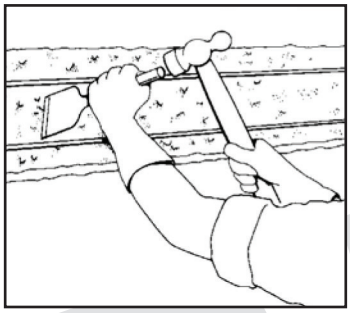
NOTE: It is important to establish the reasons for concrete failure prior to remedial action. If the problem has been caused by chlorides, porous concrete, or inadequate cover to steel areas which appear undamaged may deteriorate at a later date.

AUSTRALIAN MEMBRANE INDUSTRIES

Preparation of Surfaces:

Removal of unsound concrete.

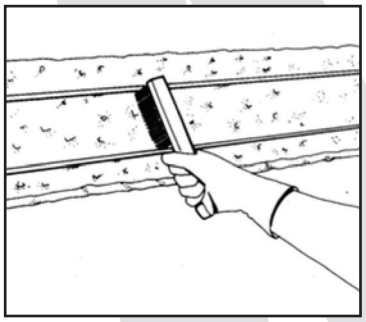
Clean back mechanically to good sound concrete, preferably behind any exposed steel reinforcement. The concrete should be cut back so that the mortar can be applied to a thickness of at least 5mm at the edges of the repair to avid feather edging. Provide at least 10mm of cover to the reinforcement.



Preparation.

Depending on the size of the repair, abrasive blasting or wire brushing of steel is then necessary. The steel should be washed with clean water and allowed to dry. Chemical cleaners and rust treatments should be used.

(If the corrosion of steel appears excessive, an engineer's opinion should be sought)



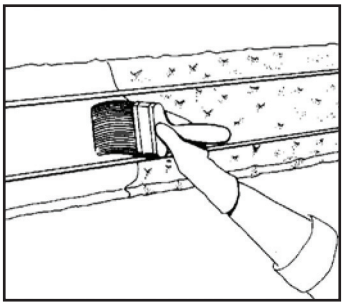
Priming Steel.

Brush the primer coat on to the steel and allow to dry. This coat should be applied within 24 hours of preparation of the old concrete and steel.

Brush.

16 – 36 hours after application of first coat to the steel dampen surface of background concrete and allow to surface dry.
Brush second coat of primer on to steel and background.

AUSTRALIAN MEMBRANE INDUSTRIES



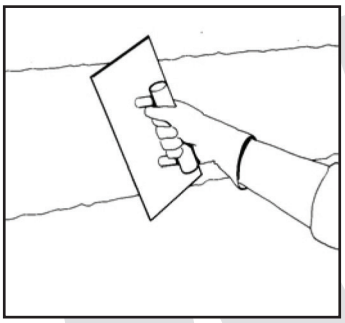
Apply Mortar.

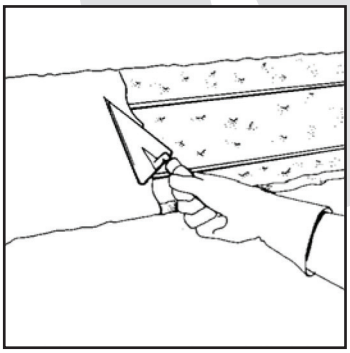
• Whilst the second coat of primer is still wet or tacky, apply the repair mortar, making sure that it is well packed behind the exposed steel.

• NB: The second coat of primer will only remain tacky for about 20 minutes depending on the ambient conditions.

• Where conditions require more than one layer of mortar, scratch the surface of the first layer and leave to just set before applying the second coat of similar thickness to the first.

- For added protection, allow the first layer of mortar to dry overnight and then apply a coat of primer. While this is still wet and tacky, apply the second coat of mortar.





Smoothing Off.

•The final coat should be troweled/floated to a smooth finish as the work proceeds.

•In severe drying conditions a repair should be kept damp for 2 days to allow the cement to cure.

•A surface coating may then be applied over the whole area when the moisture content of the mortar is sufficiently low.

Concrete Repairs Mix Designs.

Primer Mix – see above.

Mortar Mix:

The following mortar mix is suitable for most repairs to concrete with compressive strength greater than 25N/mm2 and where cover to the steel is above 15mm.

PORTLAND CEMENT	1 PART
MOIST SAND	2.5 PARTS
GPS	0.2 PARTS (I.E., 5 LITRES OF GPS TO 25KG BAG OF CEMENT)
WATER	AS REQUIRED.

Coverage Rate

In the above mix a 50kg of cement with 125kg of sand will yield approximately 0.08m3 of mix

Mixing

Mixing procedures for repair mortars containing GPS are similar to those used in conventional compositions, with gauging water being partly replaced by the GPS and mixing minimize to limit air entrainment. (the intentional creation of tiny air bubbles in concrete)

Mixing should be carried out in a forced action mixer. The usual procedure is to pre mix sand and cement in the mixer, pour in the latex, mix for 1 – 2 minutes, and then slowly add water to the required consistency.

NB: Over addition of water will cause rapid thinning of the GPS latex mortars owing to the plasticizing effect of the GPS.

Pot Life:

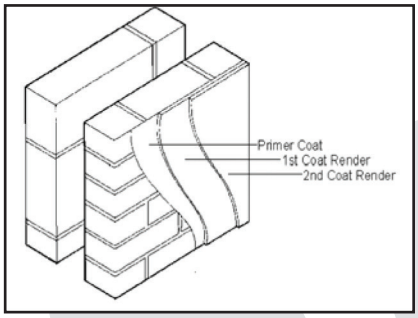
The mix has a pot life of approximately 30 minutes and batch size should be calculated accordingly.

AUSTRALIAN MEMBRANE INDUSTRIES

Rendering.

Adding GPS to a render mix gives the following advantages.

- A reduction in water permeability.
- Increased crack resistance.
- Greater protection against carbonation.
- Improved durability.
- Long and successful history of latex additives in building products.



Selection of Materials:

To obtain maximum performance from mixes it is important to ensure the correct choices of raw materials.

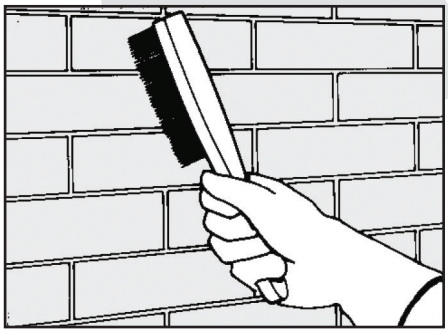
-Sand: should be well washed and sharp.

-Cement: Portland cement, high alumina and sulphate resisting cements are compatible with GPS.

-Masonry: cement may lead to excessive air entrainment in GPS mixes. The cement should be fresh, cool and free from lumps.

-Use of Lime: If lime is used in the mix, it should not exceed 35% of the cement by volume.

-Air Entrainment agents: These should not be used.



Preparation of Surfaces:

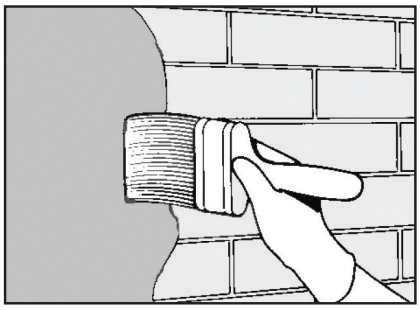
Before using GPS modified mortar it is important to ensure that the surface to which it is being applied is clean and free from dust and loose material and that the structure has sufficient mechanical strength.

Walls should be wire-brushed and any old paint etc, removed. All contaminants such as grease, or any surface laitence must be removed to ensure adequate development of bond when the render is applied.

AUSTRALIAN MEMBRANE INDUSTRIES

Primers:

A primer coat is recommended to obtain maximum adhesion of the render. Details on the use of primers are covered earlier in this technical sheet.



Primer application.

Mix Design:

The optimum proportions of cement, sand and GPS depend on the substrate, application and properties required. Examples are given later.

Coverage Rates:

As a rough guide, 1 litre of GPS will cover 1sm at a 15mm thickness.

Mixing:

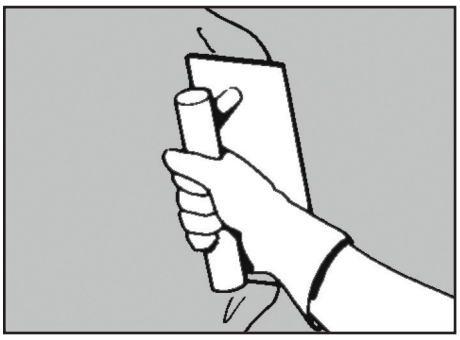
Mixing procedure for renders containing GPS is similar to that used for conventional compositions, with gauging water being replaced by the GPS and mixing minimized to limit air entrainment.

Mixing should preferably be carried out in a forced action mixer. The usual procedure is to premix sand and cement in the mix, add the GS, mix for 1 to 2 minutes, then slowly add water until the required consistency.

NB: Over addition of water will cause rapid thinning of the GPS modified mortars owing to the plasticizing effect of the latex.

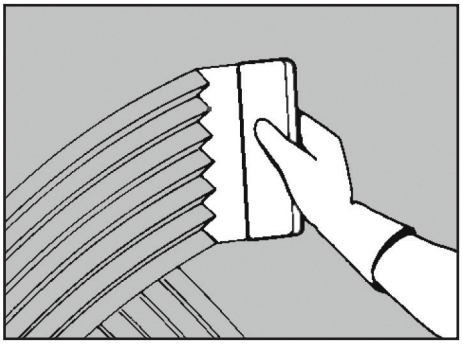
Pot Life:

The mix has a pot life of approximately 1 hour at 20 degrees C and batch size should be calculated accordingly.

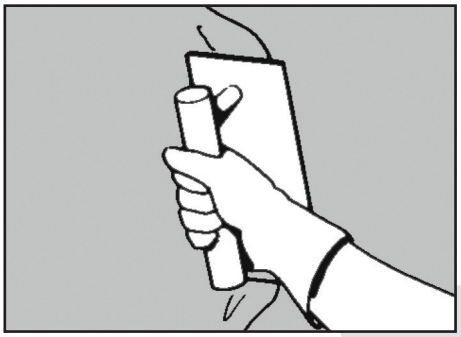


Application:

Apply render on wet or tacky primer. The first coat should be limited to 7mm.



Scratch the surface and leave to set before applying the second coat of similar thickness to the first. For added protection, allow the first coat of render to dry overnight and then apply the second coat of primer. While this is wet and tacky, apply the second coat of render.



The final coat should be troweled/floated to a smooth finish as the work proceeds. In severe drying conditions, a render should be kept damp for 2 days to allow the cement to cure.

Cleaning of Equipment:

All tools should be cleaned immediately after use with water because hardened GPS modified renders have excellent adhesion and are therefore difficult to remove. Solvents such as white spirits used with coarse wire wool help to remove partially hardened mortar.

MIX FORMULATIONS:

EXAMPLE 1:

STANDARD RENDERING OVER MODERATELY STRONG SUBSTRATES SUCH AS BRICKWORK.

PORTLAND CEMENT	1 PART
MOIST SAND	4.5 PARTS
GPS	0.2 PARTS (I.E., 7 LITRES OF GPS PER 25 KGS OF CEMENT)
	WATER AS REQUIRED

EXAMPLE 2:

WATERPROOF RENDERING ABOVE GROUND, OVER A STRONG SUBSTRATE, E.G., DENSE CONCRETE AND ALSO FOR CARBONATION PROTECTION.

AUSTRALIAN MEMBRANE INDUSTRIES

PORTLAND CEMENT	1 PART
MOIST SAND	3 PARTS
GPS	0.28 PARTS (I.E., 7 LITRES OF GPS PER 25 KG OF CEMENT)
	WATER AS REQUIRED.

Industrial Flooring (polymer modified cement flooring)

Application:

- Floors in factories handling metal, wood and plastic.
- Warehouses.
- Garages.
- Parking decks.
- Stairs.
- Workshops.
- Factories in the food industry.

Properties:

- Application without joints in layers of 13 – 18mm
- Elastic with good ratio of flexural to compressive strength.
- Resistant to wear and abrasion.
- Waterproofed.
- Crack-free
- Resistant against fuel, diesel, oil, mineral oil, freeze thaw cycles.
- Shock resistant.
- No dust formation.

AUSTRALIAN MEMBRANE INDUSTRIES

Composition:

Industrial flooring contains two binding agents: cement and an aqueous polymers dispersion. The aggregates are sand and grit , which should be appropriately graded, hard and well washed. This combination present excellent properties of the mixed cement flooring system.

FORMULATION GUIDE:

AGGREGATES 0-5MM 5.0 PARTS BY VOLUME.

CEMENT 1.25 PARTS PER VOLUME.

GPS 0.35 PARTS PER VOLUME.

ON SITE MIXING:

80 LITRES SCREED SAND 0 – 2MM

80 LITRES AGGREGATE 2 – 5MM

40 LITRES CEMENT

12 LITRES GPS

One bag of cement (50kgs), is mixed with approx. 160 – 200 litres of aggregates and approx. 12 litres of GPS.

The quantity of water required depends on the moisture content of the aggregates and the required workability of the mix.

The consumption of GPS Y22 for industrial flooring 15mm thick is approx 1.5 litres/sm.

Typical Technical Properties of Industrial Flooring:

- Modulus of elasticity N/mm2 1700
- Adhesion strength N/mm2 2.5 – 3.5
- Flexural strength N/mm2 >13
- Compression strength N/mm2 >65
- Shrinkage mm/m <0.30
- Water absorption % <4 (after 14 days in water)
- Loss of abrasion mm 1.49

Additional information is available from AMI:

AUSTRALIAN MEMBRANE INDUSTRIES

Other Latex Primers and Waterproofing /Cement Additives:

GP Primer

Release: May, 2011.

Product Description: Waterbased fast drying single pack primer for wet area waterproofing using Flowthane LM500, Ultra Flex or Resinflow P96 Certified waterproofing membranes.

The product establishes a strong key to properly prepared substrates thereby enabling good adhesion by the overlaying membrane. The product is waterbased and contains no solvents or other harmful ingredients. The product is therefore non hazardous however, it is good practice to avoid contact with skin and eyes. If eyes are contaminated, rinse immediately with clean water and seek medical assistance.

The product is not recommended as a priming source for areas where trafficable membranes are to be applied, such as Ultra Flex Traffic. For these types of applications and in any situations where there is doubt about the substrate suitability or soundness, applicators are advised to use AMI's two pack, waterbased epoxy, Hydro Static Epoxy to stabilize poor substrates and to ensure priming adhesion.

Product Advantages: Fast drying with strong adhesion properties, economical, non hazardous with very good adhesion characteristics to concrete,

Product Uses: As a primer for wet area waterproofing using Flowthane and Resinflow P96 and Ultra Flex wet area membranes.

Resinflow GP Primer is suitable for priming on: concrete, masonry and concrete blocks, some glass like substrates (test), plasterboard, aerated concrete, Scyon, fibre cement sheeting, yellow tongue timber and compressed fibre sheeting.

Substrate Preparation: The surface must be dry and clean, free of loose material, grease, dirt and any chemical contaminant. All laitance must be removed by either grinding or via hand held grinder.

Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

Typical Performance Characteristics:

Colour - Fluorescent Green.

Drying time - Touch 5 minutes
(25C, 65% Rel. Hun.,)

Membrane Application - As soon as adhesion promoter is touch dry. -

Flash Point - Not Applicable.

Coverage - 10 - 12 metres per/L depending on application method and substrate porosity / condition.

Packaging - 15 and 4 litre pails. Bulk packaging is available.

Application: Remove all loose material and as much dust as possible, oils and grease and apply the adhesion promoter by either roller (shot napp) or brush. Do not flood the substrate with primer. If the product dries too quickly (summer), add water to the material. As soon as the GP Primer is touch dry, apply the waterproofing membrane first coat.

Cleaning: All brushes and application equipment is washed with water. If the product has dried, an alcohol based cleaner needs to be used.

Shelf Life: 12 months if unopened.

Safety:

Use best practice material handling but in particular when handling this product, safety glasses.

First Aid:

Contact a doctor or call Poisons Information Centre 131 126

Product Restrictions:

Normal good application practice for water based membranes and paints apply, do not apply below 4 degrees and above 38 degrees C.
Do not apply if humidity is above 80%.

This primer is not a substitute for

Two pack epoxy primers / sealer,
Therefore it cannot be used in areas of negative hydrostatic pressure.

Do not prime with GP Primer if a solvent based paint, sealer or membrane is to be applied over it.

GP Primer is only suitable for dry areas that will not be submerged with water.

GP Primer cannot be diluted. It is supplied ready for use, just mix and apply.

Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

AMI Screed Block

Release September, 2011

PRODUCT DESCRIPTION: Resinflow Screed Block is a multiuse liquid SBR latex formulation designed specifically as an additive to enhance and waterproof screeds, renders, substrates and to improve the longevity of applications exposed to external conditions. The product, when mixed as a slurry, has additional uses whilst in specific conditions can be used in areas associated with potable water (water tanks), flooring, leveling and protection systems for cement based corrosion treatments.

Features & Benefits:

- Demonstrable adhesion strength improvement.
- Waterproofing capability of substrates when used as part of a system listed.
- Water based, non hazardous, environmentally safe.
- Reduced water in mix requirement.
- Improved strength of the mix.
- Improved resistance to water, cement salts, freeze/thaw cycles and crack resistance.

The product is water based with no odour. It is environmentally safe with water wash up.

Substrates: The product can be used within screed mixes, on concrete and masonry surfaces and renders. concrete and aerated blocks, asphalt surfaces, galvanized iron and zincalume, over coatings, particle board, substrates, cement sheeting, plaster board and existing coatings.

PRODUCT ADVANTAGES:

Resinflow Screed Block improves water resistance and waterproofing properties.

The product improves durability, and resists salts inherent in cement additives.

The product improves substrate durability and improves bond strength in areas subject to weather and water immersion.

Using Screed Block does not guarantee absolute screed waterproofing. Care therefore needs to be exercised to avoid outdoor applications when rain is imminent.

(Wet screeds are almost impossible to dry. Applying a coating or membrane over a screed that has been wet will mostly see adhesion problems arise with the coating or membrane 'popping' over the application in a mostly indiscriminant way).

Technical Information

AUSTRALIAN MEMBRANE INDUSTRIES

APPLICATION:

1. **Waterproofing screed / render:** (0-10mm thick) Use a solution of 1 part Screed Bond and 1.5 parts of water. For screeds thicker than 10mm use a solution of 1 part Screed Bond and 2.5 parts water.

2. **Concrete / Render Mix:** 250ml of Screed Bond to every kilo of cement in the render mix. Once the Screed Bond has been mixed into the mortar, water can be added as required.

3. **Grouts & Cement based Adhesives:** Use 1 part Screed Bond and 1 part water into the grout / cement adhesion mix.

4. **Waterproofing high bonding slurry coat:** Mix by volume, 1 part Screed Block and 1.5 parts cement and brush apply . 2 coats should provide 0.5mm thickness.

5. **As a Sealing Slurry & Primer:** Use 1 part Screed Block, 1.5 parts of fine sand and 1 part cement. Use as a slurry mix, apply to 1mm dc in two to three coats as a slurry or in single coat as a primer.

6. **As an Industrial Flooring system:** Used as a high viscosity slurry, trowel applied and dressed with aggregate as required.

7. **As a primer** for waterproofing application used diluted 50/50 with clean water.

GENERAL PREECAUTIONS: make sure that the cement used is lump free and not cold. Ensure that the sand used is sharp and wash grade.

STORAGE CONDITIONS: Store at room temperature, do not allow to freeze, product shelf life is 12 to 18 months unopened depending on the ambient temperature

Australian Membrane Industries Pty Ltd

Phone: 1800 099 990

Email info@amimembraneindustries.com.au

www.amimembraneindustries.com.au