



# CRYSTOFLEX

2 PACK (CEMENTIOUS + POLYMER) WATERPROOFING MEMBRANE

## DESCRIPTION

**Crystoflex** is a Class 1 flexibility, two part waterproofing membrane comprising of a liquid component of selected polymers and a powder component of selected cements, fillers and aggregates.

When mixed together to form a brush-able or roll-able slurry, it provides a strong, hydrostatic pressure resistant, flexible waterproofing membrane.

**Crystoflex** was formulated for immersed or ponding situations such as the waterproofing of water tanks and water features but is just as suitable for non-immersed applications such as roofs or under-tile waterproofing.

**Crystoflex** complies with:

- AS4654.1 Class 1
- AS/NZS 4020:2002 Testing of Products for Use in Contact with Drinking Water - Australian Water Quality Centre Report Number 4007/92.1595.
- AS4858 Class 1.
- Meets the 'Green Star' environmental criteria.

In ponds and water features where an aesthetic appearance is required, **Crystoflex** can be top coated with **Duram Primeseal MC** which is compatible and enhances the performance of the entire waterproofing system.

## USES

**Crystoflex** is suitable for many waterproofing applications, but is particularly useful for areas requiring hydrostatic pressure resistance and immersed applications including:

- Water retaining structures such as concrete tanks, ponds, pools, fountains, and water features.
- **Crystoflex** is suitable for contact with drinking water
- Wet areas - Class 1 membrane.
- Balconies and Terraces - Class 1 membrane.
- Retaining walls, planter boxes.
- Roofs (top coated with **Azcoflex** or **Azcothane** as recommended).
- Under tile waterproofing on balconies, terraces, podiums and decks.

## SUITABLE SURFACES

**Crystoflex** is suitable for use on the following correctly prepared and primed surfaces:

- Concrete
- Cement
- Cement Render
- Polymer Render
- Block Work (preferably filled and vibrated to ensure the absence of voids)
- Brick
- FC and CFC sheeting
- Blue Board
- Timber
- Masonry

Advice from Duram should be sort for the most appropriate priming method for these surfaces; Duram has a recommended system for all the above.

**\*Note:** Particle Board is not regarded as a suitable substrate for wet areas and particularly shower recesses and should be replaced with CFC sheeting. As a minimum, Particle Board should be sealed with one to two coats of **Duram Primeseal MC**. All joins and corners must be sealed with a polyurethane sealant and a reinforced fabric used in conjunction with the membrane. Surfaces must be made good and should be sound, stable, dry, clean and free of dirt, dust and contaminants and suitably primed.

## ADDITIONAL USES

Patching blowholes and honey-combed areas.

## SPECIFICATION

The information contained in this product data sheet is typical but does not constitute a full specification as conditions and specific requirements may vary from project to project. The instructions should be considered as a minimum requirement, but the applicator or contractor must use their skill, knowledge and experience to carry out additional works as may be necessary to meet the requirements of the project. Specification for specific projects should be sought from the Company in writing.

## LIMITATIONS

- **Crystoflex** is flexible and can withstand normal building movement but it has limited elongation and hence will not tolerate excessive movement or cracking of the substrate. Cracks and gaps must be independently sealed and waterproofed.
- If the water is to be treated with chlorine, ensure that chlorine levels are maintained below swimming pool concentrations, recommended range 60-160PPM. High doses of chlorine may 'burn' and degrade the membrane.

## BENEFITS AND ADVANTAGES

- Suitable for contact with drinking water.
- Meets the 'Green Star' environmental criteria.
- Very low VOC levels.
- Designed for applications where hydrostatic pressure resistance is required.
- Suitable for immersion in water.
- Two pack yet flexible.
- Quick drying.
- Can be applied to damp surfaces.
- Can be topped, tiled, or coated.
- Easy and safe to use.
- Compatible with most tile adhesives.
- Suitable for use in confined areas.
- Can be coated.
- Can be rendered with a polymer render or standard render with bonding additive.

## PRECAUTIONS IN USE

The product is considered low risk if used properly as intended. Observe safety precautions on packaging and SDS. Powder contains cement and until fully wet the inhalation of powder dust should be avoided and the wearing of a suitable mask is recommended. The use of rubber gloves and eye protection is recommended.

## SURFACE PREPARATION

Good preparation is essential. Surfaces must be sound, stable, dry, clean and free of dust, loose, flaking, friable material and substances that may diminish adhesion.

- Exposed reinforcing steel must be treated for rust and coated with suitable anti-corrosive and anti-rust treatments (as for concrete spalling).
- Concrete surface that is rough, pitted, contains blowholes and honey-combed areas must be suitably filled with high tensile strength, non-shrink mortar and allowed to fully cure.
- Block work, which should have been properly filled with concrete and vibrated to ensure that no voids are present within the block work, must be properly pointed up.
- Metal sheeting should be treated for rust and coated with a suitable metal primer.
- Blowholes in concrete should be coated with **Duram Primeseal MC** and then filled with a mix of **Primeseal MC** with 30% added clean water and a high tensile strength, non-shrink mortar.

## PRIMING

Surfaces can be primed with **Duram Primeseal MC** applied at no less than 1 Lt per 4m<sup>2</sup> and allowed to dry. Excessively porous, friable, and dusty surfaces may require an additional priming coat. The primed surfaces should have a solid, opaque, off-white appearance. Please refer to the product data sheets of the stated primer. Allow primer to fully dry.

Alternatively, **Crystoflex liquid** diluted 10% with clean water may be used as a primer for non-critical or undemanding applications (although **Primeseal MC** is preferred for increased Hydrostatic performance) applied at 3 to 4 m<sup>2</sup> per Lt and allowed to dry. Note that this method does not provide hydrostatic or evaporation of entrapped moisture from the substrate protection.

Timber (particularly particle board which should receive two priming coats), roofs and negative surfaces must be primed with **Duram Primeseal MC**.

Note: In ideal circumstances, **Duram Crystoflex** may be applied directly to pre-dampened cementitious substrates. Note that this method does not provide hydrostatic or evaporation of entrapped moisture from the substrate protection.

Primers may be applied to slightly damp surfaces (but free from ponded or running water) which must become dry to allow the product to dry. Application to damp surface is not recommended as curing will be longer than had the surface been allowed to initially dry.

Excessively porous surfaces may require an additional coat of primer.

## DETAILING PREPARATION

### Corners

Apply **Resiflex Hybrid** polyurethane sealant, in accordance with the manufacturer's instruction and tool off to form a solid, coved 45° fillet extending at least 10mm on to the adjacent surfaces. Apply the **Crystoflex** directly over the sealant and on the adjacent surfaces. Alternatively, to corners of large cementitious tanks a high tensile strength, non-shrink mortar or **Duram Crystoflex** should be applied to form a fillet thereby eliminating 90-degree angles.

### Joins, Gaps and Cracks

#### General

Joins, gaps, cracks and around penetration should be suitably filled and sealed with an appropriate elastomeric sealant, preferably **Resiflex Hybrid** polyurethane sealant, and allowed to cure.

*Recommendation:* The movement of small cracks should not be underestimated and should be at least covered with a flexible polyurethane sealant or additional coats of membrane.

#### Large or Live Cracks

Large cracks should be routed out to form a 'V' and then filled and sealed with a polyurethane waterproof joint sealant as per the manufacturer's instructions. The sealant should be finished slightly proud of the surface and allowed to cure.

After priming, as required, lay a strip of **Duram Leak-Seal Tape** over the join or crack pressing it firmly on to the substrate. The Duram membrane is then applied directly to the **Duram Leak-Seal Tape** and extending at least 75mm on to the adjacent surfaces

#### CFC Sheeting and Timber Sheeting

Ideally the sides of the sheets should be fully coated with a flexible polyurethane waterproof joint sealant prior to butting the sheets together.

If not, the joins should be suitably filled and sealed with an appropriate elastomeric polyurethane waterproof sealant and finished flush with or preferably slightly proud of the surface and allowed to cure.

After priming, as required, lay a strip of **Duram Leak-Seal Tape** over the join, pressing it firmly on to the substrate. The Duram membrane is then as described under 'Large or Live Cracks'.

Blowholes and surface imperfections must be must sound and filled with a construction grade, non-shrink mortar, finished flush with the surface. Allow to cure and dry.

## APPLICATION

### Mixing

- Mixing should be done with a mechanical stirrer mixed at slow speed - hand mixing may not be sufficient. Whilst stirring, the powder should be slowly added to the liquid. Stir until the mix is smooth, lump free and homogenous. The product's viscosity should be suitable for horizontal and vertical surfaces but the thickness can be increased by the addition of no more than 5% of **Crystoflex** powder by weight.
- If mixture sets before use, do not try to reconstitute by adding water or more liquid. This product should be discarded.

Application is usually by brush or roller. The final dry film thickness 1.5mm to 2.5mm depending upon the waterproofing requirement applied. Each coat should be applied at approximately 1 kg per m<sup>2</sup> or 1mm wet film thickness in 2 to 3 coats. Allow previous coat to cure / dry before applying the next. In confined areas such as tanks, the humidity in the tank may inhibit proper curing and artificial ventilation (preferably warm air) should be blown into the tank.

#### **Application**

- Small ponds, fountains, retaining wall, roofs, concrete slabs: Apply a minimum of two coats to give a dry film thickness of 1.5mm .
- Large tanks: Apply a minimum of three coats to give a dry film thickness of 2mm.
- Swimming pools: Apply a minimum of three coats to give a dry film thickness of 2.5mm. The membrane should be suitably rendered with a suitable bonding agent incorporated in the render then tiled with a tile adhesive designed for immersion.

### **COVERAGE**

The stated average coverage rate may vary depending upon type, condition, porosity, texture of the surface and application technique.

Usually 1 kg per m<sup>2</sup> per coat applied in a minimum of 2 coats and 3 for demanding applications.

### **COLOURS**

**Crystoflex** is greyish in colour.

Hint: Where an aesthetic colour is required, **Crystoflex** can be top coated with **Primeseal MC** Grey (MC) and enhances the overall waterproofing system and provides a pleasing finish once top coated with your colour choice.

### **DRYING AND CURING**

Drying and curing of the product is affected by type, dryness and porosity of the surface, temperature, humidity, ventilation, climate conditions and application technique and therefore drying and curing can only be given as a guide.

Typically, at 23°C and RH of 50%:

- » Touch dry: 2 to 4 hours.
- » Set: 4 to 6 hours.
- » Dry / cure: 12 to 24 hours.

In confined areas such as tanks, the humidity in the tank may inhibit proper curing and artificial ventilation (preferably warm air) should be blown into the tank.

### **STORAGE**

Product should be stored in cool, dry area. Do not use if bag is damaged.

### **TILING, TOPPING OR TOP COATING**

**Crystoflex** can be tiled, topped or coated.

- Tiled: It is compatible with most tile adhesives, preferably two pack mixes or polymer enhanced adhesives.
- Topped: Can be topped with sand: cement topping, preferably with an added bonding agent.
- Coated: Prime with **Primeseal MC** and then paint or coat.

In swimming pools:

- Apply a suitable cementitious bonding layer before laying Quarzon, Pebblecrete and Blue Glass Pebble or similar.
- If rendering (prior to laying tiles), either apply a suitable cementitious bonding layer or apply a coat of an acrylic bonding agent (**Maxibond** or similar) and allow to it dry. Add **Maxibond** to the render mix then apply. For tiling use a suitable immersible tile glue (as per the manufacturer's instructions and grout using a suitable epoxy grout.

### **SAFETY AND PRECAUTIONS**

Do not inhale powder while mixing. The use of a suitable mask cement resistant gloves and protective clothing including goggles is recommended.

For full safety data refer to the products Safety Data Sheet. Observe precautions as per label.

## TESTS AND TECHNICAL DATA

Abrasion resistance	AS1580.403.2	Light foot traffic only	
Bond strength (Average peel strength)	ASTM C794	60 N Concrete masonry 39 N plywood	
Cyclic movement	Moving Joint Test		Pass
Dimensional stability	ASTM D6207	N/A- liquid membrane	
Elongation at break	AS4654.1 Appendix A	0.48Mpa 10% Elongation	Class 1
Fiend seam strength	N/A	N/A-Liquid membrane	
Heat Ageing	AS/NZS4858	0.79 MPa 8% Elongation	Pass
Temperature resistance	AS4654.1 clause 2.6		Pass
Ultraviolet resistance	AS4654.1 table A4	N/A-non exposed	
Tensile strength	AS4654.1 table A4	0.48 MPa 10% Elongation	
Thickness	Various methods	2.43 mm (mean sample supplied) See Note 1	
Durability	As4654.1 Table A4	See note 2	Pass
Water vapour transmission rate	ASTM E96	10.50 g/m <sup>2</sup> /24 hours	

## CONDITIONS OF USE AND DISCLAIMER

The information contained in this TDS is given in good faith based upon our current knowledge and does not imply warranty, express or implied. The information is provided and the product is sold on the basis that the product is used for its intended purpose and is used in a proper workmanlike manner in accordance with the instructions of the TDS in suitable and safe working conditions. Under no circumstances will the Company be liable for loss, consequential or otherwise, arising from the use of the product.

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