

# Product Data Sheet

Crystoflex

## 2 Pack (Cementitious + Polymer) Waterproofing Membrane

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### Description

Crystoflex is a Class 11 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 brushable or rollable 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:

- 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 11
- 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 which is compatible and enhances the performance of the entire waterproofing system.

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### 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 11 membrane
- Balconies and Terraces - Class 11 membrane
- Retaining walls, planter boxes.
- Roofs (top coated with Azcoflex or Azcothane as recommended).
- Under tile waterproofing on balconies, terraces, podiums and decks.

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## 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 and metal after application of a suitable metal primer.

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## 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 at swimming pool concentrations. 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.
- Suitable for use in confined areas.
- Compatible with most tile adhesives.

- 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 MSDS. 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.

## Priming and 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 blow-holes 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.
- Blow-holes in concrete should be coated with Duram Primeseal and then filled with a mix of Primeseal with 30% added clean water and a high tensile strength, non-shrink mortar.

### Priming

Surfaces should be suitably primed with Duram Primeseal 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 is preferred) 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.

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 an adequate flexible polyurethane sealant, in accordance the manufacture's instruction and tool off to form a solid, coved 45° fillet extending at least 10mm on to the adjacent surfaces. Apply the Duram membrane 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 Cristoflex should be applied to form a fillet thereby eliminating 90 degree angles.

*For Additional waterproofing protection the following additional steps should be taken:*

Lay a strip of Duram Leak-Seal Tape (stick-stick, butyl mastic waterproofing membrane with a polyester backed reinforcing fabric) over the cured polyurethane sealant (as described above) pressing it firmly on the surface. Apply the Duram membrane directly over the tape and on the adjacent surfaces.

### **Joins, Gaps and Cracks**

#### General

Joins, gaps, cracks and around penetration should be suitably filled and sealed with an appropriate elastomeric sealant, preferably a 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.

#### Joins - Particularly in 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'.

#### Blow-Holes

Blow-holes 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 - 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 should be at least 1.5mm to 3mm depending upon the waterproofing requirement applied. Each coat should be applied at approximately 1mm wet film thickness - in 2 to 3 coats. Allow previous coat to fully 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 at least 1.5mm .
- Large tanks: Apply a minimum of three coats to give a dry film thickness of at least 2mm.
- Swimming pools: Apply a minimum of three coats to give a dry film thickness is at least 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 Duram Primeseal which is available in Off-White(STD) or 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.

## **Clean Up**

If wet, clean water, ensuring run off does not enter the drains. Cured product should be placed into suitable containers and disposed of in accordance with local council regulations.

## **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 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 & 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 Material Safety Data Sheet. Observe precautions as per label.

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## Conditions of Use and Disclaimer

The information contained in this Material Data Sheet 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 Product Data Sheet 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.

# Material Safety Data Sheet

Crystoflex

## 2 Pack (Cementitious + Polymer) Waterproofing Membrane

Not classified as hazardous according to the criteria of Worksafe Australia.

### Identification

Product Name: Crystoflex  
Other Names: Crystoflex Liquid / Powder Combination  
U.N. Number: N/A  
Class: N/A  
Hazchem Code: N/A  
Poison Schedule: N/A  
Pack Sizes: 15 kg and 30 kg kits

### Physical Description

Appearance: Greyish slurry (when mixed)  
Boiling Point: 100oC (water)  
Vapour Pressure: As per water.  
Percent Volatiles: N/A  
Specific Gravity: 1.04 - 1.1 @20oc  
Flash Point: N/A (Water Based)

### Ingredients

Chemical No.	CAS No.	Proportion
Crystoflex Liquid		+ - 33%
Crystoflex Powder		+ - 67 %

Flammability: N/A (Water Based)  
Water: Mixes with  
Solubility: water.

## Uses:

Used for waterproofing, the product comprises Crystoflex Liquid and Crystoflex Powder mixed together.

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# Health Warning Information

## Health Effects

**Swallowed:** Considered an unlikely route of entry in commercial/ industrial environments. The liquid slurry is discomforting and may be harmful if swallowed. Ingestion may result in nausea, abdominal irritation, pain and vomiting.

**Eyes:** Causes irritation to the eyes and may cause pain and redness. Grit may scratch eyes. If untreated may cause lasting damage.

**Skin:** Mildly discomforting and irritating to the skin if contact is prolonged. The mixed material is capable of causing skin reactions and may cause in some cases, sensitization.

Handling wet cement based products can cause dermatitis. Open cuts, abraded or irritated skin should not be exposed to this material. The material may accentuate any pre-existing skin conditions.

**Inhaled:** The vapour/mist is discomforting to the upper respiratory tract and lungs. Inhalation of the vapour may result in nausea or headaches. Acrylic polymer emulsions may contain residual traces of odourous acrylic monomers. The amount remaining in compounded mixtures represents a very low order of exposure, however this may become noticeable with some materials particularly in confined or poorly ventilated areas.

Therefore good occupational work practices should be followed.

## First Aid

**Swallowed:** Rinse mouth out with plenty of clean water. Seek medical advice.

**Eye:** Holding the eyes open flush with clean water, holding lid open to ensure any product may be flushed away. Ensure complete irrigation of the eye by keeping eyelids apart and away from the eye and moving the eyelids by occasionally lifting the lower and upper lids. Seek urgent medical advice. Removal of contact lenses after an eye injury should only be undertaken by skilled personal.

**Skin:** Remove contaminated clothing and wash with soap and water. If irritation occurs seek medical advice.

Contact Poisons information centre: Australia 13 11 26(24 hours) N.Z. 03 479 1200 (office hours) or 03 474 0999(emergency)

**Inhaled:** Remove person to fresh air, lay patient down and keep warm and rested. If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with an artificial respirator. Perform CPR if necessary. Transport to doctor or hospital.

## **Advice to Doctor**

Treat symptomatically.

## **Precautions in Use**

Ensure good industrial and safe work practices are in place.

## **Exposure Limits**

Non assigned. refer to individual constituents.

## **Ventilation**

Use in well ventilated area.

Engineering Controls:

None required when handling small quantities. Generally considered low risk after product has been mixed. Otherwise, general exhaust is adequate under normal operating conditions. If risk of over exposure exists, wear a SAA approved respirator. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

## **Personal Protection**

The wearing of protective clothing including rubber gloves, goggles and safety boots is recommended.

Soft contact lenses pose a special hazard as they may adsorb irritants and concentrate them.

## **Safe Handling Information**

### **Storage and Transport**

Store in original containers, in a cool, dry, well ventilated area.

Suitable containers: Liquid in plastic pails as recommended by manufacturer. Powder in suitable bags. Protect bags from puncture and tearing.

Do not allow to freeze.

Check all containers are labeled and free from leaks or damage.

No transportation restrictions.

## **Spills and Disposal**

Clean spills immediately, contain and absorb spill with sand or other absorbent material.

Dispose of in accordance with local council regulations.

Do not allow product to enter drains or waterways.

Powder will set on contact with water as with a sand/cement mix.

Mixed Crystoflex will set.

Liquid Crystoflex - contain and absorb spill as above.

## **Fire / Explosion Hazard**

The product is not considered flammable, but decomposes on heating and may produce toxic fumes of carbon monoxide (CO) or acrylic monomer.

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