

# Product Data Sheet

Crystoseal

## Waterproofing by "Crystallisation"

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### Description

Crystoseal is a ready-for-use (merely add water) concentrated, high strength, cement-based waterproofing slurry incorporating active chemical constituents which, when applied, become active in cementitious substrates and by a crystallisation process provides a waterproof seal within the substrate. Crystoseal waterproofs sound concrete or cement surfaces against water ingress, dampness, ground water and hydrostatic pressure. Crystoseal is suitable for waterproofing both the positive and negative sides of the substrate.

It consists of a blend of cements, graded quartz and active chemical constituents and gives a render-like appearance. Crystoseal works by the conversion of free lime in the concrete to insoluble calcium compounds. These seal against capillary ingress of water. Compounds within Crystoseal penetrate in to the substrate where they in turn 'crystallise' on contact with moisture and create a waterproof barrier.

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### Uses

Crystoseal is an economical, easily applied method of providing a waterproof barrier to sound and stable concrete or cement based products such a cement filled block work. It may be used on both new and existing structures. Crystoseal finds particular use on concrete structures where access is only available to negative side of the structure such as the internal side of retaining walls.

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### Suitable Surfaces

Crystoseal finds applications in concrete or cementitious substrates such as:

- Foundations, basements, tunnels, retaining walls, water retaining structures, ponds, pools, silos and underground structures.
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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

- Crystoseal is formulated for concrete and cementitious substrates only which must contain high levels of concrete or cement.
- Crystoseal acts within the tissue of the substrate and is dependent upon its soundness. If the substrate cracks, then the Crystoseal will crack in sympathy and it will not seal or bridge cracks. Cracks and joins must be independently waterproofed by alternate means before applying Crystoseal.
- Crystoseal relies on the soundness and density of the substrate. If the substrate contains internal or external voids or is honeycombed then the effectiveness of the product may be negated or diminished. It is highly recommended that block work be filled and compacted.
- Crystoseal must not be exposed to water pressure, running water or rain until it has set.
- Crystoseal is not a vapour barrier.
- When sealing the negative side of a structure, if there is hydrostatic pressure or a build up of water on the other side of the structure, there is a risk that water will find other areas of penetration.
- Since the Crystoseal system is based on a chemical reaction taking place inside the concrete, some moisture penetration can be expected until voids are sealed by the crystallisation process which can take some time.
- Crystoseal is dependent upon the application of sufficient product to effectively convert the free lime in the substrate.

## Benefits and Advantages

Crystoseal has application where conventional membranes would be unsuitable such as:

- On damp cementitious surfaces.
- There is only access to the negative side of the structure, i.e. inside surface of a retaining wall or outside of water retaining structures.
- Easy to use. Simply add water, mix and apply by brush or roller.

## Precautions in Use

Crystoseal must not be exposed to water pressure, running water or rain, until it has fully set. The treated surface must be protected from heat and wind and drying should be as slow as possible.

Note: Since the Crystoseal system is based on a chemical reaction taking place inside the concrete, some moisture penetration can be expected until voids are sealed by the crystallisation process. Refer to Limitations above.

# 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.

Crystoseal is designed for use on porous, concrete or cementitious surfaces.

All surfaces must be clean, sound, free of laitance, form work release agents, paint, coatings, dust, loose particles and any other foreign matter including fungal growth. Crystoseal must be applied directly to the clean concrete surface.

Large cracks and honeycombing should be made good with thin coating of Crystoseal mixed as described below and then be filled with a non-shrink mortar prior to applying the overall Crystoseal treatment.

A fillet should be formed using Crystoseal in a slightly stiffer version in all floor/wall joints prior to applying the Crystoseal in the specified manner.

Crystoseal only needs the addition of water to be ready for use. Mix Crystoseal with water to produce a viscous, creamy consistency (1 part clean water to approximately 2.5 parts Crystoseal). Mixing may be done by hand or mechanical mixer and should be continued until a homogenous, lump free product results. In manual mixing lumps may be broken down with a gloved hand. On completion of mixing, material must be used within 30 minutes.

Never attempt to reconstitute the mixed product by further dilution after mixed material has become too stiff to apply. Discard this product.

## Application

Any surface to be treated with Crystoseal must be fully saturated with water beforehand, preferably the day before. Surfaces such as floors must be free of ponded water or running water and verticals must be free of water running down the face. Apply Crystoseal using either a medium-hard block brush, trowel, broom or roller.

Treatment must be applied in a minimum of two or three coats as indicated below. A second coat must be applied as soon as the first coat can no longer be disturbed by brushing. If a third coat is required it must follow within 24 hours, with the surface having again been pre-dampened.

The final coat of a system, be it two or three coats, must be left as smooth as possible.

**IMPORTANT:** The applied Crystoseal must be protected from heat and wind and drying should be as slow as possible. Do not let the surface dry quickly and can be sprayed with water to dampen it.

Do not attempt to reconstitute the mixed product after it has become too stiff to apply by adding water. This product should be discarded.

# Coverage

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

- » For waterproofing external surfaces against water ingress from damp earth and mist ground apply a minimum of two coats applied at 1kg to 2 kg per m<sup>2</sup> per coat.
- » Waterproofing internal surfaces against rising damp up to 1m head of water apply a minimum two coats applied at 2kg to 4kg per m<sup>2</sup> per coat.
- » Waterproofing water retaining structures internally apply a minimum two coats applied at 2kg to 3kg m<sup>2</sup> per coat.
- » Waterproofing externally against more than 1m head of water pressure apply a minimum of 3 coats applied at 2.5kg per m<sup>2</sup> per coat.

# Colours

Crystoseal has a 'cement' colour and gives a render-like finish.

# 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.

For best results drying should be as slow as practically possible. Post dampening is an advantage.

# Storage

Stores in dry, cool areas. Damaged bags or material that is water or moisture effected should not be used. Available in 20 kg bags.

# Clean Up

Water, as for cement.

# Tiling, Topping or Top Coating

Generally Crystoseal is not topped.

If area is to be topped, then adequate time should be given to ascertain that the desired effect

has been achieved and then should be membraned by priming with Duram Primeseal followed by the application of the selected Duram waterproofing membrane such as Durabit EF, Durabit REO, Multithane, Duram 195 or Crystoflex. If area is to be painted, then adequate time should be given to ascertain that the desired effect has been achieved and then primed with Duram Primeseal and then painted.

## **Safety & Precautions**

The product is considered low risk if used properly as intended. The product has fine cement-like dust and inhalation should be avoided. Until properly wetted, an adequate dust mask should be worn. If inhaled, remove person to fresh air and if required perform artificial respiration and seek urgent medical help. The product contains cement and hence may burn or irritate skin. If contact occurs wash with soap and water. Eye protection should be worn. If in eye, thoroughly wash holding eye lid open to remove any grit under the lid. Rubber gloves should be worn. If swallowed, give plenty of water to drink. Seek medical assistance.

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

Issued: 1 May 2012 | Valid to: 31 May 2015

## **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**

Crystoseal

## **Waterproofing by "Crystallisation"**

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Not classified as hazardous according to the criteria of NOHSC

## Identification

Product Name: Crystoseal  
Other Names: Cementitious waterproofing slurry.  
U.N. Number: None Allocated  
Class: Not Applicable  
Hazchem Code: Not Applicable  
Poison Schedule: Not Applicable  
Pack Sizes: 5 or 20 Kg

## Physical Description

Appearance: Greyish cementitious powder.  
Boiling Point: Not applicable  
Vapour Pressure: Not applicable  
Percent Volatiles: 100%  
Specific Gravity: powder  
Flash Point: Not applicable  
Flammability: Not applicable  
Water Solubility: Partially soluble, reacts with water and hardens.

## Ingredients

Chemical	CAS No.	Proportion
Portland cement		30-60%
Graded aggregate		30 - 60%
Other		10 - 30%

## Uses:

Waterproofing of concrete or cementitious substrates by crystallization.

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## Health Warning Information

### Health Effects

Acute Swallowed: Unlikely. Single oral dose slightly anticipated to have no or minor hazard.

Acute Eye: Avoid eye contact. Grit may cause mild to moderate irritation or mechanical scratching.

Acute Skin: Avoid contact - mild irritation.

Acute Inhaled: Unlikely after mixing with water. Dust may cause irritation to nose and throat. Nuisance particulate.

Chronic: Except for prolonged skin contact causing sensitivity and alkaline burning, products of this type are not anticipated to cause significant adverse effects.

### First Aid

Swallowed: Do not induce vomiting. Give plenty water to drink and seek immediate medical attention.

Eye: Immediately thoroughly flush eye with clean water and seek medical attention.  
Skin: Remove contaminated clothing, wash with soap & water. Do not use solvents to remove material.  
Inhaled: Remove person to fresh air. Seek immediate medical attention.  
First Aid facilities: Eye wash fountain and shower.

## **Advice to Doctor**

Treat symptomatically

## **Precautions in Use**

### **Exposure Limits**

Exposure limits TLV (mg) 10.

### **Ventilation**

Good ventilation is required.

### **Personal Protection**

The use of rubber gloves, safety boots and goggles (against splashes) is recommended. Avoid breathing dust. Suitable dust masks are highly recommended.

## **Safe Handling Information**

### **Storage and Transport**

Store in cool, dry area in sealed containers/ bags. No specific restraints.

### **Spills and Disposal**

Could cause short term environmental problem. No long term environmental hazard anticipated. Product is 'cement-like' and sets when mixed with water. Dispose in accordance with accredited waste disposal authorities to landfill.

### **Fire / Explosion Hazard**

None.

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