

Waterproofs sound concrete or cement surfaces against water ingress, dampness, ground water and hydrostatic pressure

## Product Information

Generic Type: ..... Waterproofing Slurry

Coverage: ..... 1-4kg per m<sup>2</sup> per coat

Recommended Coats: ..... 2 – 3

Application Temperature: ..... 10 - 28°C

Application Method . . . . .Medium-Hard Block  
Brush, Trowel, Broom or Roller.

Dry Time: ..... Dependent on conditions

Cure time: ..... Dependent on conditions

Packaging. .... .5KG & 20kg

## Physical Properties

Appearance ..... Grey cementitious powder

Boiling Point (°C) ..... N/A

Vapour Pressure (mm of Hg at 20°C) ..... N/A

Per Cent Volatiles ..... N/A

Specific Gravity (at 25°C) ..... N/A

Solubility in water (g/l at 25°C) ..... Reacts

## FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash Point ..... N/A

Flammability Units % by volume ..... N/A

Fire Extinguishing Media . . . . .Foam, dry chemical

Dangerous Goods Classification: ..... N/A

## PRODUCT DESCRIPTION

Crystal seal 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. Crystal seal waterproofs sound concrete or cement surfaces against water ingress, dampness, ground water and hydrostatic pressure. Crystal seal 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. Crystal seal works by the conversion of free lime in the concrete to insoluble calcium compounds. These seal against capillary ingress of water. Compounds within Crystal seal penetrate in to the substrate where they in turn 'crystallise' on contact with moisture and create a waterproof barrier. Crystal seal has a 'cement' colour and gives a render-like finish.

## USES/SUITABILITY

Crystal seal finds applications in concrete or cementitious substrates such as: Foundations, basements, tunnels, retaining walls, water retaining structures, ponds, pools, silos and underground structures. Crystal seal 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. Crystal seal 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.

## ADVANTAGES

Crystal seal has application where conventional membranes would be unsuitable. It can be used on damp cementitious surfaces and where 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. Crystal Seal is easy to use. Simply add water, mix and apply by brush or roller.

## PRIMING & SURFACE PREPRATION

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. Crystal seal is designed for use on porous, concrete or cementitious surfaces. All surfaces must be clean, sound, free of laitance, formwork release agents, paint, coatings, dust, loose particles and any other foreign matter including fungal growth. Crystal seal must be applied directly to the clean concrete surface.

Large cracks and honeycombing should be made good with thin coating of Crystal seal mixed as described below and then be filled with a non-shrink mortar prior to applying the overall Crystal seal treatment. A filler should be formed using Crystal seal in a slightly stiffer version in all floor/wall joints prior to applying the Crystal seal in the specified manner.

Crystal seal only needs the addition of water to be ready for use. Mix Crystal seal with water to produce a viscous, creamy consistency (1 part clean water to approximately 2.5 parts Crystal seal). 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.

## APPLICATION INSTRUCTIONS

Any surface to be treated with Crystal seal 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. Treatment must be applied in a minimum of two or three coats. 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 must be left as smooth as possible.

**IMPORTANT:** The applied Crystal seal 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.

## DRYING TIME/CURE TIMES

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. Store in dry, cool areas. Damaged bags or material that is water or moisture effected should not be used.

## 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.

## CLEAN UP

Water, as for cement.

## PRECAUTIONS/LIMITATIONS

Crystal seal 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.

Since the Crystal seal 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.

Crystal seal is formulated for concrete and cementitious substrates only which must contain high levels of concrete or cement. It acts within the tissue of the substrate and is dependent upon its soundness. If the substrate cracks, then the Crystal seal will crack in sympathy and it will not seal or bridge cracks. Cracks and joints must be independently waterproofed by alternate means before applying product.

Crystal seal relies on the soundness and density of the substrate. If the substrate contains internal or external voids or is honey-combed then the effectiveness of the product may be negated or diminished. It is highly recommended that block work be filled and compacted.

It must not be exposed to water pressure, running water or rain until it has set. Crystal seal 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 Crystal seal is dependent upon the application of sufficient product to effectively convert the free lime in the substrate.

## SAFETY & HANDLING

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.

**WARRANTY:** Permacolour products are warranted for one year after date of purchase. Please refer to the Limited Material warranty for additional clarification. The information contained herein is true and accurate to the best knowledge of Permacolour. Since we cannot anticipate all possibilities and conditions under which this information and our products may be used, Permacolour hereby accepts no responsibility and offers no warranty in the case of results achieved by the use of our products or of the safe use and suitability of these products. Permacolour offers our products for sale subject to, and "The Customer" and all users are deemed to have accepted our Terms and Conditions of Sale. We warrant our products to be free of manufacturing defects. If any product is found to be defective and was within storage/shelf life, Permacolour will replace the product at no charge to the purchaser. Permacolour makes no other warranty with regards to our products, either expressed or implied. Whilst any information provided by ourselves, both verbally or written, is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control. As all Permacolour technical data sheets are updated on a regular basis it is the user's responsibility to obtain the most recent issue.