

## Cementaid – Cementaid HPI™

### Overview

Hydrophobic and pore-blocking aqueous concrete additive to create waterproof (non-absorptive), corrosion-proof, impermeable structural concrete. No membranes are required or need to be used. Suitable for severe environments, including sewage/water treatment, marine, hyper-saline, acid, sulphate and other chemical or aggressive conditions.



### Product Description

In the waterproofing industry, the traditional approach has been to apply external membranes or surface treatments to the concrete as external barriers so as to prevent the ingress of water, which have only a temporary life span and required periodic replacement or maintenance. Consequently, more conventional, typically damaging products are being used. Absorbed water is also the only common denominator in all 11 mechanisms of concrete corrosion.

*Cementaid HPI™* / Cementaid Hydrophobic Pore-blocking Ingredients (HPI) are concrete additives that achieve waterproof and membrane-free structural concrete using alternative means. When dosed into concrete during batching, once hardened, it blocks interstitial pores and works as a permanent waterproofing system to lift systems, basement structures as well as podiums and roofs in buildings, tanks, pools, tunnels and other water retaining structures. *Cementaid HPI™* makes the cement matrix non-absorptive/hydrophobic, therefore the concrete interior remains permanently dry, providing protection against concrete corrosion attack. Concrete durability and life span is significantly enhanced, including under severe marine, chemical or industrial service environments.

*Cementaid* manufacture three *HPI* products: *Everdure Caltite*, *3CC* and *Aquapel*. Each of these ingredients is dosed at different rates and provides hydrophobic pore-blocking capability to varying degrees, depending on service requirements. Providing the highest level of waterproofing, *Everdure Caltite* is dosed at the highest rate and additionally provides polymer particles to physically block capillaries and pores subject to hydrostatic pressure. This is followed by *3CC* and then *Aquapel*.

### PRODUCT SPECIFICATIONS

<b>Options</b>	In pail, drum or bulk tank (plastic)
<b>Colours</b>	<i>Everdure Caltite</i> : Dark brown liquid. <i>3CC</i> / <i>Aquapel</i> : Creamy liquid (Note: Products do not colour concrete)
<b>Warranty</b>	10 year warranty.
<b>Expected Life</b>	Residential & Commercial, Marine, Industrial, Acidic: life span up to ten times compared to similar grade plain concrete.



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<b>Indicative Costs</b>	Cost of supply & installation: depends on country. Contact local manufacturer or pre-mixed concrete supplier for more details.
<b>Purchase Options</b>	Credit term / COD
<b>Constituents</b>	Caltite Weight: 15% w/w (as sold content) Actual weight: 0.98 Kg/Litre Post-Industrial Recycled Content: ca. 5%
<b>Technical Specifications</b>	All concrete ( <i>specify areas</i> ) to contain a time-proven effective Hydrophobic Pore-blocking Ingredient (HPI), such as [ <i>specify which; Everdure Caltite / 3CC / Aquapel</i> ], or proven equal and approved, strictly in accordance with Manufacturers' Detailed Specifications, producing concrete with a Hydrophobic Matrix throughout, conforming with all specified requirements and having a corrected 30 minute absorption of not greater than [ <i>specify which; "Caltite"- 1.0%, "3CC"- 1.5%, "Aquapel"- 1.8%</i> ], as measured by BS 1881: Part 122: 1983, except that the age at test shall be 7 days. The concrete may contain an approved High Range Water Reducing admixture such that the free (water + Caltite): cement ratio shall not exceed 0.45 and the concrete will be of adequate workability for void-free placement and compaction.  Regular or intermittent Absorption testing of production concrete may be required by the Engineer.  Suggested dose rate of HPI per 1cu. M. concrete;: <ul style="list-style-type: none"> <li>• <i>Everdure Caltite System</i>: 30 Litre HPI</li> <li>• <i>3CC</i>: 15 Litre HPI (heavy duty).</li> <li>• <i>Cementaid Aquapel</i>: 8 Litre HPI</li> </ul>
<b>National &amp; International Standards</b>	ISO 9000, individual country environmental and factory act. AS1478
<b>Country of Origin</b>	Australia, Singapore, Malaysia, Hong Kong, United Kingdom.
<b>Projects</b>	Please see the Singapore examples chart below.
<b>Preparation</b>	Add admixture to replace an equal amount of water during concrete batching.



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Project	Completion Year	Developer / Architect / Engineer / Contractor	Location used
Suntec City	1993	<ul style="list-style-type: none"> <li>• Suntec City</li> <li>• DPA</li> <li>• Maunsell</li> <li>• Nishimatsu / Hyundai-SsangYang</li> </ul>	<ul style="list-style-type: none"> <li>○ 90,000m<sup>2</sup> basement slab (2-levels).</li> <li>○ Suspended swimming pool over retails</li> </ul>
Parc Oasis at Jurong	1995	<ul style="list-style-type: none"> <li>• Everbuilt Development</li> <li>• RSP Arch</li> <li>• RSP Engineers</li> <li>• SsangYong</li> </ul>	<ul style="list-style-type: none"> <li>○ The whole basement wall and slab (1-level).</li> <li>○ Landscaping deck over entire basement.</li> </ul>
Singapore Recreation Club	1996	<ul style="list-style-type: none"> <li>• SRC</li> <li>• Archurban Architect</li> <li>• KTP</li> <li>• Hexacon</li> </ul>	<ul style="list-style-type: none"> <li>○ Diaphragm Wall to basement. (4-levels)</li> <li>○ Basement slab.</li> </ul>
Automobile Mega Mall	1999	<ul style="list-style-type: none"> <li>• Singapore Used Car Assoc</li> <li>• Edmond Choo &amp; Assoc</li> <li>• SBT &amp; Assoc</li> <li>• Evergreat</li> </ul>	<ul style="list-style-type: none"> <li>○ 10,000m<sup>2</sup> roof slab over office. (post tensioning)</li> </ul>
Structural repair to beams and pilecaps underneath Tanjong Pagar Terminal.	2001	<ul style="list-style-type: none"> <li>• PSA</li> <li>• -</li> <li>• Spec Consultants</li> <li>• L&amp;M</li> </ul>	<ul style="list-style-type: none"> <li>○ Salvage severe spalled off beams and pile caps by "jacketing" through waterproofing grout.</li> </ul>
MRT C707 Dhoby Ghaut Station	2002	<ul style="list-style-type: none"> <li>• LTA</li> <li>• LTA</li> <li>• LTA</li> <li>• Obayashi Corporation</li> </ul>	<ul style="list-style-type: none"> <li>○ Stamford canal and roof over station.</li> <li>○ Entire basement slab (5-levels)</li> </ul>
Singapore Management Uni	2005	<ul style="list-style-type: none"> <li>• Singapore Management Uni</li> <li>• KNTA</li> <li>• Maunsell</li> <li>• Obayashi Corporation</li> </ul>	<ul style="list-style-type: none"> <li>○ Entire basement. (2-levels)</li> <li>○ All podiums over car park, office and canteen.</li> </ul>
Condomium at Jalan Taman	2005	<ul style="list-style-type: none"> <li>• Hoi Hup Realty</li> <li>• JGP</li> <li>• TH Chuan</li> <li>• Straits Construction</li> </ul>	<ul style="list-style-type: none"> <li>○ Entire basement. (2-levels)</li> <li>○ Suspended swimming pool to link two towers at 9-storey.</li> </ul>
MRT C828 Cut and Cover Tunnel between Boulevard / Stadium Station	2008	<ul style="list-style-type: none"> <li>• LTA</li> <li>• LTA</li> <li>• LTA</li> <li>• Nishimatsu – Lum Chang JV</li> </ul>	<ul style="list-style-type: none"> <li>○ Entire tunnel box.</li> </ul>
Resorts World Sentosa	2010	<ul style="list-style-type: none"> <li>• Genting</li> <li>• DPA</li> <li>• Aecom</li> <li>• Sembawang / Kajima-Tiong Seng JV / Low Keng Huat / China Jingye</li> </ul>	<ul style="list-style-type: none"> <li>○ Entire 150,000m<sup>2</sup> basement. (2-levels)</li> <li>○ Suspended lagoon.</li> <li>○ All suspended swimming pools in hotels</li> </ul>



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## ECOSPECIFIER LIFE-CYCLE ASSESSMENT

### INTEGRATED DESIGN AND POLICY ISSUES

Utilising *Cementaid HPI™* as an admixture in concrete to create waterproof and corrosion-proof concrete eliminates the requirement for the addition of traditional waterproof membrane and practices. This eliminates “waterproofing” as a design task and removes a complete installation labour sub-contract from the construction phase therefore creating time savings, improvements in worker safety, reduced environmental impact and cost reductions.



Additionally, the risks of concrete dampness and seepage from leaks in a traditional membrane are eliminated with this admixture, where the concrete itself becomes integrally waterproof throughout. This permits easy identification and grouting of any post-construction shrinkage cracks or other minor placement flaws, while the HPI concrete and structure itself remains dry.

*Cementaid HPI™* products are suitable for applications such as rainwater or greywater collection, including green roofs and walls; and in combination with appropriate systems (e.g. irrigation systems or water treatment devices), and they can help to reduce the demand on municipal water or in designing stormwater management systems.

### HUMAN HEALTH

#### Health

When mixed with cement and water, material releases ammonia. The content of ammonia is low and is not considered a health hazard under good working conditions, however continuous long term working in confined and poorly ventilated areas may cause irritation response and sore eyes/nose. Prolonged or repeated skin contact with wet concrete may cause drying with cracking, irritation and possible dermatitis.

#### Comfort

Not applicable.

#### Indoor Environment Quality

The VOC content of unadmixed *Cementaid HPI™* liquids (*i.e. Everdure Caltite, 3CC and Cementaid Aquapel*) is <4.5g/l. When admixed in concrete, the VOC levels from these HPI's are <0.3g/l. California South Coast Air Quality Management District Rule 1168 c(2) as specified by Green Star defines the requirements for this product as 250g/l which is described in the Green Star Technical Manual under 'Architectural Sealant' (includes sealants used to enhance water-proofing properties). *Cementaid HPI™'s Everdure Caltite, 3CC and Cementaid Aquapel* comply with Green Star requirements.

#### Electromagnetic Radiation

Not applicable.



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## Safety

As with similar products, *Cementaid HPI™* products should be admixed in well ventilated areas to minimise inhalation of vapours and proper Personal Protective Equipment should be worn to minimise contact with skin and eyes during application. Refer to products Material Safety Data Sheet before use for more information.

## Accessibility

Not applicable.

## ECOLOGICAL QUALITY

### Terrestrial

*Emissions* – Product may have limited emissions in the production of ammonium hydroxide. However, product increases the durability of concrete, thereby lowering the demand for new concrete and reducing emissions from the manufacturing of virgin materials.

*Physical* – Product provides lifetime waterproofing and therefore reduces waste to landfills compared to assessment comparisons, such as latex membranes, which have limited lifetimes and often have to be removed and dumped in landfill before new membrane can be applied.

### Aquatic

*Emissions* – No known emissions to aquatic ecosystems.

*Physical* – Very toxic to aquatic organisms in liquid form prior to adding to concrete. Non-toxic to aquatic organisms in hardened concrete.

### Atmosphere

*Greenhouse (GHG)* – Information is not available.

*Greenhouse intensity* – Information is not available.

*Transport intensity* – Product is generally manufactured in country of supply.

Table below provides land transportation greenhouse intensity figures to help calculate the greenhouse gas intensity of land transportation from shipping port.

Light commercial vehicle	Rigid Truck	Articulated Truck
0.001451kgCO <sub>2e</sub> / kg.km	0.000195kgCO <sub>2e</sub> / kg.km	0.000069kgCO <sub>2e</sub> / kg.km

Transport intensity figures sourced from Australian National Greenhouse Gas Inventory 1990, 1995 and 1999 and WWF International, Inland Navigations and Emissions, 2005.

*Operational efficiency* – Not applicable.

*Re-use Efficiency* – Not applicable.



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*Toxics and Pollutants* – Product is non toxic to humans at specified concentrations, but should not be allowed to enter marine or aquatic environments.

*Ozone Depletion* – Not applicable.

*Urban Heat Island Effects* – Not applicable.

*Noise* – Not applicable.

### **Biodiversity**

Product has limited impact on biodiversity from production of ammonium hydroxide. However, product improves durability of concrete and structures, therefore reducing need for replacement of materials that have high biodiversity impacts. Spills released into surface water are potentially harmful to aquatic environments.

## **RESOURCE DEPLETION**

### **Resource Efficiency**

Utilising the *Cementaid HPI™* eliminates the need to use additional traditional external membranes to seal the construction against water and corrosion, therefore saving on material use like EPDM and/or other sealing materials. These traditional methods have a temporal life span and require periodic replacement or maintenance. The reduction in material use and fossil fuel consumption as a result of the durability and extension of the end-products lifespan provides a positive offset against minor resource consumption in manufacture of this product.

### **Embodied Fossil Fuel Energy**

Information not available.

*Transport intensity* – Product is generally manufactured in country of supply.

### **Embodied Water**

In normal *Everdure Caltite* 30 litres dosage, 24 litres is liquid. (i.e. approximately 80 %.)

### **Durability**

Once product is applied into concrete, the performance is the same as the lifespan of the concrete itself. No periodical replacement or maintenance is required.

### **Reusability**

Product is not reusable.

### **Repairability**

Resultant concrete is repairable with conventional concrete repair technology combined with recommended *Cementaid HPI™* addition.

### **Design for Dematerialisation**

Product reduces the need for additional waterproofing membranes in concrete structures.



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**Design for Disassembly**

Not applicable.

**Recyclability**

Manufacturer does not recycle the product. Product contained in plastic Bulk Tank, possibility for recycled packaging. After its application into concrete mix, the cured concrete can be used as recycled aggregate in future.

**Maintenance**

Not applicable.

**Product Takeback Scheme**

Not applicable.

**Extended Producer Responsibility (EPR)**

Not applicable.

**CORPORATE AND SOCIAL SUSTAINABILITY****Audits and Environmental Reporting**

Waste treatment has to comply with local National Environmental Agency policy.

**Convictions**

No.

**Environmental Policy**

No.

**Social Enhancement Programs**

No.

**Technology Transfer Programs**

No.

**Environmental Management Systems (EMS)**

The company employs its own EMS system. Not currently compliant with ISO14001.

**ECOSPECIFIER ISSUES OF CONCERN / RED LIGHT****Issue of Concern**

Product contains Ammonium Hydroxide which is very toxic to aquatic organisms (R50) and product can release ammonia when ammonium hydroxide is hydrolysed in water. This issue of concern has been classified as *low* risk in accordance with an **ecospecifier** Risk Assessment and primarily relates to the manufacturing and admixing of the product. Product is unlikely to cause a risk due the low release of ammonia.

According to Australian Centre for Occupational Health & Safety (ACOHS) guidelines, HPI's are considered non-hazardous. Workplace exposure time-limitations and good ventilation are suggested to apply. Concrete modified with



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*Cementaid HPI™* liberates ammonia fumes during mixing & placing operations. The ammonia smell vanishes after the concrete reaches a hardened state, but can sometimes be detected during form-stripping operations. This residual odour dissipates rapidly under ventilated conditions.

Precautions for workers such as reducing exposure to product by incorporating proper ventilation and appropriate Personal Protective Equipment (PPE) to avoid possible irritation to eyes/nose and skin mitigate potential issues to *low* risk in accordance with an **ecospecifier** Risk Assessment.

## ECOSPECIFIER GREENRATE GREEN BUILDING SCHEME PRE-ASSESSMENT

### The Pearls Design System for ESTIDAMA

#### PRECIOUS WATER

<p><b>PW-6 Note 1: Stormwater</b> Product may assist in a project obtaining this credit by improving actual stormwater quality and/or reducing peak stormwater flows draining from the project site. Up to 4 credit points are achieved where the project design achieves the performance related to its stormwater determined in EPDS.</p> <p>Product may contribute as an individual component, in combination with other suitable components, in achieving the above credits that comply, in whole or in part, with the prescribed requirements.</p>	<p><i>Points Available</i></p> <p><b>4</b></p>
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#### STEWARDING MATERIALS

<p><b>SM-6: Design for Durability</b> Product may assist in a project obtaining this credit by minimising building impacts from condensation, water ingress, improper drainage and physically protecting vulnerable areas of the building envelope and surroundings. Credit point is awarded where a Building Durability Plan has been implemented to optimise the integrity of the building's internal and external envelope and can achieve the projected life with low maintenance.</p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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#### LEED® for Commercial Interiors - Version 3 (see disclaimer below)

Product does not assist in the achievement of credit points in this rating tool.

#### LEED® for New Construction & Major Renovations - Version 3 (see disclaimer below)

#### SUSTAINABLE SITES

<p><b>SS Credit 5.2 Note 1: Site Development: Maximise Open Space</b> Product may assist in a project obtaining this credit for reducing the development footprint. Projects earning SS Credit 2 and using a vegetated roof surface are eligible to contribute in gaining this credit.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in creating a vegetated roof surface and assist a project in obtaining this credit via the use of a vegetated roof.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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<p><b>SS Credit 6.1 Note 1: Stormwater Design: Quantity Control</b>  Product is likely to assist in a project obtaining this credit, when appropriately implemented in the context of a site stormwater management plan, such that natural water hydrology disruption is limited through reducing impervious cover, increasing on-site filtration, reducing or eliminating pollution from stormwater runoff and eliminating contaminants, in accordance with prescribed requirements.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components in contributing to vegetated roofs and stormwater harvesting for non potable uses and assist a project in obtaining this credit.</i></p>	<p><i>Points Available</i>  <b>1</b></p>
<p><b>SS Credit 6.2 Note 1: Stormwater Design: Quality Control</b>  Product is likely to assist in a project obtaining this credit, when appropriately implemented in the context of site stormwater management plan, to limit disruption and pollution of natural water flows using Best Management Practices (BMP's) to address Total Suspended Solids (TSS) in accordance with the prescribed requirements.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components in contributing to vegetated roofs, pervious surfaces and stormwater harvesting for non potable uses and assist a project in obtaining this credit.</i></p>	<p><i>Points Available</i>  <b>1</b></p>
<p><b>SS Credit 7.2 Note 1: Heat Island Effect: Roof</b>  Product is likely to assist in a project obtaining this credit as it reduces heat island effects to minimize impacts on microclimates and human and wildlife habitats. Credit point is achieved when the requirements for one of the following options are met;</p> <p>Option 1: Includes using roofing materials with a high Solar Reflective Index (SRI), for 75% of the roof surface in accordance with prescribed values.</p> <p>Option 2: Includes installing a vegetated roof that covers at least 50% of the roof area, and</p> <p>Option 3: Includes installing high albedo and vegetated roof surfaces that complies with the prescribed criteria.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in creating a vegetated roof surface that is likely to assist a project in obtaining this credit via the use of a vegetated roof.</i></p>	<p><i>Points Available</i>  <b>1</b></p>



WATER EFFICIENCY

<p><b>WE Credit 1 Note 1: Water Efficient Landscaping:</b>                  Product is likely to assist in a project obtaining this credit, when appropriately incorporated in combination with other relevant systems in reducing the use of potable water or other natural surface or subsurface resources available for landscape irrigation, through one of the two following options.</p> <p>Option 1: Reduce by 50%: reduce water consumption for irrigation by 50% in accordance with the prescribed requirements through one of the following – plant species, density and microclimate factor, use of captured rainwater, use of recycled wastewater, use of water treated and conveyed by a public agency specifically for non potable uses.</p> <p>Option 2: No Potable Water Use for Irrigation: meet the requirements of option 1 and either Use only captured rainwater, recycled wastewater, recycled greywater or water treated and conveyed by a public agency specifically for non-potable uses for irrigation or Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within 1 year of installation.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in reducing the use of potable water or other natural surface or subsurface resources available for landscape irrigation. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i>  <b>4</b></p>
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**BREEAM Issue 3** (see disclaimer below)

WATER EFFICIENCY

<p><b>Wat 5 Note 1 – Water recycling</b>                  Product is likely to assist in a project obtaining credits by contributing to the collection, store, and where necessary treatment of rainwater and waste water for WC and urinal flushing.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving recycling credits above as either an efficient process system, or reuse/treatment system for WC and urinal flushing.</i></p>	<p><i>Points Available</i>  <b>3</b></p>
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<p><b>Wat 6 Note 1 – Irrigation systems</b></p> <p>Product is likely to assist in a project obtaining this credit as it provides any of the following:</p> <ul style="list-style-type: none"> <li>a drip feed subsurface irrigation that incorporates soil moisture sensors and control of watering times;</li> <li>reclaimed water from a rainwater or greywater system;</li> <li>the only planting specified is restricted to species that thrive in hot and dry conditions.</li> </ul> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving irrigation systems credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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**BCA Greenmark Landed Houses v1** (see disclaimer below)

ENERGY EFFICIENCY

<p><b>1-10 Note 1: Cool / Green Roof</b></p> <p>Product is likely to assist in a project obtaining credit points by reducing local heat island effect as a material/finish with a SRI value of more than 40 or by facilitating the use of green roofs.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in creating a vegetated roof surface and assist a project in obtaining this credit via the use of a vegetated roof.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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WATER EFFICIENCY

<p><b>2-2 Note 1: Water Efficient Landscaping</b></p> <p>Product is likely to assist in a project obtaining this credit as it provides a water efficient irrigation system and facilitates the use of rainwater or recycled water to reduce potable water consumption.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, providing water efficient irrigation systems and facilitation of rainwater or recycled water to reduce water consumption. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance</i></p>	<p><i>Points Available</i></p> <p><b>5</b></p>
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**BCA Greenmark Non-Residential Buildings v3** (see disclaimer below)

**WATER EFFICIENCY**

<p><b>2-3 Note 1: Irrigation System</b></p> <p>Product is likely to assist in a project obtaining this credit as it provides a water efficient irrigation system and facilitates the use of rainwater or recycled water to reduce potable water consumption.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving irrigation systems credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**BCA Greenmark Office Interior v1** (see disclaimer below)

**SUSTAINABLE MANAGEMENT & OPERATION**

<p><b>3-6 Note 1: Greenery</b></p> <p>Product may assist in a project obtaining credit points by facilitating the use of greenery, including sky garden, roof gardens, vegetated roofs, common recreation areas with greenery, and planters or potted plants.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in creating a vegetated roof surface and assist a project in obtaining this credit via the use of a vegetated roof and other greenery.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**BCA Greenmark Infrastructure v1** (see disclaimer below)

**WATER**

<p><b>3-1 Note 1: Rainwater Harvesting and Grey Water Recycling</b></p> <p>Product is likely to assist in a project obtaining credit points through the collection and use of rainwater or grey water for irrigation.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving irrigation systems credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>4</b></p>
<p><b>3-3 Note 1: Active, Beautiful, Clean Waters Design</b></p> <p>Product is likely to assist in a project obtaining credit points by contributing to formation of water features that mitigate the impact of urban stormwater run-off.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>



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**BCA Greenmark Residential Buildings v3** (see disclaimer below)

**WATER EFFICIENCY**

<p><b>2-3 Note 1: Irrigation System</b></p> <p>Product is likely to assist in a project obtaining this credit as it provides a water efficient irrigation system and facilitates the use of rainwater or recycled water to reduce potable water consumption.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving irrigation systems credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**BCA Greenmark Non-Residential Existing Buildings v2** (see disclaimer below)

**WATER EFFICIENCY**

<p><b>2-3 Note 1: Alternative Water Sources</b></p> <p>Product is likely to assist in a project obtaining this credit as it facilitates the use of alternative water sources for non-potable water uses.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving recycling credits above as either an efficient process system, or reuse/treatment system for non-potable water uses.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**SUSTAINABLE MANAGEMENT & OPERATION**

<p><b>3-4 Note 1: Greenery</b></p> <p>Product may assist in a project obtaining credit points by facilitating the use of greenery, including sky garden, roof gardens, vegetated roofs, common recreation areas with greenery, and planters or potted plants.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in creating a vegetated roof surface and assist a project in obtaining this credit via the use of a vegetated roof and other greenery.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**Green Building Index Non-Residential New Construction Version 1** (see disclaimer below)



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## SUSTAINABLE SITE PLANNING AND MANAGEMENT

<p><b>SM11 Note 1: Stormwater Design</b></p> <p>Product is likely to assist in a project obtaining credit point by contributing to a storm water management plan, resulting in reduced impervious cover, increasing infiltration and managing storm water runoff.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components in contributing to pervious surfaces and stormwater harvesting for non potable uses and assist a project in obtaining this credit.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
<p><b>SM12 Note 1: Greenery &amp; Roof: Hardscape and Greenery Application</b></p> <p>Product is likely to assist in a project obtaining credit point by providing shade, a paving material with SRI of at least 29, or open grid pavement.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving greenery &amp; roof credits above via providing efficient process system or roofing system component.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>

## WATER EFFICIENCY

<p><b>WE1 Note 1: Rainwater Harvesting</b></p> <p>Product may assist in a project obtaining credit points as it contributes to the reduction of potable water consumption through the use of rainwater harvesting. Number of points awarded is determined by the percentage reduction in potable water consumption resulting from use of rainwater.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in reducing the use of potable consumption through the use of rainwater harvesting. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
<p><b>WE 2 Note 1: Water Recycling</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the projects use of recycled water to reduce potable water. Number of points awarded is determined by the percentage reduction in potable water consumption resulting from use of reclaimed wastewater.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving water recycling credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
<p><b>WE3 Water Efficient Irrigation/Landscaping</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water consumption for landscape irrigation, or facilitates the use of rainwater or wastewater for irrigation/landscaping.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, providing water efficient irrigation systems and facilitation of rainwater or recycled water to reduce water consumption. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance</i></p>	<p><i>Points available</i></p> <p><b>2</b></p>



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**Green Building Index Residential New Construction Version 1** (see disclaimer below)

**SUSTAINABLE SITE PLANNING AND MANAGEMENT**

<p><b>SM4 Note 1: Open Spaces, Landscaping and Heat Island Effect</b></p> <p>Product is likely to assist in a project obtaining credit points by facilitating the provision of landscaping to reduce the effects of heat islands. Number of points determined by the percentage of landscaping over the total development area.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving open spaces, landscaping and heat island effect credits above via providing efficient process system or system component.</i></p>	<p><i>Points Available</i></p> <p><b>4</b></p>
<p><b>SM6 Note 1: Storm Water Management</b></p> <p>Product is likely to assist in a project obtaining credit points by contributing to the management of surface water in compliance with the prescribed standard.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, providing storm water management. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>

**WATER EFFICIENCY**

<p><b>WE1 Note 1: Rainwater Harvesting</b></p> <p>Product may assist in a project obtaining credit points as it contributes to the reduction of potable water consumption through the use of rainwater harvesting. Number of points awarded is determined by the percentage reduction in potable water consumption resulting from use of rainwater.</p> <p><i>Product is likely to contribute as an individual component, in combination with other suitable components, in reducing the use of potable consumption through the use of rainwater harvesting. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>4</b></p>
<p><b>WE2 Note 1: Water Recycling</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the projects use of recycled water to reduce potable water. Number of points awarded is determined by the percentage reduction in potable water consumption resulting from use of reclaimed wastewater.</p> <p><i>Product will contribute as an individual component, in combination with other suitable components, in achieving water recycling credits above via providing efficient process system, reuse/treatment system component or efficient appliance.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>



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**WE3 Note 1: Water Efficient Landscaping**

Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water consumption for landscape irrigation, or facilitates the use of rainwater or wastewater for irrigation/landscaping.

*Product is likely to contribute as an individual component, in combination with other suitable components, providing water efficient irrigation systems and facilitation of rainwater or recycled water to reduce water consumption. The product may assist a project in obtaining this credit via providing efficient process system, reuse/treatment system component or efficient appliance*

*Points available*

**2**

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**National Australian Built Environment Rating System (NABERS) Compatibility**

Product may assist in the achievement of WATER credits in this rating tool.

**BASIX Building Sustainability Compatibility**

Product may assist in the achievement of WATER credits in this rating tool.

**Green Star™ Office Interiors Version 1.1 Compatibility (see disclaimer below)**

Product does not assist in the achievement of credit points in this rating tool.

**Green Star™ Office Design Version 2 Compatibility (see disclaimer below)**

WATER

**Wat-3 Note 1: Landscape Irrigation Water Efficiency**

Product may assist in a project obtaining credits where design of systems reduce consumption of potable water used for landscape irrigation. One credit point is awarded where *potable water consumption used for landscape irrigation is reduced by 90%* or one credit point is awarded where *a xeriscape garden has been installed*, in accordance with prescribed requirements.

*Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.*

*Points Available*

**1**



EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**Green Star™ Office Version 3 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits where design of systems reduce consumption of potable water used for landscape irrigation. One credit point is awarded where potable water consumption used for landscape irrigation is reduced by 90% or one credit point is awarded where a <i>xeriscape</i> garden has been installed, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**Green Star™ Retail Centre Version 1 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits where design of systems reduce consumption of potable water used for landscape irrigation. One credit point is awarded where potable water consumption used for landscape irrigation is reduced by 90% or one credit point is awarded where a <i>xeriscape</i> garden has been installed, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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<p><b>Wat-5 Note 1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes explained above.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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**EMISSIONS**

<p><b>Emi-5: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**Green Star™ Education Version 1 Compatibility (see disclaimer below)**

**WATER**

<p><b>Wat-3 Note 1: Landscape Irrigation</b></p> <p>Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. Credit points are awarded where either potable water consumption used for landscape irrigation is reduced by 90%, or a xeriscape has been installed, in accordance with the prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
<p><b>Wat-5 Note 1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes explained above.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>



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EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Emi-5: Watercourse Pollution.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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**Green Star™ Industrial Version 1 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. Credit point is awarded where either potable water used for landscape irrigation is sourced from non potable water, or a water efficient sub soil drip system with timers and/or soil moisture sensor control is installed or where a xeriscape garden has been installed.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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<p><b>Wat-5 Note 1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes above.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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EMISSIONS

<p><b>Emi-5 Note 1: Stormwater</b></p> <p>Product is likely to assist in part or in combination with other products to a project obtaining credits by minimising stormwater run-off to, and the pollution of natural watercourses by implementing the principles of Water Sensitive Urban Design (WSUD).</p> <p>1, 2 or 3 points are awarded based on the level of stormwater used on site and/or level of pollutants removed from discharge.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in minimising stormwater run-off to and the pollution of natural water courses.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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**Green Star™ Multi Unit Residential Version 1 Compatibility** (see disclaimer below)

**WATER**

<p><b>Wat-3 Note-1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. Credit point is awarded where either potable water used for landscape irrigation has been reduced by 90%, or a xeriscape garden has been installed.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-4: Landscape Irrigation Water Efficiency.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
<p><b>Wat-5 Note-1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes explained above.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>

**EMISSIONS**

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses. Two points are available for reduction in peak stormwater flows and treatment and filtration in accordance with prescribed requirements, and an additional point is awarded for the installation of a riparian buffer zone in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Emi-5: Watercourse Pollution.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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**Green Star™ Healthcare Version 1 Compatibility** (see disclaimer below)

**WATER**

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credit points by reducing potable water consumption for landscape irrigation. Credit points are awarded where potable water consumption used for landscape irrigation is reduced by 90% or xeriscape garden has been installed.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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<p><b>Wat-5 Note 1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes explained above.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>
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**EMISSIONS**

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product is likely to assist in part or in combination with other products/technologies/systems of a project obtaining credits by minimising stormwater runoff and pollution of natural watercourses. Two points are achieved where development does not increase peak stormwater runoff and stormwater is treated and filtered in accordance with prescribed requirements. An additional point is also awarded where the above criteria are met and a Riparian Buffer zone is completed in accordance with the prescriber requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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**Green Star SA™ Office Version 1 Compatibility (see disclaimer below)**

**WATER**

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits where design of systems reduces consumption of potable water used for landscape irrigation. One credit point is awarded where <i>potable water consumption used for landscape irrigation is reduced by 50%</i>, two credit points are awarded where <i>potable water consumption used for landscape irrigation is reduced by 90%</i> or where <i>a xeriscape garden has been installed</i>, in accordance with prescribed requirements. An additional point is available where 30% or more of the site is landscaped and the criteria for 90% or above reduction has been met.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water runoff from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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**Green Star SA™ Retail Centre Version 1 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation</b></p> <p>Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. One credit point is awarded where either potable water used for landscape irrigation is reduced by 50%, two points are awarded for a 90% reduction or where a xeriscape garden has been installed. An additional point is awarded where 30% or more of the site is landscaped and the consumption of potable water for irrigation is reduced by 90%.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
<p><b>Wat-5 Note 1: Fire System Water</b></p> <p>Product is likely to assist in a project obtaining credit points as it contributes to the reduction of potable water for the buildings fire protection and essential water storage systems. Credit points are achieved when sufficient temporary storage for a minimum of 80% of routine fire protection system test water and maintenance drain-downs for re-use on site are utilised and each floor is fitted with a sprinkler system.</p> <p>Or where the fire protection system does not expel water for testing.</p> <p><i>Product may assist individually or in combination with other products/systems in providing temporary storage systems, re-use systems or sprinkler systems to be used for purposes above.</i></p>	<p><i>Points Available</i></p> <p><b>1</b></p>

EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product is likely to assist in part or in combination with other products to a project obtaining credits by minimising stormwater run-off to, and the pollution of natural watercourses, in accordance with the prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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agents. For detailed technical information about Credit requirements refer to the Green Star™ Technical Manuals. Rating Tools and Technical Manuals are subject to change by the GBCSA, and any decision regarding the award of credits towards a Green Star rating is at the sole discretion of the GBCSA.

**Green Star NZ™ Office 2009 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits where design of systems reduces consumption of potable water used for landscape irrigation. One credit point is awarded where <i>potable water consumption used for landscape irrigation is reduced by 50%</i>, two credit points are awarded where <i>potable water consumption used for landscape irrigation is reduced by 90%</i> or where <i>a xeriscape garden has been installed</i>, in accordance with prescribed requirements. An additional point is available where 30% or more of the site is landscaped and the criteria for 90% or above reduction has been met.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of potable water used for landscape irrigation that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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EMISSIONS

<p><b>Emi-5 Note 1: Watercourse Pollution</b></p> <p>Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water runoff from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i></p>	<p><i>Points Available</i></p> <p><b>3</b></p>
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**Green Star NZ™ Office Interiors 2009 Compatibility** (see disclaimer below)

Product does not assist in the achievement of credit points in this rating tool.

**Green Star NZ™ Education 2009 Compatibility** (see disclaimer below)

WATER

<p><b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b></p> <p>Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. Credit point is awarded where either potable water used for landscape irrigation is sourced from non potable water, or a water efficient sub soil drip system with timers and/or soil moisture sensor control is installed or where a xeriscape garden has been installed.</p> <p><i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.</i></p>	<p><i>Points Available</i></p> <p><b>2</b></p>
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## EMISSIONS

<b>Emi-4 Note 1: Watercourse Pollution</b> Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements. <i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i>	<i>Points Available</i> <b>3</b>
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## Green Star NZ™ Industrial 2009 Compatibility (see disclaimer below)

### WATER

<b>Wat-3 Note 1: Landscape Irrigation Water Efficiency</b> Product may assist in a project obtaining credits by reducing potable water consumption for landscape irrigation. Credit point is awarded where either potable water used for landscape irrigation is sourced from non potable water, or a water efficient sub soil drip system with timers and/or soil moisture sensor control is installed or where a xeriscape garden has been installed. <i>Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.</i>	<i>Points Available</i> <b>1</b>
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## EMISSIONS

<b>Emi-4 Note 1: Watercourse Pollution</b> Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by reducing potential pollution in storm water run off from buildings and hard surfaces to natural water courses, in accordance with prescribed requirements. <i>Product may contribute as an individual component, in combination with other suitable components, in achieving reduction of watercourse pollution that complies, in whole or in part, with the prescribed requirements.</i>	<i>Points Available</i> <b>3</b>
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## **ASSESSMENT COMPARISON**

### **RELATED TOPICS**

Cement replacements / enhancers, waterproofing, admixtures, sealants.

### **CSI CATEGORY & NUMBER**

07 16 00 Cementitious and Reactive Waterproofing

07 16 16 Crystalline Waterproofing

### **NATSPEC CATEGORY AND NUMBER**

#### **00 Planning and Design**

0074 Stormwater Drainage (design)

#### **02 Site, Urban and Open Spaces**

0243 Landscape – water features

#### **03 Concrete**

0310 Concrete – combined

#### **04 Enclosure**

0411 Waterproofing – external and tanking

### **NBS CATEGORY & NUMBER**

#### **Building and Residential Services**

E05 In situ concrete construction generally

E10 Mixing/ Casting/ Curing in situ concrete

J10 Cementitious mortar tanking/ damp proofing

Z20 Fixings and adhesives

Z22 Sealants

#### **Landscaping**

E10 Mixing/ Casting/ Curing in situ concrete

J10 Cementitious mortar tanking/ damp proofing

Q10 Stone/ concrete/ brick kerbs/ edgings/ channels

Q21 In situ concrete roads/ pavings/ bases

Z20 Fixings/ Adhesives

Z22 Sealants



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## ASSESSMENT CRITERIA SATISFIED

HABITAT & BIODIVERSITY CONSERVATION	
✓	Reduced terrestrial impacts
✓	Reduced waste generation
RESOURCE DEPLETION	
✓	Resource efficiency
✓	Durability
ENERGY RESOURCES	
✓	Contributes to downstream reduction of energy use
CORPORATE SOCIAL RESPONSIBILITY, ENVIRONMENTAL MANAGEMENT AND REPORTING	
✓	Environmental Management System (EMS)
OTHER VITAL SIGNS	
✓	Material Safety Data Sheet (MSDS)
✓	Documented manufacturer claims
✓	Expert Assessment

## MANUFACTURER DETAILS

### AUSTRALIA

#### SYDNEY

Cementaid(NSW)Ltd.  
44AlbertoStreet,Lilyfield,  
N.S.W.2040.  
Phone:(612)98100725  
Fax:(612)98104164  
Email: [nsw@cementaid.com](mailto:nsw@cementaid.com)

#### ADELAIDE

Cementaid(SA)Ltd.  
70ChiefStreet,Brompton,  
S.A.5007.  
Phone:(618)83469711  
Fax:(618)83469977  
Email: [sa@cementaid.com](mailto:sa@cementaid.com)

#### MELBOURNE

Cementaid(Vic)Ltd.  
15ClariceRoad,BoxHill,  
Victoria,3128.  
Phone:(613)98900487  
Fax:(613)98906223  
Email: [vic@cementaid.com](mailto:vic@cementaid.com)

#### PERTH

Cementaid(WA)Ltd  
200StarStreet,  
Carlisle,W.A.6101  
Phone:(618)94705858  
Fax:(618)94705999  
Email: [wa@cementaid.com](mailto:wa@cementaid.com)

#### BRISBANE

Cementaid (QLD) Ltd.  
Unit 1, 86 Boyland Avenue,  
Coopers Plains, Queensland, 4108.  
Phone: (61 7) 3276 7388  
Fax: (61 7) 3276 7399  
Email: [qld@cementaid.com](mailto:qld@cementaid.com)



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### **HONG KONG**

**Cementaid International Marketing Ltd**  
3401-03 Singga Commercial Centre  
148 Connaught Road West,  
Hong Kong  
Phone: +85 2 2858 3313  
Fax: +85 2 2858 1638  
Email: [hk@cementaid.com](mailto:hk@cementaid.com)  
Web: <http://www.cementaid.com>

### **CANADA**

**Waterproof Concrete (Canada) Ltd,**  
21 Regan Road, Unit 'D',  
Brampton, Ontario, L7A 1C5  
Phone 905-840-2232  
Fax 905-840-2205  
Contact: John Savage 416-524-6320  
Email: [savagej@sympatico.ca](mailto:savagej@sympatico.ca)

### **CHINA**

**Cementaid ( Guangzhou ) Ltd**  
Room 2311, 23/F, Renfeng Tower  
490 Tianhe Road, Tianhe District  
Guangzhou, China  
Tel: (8620) 3888 6336  
Fax: (8620) 3888 6337  
E-mail : [china@cementaid.com](mailto:china@cementaid.com)

### **INDONESIA**

**PT. Cementaid Sales and Service**  
Floor 2B, Jalan Raya Bekasi KM 17 No. 5  
Jakarta Timur 13930, Indonesia  
Phone: +62 21 4682 3504 or +62 21 4682 3505  
Fax: +62 21 461 3054  
Email: [indonesia@cementaid.com](mailto:indonesia@cementaid.com) or  
[rodeldelapasion@cementaid.com](mailto:rodeldelapasion@cementaid.com)  
Website: [www.cementaid.co.id](http://www.cementaid.co.id)

### **MACAU**

**Cementaid ( Macau ) Limited**  
Rua Luis Gonzaga Gomes,  
No.210,212, 10 Andar,J10  
Edif.Kam Fung Macau  
Phone: (853) 2875 3486, 2875 3489  
Fax: (853) 28753490  
Email : [macau@cementaid.com](mailto:macau@cementaid.com)

### **MALAYSIA**

**Cementaid Sdn. Bhd.**  
9 Jalan Kemajuan, 46200 Petaling Jaya,  
Selangor, Darul Ehsan, Malaysia.  
Phone: (60) 3 7957 5344  
Fax: (60) 3 7957 5210

### **MIDDLE-EAST**

**Cementaid Bahrain**  
P.O. Box 26197, Manama,  
Bahrain  
Tel : 852 2858 3313  
Fax : 852 2858 1638  
Email : [caim@cementaid.com](mailto:caim@cementaid.com)  
Contact : Mr. Lindsay Aldred

### **PHILIPPINES**

**Cementaid Philippines, Inc.**  
N-6 , 343 West Service Road, Poblete  
Compound, Sunvalley, Bicutan Paranaque City  
Tel/Fax No. (632) 846-53-9 8 ; (632) 544-53-32 ;  
(632) 544-53-38  
Email: [manila@cementaid.com](mailto:manila@cementaid.com)

### **SINGAPORE**

**Cementaid (SEA) Pte. Ltd.**  
12 Neythal Road,  
Jurong Town, Singapore 628578  
Phone: (65) 6896 9801  
Fax: (65) 6896 980

### **UNITED KINGDOM**

**Cementaid (U.K.) Ltd.**  
1 Baird Close  
Crawley, West Sussex  
United Kingdom RH10 9SY  
Phone: (44) 1293 447 878  
Fax: (44) 1293 447 880  
Email: [uk@cementaid.com](mailto:uk@cementaid.com)  
Website: [www.cementaid.co.uk](http://www.cementaid.co.uk)

### **IRELAND**

**Cementaid Ltd**  
Clifton House  
Lower Fitzwilliam Street,  
Dublin 2, Ireland  
Phone: (353) 1 676 0134  
Fax: (353) 1 661 5200  
Email: [ie@cementaid.com](mailto:ie@cementaid.com)  
Website: [www.cementaid.ie](http://www.cementaid.ie)

### **POLAND**

**Cementaid Sp. z o.o.**  
Sheraton Plaza  
ul. Lwowska 2/6  
00-658 Warsaw  
Phone: (48) 22 628 1982  
Fax: (48) 22 628 1982  
Email: [pl@cementaid.com](mailto:pl@cementaid.com)  
Website: [www.cementaid.pl](http://www.cementaid.pl)



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**David Baggs** | Technical Director & Principal Consultant

Chartered Architect, FAIA, ABSA, Green Star AP, LEED AP, MRoySocAS



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