Cementaid – Everdure Caltite System™

Overview

Hydrophobic and pore-blocking cement additive to create a waterproof (non-absorptive), corrosion-proof, impermeable structural concrete. No membranes are required or need to be used. Suitable for severe environments: including saltwater, acid sulphate and corrosive conditions.

Product Description

In waterproofing industry, the traditional approach has been to apply external membrane or surface treatments to the concrete as external barriers so as to prevent ingress of water, which have only a temporary life span and required periodic replacement or maintenance. The consequences of this, is that more conventional, typically damaging products are being used.

Cementaid HPI / Cementaid Hydrophobic Poreblocking Ingredient (HPI) is an ingredient that achieves 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 basement structures as well as podiums and roofs in buildings. Since it makes concrete non-absorptive, it enhances concrete life span i.e. durability.

Cementaid has three HPI products: Everdure Caltite System, 3CC and Cementaid Aquapel. The raw mixtures of each of these products are (with the exception of Everdure Caltite) effectively the same. The major difference between them is the amount of active chemicals in the admixture; the mix-ratio between the cement and the amount of the added HPI. The Everdure Caltite System has the most active chemicals (which makes this product more hydrophobic when compared with the rest of the product range), followed by 3CC and Cementaid Aquapel. The Everdure Caltite System is blended with polymer binders not shared by the others.

Everdure Caltite System™ is the most heavy-duty product in the Cementaid range of integral waterproofing, damp-proofing and corrosion-proofing of structural concrete, without application of membranes, tanking or separate surface-treatments. The product is suitable for use in all concrete structures subject to water under pressure and/or severe damp/wet conditions. Corrosion-proofing of structural concrete against chlorides from marine environments, reclaimed land or sulphatebearing soil/groundwater, and to protect concrete floors and toppings subject to acids or other aggressive materials. It creates waterproof renders and toppings and prevention of leaching/salt stains from tile mortars, renders etc.

PRODUCT SPECIFICATIONS

Options	In bulk tank (plastic)
Colours	Liquid: dark brown Powder: gray
Warranty	10 years warranty
Expected Life	Residential & Commercial: same life span as per the concrete structure

Indicative Costs	Cost of supply & installation: depends on country
Purchase Options	Credit term / COD
Constituents	Caltite Weight: 15% w/w (as solid content) Actual weight: 2g/m³ Post-Consumer Recycled Content: Nil Post-Industrial Recycled Content: ca. 5%
Technical Specifications	All concrete (specify areas) to be produced by an approved supplier and constructed in accordance with the Main Specification and drawings and strictly in accordance with current Cementaid Everdure Caltite System Detailed Technical Specifications, using only Cementaid added ingredients and concrete containing not less than 350kgs of cement per cubic metre, and having a W:C ratio not in excess of 0.45, in conjunction with structural reinforcement of hard rib deformed bar and top steel reinforcement grid and other details conforming to current recommendations and requirements of Cementaid. Regular or intermittent Absorption testing of production concrete may be required by the Engineer. Suggested mix-ratio HPI on 1kg cement: • Everdure Caltite System: 100ml HPI (extra heavy duty) • 3CC: 50ml HPI (heavy duty) • Cementaid Aquapel: 37.5ml HPI
National / International Standards	ISO 9000, individual country environmental and factory act
Country of Origin	Australia
Projects	As below in overview chart.
Preparation	Add admixture to cement mix before pouring.

Project	Completion Year	Developer / Architect / Engineer / Contractor	Location used
Suntec City	1993	• Suntec City • DPA • Maunsell • Nishimatsu / Hyundai-SsangYang	o 90,000m2 basement slab (2-levels). o Suspended swimming pool over retails
Parc Oasis at Jurong	1995	• Everbuilt Development • RSP Arch • RSP Engineers • SsangYong	o The whole basement wall and slab (1-level). o Landscaping deck over entire basement.
Singapore Recreation Club	1996	• SRC • Archurban Architect • KTP • Hexacon	o Diaphragm Wall to basement. (4-levels) o Basement slab.
Automobile Mega Mall	1999	• Singapore Used Car Assoc • Edmond Choo & Assoc • SBT & Assoc • Evergreat	o 10,000m² roof slab over office. (post tensioning)
Structural repair to beams and pilecaps underneath Tanjong Pagar Terminal.	2001	• PSA • - • Spec Consultants • L&M	o Salvage severe spalled off beams and pile caps by “jacketing” through waterproofing grout.
MRT C707 Dhoby Ghaut Station	2002	• LTA • LTA • LTA • Obayashi Corporation	o Stamford canal and roof over station. o Entire basement slab (5-levels)
Singapore Management Uni	2005	• Singapore Management Uni • KNTA • Maunsell • Obayashi Corporation	o Entire basement. (2-levels) o All podiums over car park, office and canteen.
Condomium at Jalan Taman	2005	• Hoi Hup Realty • JGP • TH Chuan • Straits Construction	o Entire basement. (2-levels) o Suspended swimming pool to link two towers at 9-storey.
MRT C828 Cut and Cover Tunnel between Boulevard / Stadium Station	2008	• LTA • LTA • LTA • Nishimatsu – Lum Chang JV	o Entire tunnel box.
Resorts World Sentosa	2010	• Genting • DPA • Aecom • Sembawang / Kajima-Tiong Seng JV / Low Keng Huat / China Jingye	o Entire 150,000m² basement. (2-levels) o Suspended lagoon. o All suspended swimming pools in hotels

ECOSPECIFIER LIFE-CYCLE ASSESSMENT

INTEGRATED DESIGN AND POLICY ISSUES

By making use of an admixture in the cement to create a waterproof, corrosion-proof concrete material, the need for addition of a traditional waterproof membrane is eliminated. This eliminates “waterproofing” as a design task and removes a complete installation labour sub-contract from the construction phase. The use of this product creates time savings, improves worker safety and reduces costs. Additionally, the risks of leaks occurring in a traditional membrane is much higher than with this admixture, where the concrete itself becomes waterproof and so creates a hard natural protective waterproof integrated element.

Cementaid HPI products can be used in applications such as rainwater or greywater collection; and in combination with appropriate systems (eg irrigation systems or water treatment devices), they can help reduce the demand on municipal water or in designing stormwater management systems.

HUMAN HEALTH

Health

Not applicable, component within concrete.

When mixed with cement and water, material releases ammonia. The content of ammonia is low 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, sore eyes/nose. Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

Comfort

Not applicable, component within concrete

Indoor Environment Quality

The VOC content of unadmixed Cementaid HPI liquids (like Everdure Caltite System, 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 System, 3CC and Cementaid Aquapel comply with Green Star requirements.

Electromagnetic Radiation

Not Applicable

Safety

Chemical Hazard Rating:

- Flammability: Nil
- Toxicity: Nil
- Body Contact: Moderate
- Reactivity: Low
- Chronic: Moderate

Accessibility

Not Applicable

ECOLOGICAL QUALITY

Terrestrial Pollution

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 Pollution

Emissions – No known emissions to aquatic ecosystems.

Physical – Very toxic to aquatic organisms in liquid form prior to adding to concrete.

Atmosphere Pollution

Greenhouse (GHG) – Information is not available.

Greenhouse intensity – Information is not available

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_{2e} / kg.km	0.000195kgCO_{2e} / kg.km	0.000169kgCO_{2e} / 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

Toxics and Pollutants – Product is non toxic to humans, 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 life.

RESOURCE DEPLETION

Resource Efficiency

By making use of Cementaid HPI System, there is no longer need to make use of additional traditional external membranes to seal the construction against water and corrosion. This leads to a saving on material-use like EPDM and/or other sealing materials. These traditional methods have 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 end-products lifespan, provides a positive offset against minor resource consumption in manufacture of this product.

Embodied Fossil Fuel Energy

Information unavailable

Embodied Water

In normal 30 litres dosage, 23.5 litres is liquid. (i.e. approx. 78.3%.)

Durability

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

Reusability

Product is not re-usable.

Repairability

Not Applicable

Design for Dematerialisation

Not Applicable

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 uses its own EMS system.

Not currently compliant with ISO14001.

ECOSPECIFIER ISSUES OF CONCERN / RED LIGHTS

Issues of Concern

Red light comment: Product is unlikely to cause a risk due the low release of ammonia. It is not considered a health hazard under good working conditions. Proper ventilation and protective clothing avoid possible irritation to eyes/nose and skin.

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 CEMENTAID Hydrophobic Pore-blocking Ingredients 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 odor dissipates rapidly under ventilated conditions.

ECOSPECIFIER GREENRATE GREEN BUILDING SCHEME PRE-ASSESSMENT

ESTIDAMA Pearls Design System for New Buildings

STEWARDING MATERIALS

SM-6: Design for Durability 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.	*Points Available* 1

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)

WATER EFFICIENCY

WE Credit 1: Water Efficient Landscaping: 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. 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. 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..	*Points Available* 4

BREEAM Issue 3 (see disclaimer below)

WATER

Wat 5 – Water recycling 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.	*Points Available* **3**
Wat 6 – Irrigation systems Product is likely to assist in a project obtaining this credit as it provides any of the following: a drip feed subsurface irrigation that incorporates soil moisture sensors and control of watering times; reclaimed water from a rainwater or greywater system; the only planting specified is restricted to species that thrive in hot and dry conditions.	*Points Available* **1**

BCA Greenmark Landed Houses v1 (see disclaimer below)

WATER EFFICIENCY

2-2 Water Efficient Landscaping 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.	*Points Available* 5

BCA Greenmark Non-Residential Buildings v3 (see disclaimer below)

WATER EFFICIENCY

2-3 Irrigation System 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.	*Points Available* **2**

BCA Greenmark Office Interior v1 (see disclaimer below)

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

BCA Greenmark Infrastructure v1 (see disclaimer below)

WATER

3-1 Rainwater Harvesting and Grey Water Recycling Product is likely to assist in a project obtaining credit points through the collection and use of rainwater or grey water for irrigation.	*Points Available* 4

BCA Greenmark Residential Buildings v3 (see disclaimer below)

WATER EFFICIENCY

2-3 Irrigation System 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.	*Points Available* 2

BCA Greenmark Non-Residential Existing Buildings v2 (see disclaimer below)

WATER EFFICIENCY

2-3 Alternative Water Sources 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	*Points Available* 2

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

WATER EFFICIENCY

WE1 Rainwater Harvesting 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.	*Points Available* 2
WE3 Water Efficient Irrigation/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.	*Points Available* 2

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

WATER EFFICIENCY

WE1 Rainwater Harvesting 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.	*Points Available* 4
WE3 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.	*Points Available* 2

National Australian Built Environment Rating System (NABERS)

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

BASIX Building Sustainability

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

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

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

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

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency Product may assist in a project obtaining credits where the 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

Emi-5: Watercourse Pollution	*Points Available*
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.	2

Green Star™ Office Design Version 3 (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
Product may assist in a project obtaining credits where the 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.*	1

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
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.	2

Green Star™ Retail Centre Version 1 (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation	*Points Available*
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 reduced by 90%, or where a xeriscape garden has been installed. *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.*	1

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
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.	2

Green Star™ Education Version 1 (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation	*Points Available*
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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation*	3

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
Product may assist a project obtaining credits, when used in combination with other appropriate materials and/or technologies and/or systems, by minimising storm water run-off and pollution of natural water courses, in accordance with prescribed requirements.	3

Green Star™ Industrial (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.*	1

EMISSIONS

Emi-5: Stormwater	*Points Available*
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). 1, 2 or 3 points are awarded based on the level of stormwater used on site and/or level of pollutants removed from discharge.	**3**

Green Star™ Multi Residential Unit (see disclaimer below)

WATER

Wat-3 Note-1: Landscape Irrigation Water Efficiency	*Points Available*
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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-4: Landscape Irrigation Water Efficiency.*	**1**

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
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.	**3**

Green Star™ Healthcare (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.*	2

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
Product is likely to assist in part or in combination with other products/techniologies/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.	2

Green Star SA™ Office Version 1 (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
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 *potable water consumption used for landscape irrigation is reduced by 50%,* two credit points are awarded where *potable water consumption used for landscape irrigation is reduced by 90%* or where *a xeriscape garden has been installed*, 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. *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.*	3

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
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..	3

Green Star SA™ Retail Version 1 (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation	*Points Available*
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%. *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.*	3

EMISSIONS

Emi-5: Watercourse Pollution	*Points Available*
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.	3

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

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
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 where a *xeriscape* garden has been installed OR when a water efficient irrigation system is installed servicing at least half of the landscaped area, in accordance with prescribed requirements. *Product may contribute as an individual component, in*	1

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.	

EMISSIONS

Emi-4: Watercourse Pollution 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.	*Points Available* 2

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

Wat-3 Note 1: Landscape Irrigation Water Efficiency 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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.*	*Points Available* 2

EMISSIONS

Emi-4: Watercourse Pollution 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.	*Points Available* 3

Green Star NZ™ Industrial 2009 Compatibility (see disclaimer below)

WATER

Wat-3 Note 1: Landscape Irrigation Water Efficiency	*Points Available*
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. *Product may contribute as an individual component, in combination with other suitable components, in meeting the requirements of Wat-3: Landscape Irrigation Water Efficiency.*	1

EMISSIONS

Emi-4: Watercourse Pollution	*Points Available*
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.	3

ASSESSMENT COMPARISON

Cement additives and waterproof sealants

RELATED TOPICS

Cement replacements / enhancers, waterproofing, admixtures, sealants

CSI CATEGORY & NUMBER

07 16 00 Cementitious and Reactive Waterproofing

07 16 16 Crystalline Waterproofing

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

Commercial Engineering & Services

None

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

ASSESSMENT CRITERIA SATISFIED

ENERGY/GREENHOUSE
• Low energy in production
HABITAT & LAND
• Reduced aquatic impact
RESOURCE DEPLETION & EFFICIENCY
• Reduced Material Use
REDUCES POLLUTION
• Reduced Life Cycle Toxicity • Reduced Life Cycle Carcinogen • Reduced Smog: Reduction
OTHER VITAL SIGNS
• National / International Standard • MSDS • Documented Manufacturer Claim

MANUFACTURER DETAILS

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