



# Ecoblend





Above and front cover:  
Beacon Cove Marine works  
Right: EJ Whitten Bridge  
Far right: Bolte Bridge

The Ecoblend range of cements are specifically formulated to reduce the environmental impacts of cementitious binders used in concrete and stabilisation products. Ecoblend uses supplementary cements such as slag and flyash to ensure a significantly lower product life cycle impact; it provides the option of using a binder with significantly less material input, energy input and emission output. A very low embodied energy material can be created.

These significant environmental savings are complimented by Ecoblend's superior technical qualities and comes with no adverse cost implications. In fact first and second cost savings are often experienced. Hence the much talked about "Triple Bottom Line" concept is easily met in adopting Ecoblend in your next project.

### CEMENT BINDERS AN ENVIRONMENTAL PERSPECTIVE

ESD and "Sustainable architecture is forcing architects (and engineers) to re-evaluate the basic principals of building design. Academics around the world are claiming green buildings are healthier, more productive to occupy and cheaper to run."

*Graeme Findlay (Partner) Warren and Mahoney Architects.*

Life Cycle Analysis (LCA), gives us a way of investigating the life cycle of certain materials in terms of their environmental footprint. ISO 14040 defines standard LCA methodologies and protocols; this allows consistent embodied energy comparison of materials used in construction.

"LCA considers a range of environmental impacts such as resource depletion, energy and water use, greenhouse emissions and waste generation etc..."

Ecoblend cements perform significantly better than OPC in all of these LCA categories.

**Resource depletion** – Ecoblend reduces demand for Ordinary Portland Cement (OPC) a product derived from our inherent natural resources.

**Energy use** – Ecoblend reduces the demand requirements for the burning of fossil fuels used in the energy intensive cement clinker production.

**Greenhouse emissions** – Ecoblend use will displace CO<sub>2</sub> emissions. Displacement of approximately 700kg of CO<sub>2</sub> for each tonne of slag used as an OPC replacement, is achieved.

**Waste generation** – Ecoblend uses an industrial byproduct as its major blended component; Granulated Blast Furnace Slag (GBF Slag) a by product of steel production. This creates a diversion from land fill for this GBF Slag.



From this LCA we can see how important embodied energy is. Equally important is a construction materials quality, and longevity contribution to the structure.

### SUSTAINABLE CONCRETE

Sustainable concrete design can be achieved in two ways:  
 1. the reduction of embodied energy in specified materials and  
 2. increased durability. Using Ecoblend both criteria can be satisfied.

The Ecoblend LCA illustrates the reduced embodied energy associated with using slag blended cements. Equally important is the construction materials quality, and longevity contribution to the structure.

**“The single most important factor in reducing the impact of embodied energy is to design long life, durable and adaptable buildings”**

*Australian Greenhouse Office – Good Residential Design Guide Technical Manual 3.1 Materials.*

Ecoblend provides superior durability qualities to concrete, enabling that structural longevity which ESD strives for.

Ecoblend 50 meets the Australian Standard AS 3972 Low Heat (LH) Special Purpose Cements. Ecoblend 65 meets AS 3972

Sulphate Resisting Cement (SR) other wise known as Marine Grade Cement. Use of an Ecoblend 30 will, deliver significant durability enhancement over the use of a singular OPC.

Environmental Benefits	Technical Benefits	Economic Benefits
Reduced CO2 emissions	Higher ultimate strengths	Longer structural life
Use of an industrial waste. Diversion from landfill	Increased durability – chloride and sulphate resistance increased	Reduced structural maintenance cost
Reduced demand for virgin limestone resource	Lower Heat of hydration	Equivalent or lower initial and secondary cost (in \$ terms)
Energy resources saved – less requirement to burn fossil fuels	Enhanced workability – both concrete & stabilisation products	
Heat Island effects reduced	Protection against AAR	
Lower embodied energy	Efficient hydration at higher strengths	
Extended structural life	Self compacting abilities increased	
	Dye & pigments more readily accepted	



Left: Melbourne Exhibition Centre

### ENVIRONMENTAL QUALIFICATIONS

**Good Environmental Choice label** – ICL's Ecoblend, Australian Builders (Type GB) and Steel Cement has achieved the Good Environmental Choice declaration, offered by Australian Environmental Labelling Association Inc (AELA).

3rd party accreditation to ISO 14,024 "Environmental Product Declaration" verifying Ecoblend's:

- Environmentally preferable characteristics
- Are fit for purpose
- Meet environmental best practice
- Manufacturer complies to a high standard with worker obligations – [www.aela.org.au](http://www.aela.org.au)

#### Green Building Council of Australia, "Greenstar – Office Design Rating Tool."

Ecoblend can be used to gain credit points under the Greenstar program, as "supplementary cementitious material replacement of Portland Cement." Technical Manual, Materials – 5 (Page 164) [www.gbcaus.org](http://www.gbcaus.org)

#### BDP Environment Design Guide – Pro 31 November 2003 "Concrete and Sustainability" (Pages 6, 7 & 10) [www.bdp.asn.au](http://www.bdp.asn.au)

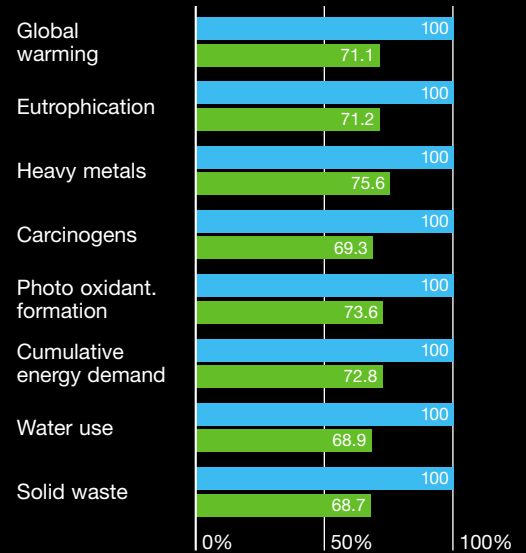
#### Other Environmental Listings include

- Municipal Association of Victoria – Eco Buy program [www.mav.asn.au/ecobuy](http://www.mav.asn.au/ecobuy)
- Eco-specifier [www.ecospecifier.org](http://www.ecospecifier.org)

### PRODUCT DETAILS

Ecoblend is a type GB cement conforming to AS3972. It consists of various specified proportions of Ordinary Portland Cement (GP), Ground Slag (GGBFS) and/or Fly ash (in the case of a triple blend). Ecoblend cement has a minimum supplementary cement material (SCM) component of 30%.

### Comparison of pure cement against 30% slag blended cement (Pure cement has been set to 100% and blended cement is shown relative to that)



■ Pure cement ■ 30% Slag

Comparing 1 kg material 'Pure cement' with 1 kg material '30% Slag'; Method: SimaPro 3.0 Eco-indi Australian Database/Australia revised/characterisation

### DESIGNER AND CUSTOM BLENDS

Modern ESD often requires a flexible engineering approach. ICL is conscious of these engineering requirements, and will blend to meet specific project requirements. The Ecoblend range is available in many combinations of blends, with a supplementary cement content over 30%.

### QUALITY

The Ecoblend range of blended cements conforms to AS 3972 Type GB General and Special Purpose Cement. Independent Cement and Lime's specialised blending facilities provide consistent, homogeneous cement products with predictable performance characteristics. Continual blend analysis ensure tight controls on quality.

Quality Assurance to AS/NZS ISO 9001.

### AVAILABILITY

The Ecoblend range of products is available throughout New South Wales and Victoria in bulk or bagged form.

**Our branded "Australian Builders Type GB" bagged cement conforms to and carries the "Good Environmental Choice" label it is part of the Ecoblend range.**