

# SUSTAINABILITY

Adelaide Brighton is committed to building a sustainable business with sound practices that support continuous improvement in social, environmental and economic performance of the Company, underpinned by a comprehensive governance structure.

## Sustainable business

### Governance

Board committees, management review, safety, health and environment committees, toolbox sessions, our people, audits

Integrated management systems, accountable management, risk management

### Social

Employee and contractor health and safety, skills and training, remuneration, cultural diversity, communication, consultation and involvement, company values, code of conduct, research and development, community support

Employee value, stakeholder relations, community and neighbourhood participation

### Economic

Shareholders, Government, customers, plant reliability, material supplies, product performance, regulation and licence conditions

Viable initiatives, assurance of supply, business strategy

### Environment

Waste utilisation, emission reduction, fuel and efficiency, public environmental health standard, power production, site rehabilitation, cleaner greenhouse gas emissions, product management and performance

Energy efficiency, conservation of natural materials, emissions management, product stewardship

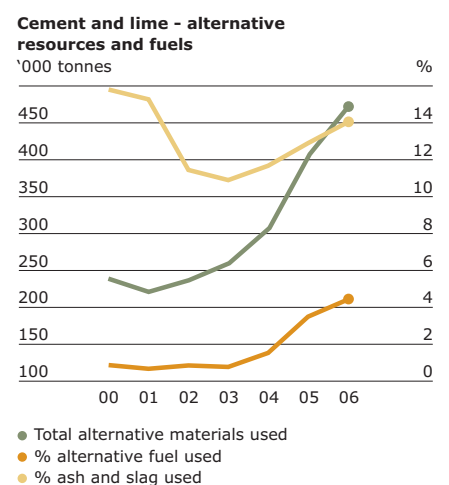
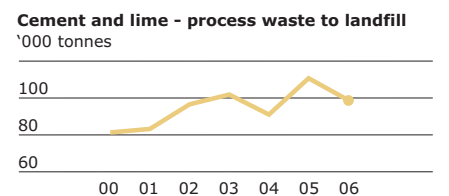
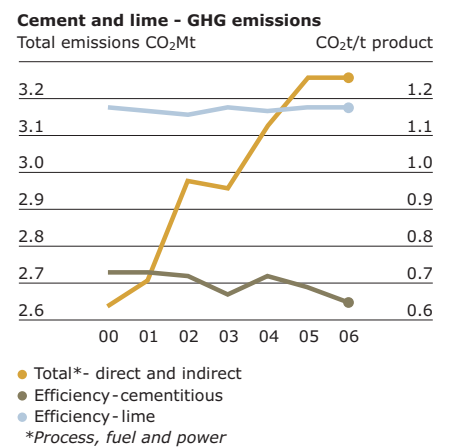
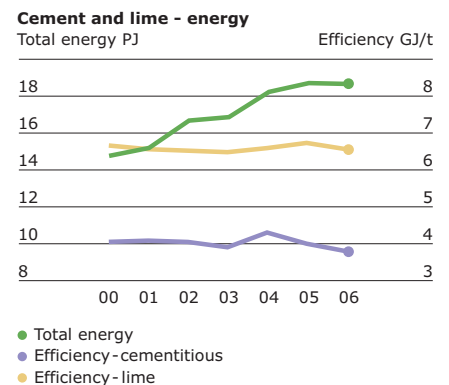
The sustainability focus of Adelaide Brighton is to strengthen the business performance in each area of management by:

- Conducting business according to the Company Code of Conduct
- Developing products and services that meet the expectations of our customers
- Reducing waste by reuse of process waste materials
- Implementing eco-efficient practices and reducing our dependence on natural resources, fuels and utilities
- Gaining production and quality improvement through technology
- Promoting product stewardship to support the safe and optimum use of our products
- Skilling our workforce to meet the objectives of the Company
- Improving the health, safety and environmental performance at our sites
- Engaging with stakeholders through regular programmes and communications.

To support the sustainability framework mapped by Adelaide Brighton, measures have been developed for the key areas of:

- Health and safety
- Greenhouse gas emissions
- Energy efficiency
- Alternative material use and waste reduction.

In 2006, Adelaide Brighton continued to achieve milestones in sustainability programmes across all Divisions supporting the Company's objectives.



## Key sustainability initiatives

As part of Adelaide Brighton's alternative resources, fuels and utilities programme, progress was made to adopt industry by-products as raw materials for our processes.

### Alternative resources, fuels and utilities

#### Materials

Angaston successfully trialled the use of grits, a by-product from soda ash production. Grits is used as a substitute for limestone in the production of Quicklime, resulting in the lowering of greenhouse gas emissions.

#### Fuels

Waste oils are used by the Mataranka lime plant in the Northern Territory as a substitute for natural gas. In 2006, utilisation of waste oils increased to a fuel substitution rate of 80%.

The use of Recycled Construction and Demolition timber (RCD) as a substitute for natural gas in the Birkenhead kiln, increased by 57% over 2005. This project reduces the amount of RCD which goes to landfill as well as greenhouse gas emissions which are generated from the burning of natural gas and the decomposition of RCD in landfill.

Birkenhead plant also increased the use of carbon anode powder, a by-product from the aluminium industry, in 2006.

The combination of the alternative fuels used at Birkenhead has reduced nitrogen dioxide emissions by 25%.

#### Water

Through a joint agreement with contract bottling company, Vinpac International, the Angaston plant will reuse about 40 megalitres of recycled wash water each year. This initiative conserves mains water used in the cement manufacturing process as well as providing the wine industry with an outlet for winery wash waters.

### Cement substitutes

To meet customer expectations of higher amounts of "green star concrete" and achieving product benefits of improved workability without compromising the strength of concrete, Hy-Tec and C&M Brick are developing products with reduced greenhouse gases associated with each cubic metre of concrete through the increased use of recycled materials.

In Queensland, Hy-Tec increased the amount of fly ash in their most common concrete mixes and developed a new product, *Slag Blended Cement*. Hy-Tec in New South Wales increased use of fly ash and slag by more than 10% while Hy-Tec in Victoria is developing concrete blends with utilisation of up to 35% slag.

C&M Brick completed an intensive R&D programme in 2006 to use furnace bottom ash, fine tuning mix designs and conducting extensive testing that will increase its use of ash 40 fold over its current requirement.



### Cleaner production: reducing wastes from our processes

The Munster plant undertook trials with lime kiln dust (LKD), a lime manufacturing waste, as a substitute raw material in the cement manufacturing process. The LKD, previously disposed to landfill, has been processed into pellets and used in the cement clinker feed. This project targets an 8% substitution rate in the cement clinker feed, significantly reducing greenhouse gas emissions in the clinker product and conserving natural resources.

The Vales Point fly ash depot reduced its mains water use by 65%. Technology was used to change pump seals to a dry operation, maintenance of water lines was improved and efficiency changes to wash down practices were implemented. In addition, an initiative with the local council will provide recycled water for plant use, further reducing the site's need for fresh supply.

### Product stewardship

A new product blending plant at Munster added flexibility to meet customer needs and reduce transportation costs and inconvenience in moving product between sites.

C&M Brick's 2005 business rationalisation and plant upgrades returned benefits to the business by reduced freight, fewer trucks on the road and better service to customers.

The Angaston and Birkenhead plants contributed to the development of a speciality underground stabilising product for the mining industry. *Bulk Cementitious Binder* has a higher green rating through lower greenhouse gas emissions per tonne and higher use of by-product materials.

Recycled construction and demolition waste processed by Alternative Fuel Company Pty Ltd as a substitute for natural gas in the Birkenhead kiln.



### Production improvements and energy efficiency

Cement and lime manufacture are energy intensive processes. A key focus of the Company is to seek opportunities to become more efficient -

- A thorough review of Munster's clinker chemistry increased kiln fuel efficiency and improved strength performance of cement.
- Angaston invested in new technology cement mill liners to improve milling efficiency.
- An upgrade to the Morgan Cement grinding plant reduced transport system power demand by 25% and reduced dust emissions.
- A research project between the Angaston plant, University of Adelaide and Fuel and Combustion Technology Pty Ltd developed a model to improve the design of kiln burners giving greater energy efficiency and heat release.
- Hy-Tec in Queensland and its haulage contractor achieved savings in time and fuel by using concrete agitator trucks as a means of blending two sand materials.

- Improved concrete plant design standards have been adopted by Hy-Tec. The design of the new Plumpton plant incorporates maximum water recycling and minimisation of dust and noise.
- A programme of water minimisation was implemented through the use of dust extractors at the load bays and maximisation of recycling of water at all concrete plants.

### Community participation

Adelaide Brighton, as a member of the Cement Industry Federation, has been participating at a global level with the World Business Council for Sustainable Development, Cement Sustainability Initiative. In August 2006, Dr Howard Klee, Cement Sustainability Project Director met with key Adelaide Brighton personnel, industry and government representatives to promote the achievements of the global cement industry, particularly Australia's participation.

### Awards and recognition

Adelaide Brighton's contribution to sustainability has been recognised in the South Australian Government 2006 publication "Good Business Guide".

Adelaide Brighton Cement received the South Australian CASANZ Air Quality Award for the development of air quality modelling and emissions data collection to understand and discuss the environmental effect of the Birkenhead and Angaston plants on the local communities.

Recognition of the development and introduction of biomass fuel to the Birkenhead plant was acknowledged through the Engineering Excellence Awards, Chemical Category Award for "Towards Zero Waste - Adelaide Brighton Alternative Fuel Project".

**Our people** Our people work across a range of disciplines, from our traditional engineering, technical and scientific base through to sales and marketing, human resources, finance and corporate support roles.

Adelaide Brighton is a high profile manufacturer of low cost versatile construction materials used in the development of modern societies. Manufacturing operations provide highly technical work for a range of professions and technical levels.

The Adelaide Brighton Group employs around 1300 people nationally with operations in all mainland capitals and a growing presence in key regional centres, mainly through the acquisition of smaller strategic business units.

**Training and development**

The growth in the Company has put a major focus this year on skills enhancement and leadership development of our people. The aim is to build not only capability, but also opportunity for our people to forge career paths within their organisation, and across the Group.

A number of new initiatives have been introduced across the organisation including group wide succession planning at the senior levels, leadership development for new and middle level managers, an increase in intra Company secondments to create development opportunities and build local skills, and paid parental leave and employee recognition schemes.

**Managing and rewarding our people**

The introduction of market positioning and evaluation for remuneration to all employees ensures that our people are being rewarded appropriately. Mercer Human Resources Consulting assists us with this work. During 2006, we also established an employee shared services model by way of the centralisation and simplification of the payroll system.

**Graduate programme**

The second half of 2006 saw the beginnings of the Adelaide Brighton Graduate programme. This aims to provide opportunities for graduates to move across the Company working on a combination of technical and commercial projects. This programme will be fully implemented in 2007.

**Labour relations**

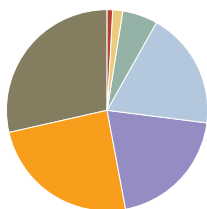
A number of new industrial agreements were completed in 2006. These agreements delivered prosperity to both the Company and to employees. Collective agreements and Australian Workplace Agreements were made within the Concrete Division in Queensland, Victoria and New South Wales.



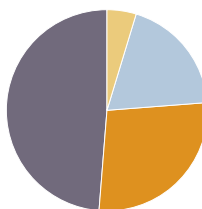
Sam Toppenberg  
Executive General  
Manager  
Human Resources



Cockburn Cement Munster Process  
Operators fine tuning milling circuits using  
recently upgraded Citect Scada System.



- Employees by location**
- South Australia
  - Western Australia
  - Victoria
  - New South Wales
  - Queensland
  - Northern Territory
  - ACT



- Employees by division**
- Cement and lime
  - Concrete products
  - Concrete and aggregates
  - Corporate

# Safety and health Adelaide Brighton is committed to achieving a safe, productive and healthy work environment - everyone must return home safely from work every day.

The Board Safety, Health and Environment (SH&E) Committee provides a conduit to ensure Adelaide Brighton's obligations to SH&E compliance and issues are monitored by the Board. The Board provides guidance and direction on SH&E matters through the regular review of safety and health strategy and performance.

Safety and health standards at Adelaide Brighton apply to employees, contractors and visitors at all sites. Our systems are intensive and cover all aspects of regular work while being flexible to allow for irregular tasks to be assessed and performed with due caution. This approach aims to reduce the likelihood of an incident and its severity.

Key indicators and best practice standards are adapted to each site's management system. The implementation of these procedures is measured and used to monitor the acceptance and development of the safety system.

Investigation of incidents and near misses supports the preventative approach to safety management, and employees, contractors and visitors are encouraged to raise concerns and contribute to improving Adelaide Brighton's safety record. A 20% increase in reported near-miss incidents and hazards has demonstrated employees' commitment to supporting the safety systems. Longer term, reviews are conducted to analyse the types of injuries being reported so that safety controls can be put in place and the workforce can be appropriately trained to meet the requirements of the workplace.

In response to the review and investigation of safety and health incidents, risk assessments are conducted and the findings are adopted by other sites in the organisation.

In 2006, risk assessments included:

- Tipper trucks delivering raw materials to Hy-Tec concrete plants as well as Munster, Darwin and Angaston cement and lime plants. The Concrete Products Division also undertook risk assessments of raw material delivery across all sites.
- Management of confined space entry into plant equipment at the Concrete and Aggregates Division sites to raise the standard of safety among maintenance work.

Plant hazard identification through regular inspections helps identify hazards before they cause an incident. Regular programmes of inspection increase improvement opportunities and introduce higher standards. Plant safety improvements are a budgeted item at all sites.

Site safety committees are an important part of ensuring ownership of safety and raising the safety standard at every level and function of the workforce.

For example, a number of actions undertaken by the committees include:

- A revised programme for annual reviews of employee and contractor inductions.
- A review of high-visibility clothing, eye and dust protection equipment.
- A review of the Job Safety Analysis system that identifies hazards associated with a task.

Safety training conducted at Adelaide Brighton sites during 2006 covered:

- Managers and Supervisors safety training and Job Safety Analysis.
- Site induction and safe use of loading equipment for truck drivers.
- Site safety standards training for contractors.
- Concrete and Aggregates Division training in workers' compensation cost management.
- First aid certificates and fire fighting training at all sites.
- Manual handling, slips, trips and falls prevention.



Joseph Mazzone  
Group SH&E  
Manager

Adelaide Brighton's health and safety programme has extended in 2006 to address behavioural safety. The Angaston plant is developing a behavioural safety programme based on identifying workplace at-risk behaviours, suitable for implementation at all sites.

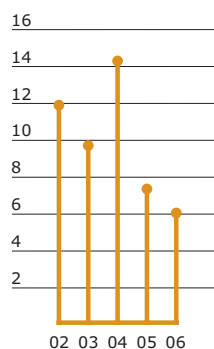
### Safety performance review

In 2006, all safety incident indicators showed improvement. Lost Time Injury (LTI) and Disabling Injury Frequency Rates (DIFR) reduced by 15%.

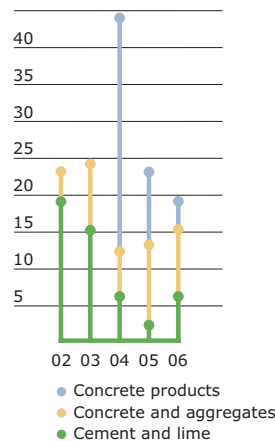
Injury data from Cement and Lime, and Concrete and Aggregates Divisions identified an increase in soft tissue injuries as a result of slips and falls and manual handling incidents. This will be a focus in site safety plans in 2007.

The Concrete Products Division had a strong focus on improved prevention and management of injuries, although there was a higher proportion of serious injuries from mechanical equipment. This has created a greater focus on job safety assessments, equipment lock outs and confined space working.

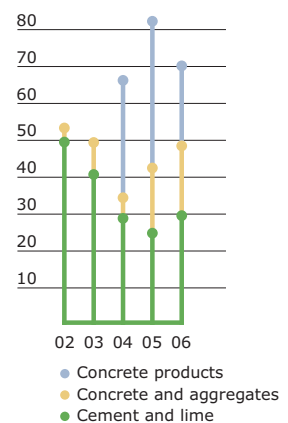
Lost time injury frequency rates



Lost time injuries



Disabling injuries (restricted duties)



## **Environment** It is a fundamental policy of Adelaide Brighton to reduce the impact of its operations on the environment.

### **Emissions reduction**

Adelaide Brighton considers emissions reduction an important part of continuing to operate in both the local and global communities. Through "Site Safe", the Group incident reporting system, all occurrences are logged, categorised and reported to the relevant executive general manager and the Board.

#### *Dust*

Adelaide Brighton achieves reductions in dust emissions through management and improvement plans, measurement programmes and reporting. All sites are required to comply with the Company standards for environmental management which are based on best practice requirements for the minimisation of their environmental footprint.

Birkenhead, Munster and Angaston plants monitor ambient dust emissions around the plants and are moving to source identification through forensic analysis to pinpoint emission controls and plant upgrades.

The Birkenhead plant three year \$12 million environmental improvement programme, which incorporates initiatives for dust reduction, was further progressed with the depressurisation of the clinker storage shed, relocation of the emergency limestone stockpile to a site with improved infrastructure for stockpile management and the paving and greening of open ground around the site.



*General services personal inspecting rehabilitation of Munster quarry 7 planted with Tuart trees.*

### **Adelaide Brighton classifications for specific environmental incidents**

- 
- Category 1 Minor potential effect to the environment. Resources are committed to achieving quick resolution. There is unlikely to be any regulatory or community reaction.
- 
- Category 2 Significant potential effect on external environment. Resources are committed to achieving resolution and the regulatory authorities are aware of plans for this to be done. The community may express concern.
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- Category 3\* Significant potential effect on external environment. Regulatory authorities are aware of the problem, are pressing for resolution, and may prosecute. The community is likely to express concern.
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- Category 4\* Very significant potential effect on the external environment. Action must be taken immediately, and prosecution is likely. The issue will lead to complaints from the community.
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\*Specific details of Category 3 and 4 reported to the Board

*World class research in Cockburn Sound, Western Australia, continues into seagrass rehabilitation with two hectares of seagrass successfully planted at a depth of nine metres. The success of this research has the potential to develop seabed rehabilitation in areas where seagrass has been lost. The partnership between Cockburn Cement and the Department of Industry and Resources, together with support to the University of Western Australia and the Murdoch University, has enabled the extension to funding from the Australian Research Council Linkage Grant. Further research work is planned to 2009.*

#### Greenhouse gas emissions

Adelaide Brighton is an active participant in the greenhouse challenge programme having renewed its voluntary commitment in a co-operative agreement with the Australian cement industry.

Adelaide Brighton's actions have included best practice technology, innovation of biomass renewable fuel and seeking alternative low greenhouse gas emitting materials for use in the production of cement, lime and concrete.

In 2006, the Company implemented the Cement Sustainability Initiative CO<sub>2</sub> Accounting and Reporting Standard from the World Business Council for Sustainable Development (WBCSD).

#### Eco-efficiency

Eco-efficiency in Adelaide Brighton's manufacturing processes conserves natural resources, uses wastes and achieves greater energy efficiency. All the Company's operations are addressing this issue by reviewing the selection of raw materials and fuels, energy efficiency and the use of innovation and technology. Using alternative materials and fuels will reduce greenhouse gas emissions, reduce landfill and the loss of resources to disposal, and will conserve natural materials.

In particular, Adelaide Brighton has focused on and is continuing to develop:

- Alternative fuels from biomass waste, the aluminium industry and waste oil at Birkenhead and Mataranka.
- Alternative raw materials from the metals and other industry at Angaston and Munster.
- Supplementary cementitious materials for use in concrete from coal fired power stations and metals industries.
- Waste water use from the wine industry at Angaston.
- Energy efficiency through process technology improvements at all sites.



#### Product stewardship

Adelaide Brighton is taking up the challenge of customer demand for green product. Development of cementitious materials with low greenhouse content and high levels of recycled materials has been a focus of product design in 2006 throughout all Divisions of the Company.

Adelaide Brighton is working to minimise packaging and transport activity by reducing the paper content in paper sacks, developing recyclable packaging materials and consolidating transport activities between sites.

#### Performance and compliance

The Company's operations are subject to various Commonwealth, state and territory laws governing the protection of the environment. Environmental operating licences govern the major plant operations and require stringent and detailed performance management.

The Birkenhead and Angaston plants are certified to the international environment standard ISO 14001 and retained this certification in 2006 through external audits.

There were no environmental category 3 incidents during 2006 and this reflects the improving reliability and control of plant operations. Public reports of dust emissions from the plants reduced by 33%, demonstrating the benefit of the major capital expenditures in the preceding years. Dust reductions in the community have been specifically measured around the Munster and Birkenhead works.

**Community and Government** Adelaide Brighton's operations are part of local communities and it is important for our businesses to work closely with the communities in which we operate. The Company provides support to a broad range of organisations through selective and considered sponsorship programmes.

Key sponsorship support in 2006 was provided to:

- Cockburn Basketball Association
- Community festive events adjacent to the Birkenhead and Munster plants
- Dongara Denison Surf Life Saving Club
- Flotilla for Kids
- Lakelands Christian Centre
- Lion's Hearing Dogs
- Operations Flinders Foundation
- South Metropolitan Youth Link
- The Leukaemia Foundation
- Variety, The Children's Charity

#### **Community consultation**

The challenge for our operations is to positively engage with adjacent residents and community representatives while ensuring environmental improvements are prioritised and undertaken in a timely manner. The community liaison groups are a forum for issues to be raised and for Adelaide Brighton to report the progress of environmental improvement programmes, changes to process, and public reporting requirements.

*Birkenhead:* A new community consultation program has led to the formation of a Community Liaison Group with representation from the Environment Protection Authority, Port Adelaide Council, local residents, community health centre and local environmental activist groups.

*Munster:* The Environmental Improvement Plan Community Working Group is a "tri-partite" arrangement of government, community and Company representatives with the focus on developing agreed environmental outcomes. Odour investigation, water management and dust are issues being investigated.

*Angaston:* Management from the Angaston plant engage with close residential neighbours and surrounding industries. A boundary noise monitoring programme has been implemented.

#### **Government issues**

Adelaide Brighton participates in the formation of legislation and regulations that affect the operations of the business. In 2006, our position on these issues developed with the government, public and industry consultation.

#### **Green rated production and construction materials**

Adelaide Brighton supports the use of suitable alternative materials and energy in manufacturing and construction materials, and actively works to supply low emission and sustainable products.

#### **Waste legislation**

To support recycling, changes in legislation are required to give industry incentives to investigate and have access to waste materials. All materials should be required to meet appropriate health, safety and environment standards according to their properties. Adelaide Brighton actively participates in forums on the issue of waste management and product stewardship on both state and national levels.

#### **Greenhouse gas reduction and climate change**

A suite of complementary policies is required to deal with the range and levels of progress being made by industry to reduce greenhouse gas climate change effects. Greenhouse gas emitters will need to change from traditional ways of operating with support from regulators, communities and markets to embrace sustainable products.

Investment in emerging technologies needs to be coordinated in order for significant greenhouse gas reductions to occur by 2050.

Adelaide Brighton has actively participated in the following greenhouse and policy programmes:

- Carbon price signals - national emissions trading scheme.
- SA Climate Change and Greenhouse Emissions Reduction Bill 2006.
- Asia Pacific Partnership on Clean Development and Climate (AP6) - Cement Committee.
- WA Greenhouse and Energy Taskforce.

#### **Separation distances**

Adelaide Brighton is concerned about residential encroachment around general industry zones. Poor town planning decisions that fail to apply the rules of state environmental authorities separation distance guidelines, do not recognise the comfort and protection required by both residential and general industry to enable each to conduct their activities with confidence. Adelaide Brighton supports the development of separation distance land with appropriate uses including transport corridors, community areas, and compatible industries.

#### **Energy Efficiency Opportunity Legislation**

The Energy Efficiency Opportunities Act 2006, designed to encourage and monitor industry commitment to identifying and implementing energy efficiency opportunities, will capture Adelaide Brighton's operations as we exceed the 0.5PJ threshold. This will require the assessment of Angaston, Birkenhead, Cockburn and Dongara plants. While the legislation will come into effect in 2007, Adelaide Brighton is integrating the requirements of the industry guidelines as part of established site energy efficiency reviews.

### **Quality assurance**

*Our cement and lime, and ready mixed concrete manufacturing sites are certified to ISO 9000 Quality Management Systems. The laboratories at Birkenhead, Angaston and Munster are accredited to ISO 17025 Testing and Calibration Laboratory Requirements.*