NON-CONFIDENTIAL

APPLICATION

for

DUMPING DUTY

on

QUICKLIME

from

THAILAND

PUBLIC
FILE 40

NON-CONFIDENTIAL

AUSTRALIAN CUSTOMS SERVICE

Application for Dumping and Countervailing Duties

DECLARATION

I request in accordance with Section 269TB of the Customs Act 1901 that the Minister publish in respect of goods the subject of this application:

☑ a dumping duty notice, or

☐ a countervailing duty notice, or

☐ a dumping and a countervailing duty notice

This application is made on behalf of the Australian industry producing like goods to the imported goods the subject of this application. The application is supported by Australian producers whose collective output comprises:

- 25% or more of the total Australian production of the like goods; and
- more than 50% of the total production of like goods by those Australian producers that have expressed either support for, or opposition to, this application.

I believe that the information contained in this application:

- provides reasonable grounds for the publication of the notice(s) requested; and
- is complete and correct.

Signature		
Name	ROGER D SIMPSON	
Position	CONSULTANT	
Company	ROGER D SIMPSON + ASSOCIATES PTY LTD	
ABN	87 056 514 213	Date 27/9/11

PART A
INJURY TO AN AUSTRALIAN INDUSTRY

A-1 Identity and communication.

Please nominate a person in your company for contact about the application:

Contact Name:	**Drew Elsbury**
Company and position:	**Market Development Manager, Cement & Lime Division. Adelaide Brighton Ltd**
Address:	**Lot 242 Russell Road, East Munster WA 6166**
Telephone:	**(08) 9411 1116**
Facsimile:	**(08) 9411 1120**
E-mail address:	**drew.elsbury@cockburncement.com.au**
ABN:	**15 007 596 018 (Adelaide Brighton Limited)**
ABN:	**50 008 673 470 (Cockburn Cement Limited)**

Alternative contact

Name:	**Brad Lemmon**
Position in the company:	**General Manager Sales & Marketing, Cement & Lime Division, Adelaide Brighton Ltd**
Address:	**Lot 242 Russell Road, East Munster WA 6166**
Telephone:	**(08) 9411 1136**
Facsimile:	**(08) 9411 1120**
E-mail address:	**brad.lemmon@cockburncement.com.au**

If you have appointed a representative to assist with your application, provide the following details and complete *Appendix A8* (Representation).

Name:	**Roger Simpson**
Business name:	**Roger D Simpson & Associates Pty Ltd**
Address:	**Level 1, 2 Mercantile Dock. Port Adelaide SA 5015**
Telephone:	**61 8 8447 3699**
Facsimile:	**61 8 8447 2661**
E-mail address:	**roger@panpac.biz**
ABN:	**87 056 514 213**

A-2 Company information.

1. State the legal name of your business and its type (eg. company, partnership, sole trader, joint venture). Please provide details of any other business names you use to manufacture/produce/sell the goods that are the subject of your application.

   Cockburn Cement Limited
   Australian Public Company (see ASIC Report at attachment A-2.1)
   No other business names are currently used to manufacture/produce/sell the goods that are subject to this application.

2. Provide your company's internal organisation chart. Describe the functions performed by each group within the organisation.

Cockburn Cement Limited is 100% owned by Adelaide Brighton Limited (ABL) who also own various other business entities, including a number of entities that manufacture, produce and sell lime and cement products. Internally, ABL's lime and cement business entities form the "Cement and Lime" division of ABL. Cockburn Cement Limited falls within this division. The Cement and Lime division of ABL is [redacted] **[Internal organization]**

Cockburn Cement Limited has [redacted] **[Internal organization]**

3. List the major shareholders of your company. Provide the shareholding percentages for joint owners and/or major shareholders.

Cockburn Cement Limited is 100% owned by Adelaide Brighton Limited.

4. If your company is a subsidiary of another company list the major shareholders of that company.

See attachment A-2.4 (page 32 of the enclosed 2010 ABL Annual Report).

5. If your parent company is a subsidiary of another company, list the major shareholders of that company.

N/A

6. Provide an outline diagram showing major associated or affiliated companies and your company's place within that structure (include the ABNs of each company).

The entities controlled by Adelaide Brighton Ltd (excluding joint ventures) are shown in attachment A-2.6 (page 88 of the 2010 ABL Annual Report). The major entities, which include Cockburn Cement, are shown in bold font.

7. Are any management fees/corporate allocations charged to your company by your parent or related company?

No

8. Identify and provide details of any relationship you have with an exporter to Australia or Australian importer of the goods.

N/A

9. Provide a copy of all annual reports applicable to the data supplied in *appendix A3* (Sales Turnover). Any relevant brochures or pamphlets on your business activities should also be supplied.

Cockburn Cement Limited is 100% owned by Adelaide Brighton Limited. As such, details on Cockburn Cement's operational and financial performance are incorporated into the enclosed annual report published by Adelaide Brighton Limited.

At attachment A-2.9 is Cockburn Cement's brochure.

Further company details can be found on the Cockburn Cement website at www.cockburncement.com.au

10. Provide details of any relevant industry association.

Adelaide Brighton Limited is a member of the National Lime Association of Australia. Cockburn Cement represents approximately 92% of Adelaide Brighton Limited's total lime production capability.

A-3 The imported and locally produced goods.

1. Fully describe the imported product(s) the subject of your application:
   - Include physical, technical or other properties.
   - Where the application covers a range of products, list this information for each make and model in the range.
   - Supply technical documentation where appropriate.

The imported product that is subject to this application is QUICKLIME. Quicklime is also known as Calcium Oxide as this is the dominant chemical composition of quicklime (CaO). Other common names to describe this product are Burnt Lime and Unslaked Lime. Quicklime is a white to grey, caustic, crystalline solid at room temperature.

Quicklime is typically made by the thermal decomposition of materials such as limestone, that contains calcium carbonate ($CaCO_3$; mineral calcite) in a lime kiln. This is accomplished by heating the material to above 1100 °C, a process called calcination or *lime-burning*, to liberate a molecule of carbon dioxide (CO_2); leaving quicklime.

Refer to attachment A-3.1: Quicklime Technical Information (from Chemistry and Technology of Lime and Limestone, RS Boynton, 1980).

Note: Quicklime kiln dust is not included.

2. What is the tariff classification and statistical code of the imported goods.

2522.10.00.26

3. Fully describe your product(s) that are 'like' to the imported product:

- Include physical, technical or other properties.
- Where the application covers a range of products, list this information for each make and model in the range.
- Supply technical documentation where appropriate.
- Indicate which of your product types or models are comparable to each of the imported product types or models. If appropriate, the comparison can be done in a table.

Cockburn Cement Limited produces quicklime in Western Australia. Cockburn Cement's quicklime is classified as "like" to the imported quicklime. Cockburn Cement's quicklime is a white to grey, caustic, crystalline solid at room temperature. In summary, it is predominantly the same chemical compound, i.e. Calcium Oxide. (Cockburn Cement Quicklime has a typical calcium oxide content of 83%).

Cockburn Cement's quicklime is produced by the thermal decomposition of limestone (shell sand), that contains calcium carbonate ($CaCO_3$; mineral calcite) in a lime kiln. This is accomplished by heating the material to above 1100 °C, a process called calcination or *lime-burning*, to liberate a molecule of carbon dioxide (CO_2); leaving quicklime. Please see the attachment A-3.3 which provides further technical and physical information on Cockburn Cement's quicklime ie –

- **Cockburn Cement Munster Quicklime Specification**
- **Cockburn Cement Quicklime Material Safety Data Sheet**

The table below outlines the comparisons of the lime goods.

	Cockburn Cement Quicklime	Imported Quicklime	Reference
Chemical name	Calcium Oxide	Calcium Oxide	www.Chememan.com
Chemical formula	CaO (approx 78-84%)	CaO (approx 85%)	www.Chememan.com
Physical Characteristics	Grey to white, caustic, crystalline solid	Grey to white, caustic, crystalline solid	Market feedback
Raw Material	Calcium Carbonate	Calcium Carbonate	www.Chememan.com
Production Process	Calcination via kiln	Calcination via kiln	www.Chememan.com

4. Describe the ways in which the essential characteristics of the imported goods are alike to the goods produced by the Australian industry.

There are a number of other Australian producers of quicklime (Calcium Oxide) and thus the essential characteristics of the imported quicklime are the same as the other Australian producers as tabled below;

	Typical Australian Quicklime	Imported Quicklime	Reference
Chemical name	Calcium Oxide	Calcium Oxide	www.Chememan.com

Chemical formula	CaO (typically > 78%)	CaO (approx 85%)	www.Chememan.com
Physical Characteristics	Grey to white, caustic, crystalline solid	Grey to white, caustic, crystalline solid	Market feedback
Raw Material	Calcium Carbonate	Calcium Carbonate	www.Chememan.com
Production Process	Calcination via kiln	Calcination via kiln	www.Chememan.com

5. What is the Australian and New Zealand Standard Industrial Classification Code (ANZSIC) applicable to your product.

ANZSIC details (from ABS search);
Division C MANUFACTURING
Subdivision 20 NON-METALLIC MINERAL PRODUCT MANUFACTURING
Group 203 CEMENT, LIME, PLASTER AND CONCRETE PRODUCT MANUFACTURING
Class 2031 Cement and Lime Manufacturing

This class consists of units mainly engaged in manufacturing portland, natural and other hydraulic cement from crushed limestone and clay/shale. Also included are units mainly engaged in manufacturing lime and lime products from calcareous materials.

6. Provide a summary and a diagram of your production process.

Cockburn Cement dredge shell sand (Calcium Carbonate) from the seabed in Owen Anchorage, off the coast from Woodman Point, approximately 7 km from the Munster operation. The trailer suction barge carries the sand back to Woodman Point and deposits it alongside the Cockburn Cement jetty.

The suction reclaimer pumps the sand into the washing plant at Woodman Point where oversized shells and soluble salts are removed. The washed sand is pumped in a fresh water medium to the shells and stockpile at Munster.

Stockpiled sand is reclaimed by front end loader and conveyed to the kiln storage hopper. The hopper feeds the sand at a controlled rate to the kiln pre-heater tower. The sand cascading down through the cyclones of the pre-heater is mixed with the rising hot gases from the rotary kiln. By the time it arrives at the bottom of the tower, it is already at 800oC.

The pre-heated sand slowly passes along the rotary kiln where it reaches its maximum temperature of 1100oC. At this temperature, the calcium carbonate is decarbonated to form calcium oxide or Quicklime. The quicklime is discharged through coolers to storage silos for distribution.

See attachment 3-6: Cockburn Cement Quicklime Manufacturing Process Diagram.

7. If your product is manufactured from both Australian and imported inputs:
   - describe the use of the imported inputs; and
   - identify that at least one substantial process of manufacture occurs in Australia (for example by reference to the value added, complexity of process, or investment in

capital).

N/A

8. If your product is a processed agricultural good, you may need to complete Part C-3 (close processed agricultural goods).

N/A

9. Supply a list of the names and contact details of all other Australian producers of the product.

Quicklime supplier	Contact details
Boral	South Marulan Rd, South Murlan, NSW 2579 Telephone (02) 4820 3000
Sibelco (formerly Unimin Pty Ltd)	Garthowen Rd, Attunga NSW 2345 Telephone (02) 6769 5501
Cement Australia	Station Ave, Darra QLD NSW 4075 Telephone 1300 CEMENT

There is also a number of other quicklime producers in Australia that manufacture lime products for internal use, ie. as a process reagent, intermediate product, fluxing agent etc. These producers include Queensland Alumina (alumina producer), Rio Tinto Alacan in Northern Territory (alumina producer), Bluescope Steel (iron and steel producer), Onesteel (iron and steel producer), Penrice Soda Holdings Limited (soda ash and sodium carbonate producer) and Australian Paper Mills (APM). As these manufacturers use the quicklime they produce internally, i.e. do not sell lime products into the Australian market, they are not considered part of the Australian industry producing quicklime, but rather members of the industry producing the products in which the quicklime they produced is used, eg alumina, iron and steel. Consequently their production is not taken into account in appendix A1.

The estimated total quicklime production volume of the above mentioned producers, based on historical analysis of lime kiln technology /capacity, is 670,000 mt pa, made up as follows:

Queensland Alumina	90,000
Rio Tinto Alacan	40,000
Bluescope Steel	140,000
Onesteel	75,000
Penrice	250,000
APM	75,000

To include these producers of quicklime in the Australian industry producing quicklime would not affect Cockburn's standing as an applicant.

A-4 The Australian market.

1. Describe the end uses of both your product and the imported goods.

Quicklime (calcium oxide) has been widely used in a variety of industrial processes for many centuries. In Western Australia, approximately 70% of Cockburn

Cement's quicklime production each year is used by the local alumina refineries as a process reagent in a number of applications including caustic regeneration, as a filter aid and in the phosphate removal circuits of the refineries. 20% of Cockburn Cement's quicklime production is used by the local gold industry as a pH modifier in the cyanidation process (gold extraction) whilst the remaining 10% is used by a variety of other industries for various applications. These include acidic effluent treatment and pH adjustment in mineral sands and other mineral processing, water treatment and building and construction (road construction & stabilization, additive in mortars).

The imported quicklime has the same end uses as Cockburn Cement's quicklime.

2. Generally describe the Australian market for the Australian and imported product and the conditions of competition within the overall market. Your description could include information about:

   - sources of product demand;
   - marketing and distribution arrangements;
   - typical customers/users/consumers of the product;
   - the presence of market segmentation, such as geographic or product segmentation;
   - causes of demand variability, such as seasonal fluctuations, factors contributing to overall market growth or decline, government regulation, and developments in technology affecting either demand or production;
   - the way in which the imported and Australian product compete; and
   - any other factors influencing the market.

Due to the capital intensive nature of quicklime production, the Australian quicklime industry is made up of a relatively small number of producers. Similar to Cockburn Cement, the majority of the other national quicklime producers are associated with cement production also, due to the synergies with producing, storing and distributing cement and lime products.

As in Western Australia, the national quicklime demand is dominated by the mineral processing industries, in particular, alumina, gold and steel manufacture were quicklime is a key process reagent. Quicklime is also used to a lesser extent in other industries as described for Cockburn Cement, namely other mineral processing, water treatment and building and construction.

Quicklime is typically distributed in bulk powder form. Due to the fine particle size and handling characteristics, quicklime is normally transported in specialized closed tankers/iso containers and discharged pneumatically into customer storage silos.

Market segmentation is dominated by the location of the key national customers – namely the alumina and other mineral processing industries. Cockburn Cement's approximate 60% share of the national quicklime market is primarily due to the close proximity of 4 large alumina refineries to Cockburn's Munster quicklime production facility as well as proximity to the Western Australian goldfields.

Similarly on the eastern seaboard, their quicklime market is predominantly

segmented around the mineral processing industries (namely alumina, gold and steel) of northern Queensland and New South Wales.

Local and national market analysis suggests demand variability throughout the year is limited, predominantly due to the continuous nature of mineral processing industries that use quicklime as a key process reagent. Historical analysis suggests the national market has grown marginally over the last five years, attributed to mineral processing expansion.

As the Australian and imported quicklime are the same product, they are substitutable and thus compete predominantly based on price.

3. Identify if there are any commercially significant market substitutes for the Australian and imported product.

There are currently no commercially significant market substitutes for the Australian and imported quicklime.

4. Complete *appendix A1* (Australian production). This data is used to support your declaration at the beginning of this application.

See Appendix A1.

5. Complete *appendix A2* (Australian market).

See Appendix A2.

6. Use the data from *appendix A2* (Australian market) to complete this table:

*Indexed table of sales quantities**

Period	(a) Your Sales	(b) Other Aust^n Sales	(c) Total Aust^n Sales (a+b)	(d) Dumped Imports	(e) Other Imports	(f) Total Imports (d+e)	Total Market (c+f)
2008	100	100	100	0	100	100	100
2009	100	110	104	100	174	174	104
2010	105	121	111	23,225	264	359	112
2011 (to June)	51	62	55	40,713	61	227	56

A-5 Applicant's Sales.

1. Complete *appendix A3* (sales turnover).

See Appendix A3.

2. Use the data from *appendix A3* (sales turnover) to complete these tables.

*Indexed table of Applicant's sales quantities**

Quantity	2008	2009	2010	2011 (to June)
All products				
Australian market	100	96	105	46
Export market	0	0	0	0
Total	100	96	105	46
Like goods				
Australian market	100	100	105	51
Export market	0	0	0	0
Total	100	100	105	51

*Indexed table of Applicant's sales values**

Value	2008	2009	2010	2011 (to June)
All products				
Australian market	100	103	119	52
Export market	0	0	0	0
Total	100	103	119	52
Like goods				
Australian market	100	105	114	55
Export market	0	0	0	0
Total	100	105	114	55

3. Complete *appendix A5* (sales of other production) if you have made any:

   - internal transfers; or
   - domestic sales of like goods that you have not produced, for example if you have imported the product or on-sold purchases from another Australian manufacturer.

   N/A

4. Complete *appendix A4* (domestic sales).

   See Appendix A4

   This spreadsheet details all Cockburn Cement quicklime sales for the period from 1 July 2010 to 30 June 2011. Cockburn Cement's business system (SAP) is not readily able to provide the invoice number / invoice date in the same format as the rest of this data. As such, the second tab of this spreadsheet provides an example of the commercial document flow. Each quicklime transaction is assigned an internal order number which directly links to the invoice, shipment document (if applicable) and other internal documents. As such, all invoices are auditable back to each transaction. The commercial documentation in A5.9 show examples of this.

   Please note, the following columns are not shown:

   2. Level of trade. All customers are deemed "[redacted]".

   3. Grade /model / type of the good. All like goods, ie quicklime.

   11/12/13/15/16/18. [redacted]
   [Pricing arrangement]

5. If any of the customers listed at *appendix A4* (domestic sales) are associated with your business, provide details of the association. Describe the price effect of the association.

   N/A

6. Attach a copy of distributor or agency agreements/contracts.

   N/A

7. Provide copies of any price lists.

   There are no price lists – prices are set by individual negotiations.

8. If any price reductions (for example commissions, discounts, rebates, allowances and credit notes) have been made on your Australian sales of like goods provide a description and explain the terms and conditions that must be met by the customer to qualify.

   - Where the reduction is not identified on the sales invoice, explain how you calculated the amounts shown in *appendix A4* (domestic sales).
   - If you have issued credit notes (directly or indirectly) provide details if the credited amount has **not** been reported in *appendix A4* (domestic sales) as a discount or rebate.

   The net proceeds payable by all customers is shown on all invoices, [redacted] [Pricing arrangements]

9. Select two domestic sales in each quarter of the data supplied in *appendix A4* (domestic sales). Provide a complete set of commercial documentation for these sales. Include, for example, purchase order, order acceptance, commercial invoice, discounts or rebates applicable, credit/debit notes, long or short term contract of sale, inland freight contract, and bank documentation showing proof of payment.

   See attachment A-5.9.

A-6 General accounting/administration information.

1. Specify your accounting period.

   1 January to 31 December.

2. Provide details of the address(es) where your financial records are held.

   Level 1, 157 Grenfell Street, Adelaide SA 5000

3. To the extent relevant to the application, please provide the following financial documents for the two most recently completed financial years plus any subsequent statements:

   - chart of accounts;
   - audited consolidated and unconsolidated financial statements (including all footnotes and the auditor's opinion);

- internal financial statements, income statements (profit and loss reports), or management accounts, that are prepared and maintained in the normal course of business for the goods.

Audited financial statements (consolidated) are included in the enclosed ABL 2010 Annual Report.

At attachment A-6.3 are the following unaudited, unconsolidated financial statements of Cockburn Cement:

- **Profit and loss statement - 2009 and 2010**
- **Balance sheets – 2009 and 2010**

4. If your accounts are **not** audited, provide the unaudited financial statements for the two most recently completed financial years, together with your taxation returns. Any subsequent monthly, quarterly or half yearly statements should also be provided.

N/A

5. If your accounting practices, or aspects of your practices, differ from Australian generally accepted accounting principles, provide details.

N/A

6. Describe your accounting methodology, where applicable, for:

- The recognition/timing of income, and the impact of discounts, rebates, sales returns warranty claims and intercompany transfers;

[redacted]

- provisions for bad or doubtful debts;

[redacted]

- the accounting treatment of general expenses and/or interest and the extent to which these are allocated to the cost of goods;

[redacted]

- costing methods (eg by tonnes, units, revenue, activity, direct costs etc) and allocation of costs shared with other goods or processes;

[redacted]

- the method of valuation for inventories of raw material, work-in-process, and finished goods (eg FIFO, weighted average cost);

[redacted]

- valuation methods for scrap, by-products, or joint products;

[redacted]

- valuation methods for damaged or sub-standard goods generated at the various stages of production;

[redacted]

- valuation and revaluation of fixed assets;

[redacted]

- average useful life for each class of production equipment, the depreciation method and depreciation rate used for each;

[redacted]

- treatment of foreign exchange gains and losses arising from transactions and from the translation of balance sheet items; and

[redacted]

- restructuring costs, costs of plant closure, expenses for idle equipment and/or plant shut- downs.

N/A

7. If the accounting methods used by your company have changed over the period covered by your application please provide an explanation of the changes, the date of change, and the reasons.

N/A

A-7 Cost information

1. Complete *appendices A6.1 and A6.2* (cost to make and sell) for domestic and export sales.

See Appendix A6.1.

A-8 Injury

The principal indicators of injury are prices, volumes and profit effects - although not all of these must be evident. For this application, profit refers to amounts earned. Profitability is the ratio of profit to sales revenue. Where injury is threatened, but has not yet occurred, refer to question C-2.

1. Estimate the date when the material injury from dumped imports commenced.

March 2010

2. Using the data from *appendix A6* (cost to make and sell), complete the following tables for each model and grade of your production. Pn is the most recent period.

Index of production variations (model, type, grade of goods)

Period	2008	2009	2010	H1/2011
Index	100	99	101	51

Index of cost variations (model, type, grade of goods)

Period	2008	2009	2010	H1/2011
Index	100	99	107	111

Index of price variations (model, type, grade of goods)

Period	2008	2009	2010	H1/2011
Index	100	105	108	108

Note: The effect of dumped imports from Thailand on Cockburn Cement's prices is best demonstrated in sec. A-9.2 hereunder.

Index of unit profit variations (model, type, grade of goods)

Period	2008	2009	2010	H1/2011
Index	100	117	111	104

Note: The effect of dumped imports from Thailand on Cockburn Cement's profit is best demonstrated in sec. A-9.2 hereunder.

Index of profitability variations (model, type, grade of goods)

Period	2008	2009	2010	H1/2011
Index	100	113	103	97

3. Complete *appendix A7* (other injury factors).

See Appendix A7

Where applicable to injury claims, prepare an indexed table for other injury factor(s) in the format above.

*Index of **Revenue***

Period	2008	2009	2010	H1/2011
Index	100	104	118	52

Note: The effect of dumped imports from Thailand on Cockburn Cement's revenue is best demonstrated in sec A-9.2 hereunder.

A-9 Link between injury and dumped imports.

To establish grounds to initiate an investigation there must be evidence of a relationship between the injury and the alleged dumping. This section provides for an applicant to analyse

the data provided in the application to establish this link. It is not necessary that injury be shown for each economic indicator.

1. Identify from the data at *appendix A2* (Australian market) the influence of the volume of dumped imports on your quarterly sales volume and market share.

   Dumped imports first entered the Australian market in March 2010 and have been in relatively small volumes, however, the data at appendix A2 does not properly reflect Cockburn's actual losses.

   Cockburn's actual loss of sales volume to the importer of the dumped imports, during 2010 and 2011 year to date is reported at attachment A-9.1, which includes a calculation of the contribution loss experienced by Cockburn because of the lost sales volume.

   Chememan's offers to several of Cockburn's customers at prices which significantly undercut Cockburn's prices resulted in certain gold mining customers switching supply to Chememan, viz [redacted]. In order to recover the lost sales volume and to retain other business that was likely to be lost, Cockburn reduced it's selling prices - see attachment A-9.2 "Chememan Pricing Impact on Cockburn Cement Pricing."

   Due to Chememan's low price offer, [redacted] purchased a total of [redacted] mt from Chememan during June 2010 to February 2011 to conduct trials of the dumped product. This sales volume would have otherwise been supplied by Cockburn. In addition, [redacted] have purchased another [redacted] mt from Chememan for supply during August and September to conduct further trials. These volumes would also have been supplied by Cockburn but for the dumped price offered by Chememan.

   [redacted] and Cockburn [redacted] [Contractual arrangements] [redacted] has continued to conduct further trials of the dumped product and this suggests to Cockburn that there is a real possibility of [redacted] purchasing significant quantities of the dumped product from Chememan in the future.

   The volume effect of the dumped imports on Cockburn to date is relatively small because in order to retain sales volume Cockburn has reduced its prices in response to Chememan's price undercutting. This has resulted in significant negative price and profit impact of the dumped imports on Cockburn's economic performance - section A-9.2 hereunder refers.

2. Use the data at *appendix A2* (Australian market) to show the influence of the price of dumped imports on your quarterly prices, profits and profitability provided at *appendix A6.1* (costs to make and sell). If appropriate, refer to any price undercutting and price depression evident in the market.

   At attachment A-9.2 are the following documents which demonstrate the effect of Chememan's price undercutting on Cockburn's prices, revenue, profit and

profitability:

- Chememan Australia - Timeline Summary
- Chememan Pricing Impact on Cockburn Cement Pricing
- 2010/2011 Cockburn Cement Quicklime Sales
- Email exchanges between Chememan Australia and [redacted]
- Cockburn sales invoices to, and sales agreements with, [redacted] and [redacted]
- [redacted] Quicklime Supply Proposal analysis and Heads of Agreement.

The "Chememan Australia - Timeline Summary" provides a chronology of Chememan's activities in the Australian market and Cockburn's price reductions in response to these activities.

The "Chememan Pricing Impact on Cockburn Cement Pricing" provides details of the impact of Chememan's price undercutting on Cockburn's prices and sales revenue. Details provide are in respect of -

- Cockburn customers involved;
- Chememan pricing to those customers - FIS and ex – Chememan distribution facility ("Henderson");
- Cockburn's original price and revised price in response to Chememan's price undercutting and the revenue impact thereof; and
- the overall revenue impact of Chememan's price undercutting ("Pricing injury summary").

The "2010/2011 Cockburn Cement Quicklime Sales" evidences the annual quicklime demand of the customers included in "Chememan Pricing Impact on Cockburn Cement Pricing" and used in calculation of the annual impact on Cockburn's' revenue ("CCL impact").

The email exchanges between Chememan Australia and [redacted] prove that Cockburn's price reduction to [redacted] per "Chememan Pricing Impact on Cockburn Cement Pricing" was because of Chememan's price undercutting.

The Cockburn invoices to, and sales agreements with [redacted] and [redacted] prove price reductions in response to Chememan's price undercutting as reported in the "Chememan Australia-Timeline Summary". They evidence prices before and after the sales agreements with [redacted] and [redacted], effective from [redacted] respectively.

The "[redacted] Quicklime supply Proposal Analysis" and Heads of Agreement evidence the effect of the availability of the dumped imports, which had been successfully trialled by [redacted], on price negotiations. Cockburn considers the original price proposed [redacted] achievable but for the effect of the availability of the dumped imports on price negotiations which caused it to be reduced to that finally agreed ($[redacted]). Please note that the [redacted] pricing is based on [redacted]

[redacted] [Pricing arrangements]

The evidence at attachment A-9.2 makes it clear that the price of the dumped imports in the Australian market during 2010/2011 has had a significant negative impact on Cockburn's price, revenue, profit and profitability.

It is important in this regard that Cockburn's loss of revenue caused by Chememan's price undercutting flows directly through to a loss of profit and profitability as Cockburn's costs remain essentially the same (relatively small volume loss).

3. Compare the data at *appendix A2* (Australian market) to identify the influence of dumped imports on your quarterly costs to make and sell at *appendix A6.1* (for example refer to changes in unit fixed costs or the ability to raise prices in response to material cost increases).

The dumped imports have had no meaningful impact on Cockburn's costs to make and sell – production volumes have been maintained by selling price reductions in response to Chememan's price undercutting – section A-9.2 above refers.

4. The quantity and prices of dumped imported goods may affect various economic factors relevant to an Australian industry. These include, amongst other things, the return on investment in an industry, cash flow, the number of persons employed and their wages, the ability to raise capital, and the level of investment in the industry. Describe, as appropriate, the effect of dumped imports on these factors and where applicable use references to the data you have provided at *appendix A7* (other injury factors). If factors other than those listed at *appendix A7* (other injury factors) are relevant, include discussion of those in response to this question.

Primary injury factors are loss of sales and market share, price undercutting, price depression, reduced sales revenue and reduced profit and profitability.

5. Describe how the injury factors caused by dumping and suffered by the Australian industry are considered to be 'material'.

The customers to whom Cockburn's selling prices have been negatively impacted by the price undercutting by the dumped imports per attachment A-9.2 "Chememan Pricing Impact on Cockburn Cement", represent about [redacted]% of Cockburn's annual sales volume. And the impact of the reduction in Cockburn's selling prices to these customers because of the price undercutting by the dumped imports on revenue and net profit is about $ [redacted] pa. Hence the injury caused by the dumped imports is considered to be material.

6. Discuss factors other than dumped imports that may have caused injury to the industry. This may be relevant to the application in that an industry weakened by other events may be more susceptible to injury from dumping.

There are no factors other than the dumped imports that may have caused injury to Cockburn during 2010/2011.

7. This question is not mandatory, but may support your application. Where trends are

evident in your estimate of the volume and prices of dumped imports, forecast their impact on your industry's economic condition. Use the data at *appendix A2* (Australian market), *appendix A6* (cost to make and sell), and *appendix A7* (other injury factors) to support your analysis.

Because the price reductions outlined in attachment A-9.2 apply to term contracts with the customers involved, Cockburn's annual revenue and profit loss attributable to the dumped imports will continue in the foreseeable future.

PART B
DUMPING

B-1 Source of exports.

1. Identify the country(ies) of export of the dumped goods.

   Thailand.

2. Identify whether each country is also the country of origin of the imported goods. If not, provide details.

   Origin – Thailand.

3. If the source of the exports is a non-market economy, or an 'economy in transition', refer to Part C-4 and Part C-5 of the application.

   N/A

4. Where possible, provide the names, addresses and contact details of:

   - producers of the goods exported to Australia;

     Chememan Co Ltd
     Bangkok Thailand

   - exporters to Australia; and

     Chememan Co Ltd
     Bangkok Thailand

   - importers in Australia.

     Chememan Australia Pty Ltd
     11 Sparks Road
     Henderson WA 6166

5. If the import volume from **each** nominated country at *Appendix A.2* (Australian Market) does not exceed 3% of all imports of the product into Australia refer to Part C-6 of the application.

   N/A

6. In the case of an application for countervailing measures against exports from a developing country, if the import volume from **each** nominated country at *Appendix A.2* (Australian Market) does not exceed 4% of all imports of the product into Australia refer to Part C-6 of the application.

   N/A

B-2 Export price

Possible sources of information on export price include export price lists; estimates from the Australian Bureau of Statistics; a deductive export price calculation from the Australian selling price of the imported goods; export sales quotations or invoices; foreign government export trade clearances.

1. Indicate the FOB export price(s) of the imported goods. Where there are different grades, levels of trade, models or types involved, an export price should be supplied for each.

   The average FOB export price for 2010/11 according to ABS import statistics per attachment A-4.5 is AUD 120/mt.

   Market intelligence per "Chememan Pricing Impact on Cockburn Cement Pricing" at attachment A-9.2 and Chememan's post-FOB costs per data included in appendix B1, strongly suggest that FOB prices per ABS import statistics at attachment B-4.5 do not appropriately reflect actual export prices. It is likely that the association between the importer (Chememan, Australia) and the exporter (Chememan, Thailand) has caused purchases by Chememan, Australia from Chememan, Thailand to be not arms length transactions.

   Consequent upon the foregoing, export prices should be calculated in accordance with s269TAB(1)(b), ie at the price at which Chememan Australia resold the goods to independent customers less prescribed deductions per s269TAB(2).

2. Specify the terms and conditions of the sale, where known.

   Not known.

3. If you consider published export prices are inadequate, or do not appropriately reflect actual prices, please calculate a deductive export price for the goods. *Appendix B1* (Deductive Export Price) can be used to assist your estimation.

   Refer to B-2.1 above and Appendix B1.

   The deductive FOB export price according to appendix B1 is AUD 80/mt. Please note that estimates used in the calculation of the deductive export price are conservative, eg capital and operating expenses of Chememan Australia are based on 100,000 mt pa throughput at the Henderson site whereas they are currently doing about 10,000 mt pa. Also logistic costs included in the appendix B1 are conservative as can be seen from the back-up information included.

   The deductive FOB export price calculation per appendix B1 starts with Chememan Australia's in-store price, from which Chememan Australia's assumed capital and operating expenses and post-FOB into-store costs are deducted.

[redacted]

[redacted] **[basis for the Chememan Australia selling price used in the deductive export price per appendix B-1]**

4. It is important that the application be supported by evidence to show how export price(s) have been calculated or estimated. The evidence should identify the source(s) of data.

   See back-up data included in Appendix B1.

B-3 Selling price (normal value) in the exporter's domestic market.

Possible sources of information about domestic selling prices in the country of export include: price lists for domestic sales (with information on discounts): actual quotations or invoices relating to domestic sales: published material providing information on the domestic selling prices: or market research undertaken on behalf of the applicant.

1. State the selling price for each grade, model or type of like goods sold by the exporter, or other sellers, on the domestic market of the country of export.

   Cockburn has received advice from [redacted], Bangkok that Chememan's selling price of quicklime in the Thai domestic market is about USD [redacted]/mt ex-works, but has been unable to obtain documentary evidence to support [redacted] advice. Consequently Cockburn has constructed a normal value vide s269TAC(2)(c) per Appendix B2. The normal value constructed by Cockburn supports the above [redacted] advice.

2. Specify the terms and conditions of the sale, where known.

   Not known

3. Provide supporting documentary evidence.

None Available

4. List the names and contact details of other known sellers of like goods in the domestic market of the exporting country.

Not known

B-4 Estimate of normal value using another method.

This section is not mandatory. It need only be completed where there is no reliable information available about selling prices in the exporter's domestic market. Other methods of calculating a normal value include:

- *the cost to make the exported goods plus the selling and administration costs (as if they were sold in the exporter's domestic market) plus an amount for profit (if applicable); OR*
- *the selling price of like goods from the country of export to a third country.*

1. Indicate the normal value of the like goods in the country of export using another method (if applicable, use *appendix B2* Constructed Normal Value)

See Appendix B-2

The normal value per appendix B-2 is constructed by adding to the cost to make, comprised of variable manufacturing costs (raw material, fuel, power) and fixed manufacturing costs (labour, maintenance, depreciation, overheads), bagging and distribution costs and a reasonable profit margin.

The above cost and expense components come from a mixture of industry experience, industry standards and Cockburn's actual costs and expenses adjusted as necessary for either known or reasonably assumed differences between them and Chememan Thailand's costs and expenses.

2. Provide supporting documentary evidence.

Included in Appendix B-2

B-5 Adjustments.

A fair comparison must be made between the export price and the normal value. Adjustments should be made for differences in the terms and circumstances of the sales such as the level of trade, physical characteristics, taxes or other factors that affect price comparability.

1. Provide details of any known differences between the export price and the normal value. Include supporting information, including the basis of estimates.

The constructed normal value at Appendix B2 is USD/ tonne whereas the export price per Appendix B1 is AUD/ tonne.

2. State the amount of adjustment required for each and apply the adjustments to the domestic prices to calculate normal values. Include supporting information, including the basis of estimates.

The average rate of exchange for July 2010 - June 2011 was USD 1 = AUD 1 and therefore no adjustment is necessary. No other adjustments are considered necessary for the purpose of demonstration of a prima facie dumping margin.

B-6 Dumping margin.

1. Subtract the export price from the normal value for each grade, model or type of the goods (after adjusting for any differences affecting price comparability).

	(AUD/mt)
Normal value per appendix B-2	**143**
Export price per appendix B-1	**80**
Dumping Margin	**63**

2. Show dumping margins as a percentage of the export price.

The above dumping margin is 79% of the FOB export price.

LIST OF APPENDICES AND ATTACHMENTS

- **Appendices**

Appendix	A1	Australian production	(Confidential)
	A2	Australian market	(Confidential)
	A3	Sales turnover	(Confidential)
	A4	Domestic sales	(Confidential)
	A6.1	CTMS – domestic sales	(Confidential)
	A7	Other injury factors	(Confidential)
	A8	Representative Authorisation	(Confidential)
	B1	Deductive export price	(Confidential)
	B2	Constructed normal value	(Confidential)

- **Attachments**

Attachment	A-2.1	ASIC Report
	A-2.2	Organisation charts (Confidential)
	A-2.4	Shareholding – Adelaide Brighton Ltd
	A-2.6	Affiliated companies
	A-2.9	Cockburn Cement brochure
	A-3.1	Quicklime technical information
	A-3.3	Technical information – quicklime produced by Cockburn
	A-3.6	Manufacturing process
	A-4.5	ABS import statistics (Confidential)
	A-5.9	Domestic sales documents (Confidential)
	A-6.3	Financial documents (Confidential)
	A-9.1	Volume effect of dumped imports (Confidential)
	A-9.2	Price and profit effect of dumped imports (Confidential)

Attachment A-2.1

ASIC
Australian Securities & Investments Commission

Forms Manager
Company Officeholders

Company: COCKBURN CEMENT LIMITED ACN 008 673 470

Company details

Date company registered	21-07-1952
Company next review date	30-06-2012
Company type	Australian Public Company
Company status	Registered
Home unit company	No
Superannuation trustee company	No
Non profit company	No

Registered office

LEVEL 1 , 157 GRENFELL STREET , ADELAIDE SA 5000

Principal place of business

LOT 242 RUSSELL ROAD EAST , MUNSTER WA 6166

Ultimate holding company

ADELAIDE BRIGHTON LTD.
ACN 007 596 018
Incorporated in AUSTRALIA

Officeholders

BRYDON, MARTIN
Born 15-05-1955 at LUTON UNITED KINGDOM
3 HOUSTON PLACE , MOUNT CLAREMONT WA 6010
Office(s) held: Director, appointed 20-07-1999

DOUGLAS, THOMAS
Born 20-11-1948 at ADELAIDE SA
9 NOLAN PLACE , WEST LAKES SHORE SA 5020
Office(s) held: Director, appointed 15-12-2004

CLAYTON, MARCUS ROLAND DEAN
Born 31-07-1964 at STIRLING SA
'DUMBLETON' , 272 MT BARKER ROAD , ALDGATE SA 5154
Office(s) held:
Secretary, appointed 23-03-2004

KELLY, ANDREW MICHAEL
Born 22-07-1967 at DOWNPATRICK UNITED KINGDOM

15

85 SURREY STREET , DARLINGHURST NSW 2010

Office(s) held: Director, appointed 30-04-2010

Company share structure

Share class	Share description	Number issued	Total amount paid	Total amount unpaid
ORD	ORDINARY	30000000	15000000.00	0.00

Members

As from 1 July 2007, members information for public companies will not be recorded and provided by ASIC. This is due to the implementation of the Simpler Regulatory System Bill Package Corporations Amendment Regulations 2007 (No.5)

Document history

These are the documents most recently received by ASIC from this organisation.

Received	Number	Form	Description	Status
13-05-2010	7E2888046	484	CHANGE TO COMPANY DETAILS	Processed and imaged
08-07-2008	7E1700196	484	CHANGE TO COMPANY DETAILS	Processed and imaged
29-01-2008	024493544	389	ANNUAL NOTICE BY WHOLLY-OWNED ENTITY	Processed and imaged

Attachment A-2.4

shareholder information

Enquiries about your shareholding
Enquiries or notifications by shareholders regarding their shareholdings or dividends should be directed to Adelaide Brighton's share registry: Computershare Investor Services Pty Limited
Level 5, 115 Grenfell Street
Adelaide SA 5000
Telephone 1800 339 522
International +61 3 9415 4031
Facsimile 1300 534 987
International +61 8 8236 2305

When communicating with the share registry, shareholders should quote their current address together with their Security Reference Number (SRN) or Holder Identification Number (HIN) as it appears on their Issuer Sponsored/ CHESS statement.

Online services
Shareholders can access information and update information about their shareholding in Adelaide Brighton Limited via the internet by visiting Computershare Investor Services Pty Ltd website: www.investorcentre.com

Some of the services available online include: check current holding balances, choose your preferred annual report option, update address details, update bank details, confirm whether you have lodged your TFN, ABN or exemption, view your transaction and dividend history or download a variety of forms.

Enquiries about Adelaide Brighton Ltd
Enquiries about Adelaide Brighton Ltd should be directed to:
Group Corporate Affairs Adviser
Adelaide Brighton Ltd
GPO Box 2155
Adelaide SA 5001
Telephone (08) 8223 5000
Facsimile (08) 8215 0030
adelaidebrighton@adbri.com.au

Annual general meeting
The annual general meeting of shareholders will be held at the InterContinental, North Terrace, Adelaide, South Australia on Wednesday 18 May 2011 at 11.00 am.

Direct credit of dividends
Dividends can be paid directly into a bank or other financial institution. Payments are electronically credited on the dividend payment day and subsequently confirmed by mailed payment advice. Application forms are available from our share registry, Computershare Investor Services Pty Ltd or visit the website at: www.computershare.com.au/easyupdate/abc to update your banking details.

Combining multiple shareholdings
If you have multiple shareholding accounts that you want to consolidate into a single account, please advise the share registry, Computershare Investor Services Pty Limited, in writing.

Change of address
Shareholders who are Issuer Sponsored should notify any change of address to the share registry, Computershare Investor Services Pty Limited, by telephone or in writing quoting your security holder reference number, previous address and new address. Broker Sponsored (CHESS) holders should advise their sponsoring broker of the change.

Registered office
Level 1, 157 Grenfell Street
Adelaide SA 5000
Telephone (08) 8223 8000
Facsimile (08) 8215 0030

Stock exchange listing
Adelaide Brighton Ltd is listed on the Australian Securities Exchange and trades under the symbol "ABC". Adelaide is Adelaide Brighton Ltd's home exchange.

Communications
Our internet site www.adbri.com.au offers access to our ASX announcements and news releases as well as information about our operations.

Substantial shareholders
> Barro Properties Pty Ltd, by a notice of change of interests of substantial shareholder dated 4 May 2009, informed the Company that it or an associate had a relevant interest in 145,039,812 ordinary shares or 23.7% of the Company's issued share capital.
> AMP Limited, by a notice of change of interests of substantial shareholder dated 31 March 2011, informed the Company that it or an associate had a relevant interest in 45,392,995 ordinary shares or 7.15% of the Company's issued share capital.
Perpetual Limited, by a notice of initial substantial shareholder dated 15 March 2011, informed the Company that it and its subsidiaries had a relevant interest in 32,520,439 ordinary shares or 5.12% of the Company's issued share capital.

On market buy back
At 1 April 2011 there is no on-market buy back of the Company's shares being undertaken.

Top twenty largest shareholders as at 1 April 2011

Shareholder	*No. of ordinary shares held*	*% of issued capital*
Barro Properties Pty Ltd	116,276,429	18.31
National Nominees Limited	83,509,461	13.15
JP Morgan Nominees Australia Limited	80,083,597	12.61
HSBC Custody Nominees (Australia) Limited	55,264,489	8.70
Barro Group Pty Ltd	30,199,353	4.75
Citicorp Nominees Pty Limited	26,024,154	4.10
Cogent Nominees Pty Limited	18,651,297	2.94
AMP Life Limited	17,252,297	2.72
RBC Dexia Investor Services Australia Nominees Pty Limited <PIPOOLED A/C>	14,742,874	2.32
JP Morgan Nominees Australia Limited - Cash Income A/C -	13,975,874	2.20
Cogent Nominees Pty Limited - SMP Accounts>	10,565,111	1.66
UBS Wealth Management Australia Nominees Pty Ltd	4,699,156	0.74
Argo Investments Ltd	3,932,062	0.62
Barro Properties Pty Ltd	3,680,078	0.58
UBS Nominees Pty Ltd	2,782,679	0.44
UCA Growth Fund Limited	2,000,000	0.31
Citicorp Nominees Pty Limited <CFSIL Cwlth Aust SHS 4 A/C>	1,886,217	0.30
HSBS Custody Nominees (Australia) Limited A/C 2	1,679,503	0.26
RBC Dexia Investor Services Australia Nominees Pty Limited - PIPOs> A/C	1,645,332	0.26
Milton Corporation Limited	1,613,440	0.25
Total top 20 shareholders	**490,462,385**	**77.22**
Total remaining holders balance	**144,670,425**	**22.78**

Voting rights
All shares at 1 April 2011 were of one class with equal voting rights being one vote for each shareholder and, on a poll, one vote for each fully paid ordinary share.

Shares held at 1 April 2011	*No. of shareholders*	*% of issued capital*
1 - 1,000	3,136	0.23
1,001 - 5,000	6,028	2.71
5,001 - 10,000	2,822	3.33
10,001 - 100,000	2,802	10.30
100,001 - over	161	83.43
Total shareholders	**14,949**	**100.00**
Less than a marketable parcel of	153	731

Unquoted securities
5,315,000 issued to the Managing Director and other members of the senior executive team under the Adelaide Brighton Ltd Executive Performance Share Plan as part of the Company's long term incentive program. The Awards are not quoted and do not participate in the distribution of dividends and do not have voting rights. The total number of participants in the Adelaide Brighton Ltd Executive Performance Share Plan and eligible to receive the Awards is 14.

33 Investments in controlled entities

Name of entity	Place of incorporation	Class of shares	Equity holding 2010 %	Equity holding 2009 %
Adelaide Brighton Ltd				
Adelaide Brighton Cement Ltd[2]	South Australia	Ord	100	100
Adelaide Brighton Cement Inc	Washington USA	Ord	80	80
Adelaide Brighton Cement Investments Pty Ltd[2]	South Australia	Ord	100	100
Adelaide Brighton Management Ltd[2]	South Australia	Ord	100	100
Adelaide Brighton Cement International Pty Ltd[1]	South Australia	Ord	100	100
Adelaide Brighton Intellectual Property Pty Ltd[1]	South Australia	Ord	100	100
Cement Resources Consolidated Pty Ltd[1]	South Australia	Ord	100	100
Cockburn Cement Ltd[2]	Western Australia	Ord	100	100
Hy-Tec Industries (Queensland) Pty Ltd[1]	South Australia	Ord	100	100
Northern Cement Ltd[2]	Northern Territory	Ord	100	100
Premier Resources Ltd[2]	New South Wales	Ord	100	100
Adbri Masonry Group Pty Ltd[2]	Victoria	Ord	100	100
Adelaide Brighton Cement Ltd				
Exmouth Limestone Pty Ltd[1]	Western Australia	Ord	51	51
Adelaide Brighton Cement Inc				
Adelaide Brighton Cement (Florida) Inc	Florida USA	Ord	100	100
Adelaide Brighton Cement (Hawaii) Inc	Hawaii USA	Ord	100	100
Hileah (Florida) Management Inc	Florida USA	Ord	100	100
Adelaide Brighton Management Ltd				
Accendo Pty Ltd[1]	South Australia	Ord	100	100
Global Cement Australia Pty Ltd[1]	New South Wales	Ord	100	100
Hurd Haulage Pty Ltd[1]	Victoria	Ord	100	100
K.C. Mawson Pty Ltd[1]	New South Wales	Ord	100	100
Adelaide Brighton Cement International Pty Ltd				
Adelaide Brighton Cement Inc	Wash. State USA	Ord	20	20
Fuel & Combustion Technology International Ltd	United Kingdom	Ord	100	100
Fuel & Combustion Technology International Ltd				
Fuel & Combustion Technology International Inc	USA	Ord	100	100
Northern Cement Ltd				
Mataranka Lime Pty Ltd[1]	South Australia	Ord	100	100
Cockburn Cement Ltd				
Cockburn Waters Pty Ltd[1]	Western Australia	Ord	100	100
Hydrated Lime Pty Ltd[1]	Western Australia	Ord	100	100
Chemical Unit Trust[1]	Western Australia	Units	100	100
Kalgoorlie Lime & Chemical Company Pty Ltd[1]	Western Australia	Ord	100	100
Premier Resources Ltd				
Hy-Tec Industries Pty Ltd[2]	New South Wales	Ord	100	100
Hy-Tec Industries (Victoria) Pty Ltd[2]	New South Wales	Ord	100	100
Bonfoal Pty Ltd[1]	New South Wales	Ord	100	100
Aus-10 Rhyolite Pty Ltd[1]	New South Wales	Ord	100	100
Morgan Cement International Pty Ltd[2]	New South Wales	Ord	100	100
Hy-Tec Industries (Victoria) Pty Ltd				
CRC2 Pty Ltd[1]	Victoria	Ord	100	100
CRC3 Pty Ltd[1]	Victoria	Ord	100	100
Hy-Tec Industries (Victoria) No 1 Pty Ltd[1]	New South Wales	Ord	100	100
Hy-Tec Industries (Victoria) No 2 Pty Ltd[1]	New South Wales	Ord	100	100
Sheltacrete Pty Ltd[1]	New South Wales	Ord	100	100
Adbri Masonry Group Pty Ltd				
Adbri Masonry Pty Ltd[2]	Queensland	Ord	100	100
Adbri Mining Products Pty Ltd[2]	Queensland	Ord	100	100
C&M Masonry Products Pty Ltd[2]	South Australia	Ord	100	100
Betta Brick Pty Ltd[1]	Victoria	Ord	100	100
C&M Brick (Bendigo) Pty Ltd[1]	Victoria	Ord	100	100
C&M Design/Construct Pty Ltd[1]	Victoria	Ord	100	100

1 Small proprietary Company as defined by the Corporations Act and is not required to be audited for statutory purposes.

2 These controlled entities have been granted relief from the necessity to prepare financial reports in accordance with Class Order 98/1418 issued by the Australian Securities & Investments Commission. For further information see note 34.

COCKBURN CEMENT

The story of quicklime at Cockburn Cement Limited

Australia's largest supplier and manufacturer of quicklime

Cockburn Cement produces cement and lime products at its main works at Munster, 30 km south of Perth. It also operates a lime production facility at Dongara, 300 km north of Perth and a distribution depot at Kalgoorlie 600 km east of Perth. Lime is distributed to customers whose primary operations are in the alumina, gold, mineral sands and water treatment industries.

Cockburn commenced lime supply to the alumina industry in 1973 and in 1979, commissioned a state of the art quicklime kiln with an annual production capacity of 400,000 tonnes. Subsequently Cockburn entered into long term lime supply agreements with Alcoa and Worsley.

In the eighties and early nineties, growing alumina and burgeoning gold industries increased the size of WA's lime market significantly. Cockburn met this demand by producing additional quicklime in its cement kilns. In 1997, Cockburn commissioned a second 400,000 tonne lime kiln at Munster, quickly followed in 1998, by the commissioning of a third lime kiln in Dongara, rated at 100,000 tonnes.

Cockburn's excellent record as a consistent and long term partner to WA's mineral processing industries was recently recognised by Alcoa and Worsley signing further long term agreements for the supply of lime products.

Lot 242 Russell Road East, Munster WA 6166
Telephone: (08) 9411 1111 Facsimile: (08) 9411 1120

Milk-of-lime is a dilute lime hydrate in aqueous suspension and is the consistency of milk.

Pebble Lime is a physical shape of quicklime.

Quicklime is a lime oxide formed by calcining limestone so that carbon dioxide is liberated. It may be high calcium, magnesian, or dolomitic and of varying degrees of chemical purity.

Slaked lime is a hydrated form of lime, as a dry powder, putty, or aqueous suspension.

Soft-burned lime is a quicklime that is calcined at relatively low temperature. It is characterized by high porosity and chemical reactivity.

Type S hydrated lime (also called *special* hydrated lime) is an ASTM designation to distinguish a structural hydrate from a *normal* hydrated lime, designation *Type N*, that possesses specified plasticity and gradation requirements. It may be dolomitic or high calcium and is more precisely milled than Type N hydrates.

Unslaked lime is any form of quicklime.

Whitewash is synonymous with milk-of-lime, a dilute lime hydrate suspension.

PHYSICAL PROPERTIES OF QUICKLIMES

COLOR. Generally quicklime is white of varying degrees of intensity, depending on its chemical purity. The purest types of quicklimes are the whitest. Less pure or improperly calcined types may have a slight ash gray, buff, or yellowish cast. The quicklime is invariably whiter than its derivative, limestone.

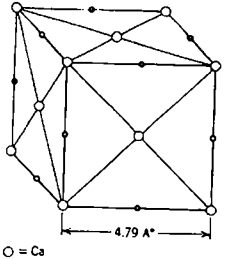


Fig. 7-1. Crystal structure (unit cell) of calcium oxide

ODOR. It possesses a faint but distinctive odor that is difficult to define. It is slightly "earthy" and pungent but not offensive.

TEXTURE. All quicklimes are crystalline, but the crystallite conglomerates vary greatly in size and spacing in their matrices. Some appear to be amorphous, but they are microcrystalline.

CRYSTAL STRUCTURE. X-ray diffraction reveals that a pure calcitic oxide crystallizes in the cubic system as depicted in Fig. 7-1. The edges of the cube are 4.797 Å in length, with calcium atoms located midway in between.

Magnesium oxide possesses the same cubic crystal lattice as CaO, except that the MgO crystal is slightly smaller and denser, with edge lengths of 4.203 Å. This accounts for the slightly higher average density of dolomitic quicklime.

The crystal lattice (AX type) is similar to the cubic arrangement for NaCl and is tabulated as follows:

Crystal	Coordination number	a_0	Sum of ionic radii[a]	Expt.
CaO	6	4.797 Å	2.39 Å	2.40 Å
MgO	6	4.203 Å	2.05 Å	2.10 Å

[a] Calculated ionic radii for coordination number 6 are as follows: Ca^{++} = 0.99 Å, Mg^{++} = 0.65, and $O^{=}$ = 1.40.

POROSITY-DENSITY. The degree of porosity of commercial quicklime varies widely in percent of pore space from 18 to 54%, with an average value of about 35%, depending on the structure of the limestone, temperature, and severity of calcination (see Table 6-2). Dead-burned dolomite has much lower porosity of 8–12%.

SPECIFIC GRAVITY. The *true* specific gravity of pure calcium oxide is 3.34, but this presupposes zero porosity, a condition that is impossible to achieve in manufacture. Values have been reported at 3.40, and lower, but 3.34 appears to be a generally recognized average value. Commercial limes may range as low as 3.0; pure dolomitic oxides may range as high as 3.5–3.6.

The *apparent* specific gravity varies similarly, from 1.6 to 2.8. Average values for commercial oxides are 2.0–2.2. Values for dolomitic quicklimes average about 3–4% more than the preceding. Dead-burned has the highest value of all—an average of 3.2.

BULK DENSITY. The same variance pertaining to specific gravity is prevalent as well as the added variable of the different physical size and gradation of the quicklime particle. The range in values in lb/ft^3 is 48–70

(769–1121 kg/m³), with an estimated average of 55–60 lb/ft³ (881–961 kg/m³) for commercial quicklime of pebble size.[2] Lump size is about 10% lower, and ground or pulverized is 12–15% greater than this average value. (The larger the particle and the more restricted the gradation, the lower the bulk density.)

Values for dolomitic average 3–4% greater than those for high calcium.

HARDNESS. Hard-burned and sintered dolomitic quicklime lies between 3 and 4 on the Moh's scale. Ordinary quicklime is variable, but is usually between 3 and 2. The same broad divergence in hardness and strength in limestones is manifest in their derivative limes.

COEFFICIENT OF EXPANSION. The only values reported are 145×10^{-7} between 300 and 700°C and 138×10^{-7} between 0 and 1700°C[3]. These data probably only represent the magnitude of this measurement; certainly a variance would exist with commercial quicklimes.

ELECTRICAL RESISTIVITY. Resistivity of 71×10^{6} ohms/cm at 15°C (59°F), declining to 91 ohms at 1466°C (2671°F), has been calculated. The presence of nitrogen depresses values.

REFRACTIVE INDEX. The pure calcitic oxide is 1.83 and the value of commercial quicklime ranges betwen 1.70 and 1.82. A value of 1.736 for pure MgO means that dolomitic quicklime has a slightly lower value than CaO.[4] Both types possess slight refractive properties.

LUMINESCENCE. All lime oxides are very luminsecent at high temperatures in the calcining range of 900°C (1652°F) and higher; hence, origin of the term "limelight."

THERMAL CONDUCTIVITY. It has been estimated at 0.0015–0.002 cal/cm²·sec·°C temperature difference, but this value may be undependable.

HEAT OF FUSION. It is doubtful whether this has ever been accurately measured; 28,000 cal/mole has been estimated as the approximate value.

MELTING POINT. Recognized values for CaO are 2570°C (4658°F) and for MgO are 2800°C (5072°F), with dolomitic oxides intermediate.[5]

A eutectic mixture of about 50% $CaCO_3$ and 50% CaO is reported to melt at 1240°C under high pressure of 30,000 mm.[6]

A recent investigation[7] of the system CaO-MgO, involving X-ray diffraction and optical methods, that may comprise the most authoritative data, reveals a maximum solid solution of MgO in a CaO lattice of 17% weight and a maximum solid solution of CaO in the MgO lattice of 7.8% weight,

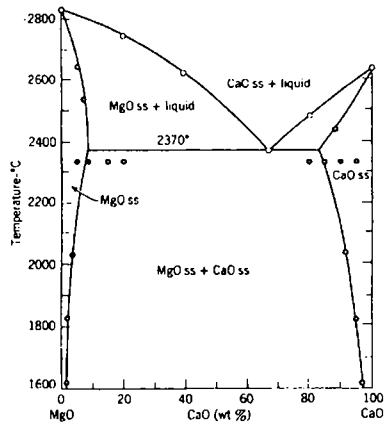


Fig. 7-2. Phase equilibrium diagram for system, CaO-MgO. Solid circles are data points of solid solution, and open circles represent liquidus points.

both at temperatures of 2370°C. In both instances the extent of solid solution is higher than that reported by other investigators. Melting point for the eutectic 67% CaO and 33% MgO is 2370°C; for 100% CaO, 2625°C; for 100% MgO, 2825°C. Figure 7-2 shows the phase equilibrium diagram, calculated by these investigators.

HEAT OF COMBINATION. Same value as for heat of formation, given later.

BOILING POINT. Values for CaO are 2850°C (5162°F) and for MgO are 3600°C (6512°F), with dolomitic oxides intermediate.[8]

SPECIFIC HEAT. Figure 7-3 graphically reveals the range of mean values for high calcium and dolomitic quicklimes and MgO at temperatures from 0 to 2500°C.[9] They encompass:

For high calcium	from 0.17 to 0.32
For dolomitic	from 0.185 to 0.319
For MgO	from 0.195 to 0.316

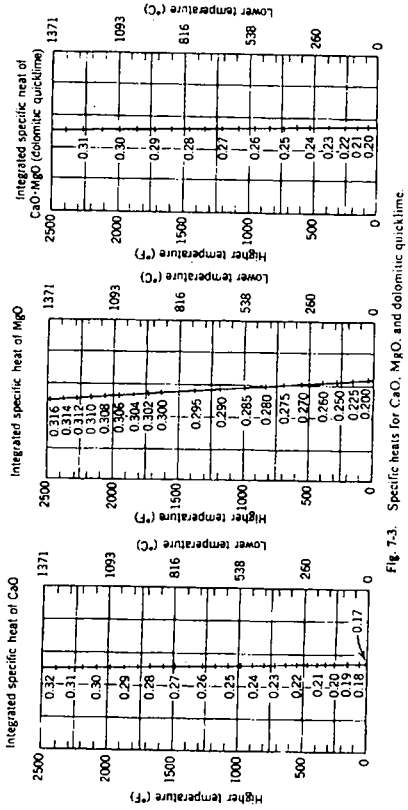


Fig. 7-3. Specific heats for CaO, MgO, and dolomitic quicklime.

These values increase gradually as the temperatures rise. Earlier investigators developed slightly different values than those just given 0.182–0.232 for CaO and 0.197–0.243 for CaO·MgO (dolomitic).[10,11] The former values are preferred.

HEAT OF FORMATION. The value 151,900 cal/mole is generally recognized for CaO; for MgO (periclase) 143,750 cal/mole is the value at 298°C, but this latter value rises gradually to 174,050 cal/mole at 2000°C.[12]

ANGLE OF REPOSE. There is some variance in values with different quicklimes and with different particle sizes and gradations, but 50–55° for pebble sizes is a reasonable average for this measurement.

SOLUBILITY. See values of hydrated limes in the following section, since quicklime is converted to a hydrate before dissolution occurs.

HEAT OF SOLUTION. Heat of solution for CaO has been measured between 844.72 and 847.08 cal/g.[12] Solubility of MgO is so slight that this value may not be measurable.

SURFACE ENERGY. Surface energy of CaO at 23°C has been measured at 1310 ± 200 erg/cm².

A value that is 330 erg/cm² higher than the corresponding CaO value has been calculated for MgO. Brunauer[13] estimates this value at a minimum of 1400 erg/cm², about 300 units higher than the 1000–1040 erg/cm² for MgO calculated between 0 and 298° K by another source. The higher value is preferred.

PHYSICAL PROPERTIES OF HYDRATED LIMES

COLOR. All dry hydrates, except those that are quite impure, are extremely chalky in color, invariably whiter than their derivative quicklime. Overburning of quicklime may yield a faint yellowish cast in the resulting hydrate. Dark flecks of coarse particles are simply impurities, usually silica.

Individual pure hydroxide crystals are clean and colorless.

ODOR. Same approximate aroma as for quicklime.

FORM. It occurs as a fine powder. Fineness varies, but particles may be microcrystalline or colloidal size (submicron). For this reason, many people erroneously regard some forms of hydrate as amorphous. But X-ray reveals a definite crystal structural pattern for even the finest hydrates.[13] Coarse hydrate particles are clearly crystalline in appearance.

Attachment A-3.3

GENERAL SUPPLY SPECIFICATION

AS1672.1 (1997) Classification

Physical Properties

Parameter	Units	Minimum	Typical	Maximum	AS1672.1 Limits	Test Method
Residue by Ratap						
6.7 mm	%	0	0	0		
2.36 mm	%	0	0.1	0.4		
0.6 mm	%	1.2	3	4.9		
0.3 mm	%	8.1	15.8	23.5		
0.15 mm	%	45.3	53.3	61.4		
0.045 mm	%	66.5	76.3	86.1		
Loose Bulk Density	kg/l	0.79	0.84	0.89		AS4489.10.1

Chemical Properties

Parameter	Units	Minimum	Typical	Maximum	AS1672.1 Limits	Test Method
CaO	%	80.3	82.6	85		AS4489.5.1
SiO_2	%	6.1	8.2	10.2		AS4489.5.1
Al_2O_3	%	0.5	0.7	0.8		AS4489.5.1
Fe_2O_3	%	0.25	0.3	0.34		AS4489.5.1
MgO	%	5	5.1	5.3		AS4489.5.1
SO_3	%	1.1	1.2	1.3		AS4489.5.1
Loss on Ignition	%	0.1	1.1	2.1		AS4489.7.1
CO2	%	0.1	0.9	1.7	≤5	AS4489.5.1
Available Lime	%	75.6	79.4	83.2	≥60	AS4489.6.1
Slaking						
Total temperature rise	°C	41	46	50		AS4489.3.1
Total active slaking time	min	3	5.5	8		AS4489.3.1

References to AS1672.1 Limits relate to the 1997 edition

Performance range stated is based on 95% population coverage for last 12 months manufacture. Individual results may fall outside the stated ranges.

Revised: 09/09/09

Material Safety Data Sheet

Product Name QUICKLIME

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	QUICKLIME
Supplier Name	Cockburn Cement Limited A.B.N. 50 003 677 479
Address	PO Box 38, Hamilton Hill, WA 6963
Manufacturing	Munster Works, Lot 242 Russell Road East, Munster, WA 6166
Plant(s)	Dongara Works, Kailis Drive, Dongara, WA 6525
Telephone	08 9411 1000
Fax	08 9411 1150
Emergency	Bus Hrs 08 9411 1000 A/Hrs 08 9411 1000
Email	orders@cockburncement.com.au
Web Site	http://www.cockburncement.com.au & www.swancement.com.au
Synonym(s)	Calcium Oxide, Calcium monoxide, Rock Lime, Fluxing Lime, Burnt Lime, Unslaked Lime
Use(s)	Quicklime is used to produce Hydrated Lime. Quicklime used in alumina and steel production, neutralising water, sewerage treatment, and sugar refining. Quicklime is also used in gold production to keep cyanide solutions alkaline.

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO CRITERIA OF NOHSC

RISK PHRASES

R14	Reacts violently with water
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitisation by skin contact.
R48/20	Harmful : danger of serious damage to health by prolonged exposure through inhalation

SAFETY PHRASES

S20/21	When using do not eat, drink or smoke.
S22	Do not breathe dust.
S24/25	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S29	Do not empty into drains
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S38	In case of insufficient ventilation, wear suitable respiratory equipment.
S39	Wear eye/face protection

ONLY CLASSIFIED AS DANGEROUS GOODS BY THE CRITERIA OF THE ADG CODE WHEN TRANSPORTED BY AIR

UN No	1910	**Hazchem Code**	4W	**Pkg Group**	III
DG Class	8	**Subsidiary Risk(s)**	None Allocated	**EPG**	None Allocated

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	Formula	Conc.	CAS No.
Calcium Oxide	CaO	75 – 95%	1305-78-8
Magnesium Oxide	MgO	3 – 6%	1309-48-4
Silicon Dioxide	SiO_2	0 – 15%	14808-60-7
Calcium Carbonate	$CaCO_3$	0 – 6%	1317-65-3
Aluminium Oxide	Al_2O_3	0 – 2%	1344-28-1
Iron (III) Oxide	Fe_2O_3	0 – 1%	1309-37-1

Material Safety Data Sheet

Product Name QUICKLIME

4. FIRST AID MEASURES

Eye	Flush thoroughly with flowing water for at least 15 minutes. Seek medical attention if symptoms persist.
Inhalation	Remove from dusty area to fresh air. If symptoms persist, seek medical attention.
Skin	Quickly but gently, wipe material off skin. Immediately remove all contaminated clothing and footwear. Wash skin thoroughly with copious amounts of water.
Ingestion	Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.
Advice to Doctor	Treat symptomatically. Contact Poisons Information Centre (131126 Australia Wide).
First Aid Facilities	Eye wash facilities should be provided

Additional Information - Aggravated Medical Conditions

Inhalation	Inhalation of dust through prolonged, repeated exposure can cause membrane irritation, bronchitis, pneumonia, silicosis (scarring of the lung). It may also increase the risk of scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs) and lung cancer. Epidemiological studies have shown that smoking increases the risk of bronchitis, silicosis (scarring of the lung) and lung cancer.
Skin	Irritating to the skin. Prolonged and repeated skin contact with Quicklime can cause irritant dermatitis.

5. FIRE FIGHTING

Flammability	Non flammable. Does not support combustion of other materials, but on contact with water or acids may generate sufficient heat to ignite surrounding materials. DO NOT USE WATER for fire fighting. USE DRY CHEMICAL OR CO_2 TYPE EXTINGUISHERS.
Fire and Explosion	Non flammable. No fire or explosion hazard exists.
Extinguishing	Non flammable.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilt (bulk), contact emergency services if appropriate. Wear dust-proof goggles, PVC/rubber gloves, a Class P2 respirator (where an inhalation risk exists), coveralls and rubber boots. Clear area of all unprotected personnel. Prevent spill entering drains or waterways. Collect and place in sealable containers for disposal or reuse. Avoid generating dust. Quicklime should be slowly hydrated by SLOW addition to water then neutralised with diluted Hydrochloric Acid (eg 6M) before disposal.
Emergency Procedures	Follow safety requirements for personal protection under Section 8 Exposure Controls/Personal Protection.

Material Safety Data Sheet

Product Name QUICKLIME

7. HANDLING AND STORAGE

Storage Steel silos and airtight rail or road tankers are the usual forms of storage and transport. Common storage and handling equipment must NOT be used for Quicklime. Enclosed conveyors with extraction equipment and dust collection are required for safe handling. Quicklime must NOT come into contact with materials containing water or water of crystallisation, eg copper, alum, ferric sulphates. Quicklime must be kept away from moisture, steam, acid or acid fumes to prevent violent reactions.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

Property/ Environmental Refer to Section 13.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation Avoid generating dust. All work with Quicklime should be carried out in such a way as to minimise exposure to dust and repeated skin contact. Where dust could be generated whilst handling Quicklime, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended.

Exposure Standards

STEL 10 mg/m^3 per 30 minutes as inspirable dust.

CALCIUM OXIDE (1305-78-8)
- ES-TWA: 2 mg/m^3 (Peak Level)
- WES-TWA: 2 mg/m^3

MAGNESIUM OXIDE (1309-48-4)
- ES-TWA: 10 mg/m^3 (FUME)
- ES-TWA: 10 mg/m^3 Inspirable dust
- WES-TWA: 10 mg/m^3

ALUMINIUM OXIDE (1344-28-1)
- ES-TWA: 10 mg/m^3 (Total Dust)
- WES-TWA: 10 mg/m^3

CALCIUM CARBONATE (1317-65-3)
- ES-TWA: 10 mg/m^3
- WES-TWA: 10 mg/m^3

SILICA, CRYSTALLINE – QUARTZ (14808-60-7)
- ES-TWA: 0.1 mg/m^3 (Silica Quartz, respirable, NOHSC)
- ES-TWA: 0.1 mg/m^3 (QLD); 0.15 mg/m^3 (NSW)
- WES-TWA: 0.1 mg/m^3

IRON (III) OXIDE (1309-37-1)
- WES-TWA: 5 mg/m^3

PPE Wear dust proof goggles and rubber or PVC gloves. Where an inhalation risk exists, wear a Class P2 respirator. If there is potential for prolonged and/or excessive skin contact, wear coveralls. At high dust levels, wear a Class P3 respirator or a Powered Air Purifying Respirator (PAPR) with Class P3 Filter

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Granular off-white amorphous powder	**Solubility (water)**	Sparingly soluble, reacts vigorously with water
Odour	Slight Odour	**Specific Gravity**	3.2 to 3.4
pH	Approximately 12	**% Volatiles**	Not Available
Vapour Pressure	Not Available	**Flammability**	Non Flammable
Vapour Density	Not Available	**Flash Point**	Not Relevant
Boiling Point	2850°c	**Upper Explosion Limit**	Not Relevant
Melting Point	2570°c	**Lower Explosion Limit**	Not Relevant
Evaporation Rate	Not Available	**Autoignition**	Not Available
Bulk Density	750 – 1000 kg/m^3		
Particle Size	95% < 600 microns		

Material Safety Data Sheet

Product Name QUICKLIME

10 STABILITY AND REACTIVITY

Reactivity	Incompatible with hydrofluoric acid (violently) and phosphorus pentoxide. Reacts (potentially vigorously) with water generating heat and producing a calcium hydroxide solution. Reacts with aluminium and brass metals in the presence of water to produce hydrogen gas.
Decomposition Products	May evolve toxic gases if heated to decomposition.

11 TOXICOLOGICAL INFORMATION

Health Hazard Summary	Corrosive. Use safe work practices to avoid eye – skin contact and dust generation – inhalation. Once water is added, an inhalation hazard is not anticipated. Chronic respiratory effects are not anticipated with over exposure at high levels due to the immediate irritant and/or corrosive effects.
Eye	Corrosive. Severe irritant upon contact with powder/dust. Over exposure may result in pain, redness, corneal burns and ulceration with possible permanent damage.
Inhalation	Corrosive. Over exposure to powder – dust (when mixing) may result in severe mucous membrane irritation of nose and throat, coughing and bronchitis at high levels.
Skin	Irritating and drying to skin. May cause alkaline burns and irritant or allergic dermatitis.
Ingestion	Corrosive. Ingestion may result in ulceration and burns to the mouth and throat, nausea, vomiting, abdominal pain and diarrhoea.
Toxicity Data	SILICA, CRYSTALLINE - QUARTZ (14808-60-7) 1Carcinogenicity: Classified as a human carcinogen (IARC Group 1) CALCIUM HYDROXIDE (1305-62-0) LD50 (Ingestion): 7300 mg/kg (mouse) MAGNESIUM HYDROXIDE (1309-42-8) LD50 (Ingestion): 8500 mg/kg (rat, mouse)

12 ECOLOGICAL INFORMATION

Environment	Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	For small amounts: VERY SLOWLY, hydrate (add water) and then neutralise with diluted hydrochloric acid (eg 6M HCl) to pH of 7-8. Dilute and flush to sewer or landfill. For large amounts, material can be recycled. Contact manufacturer for additional information.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Not classified as dangerous goods by the criteria of the ADG Code.

Shipping Name	None Allocated				
UN No	None Allocated	**Hazchem Code**	None Allocated	**Pkg Group**	None Allocated
DG Class	None Allocated	**Subsidiary Risk(s)**	None Allocated	**EPG**	None Allocated

IATA (INTERNATIONAL AIR TRANSPORT DANGEROUS GOODS)

Shipping Name	Calcium Oxide				
UN No	1910	**Hazchem Code**	4W	**Pkg Group**	II
DG Class	8	**Subsidiary Risk**	None Allocated	EPG	None Allocated

IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

Shipping Name	None Allocated				
UN No	None Allocated	**Hazchem Code**	None Allocated	**Pkg Group**	None Allocated
DG Class	None Allocated	**Subsidiary Risk (s)**	None Allocated	**EPG**	None Allocated

Material Safety Data Sheet

Product Name QUICKLIME

15 REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information

IARC – GROUP 1 – PROVEN HUMAN CARCINOGEN. This product contains an ingredient for which there is sufficient evidence to have been classified by the International Agency for Research into Cancer as a human carcinogen. The use of products known to be human carcinogens should be strictly monitored and controlled.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES: The Recommendation for protective equipment contained within this MSDS report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE: It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare an MSDS report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

ABBREVIATIONS:
mg/m^3 - Milligrams per cubic metre
ppm - Parts Per Million
ES-TWA - Exposure Standard - Time Weighted Average
pH - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.
CAS# Chemical Abstract Service Number - used to uniquely identify chemical compounds.
IARC - International Agency for Research on Cancer.
WES TWA - Workplace Exposure Standard - Time Weighted Average
M – Moles per litre, a unit of concentration.

Report Status

This document has been compiled by Cockburn Cement Limited the manufacturer of the product and serves as the manufacturer's Material Safety Data Sheet ("MSDS").

While Cockburn Cement Limited has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Cockburn Cement Limited accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.

Material Safety Data Sheet

Product Name QUICKLIME

Contact Point

For further information on this product contact:

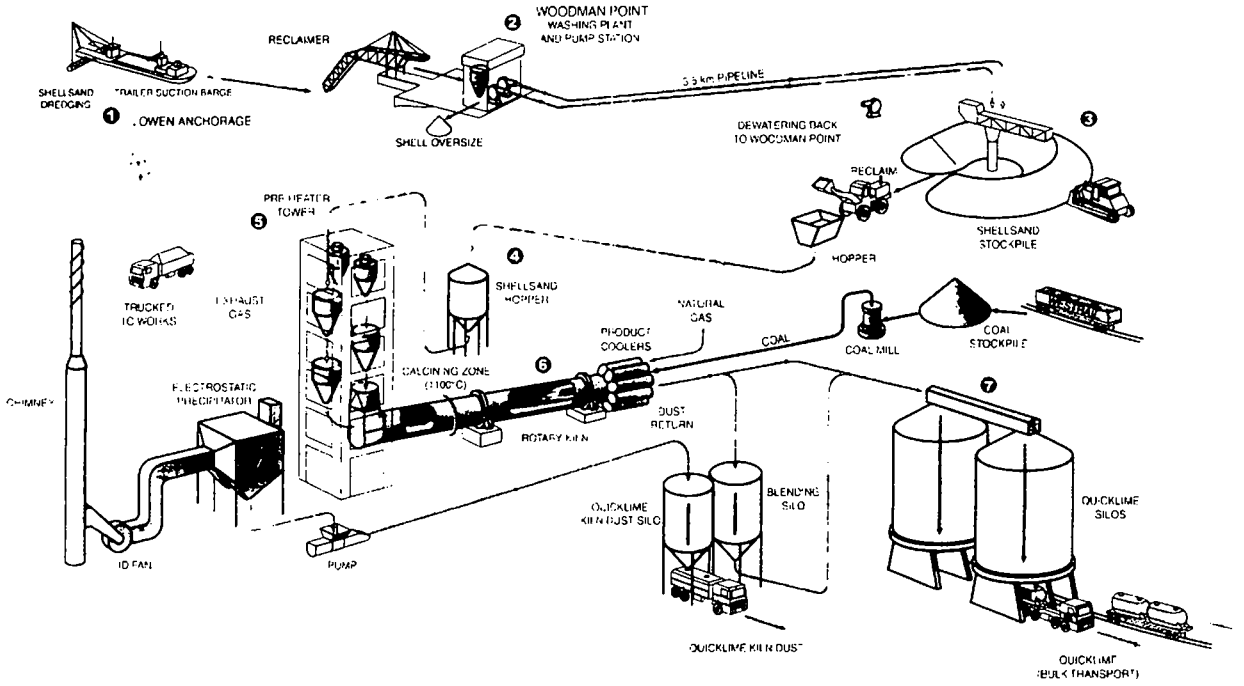
Telephone:	Office hours	08 9411 1000
	After hours	08 9411 1000
Facsimile		08 9411 1150
Web site:	http://www.cockburncement.com.au	

Advice Note

The information in this document is believed to be accurate. Please check the currency of this MSDS by contacting:

08 9411 1000
or
http://www.cockburncement.com.au or www.swancement.com.au

The provision of this information should not be construed as a recommendation to use this product in violation of any patent rights or in breach of any statute or regulation. Users are advised to make their own determination as to the suitability of this information in relation to their particular purposes and specific circumstances. Users should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products.



QUICKLIME MANUFACTURING PROCESS

RAW MATERIALS
WATER

QUICKLIME
COAL

NATURAL GAS
EXHAUST GASES