WHO CONTROLS CEMENT AND CLINKER SHIPPING?

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Cement Distribution Consultants

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CONTENTS OF PRESENTATION

• Global overview of cement and clinker shipping
  ➢ Trade flows
  ➢ Shipments by cargo type
  ➢ Shipment by shipsize and type

• Who controls cement and clinker shipping
  ➢ The requirement of dedicated facilities
  ➢ The global cement industry on Google Earth
  ➢ Key statistics
  ➢ Facility ownership
  ➢ Conclusions
2012 Global seaborne cement and clinker trade flows (est.)

Regional seaborne exports:
- Great Lakes: 3.1
- River system: 8.0
- Regional Atlantic: 5.5
- Regional Nordic: 4.4
- Regional ME: 6.0
- SE Asia: 4.3

Global seaborne exports: 52 mt

Waterborne domestic distribution: 106 mt (excl. China)

Total: 204 mt
### Shipments by Cargo Type

#### Clinker and Cement Trade by Water

<table>
<thead>
<tr>
<th>Clinker / cement type</th>
<th>Seaborne trade (Mt)</th>
<th>Inland water domestic trade (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>International</td>
<td>Domestic</td>
</tr>
<tr>
<td>Clinker</td>
<td>37.9</td>
<td>8.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1</td>
</tr>
<tr>
<td>Cement – Bulk</td>
<td>43.1</td>
<td>69.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.7</td>
</tr>
<tr>
<td>Cement – Bagged</td>
<td>17.0</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>98.0</strong></td>
<td><strong>89.0</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>17.0</strong></td>
</tr>
</tbody>
</table>
### CLINKER AND CEMENT TRADE BY VESSEL TYPE

<table>
<thead>
<tr>
<th>Clinker / cement type</th>
<th>Bulk Carriers (Mt)</th>
<th>Self-disch. cement carriers (Mt)</th>
<th>Inland ships &amp; water barges (Mt)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Large</td>
<td>Coastal</td>
<td></td>
</tr>
<tr>
<td>Clinker</td>
<td>36,1</td>
<td>10,2</td>
<td>0</td>
</tr>
<tr>
<td>Cement – Bulk</td>
<td>6,1</td>
<td>9,8</td>
<td>96,3</td>
</tr>
<tr>
<td>Cement – Bagged</td>
<td>19,6</td>
<td>8,9</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61,8</strong></td>
<td><strong>28,9</strong></td>
<td><strong>96,3</strong></td>
</tr>
</tbody>
</table>

* excluding china

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**GLOBAL OVERVIEW CEMENT AND CLINKER SHIPPING**
THE REQUIREMENT OF DEDICATED FACILITIES

In the international trade about 83% of cement and clinker trade consists of clinker and bulk cement. For domestic distribution (seaborne and inland waterways) this is an estimated 86%. Clinker and bulk cement require dedicated facilities (grinding plants and bulk cement terminals). The owners of these receiving facilities determine who will supply them. They control cement and clinker shipping.
So who owns

- The cement plants that export by sea?
- The grinding facilities receiving clinker by sea?
- The cement terminals along coasts and rivers?
- How are trading networks build up? How do they enhance the land locked plants behind them?
- How do seaborne trade and seaborne domestic distribution interact?

To answer these questions
Cement Distribution Consultants has put the global cement industry on Google Earth

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
The global cement industry on Google Earth

WHO CONTROLS CEMENT AND CLINKER SHIPING?
The cement industry on Google Earth
Europe

WHO CONTROLS CEMENT AND CLINKER SHIPING?
Cemex Nordic Network

Who controls cement and clinker shipping?
WHO CONTROLS CEMENT AND CLINKER SHIPING?
Cemex
Surte Terminal

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
Some other examples of the database

Dangote cement terminal Tema, Ghana

WHO CONTROLS CEMENT AND CLINKER SHIPING?
Some other examples of the database

Ship loading in Nice, France
Kangan cement plant, Iran shiploading

WHO CONTROLS CEMENT AND CLINKER SHIPING?
STATISTICS

All figures have been established by Cement Distribution Consultants to its best knowledge but are for general information only.

WHO CONTROLS CEMENT AND CLINKER SHIPING?
CHINA

There are no facilities included from China!

China is a very large exporter but its cement companies do not own a single overseas terminal or grinding plant.!!! Chinese cement companies have no real control over their exports.

- Only six facilities have a dock that can receive Handysize / Handymax vessel

- Most exports are based on barge to ship and truck to ship transfers in the general ports.

WHO CONTROLS CEMENT AND CLINKER SHIPING?
Facilities involved in sea/waterborne cement and clinker trade and distribution

- 217 Cement plants
- 857 Cement terminals
- 195 Grinding plants

Total 1269 Facilities

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which…

91 plants have their own port or dock

**Lafarge, Volos**

**Nuh Cimento, Hereke**

**WHO CONTROLS CEMENT AND CLINKER SHIPPING?**
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

8 Plants connected to a loading facility in the port by a conveying belt
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

16 Plants rail cement to a loading facility in the port

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

3 Cement plants rail cement to the port and load ships directly from the railcars

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

22 Plants truck cement to a loading facility in the port

WHO CONTROLS CEMENT AND CLINKER SHIPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

51 truck cement or clinker to the port for direct ship loading

Lafarge and Vicat loading ships in Nice

WHO CONTROLS CEMENT AND CLINKER SHIPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which...

9 Cement plants barge cement or clinker to ports for direct transfer of barges to ships (as well as using barges for domestic distribution).

**Who controls cement and clinker shipping?**

_Barge to ship transfer in Dordrecht, NL_
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which 17 cement plants distributing domestically in barges

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
217 Cement plants involved in sea / waterborne trade and distribution of cement and clinker of which…

134 load up to Handysize and Handy max bulkers

61 load up to coastal (<10,000 Dwt vessels)

5 load Great Lakes vessels

17 load inland barges solely for domestic distribution

WHO CONTROLS CEMENT AND CLINKER SHIPING?
857 Cement terminals of which...

169 with ship unloader

Houston Cement

688 served by self discharging vessel

Norcem, Oslo

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
857 Cement terminals

140 Suitable for handysize / handymax vessels

of which....

61 served by self discharging ships

50 have a mechanical unloader

24 have a pneumatic unloader

5 have grab and hopper system

WHO CONTROLS CEMENT AND CLINKER SHIPPING?

Taiwan Cement, Taichung
Silvi, Bristol
Cemex, Long Beach
Lafarge, Onne
857 Cement terminals
717 suitable for coastal (< 10,000 dwt) and inland vessels of which….

558 served by self discharging vessels

77 have a pneumatic unloader

24 have a mechanical unloader

1 has a grab & hopper system

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
857 Cement terminals
of which....

722 silo terminals

74 flat storage terminals

24 dome terminals

18 floating terminals

8 direct to end user (no storage)

11 unknown

WHO CONTROLS CEMENT AND CLINKER SHIPING?
195 Grinding plants
of which....

163 receive up to Handysize / Handymax bulkers
19 receive coastal (<10,000 Dwt) vessels
8 receive Great Lakes carriers
5 receive inland barges

WHO CONTROLS CEMENT AND CLINKER SHIPPING?
BUT WHO OWNS THEM?

The top 5 multinationals

<table>
<thead>
<tr>
<th>Company</th>
<th>Cement plants</th>
<th>Grinding plants</th>
<th>Terminals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lafarge</td>
<td>23</td>
<td>16</td>
<td>89</td>
<td>128</td>
</tr>
<tr>
<td>Heidelberg</td>
<td>11</td>
<td>19</td>
<td>88</td>
<td>118</td>
</tr>
<tr>
<td>Holcim</td>
<td>20</td>
<td>20</td>
<td>77</td>
<td>117</td>
</tr>
<tr>
<td>Cemex</td>
<td>19</td>
<td>3</td>
<td>71</td>
<td>93</td>
</tr>
<tr>
<td>Italcimenti</td>
<td>10</td>
<td>7</td>
<td>21</td>
<td>38</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>83 (38%)</strong></td>
<td><strong>65 (33%)</strong></td>
<td><strong>34 (40%)</strong></td>
<td><strong>494 (39%)</strong></td>
</tr>
</tbody>
</table>
Example: Heidelberg global maritime network

Northwest
1 Plant
4 Terminals

US East Coast
1 Grinding plant
2 Terminals

UK – Benelux
3 Plants
6 Grinding plants
4 Terminals

Europe Nordic
5 Plants
53 Terminals

East Mediterranean
2 Plants
6 Terminals

Southwest
2 Terminals

West Africa
2 Grinding plants

Bangladesh
2 Grinding plants

Indonesia, Brunei
2 Plants
1 Grinding plant
4 Terminals

Australia
2 Plants
2 Grinding plants
4 Terminals

CEMENT DISTRIBUTION CONSULTANTS
THE ACTUAL TOP RANKINGS
(owners with 20 facilities or more)

<table>
<thead>
<tr>
<th></th>
<th>Cement Plants</th>
<th>Terminals</th>
<th>Grinding Plants</th>
<th>Total Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lafarge</td>
<td>23</td>
<td>89</td>
<td>16</td>
<td>128</td>
</tr>
<tr>
<td>Heidelberg</td>
<td>11</td>
<td>88</td>
<td>19</td>
<td>118</td>
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<tr>
<td>Holcim</td>
<td>20</td>
<td>77</td>
<td>20</td>
<td>117</td>
</tr>
<tr>
<td>Cemex</td>
<td>19</td>
<td>71</td>
<td>3</td>
<td>93</td>
</tr>
<tr>
<td>Taiheiyo</td>
<td>12</td>
<td>78</td>
<td>2</td>
<td>92</td>
</tr>
<tr>
<td>UBE/Mitsubishi</td>
<td>5</td>
<td>58</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>Sumitomo/Osaka/Nippon Steel</td>
<td>4</td>
<td>47</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td>Italcimenti</td>
<td>10</td>
<td>21</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>Tokuyama</td>
<td>1</td>
<td>27</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>Buzzi Unicem</td>
<td>5</td>
<td>16</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>CRH</td>
<td>4</td>
<td>17</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Cement Indonesia</td>
<td>3</td>
<td>19</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Votorantim</td>
<td>4</td>
<td>10</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>13 Owners controlling</td>
<td>121</td>
<td>618</td>
<td>78</td>
<td>817</td>
</tr>
<tr>
<td></td>
<td>56%</td>
<td>72%</td>
<td>40%</td>
<td>64%</td>
</tr>
</tbody>
</table>
AND THE REST

1 owner with 19 facilities
2 owners with 16 facilities
1 owner with 13 facilities
2 owners with 11 facilities
3 owners with 9 facilities
2 owners with 8 facilities
3 owners with 7 facilities
3 owners with 6 facilities
6 owners with 5 facilities
5 owners with 4 facilities
9 owners with 3 facilities
22 owners with 2 facilities
141 owners with 1 facility

WHO CONTROLS CEMENT AND CLINKER SHIPING?
IN SHORT

Total 213 owners with 1269 facilities

13 Owners having 817 facilities (64%)

59 Owners having 298 facilities (23%)

141 Owners having 1 facility each (11%)
   (22 cement plant, 53 terminals, 64 grinding plants)

Of 22 facilities the ownership is unknown

WHO CONTROLS CEMENT AND CLINKER SHIPING?
Coming Soon!!

The ICR Handbook on
Global Cement Trade and Distribution

- Overview of Global cement and clinker trade
- Country and regional cement trade analysis and statistics
- Fully illustrated with 70 detailed colour maps indicating material flows and trading networks and facilities
- Cement shipping and distribution economics
- Review of cement terminal design and operation
- Facilities directory

Authors:
Cement Distribution Consultants
an introduction

<table>
<thead>
<tr>
<th>Market knowledge</th>
<th>Consulting</th>
<th>Project / interim management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The global cement industry on Google Earth</td>
<td>Logistical, economical and technical services</td>
<td>Realising and managing projects</td>
</tr>
<tr>
<td>• Large database on waterside cement plants, waterside grinding plants and terminals</td>
<td>• Feasibility studies of complete logistical chains for trade and distribution</td>
<td>Examples</td>
</tr>
<tr>
<td>• 30 Years experience</td>
<td>• Shipping solutions</td>
<td>- Redevelopment of large “brown field” bulk terminal</td>
</tr>
<tr>
<td></td>
<td>• Development of new facilities</td>
<td>- Temporary cement and fly ash import project for construction of large concrete dam</td>
</tr>
<tr>
<td></td>
<td>• Terminal and equipment design</td>
<td>NEW</td>
</tr>
</tbody>
</table>
Hawar Group

- Family owned holding company
- Business focus on GCC countries
- Activities in logistics, construction and engineering

STEAG

- 30 Years in power plant by-products
- Partner for energy and construction industry
- Market leader in Europe

Knowledge Transfer & Investments

Shipping company (TBA)

End to end supplier of cementitious materials

Supply sources

Creating multiple reliable sources by guaranteeing export volumes and assisting with quality management and certification

Logistics

Minimizing overall transport costs by creating volume and realizing optimal “end to end” logistics

Investing in specialist ships

Markets

Creating partnerships with cement and concrete companies providing a cost effective supply as well as technical, economical and market knowledge

(co) investing in export facilities

(co) investing in export facilities
THANK YOU

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www.cementdistribution.com