



 **cementir**holding  
CALTAGIRONE GROUP

ENVIRONMENTAL REPORT  
**2009**







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## GENERAL INFORMATION

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Dear Stakeholders,

**Since 2007, Cementir Holding has published a Group Environmental Report to provide a public account of its environmental performance.** This document serves a double purpose: it demonstrates to our stakeholders that we remain committed to providing greater transparency and more complete information, proven once again this year by extending the coverage of the environmental report to the production of concrete in Norway. But this document has value for our organisation, as well, in that it seeks to create a strong impetus towards making further improvements and bringing our business closer to the needs of the surrounding territories.



In 2009, the global financial crisis heavily hit our sector, leading to a fall in demand and, as a result, a drop in the production of cement and concrete.

While this led to a reduction in the absolute amount of emissions to the atmosphere, the improvement seen in specific indicators per metric ton of product demonstrates the Group's commitment to reducing the environmental impact of our production activities through significant investments made in 2009.

We pursue our environmental and occupational health and safety policy by making strategic choices and engaging in operational planning and investing, even during recessions like the current one. In taking this view, we see our commitment to sustainability as an investment in withstanding the recession, offering a considerable return in benefits, not just for the environment, but also in terms of improved efficiency, therefore making us more competitive.

This commitment is shown in projects to develop new types of cement requiring less fuel, and therefore result in even lower atmospheric emissions, particularly CO<sub>2</sub>, and in projects that seek to increase the use of alternative fuels.

In 2009, we placed special emphasis on projects for improving workplace health and safety, including the "Towards Zero Injury" project which focuses on people, in addition to the organisational and technical aspects of safety, and the "Cementir: Safety as Part of the Company Culture" training programme aimed at stimulating employee participation and involvement.

### **Our goals for the future**

Our goals for the future involve increasing our commitment in those areas we believe to be strategic for environmental, energy, health and safety issues.

Special emphasis has therefore been placed on recovering energy efficiency by employing cutting-edge technologies and increasing the use of alternative fuels and replacement materials and recycling water.

Another primary goal is to contribute to the reduction of greenhouse gases in step with our growing ability to apply the best technologies available. Finally, we expect to maintain and add to the ISO 14001 and OHSAS 18001 certifications we hold since we view them as valid management tools. We will pursue these goals by maintaining the highest regard for the interests of all our stakeholders and by respecting all the principles underlying environmental and social sustainability.

**Francesco Caltagirone Jr.**  
The Chairman





### Our vision

The Cementir Group seeks to achieve sustainable development by continually improving its financial, environmental and social performance.

### Guidelines

Cementir is committed to achieving financial, social and environmental development by:

- complying with applicable legislation and official regulatory standards;
- respecting human resources by ensuring a healthy, safe workplace;
- promoting and adopting clean technologies;
- reducing the environmental impact of individual products;
- developing eco-sustainable products;
- setting improvement targets;
- involving and continually training employees to achieve targets;
- increasing transparency and promoting a dialogue with stakeholders, customers, employees, governmental bodies, suppliers, local communities and shareholders.

To achieve the goals stated in the above guidelines, Cementir is committed to:

- developing, constructing and maintaining an environmental management system in all the Group's manufacturing plants to achieve its goals;
- sharing its sustainable development policy, objectives and action plans by publishing an Environmental Sustainability Report;
- formulating and using environmental key performance indicators as guidelines for achieving targets set;
- improving the environmental performance of plants through:
  - controlling and reducing all types of emissions;
  - controlling energy consumption;
  - engaging in technological research focusing on the use of alternative fuels in manufacturing, thus reducing the consumption of fossil fuels;
  - controlling and reducing water use and waste;
  - controlling noise emissions;
  - preventing and responding to emergencies that have an environmental impact
- preventing accidents and injuries through workplace studies and verification, health and safety surveys and action plans.

## CEMENTIR GROUP AT A GLANCE

Cementir is an international group that produces grey cement, white cement, ready-mixed concrete, aggregates and concrete products. The Company is listed on the Italian Stock Exchange in the Star segment and is controlled by the Caltagirone Group.

The Cementir Group is a producer of cement and ready-mixed concrete with facilities in Italy, Turkey, Denmark, Norway, Sweden, Egypt, Malaysia, China and the United States, and cement distribution centres in Denmark, Italy, USA, Iceland, Poland and the Netherlands.

### Italy

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Production capacity for grey cement:  
4,300,000 tonnes

Cement plants: 4

Ready-mixed concrete plants: 6

Distribution centres: 3

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### Turkey

---

Production capacity for grey cement:  
5,400,000 tonnes

Cement plants: 4

Ready-mixed concrete plants: 14

---

### USA

---

Production capacity for white cement:  
260,000 tonnes

Cement plants: 2  
(joint venture at 24.5% with Heidelberg  
and Cemex)

Concrete products plants: 1

Distribution centres: 1

---

### Denmark

---

Production capacity for grey cement:  
2,100,000 tonnes

Production capacity for white cement:  
850,000 tonnes

Cement plants: 1 (7 kilns)

Ready-mixed concrete plants: 44

Distribution centres: 9

---

### Other European countries and the Mediterranean area\*

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Production capacity for white cement:  
1,100,000 tonnes

Cement plants: 1

Ready-mixed concrete plants: 38

Concrete products plants: 5  
(joint venture with Secil)

Distribution centres: 3

---

### Asia\*\*

---

Production capacity for white cement:  
300,000 tonnes

Cement plants: 2

---

\* Egypt, Iceland, the Netherlands, Poland, Portugal, Sweden and Norway

\*\* China and Malaysia

NETHERLANDS



SWEDEN



USA



ICELAND



DENMARK



MALAYSIA



ITALY



EGYPT



TURKEY



TURKEY



PORTUGAL



CHINA



DENMARK



NORWAY



ITALY







### Cementir Group

	2009	2008	2007	Unit of measurement
<b>Indicators</b>				
Grey and white cement produced	9,641	10,461	10,882	metric tonnes/thousands
Ready-mix concrete sold	3,100	4,056	4,533	m <sup>3</sup> /thousands
Revenues	822	1,092	1,152	EUR/millions
Net profit	30	65	140	EUR/millions
Capital expenditure on property, plant and equipment and intangible assets	98	191	135	EUR/millions
Workforce	3,439	3,847	3,882	number

### Cement production facilities in Italy, Denmark, Turkey, Egypt, Malaysia and China

	2009	2008	2007	Unit of measurement
<b>Environment</b>				
CO <sub>2</sub> emissions per metric tonne of Total Cement Equivalent (tTCE)	0.68	0.72	0.71	g/tTCE
Alternative raw materials	6.20	8.54	8.48	%
Electricity consumed	4,245	4,495	4,695	TJ
Direct energy consumed (fuels) hereof from alternative sources	34,000	35,955	39,853	TJ
ISO 14001 certifications	6	6	5	number

### Ready-mixed concrete facilities in Italy, Denmark and Turkey

	2009	2008	2007	Unit of measurement
<b>Environment</b>				
Raw material	6.5	8.2	8.9	tonnes/million
% Alternative raw materials	1.5	1.8	2.0	%
Water consumption	629,667	763,043	822,658	m <sup>3</sup>
Liters of recycled water per metric tonne of RMC	21	22	18	liters/m <sup>3</sup>

### Cementir Group

	2009	2008	2007	Unit of measurement
<b>Health &amp; Safety</b>				
Frequency rate	19.8	22.3	30.2	
Severity rate	0.47	0.41	0.34	
Fatal accidents	0	1	0	number
Hours of HSE training per employee	10.0	5.0	3.9	hours/employee
HSE investment	8,2	7,6	9,1	EUR/millions
OHSAS 18001 certifications	4	4	4	number





By publishing this Environmental Report, the Cementir Holding Group seeks to provide a clear, transparent and immediately usable overview of its activities and its performance in 2009.

The document is addressed to its primary institutional counterparties and other stakeholders that directly or indirectly interact with the Group.

The report is divided into three parts:

- **Introduction to the Group:** contains a profile of the Group, and its institutional and organizational structure.
- **Environmental performance:** this section contains the assessment of the primary environmental impact of the activities carried out as well as the precise measurement of the main performance indicators for all the cement production facilities in Italy, Turkey, Denmark, Egypt, Malaysia and China and for all the ready-mixed concrete production facilities in Italy, Turkey, Denmark and Norway and the description of special initiatives in the environmental field by some of the group companies.
- **People environment and local communities:** details on health and safety activities and projects undertaken for environment.

Specific projects undertaken by the Cementir Holding Group in order to improve his environmental and health and safety performance are included in each of the three parts of the report.





# 2

## **INTRODUCTION TO THE GROUP**

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Cementir Holding's managers in Copenhagen at the Global Meeting (October 2009)



Cementir Holding manufactures and distributes grey and white cement, aggregates, ready-mixed concrete and concrete products all over the world. With operations in 15 countries and a workforce of over 3,400 employees, Cementir Holding is a world leader in white cement and the sole producer of cement in Denmark, the third-largest producer in Turkey and the fourth in Italy. It is the leading ready-mixed concrete producer in Scandinavia.

14



Cement plants

14.7



Cement production capacity (m/tons)

4.1



Aggregate sales (m/tons)

102



Ready-mixed concrete plants

2



Research centres

3.439



Workforce

# INTERNATIONAL PRESENCE

## Cementir Holding in numbers

Production capacity for grey cement:  
**11.8 millions of metric tonnes**

Production capacity for white cement:  
**2.9 millions of metric tonnes**

Ready-mixed concrete sales:  
**3.1 millions of cubic meters**

Aggregate sales:  
**4.1 millions of metric tonnes**

Cement plants:  
**14**

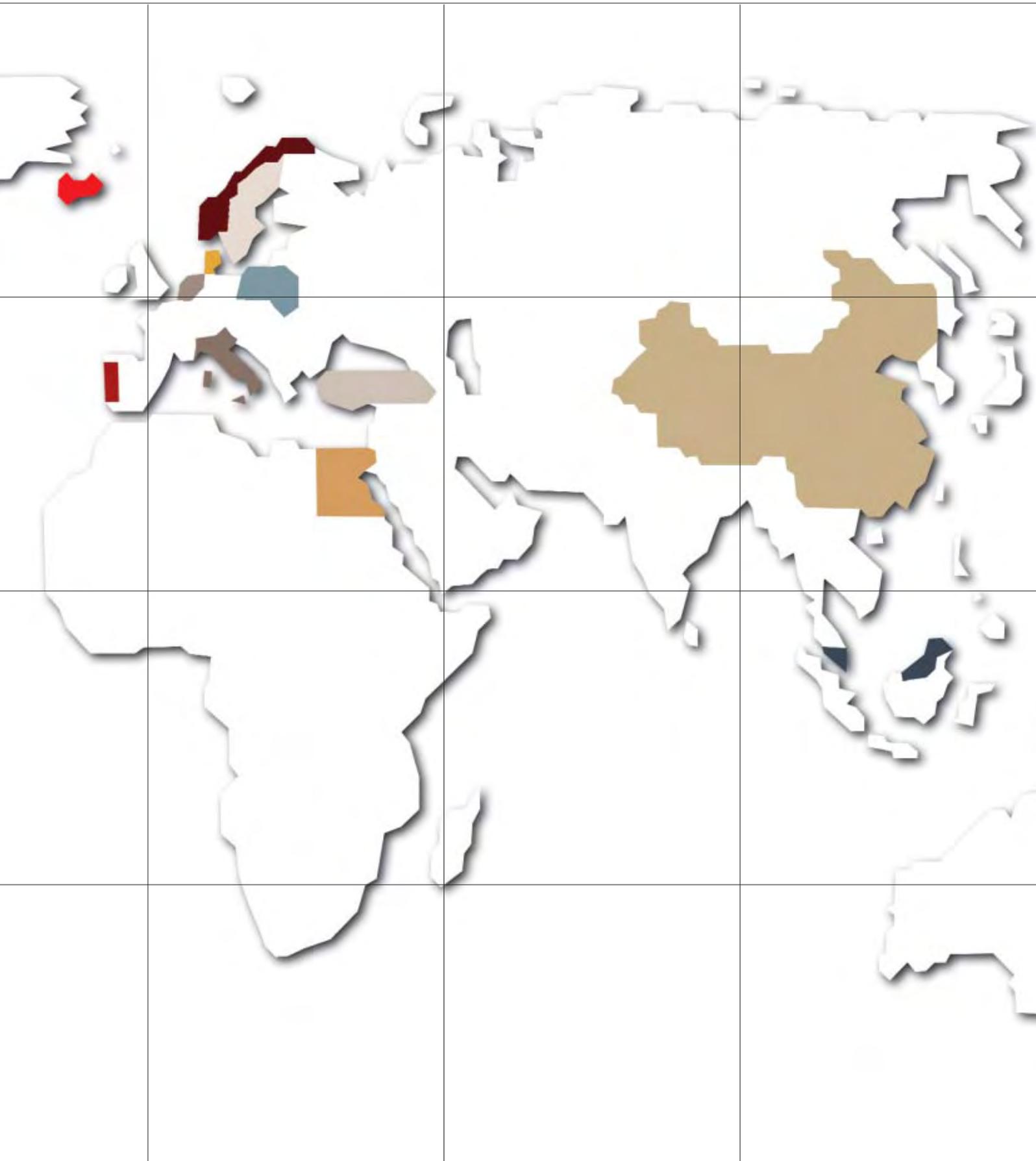
Ready-mixed concrete plants:  
**102**

Distribution centres:  
**16**

Plants manufacturing concrete products:  
**6**



- USA
- ITALY
- DENMARK
- PORTUGAL
- NORWAY
- TURKEY
- SWEDEN
- EGYPT
- ICELAND
- MALAYSIA
- POLAND
- CHINA
- NETHERLANDS



## COMPANY BODIES

### HONORARY CHAIRMAN

Luciano Leone

### Board of Directors

#### CHAIRMAN

Francesco Caltagirone Jr.

#### VICE CHAIRMAN

Carlo Carlevaris

#### DIRECTORS

Alessandro Caltagirone

Azzurra Caltagirone

Edoardo Caltagirone

Saverio Caltagirone

Flavio Cattaneo

Mario Ciliberto

Massimo Confortini

Fabio Corsico

Mario Delfini

Alfio Marchini

Walter Montevocchi

Riccardo Nicolini

Enrico Vitali

### Board of Auditors

#### CHAIRMAN

Claudio Bianchi

#### STANDING MEMBERS

Carlo Schiavone

Giampiero Tasco

### Internal Control Committee

Massimo Confortini

Flavio Cattaneo

Enrico Vitali

### Manager responsible for financial report

Oprandino Arrivabene

### Supervisory Body (D.Lgs. 231/2001)

Mario Venezia

Francesco Paolucci



The corporate governance structure adopted by the Company is based on the recommendations and standards indicated in the document “Codice di Autodisciplina della Borsa Italiana delle Società Quotate” which the Company has complied with.

## THE BOARD OF DIRECTORS

The Board of Directors of Cementir Holding SpA has been appointed by the shareholders on 21.04.2009 for a term of three years 2009-2011, which shall expire on the date of the Shareholders' Meeting called to approve the financial statements as of 31.12.2011.

The Board of Directors is currently composed by fifteen members, of which the majority is non executive, four are independent directors and one is an honorary chairman with no casting vote.

The Chairman of the Board is vested with all powers of ordinary and extraordinary administration, with the exception of those that, by law or the Company's bylaws, are reserved for the shareholders and for the Board of Directors; in the event of Chairman absence or other impediment the Vice Chairman exercises such powers.

## THE BOARD OF AUDITORS

The Board of Auditors monitors compliance with the law and the Company's bylaws, as well as compliance with the principles of sound administration in carrying out the Company's business and verifies the adequacy of the Company's organization, its system of internal controls, and its system of administration and accounting.

The Board of Auditors consists of three standing auditors and three alternate auditors elected on the basis of slates submitted by shareholders all with prescribed requisite for independence and honourability and with high and specific professional skill.

## OTHER BOARDS OF COMMITTEES

Other Boards of Committees are: the Executive Committee, the Internal Control Committee and the Remuneration Committee.

The Executive Committee, composed of Chairman and two executive directors, has all powers exercised by the Board of Directors, except those exclusively attributed to the Board itself by law or the Company bylaws.

The Remuneration Committee composed by a majority of independent Directors makes proposal to the Board of Directors for the remuneration of the executive directors and/or those covering specific roles including through the use of instruments for incentives related to the economic results of the company and/or the reaching of specific objectives which may include stock option plans. They also make proposals, on the indications of the executive directors, for the determination of the criteria for the remuneration of the senior management of the company, while maintaining responsibility for the definition and remuneration of senior management.

Cementir Holding governance model provides for the Manager responsible for the Company's financial reports appointed by the Board. The Board granted to the Manager responsible for the Company's

financial reports the powers necessary to perform his duties pursuant to points 2 and 3 of Article 154 bis of the Consolidated Law.

Cementir Holding governance model provides also for a Lead Independent Director who is the reference point for the coordination of the requests and contributions of the non executive and independent directors.

## **INTERNAL CONTROL SYSTEM**

The Company's internal control system is the collection of rules, procedures and organizational structures established to ensure the sound management of the Company in a manner consistent with its objectives by way of the appropriate identification, measurement and management of major risks. The Board of Directors has ultimate responsibility for the Internal Control System and has defined, with the assistance of the Internal Control Committee, the guidelines for the internal control system. This document specifies roles and responsibilities of the main control bodies such as the Internal Control Committee, the Head of Internal Control (Chief Internal Auditor) and the Supervisory Body (pursuant to Legislative Decree 231/2001).

The Internal Control Committee is responsible for:

- assisting the Board in carrying out its assigned duties regarding internal controls;
- formulating, at the request of the Board, opinions on specific aspects regarding the identification of the principle risks facing the Company and the planning, implementation and management of the internal control system;
- examining the work plan prepared by those responsible for internal controls as well as the periodic reports they prepare;
- evaluating the work plan prepared for the audit and the findings stated in the report and in any recommendation letter;
- reporting to the Board, regarding activities performed and the adequacy of the internal control system.

The Internal Audit function is responsible for verifying that the system of internal control is always appropriate, fully operational and functional. The head of internal control reports to the Chairman, and as such is not responsible for any operational areas or the subordinate of any head of an operational area. On a quarterly basis, the head of internal control presents a report to the Internal Control Committee and the Board of Auditors on risk management and compliance with plans to contain risks, and an evaluation of the suitability of the internal control system.

## **ORGANIZATION AND CONTROL MODEL EX D.LGS. 231/2001**

The Company has adopted in 2008 an Organization and Control Model ex Legislative Decree No. 231 of June 8th 2001.

The organization model, analysis of the risks attaching to Cementir Holding Company was formulated in line with the principles set forth in decree law 231/01, with Italian best practice and with Confindustria recommendations and is capable of preventing the offences contemplated in decree law 231/01.

Such Model is a further strengthening of rigour, transparency and a sense of responsibility in internal and external relationships and at the same time it offers shareholders adequate guarantees of efficient and correct management. The Model contains a list of procedures designed to cover risks attaching



to activities susceptible to or instrumental in the perpetration of the offences covered by the aforementioned decree law. An integral part of the Model is formed by the Code of Ethics which contains guidelines on modes of conduct that may be illicit for the intents and purposes of decree law 231/01 and constitutes a basis on which to construct a system of prevention and control.

The Code, amongst various principles of ethics and conduct, specifically provides for, protection of health, safety and the environment.

The Code has been handed over to company personnel and it is available on the company web site [www.cementirholding.it](http://www.cementirholding.it)

The Board of Directors who approved the organization model appointed a Supervisory Body formed by an external independent member and by an internal member (Chief Internal Auditor).

The Supervisory Body is responsible for:

- a) updating the Compliance Model;
- b) assessing the actual ability of the Model to prevent the commission of the offences envisaged under Legislative Decree 231/01;
- c) conducting periodic checks on the effective implementation of the Model;
- d) monitoring the adequacy of the Model;
- e) periodically reporting to the Board of Directors and the Board of Auditors on its activities, alerts received, measures taken to correct and improve the Model and their state of implementation.

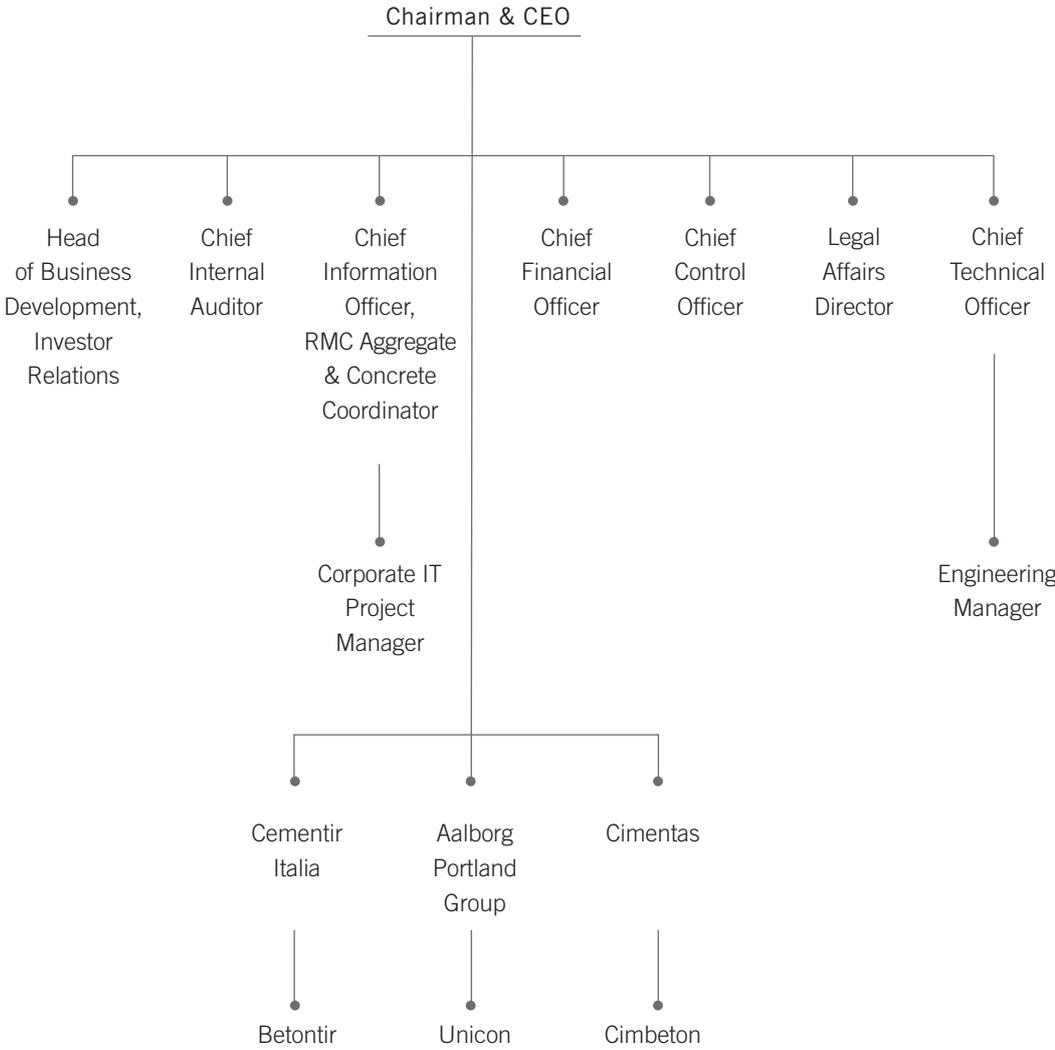
The Supervisory Body has free access to all activities of the company and to the relevant documentation.

## ORGANIZATION

Cementir Holding SpA is an holding company which wholly owns three operating subsidiaries: Cementir Italia (Italy), Aalborg Portland (Denmark) and Cimentas (Turkey).

Cementir Holding has undertaken, in the second half of 2009, an organizational project aiming at improving central coordination and at enhancing interactions between the parent company and the operating subsidiaries.

**THE GROUP STRUCTURE AS OF 31 DECEMBER 2009**





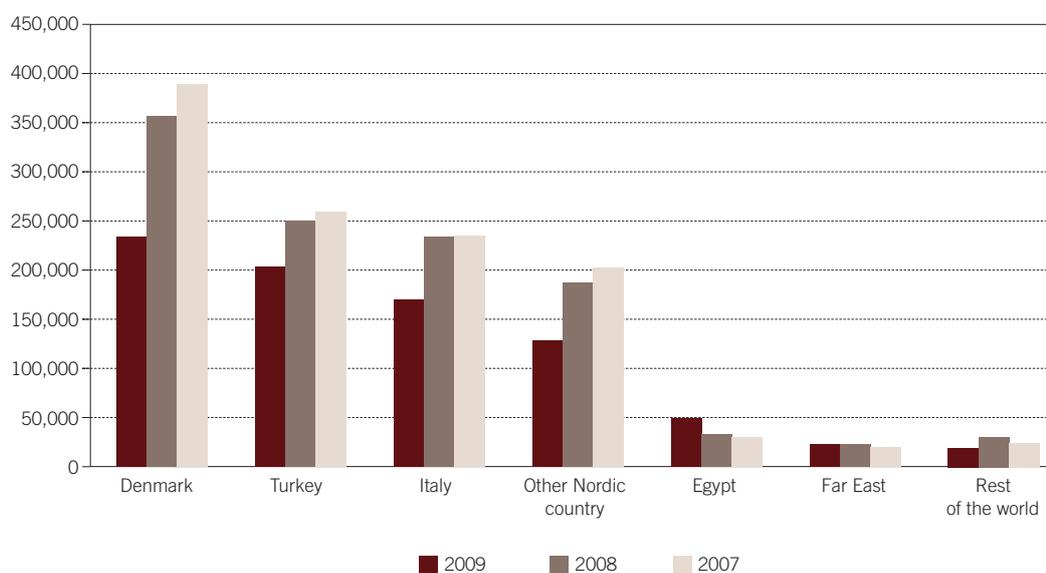
Cementir Holding ended 2009 with a Group net profit of EUR 29.8 million, compared to EUR 65.3 million in 2008 (-54.3%).

Revenues have decreased by 24.7%, going from EUR 1.117 billion in 2008 to EUR 837 billion in 2009; the gross operative margin, decreased by 35.2%, was of EUR 135 million (EUR 209 million on December, 31<sup>st</sup> 2008). Finally, the operative revenue has decreased by 59% in 2009, going down to EUR 52 million against EUR 128 million in 2008.

This efficiency loss is due to the decline of sales volumes across all sectors, the consequent drop in revenues was only partially offset by the containment of operating costs.

## Revenues by geographical production area

[EUR '000]	2009	2008	2007
Denmark	233,910	356,867	389,836
Turkey	203,961	248,945	260,129
Italy	170,800	233,944	236,257
Other Nordic country	131,950	187,086	203,083
Egypt	51,519	34,913	30,612
Far East	24,986	23,628	21,693
Other	20,017	31,604	25,403
<b>Total</b>	<b>837,143</b>	<b>1,116,987</b>	<b>1,167,013</b>



## RESEARCH, DEVELOPMENT AND INNOVATION

The Group primarily engages in research and development at Cementir facilities in Spoleto (Perugia) and Aalborg Portland facilities in Aalborg.

Cementir's research centres focus on researching and studying cements and ready-mixed concrete and testing the products, raw materials and fuels used in the manufacturing process.

We are currently focusing our attention on:

- process and innovative product development aimed at reducing CO<sub>2</sub> emissions in the cement and clinker production cycles;
- study of the positive environmental properties of cement, such as the capacity to preserve heat for energy saving purposes and to absorb CO<sub>2</sub> after crushing for reuse.

Aalborg Portland's research and development centre seeks to increase the use of alternative fuels and raw materials.

CemMiljø, which is an Aalborg Portland subsidiary, purchases non-hazardous industrial waste to be mixed by the Rørdal cement plant and to be used in the kilns as alternative fuels substituting coal and pet coke at the Aalborg facility.

## GROUP'S PROJECT – RESEARCH DEVELOPMENT AND INNOVATION

### **Aalborg Portland – Aalborg Portland, Nordic Cement offensive to make cement even more climate friendly**

Aalborg Portland has carried out a large scale trial in its cement works in Aalborg which have the potential to reduce the emission of CO<sub>2</sub> to the atmosphere by almost 40,000 tonnes annually. This is, on the short term, the effect of a recent production trial which in the long term shows even more promising potential.

The production trial is part of a project which within 6 -7 years may result in new cement types which in some cases may be produced with an emission of CO<sub>2</sub> reduced by 30% per tonne of cement compared to the present Ordinary Portland Cement, CEM I.

This is the perspective of the project FUTURECEM: The Cement of the Future Based on Nanotechnology. The project is a cooperation between Aalborg Portland, iNANO at Århus and Aalborg Universities and the Geological Survey of Denmark and Greenland. The budget of the project is EUR 2.7m. Half of this is financed by the Danish National Advanced Technology Foundation.

The project illustrates that Aalborg Portland is committed to its environmental policy and that the company contribute to the Danish CO<sub>2</sub> reduction targets. At the same time, it shows a continuous utilisation of the excellent raw materials found in the Aalborg area to manufacture the cement of the high quality demanded by the market.

The financial support by the Danish Advanced Technology Foundation has enabled the establishment of a cement research community at the Danish universities which ensures that Aalborg Portland can maintain its advanced position in the field of development of climate-friendly cement.

FUTURECEM deals with the development of cement types which can be produced with up to 30% reduced CO<sub>2</sub> emission but at the same time maintain or improve the high strength and durability of the cements which are manufactured by Aalborg Portland today.

Cement is produced by burning a mixture of the raw materials limestone, sand, fly ash, etc. in a kiln at 1450° C. The intermediate product manufactured by this process, clinker, is then ground in a mill and mixed with other components to obtain the final product, cement. The aim of FUTURECEM is to



develop a production method by which activated mineral components, manufactured from common Danish raw materials, substitute a part of the energy demanding clinker. Residual products such as fly ash from the power stations or blast furnace slag from steel works are often used for this purpose. Availability of these materials is, however, limited in Denmark, which make it necessary to develop substitutes. In addition, especially designed clinker is developed which is tailor-made to use together with the new materials. The result is lower energy consumption and a reduced emission of CO<sub>2</sub> per tonne of cement.

The new clinker was designed and tested at the laboratories of Aalborg Portland and iNANO, but had to be tested in full scale production to ensure that they were usable both in the new cements but also in Aalborg Portland's present products. Financial support from the Advanced Technology Foundation enabled this trial to be realised. The production trial was very successful and 14,000 tonnes of good quality clinker were produced.



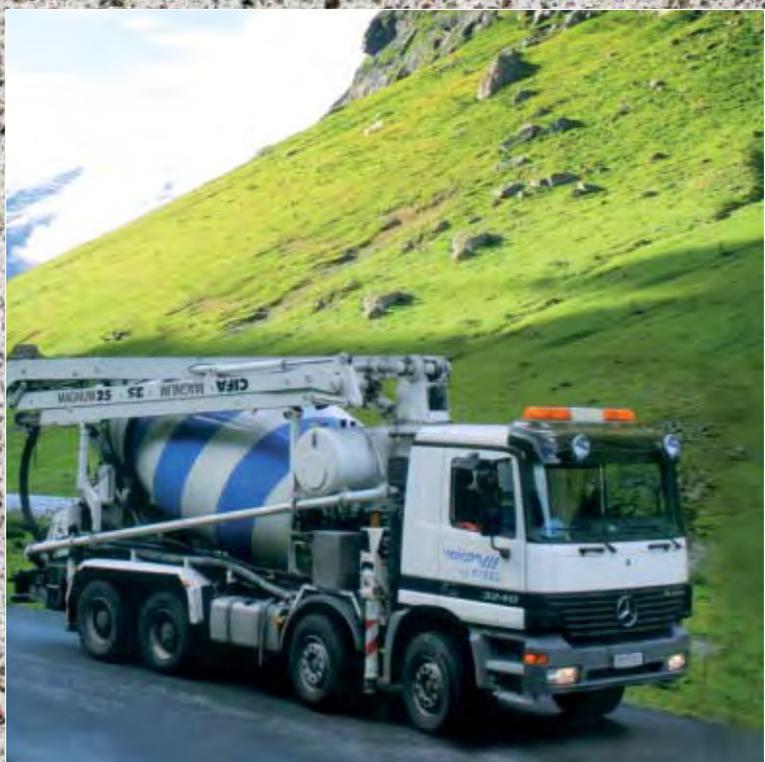
## 2009 OBJECTIVES

HSE performance objectives	Status	Comment
To reduce specific emissions	😊	CO <sub>2</sub> emissions for tTCE decreased by 5% since last year
	😊	SO <sub>2</sub> emissions for tTCE decreased by 14% since last year
	😊	Dust emissions for tTCE reduced by 16% since last year
	😞	NO <sub>x</sub> emissions for tTCE increased by 6% since last year
To contain energy consumption;	😐	Thermal Energy for tTCE increased by 1% since last year
	😐	Electric energy for tTCE increased by 1% since last year
To increase the use of alternative fuels in manufacturing	😊	alternative fuels in manufacturing increased by 18%
To reduce water use and discharge;	😊	Water usage decreased by 13%, average water consumption per metric ton of cement produced declined by 6.8%
To improve accident ratios, especially frequency ratios	😊	Frequency ratio improved (-8.9%)
	😞	Severity ratio not improved (+9.2%) since last year
<b>Monitoring and communication objectives</b>		
The extension of the scope of reporting by geographical and business area	😊	Norway ready-mixed concrete production included
The expansion and refinement of environmental indicators	😞	To achieve within 2009-2010

## 2010 OBJECTIVES

- to reduce specific emissions;
- to contain energy consumption;
- to increase the use of alternative fuels in manufacturing;
- to maintain and increase environmental and safety certifications ISO 14001 and OHSAS 18001;
- to improve accident ratios, especially severity ratios;
- the expansion and refinement of environmental indicators.





# 3

## ENVIRONMENTAL PERFORMANCE

- 35** The cement production cycle and environmental impact
- 49** The ready-mixed concrete production cycle and environmental impact





Cement is made from natural raw materials (limestone, chalk and clay) extracted from natural quarries.

The raw materials, precisely measured and mixed with other materials, are ground prior to heating. The grinding process yields a raw meal. The raw meal is heated in a special kiln generally fed with fossil fuels to produce clinker, a primary component of cement. Once cooled, the clinker is ground and mixed with gypsum and other additives (e.g. slag, fly ash) that differ based on the type of cement. The activities performed during the various stages have a significant environmental impact, largely concerning the following aspects.

### **Natural resources**

The raw materials used in the production cycle, such as limestone, chalk and clay, are essentially natural and non-renewable quarried materials. Within this context, attention has been given to all the environmental aspects related to containing the impact on the ecosystem, restoring and recovering areas involved and using non-natural raw materials.

### **Energy resources**

Considerable energy is required to manufacture cement due to the high temperatures to which kilns must be heated (1500 °C), the electricity needed to grind the product and the quantity of material used.

### **Air emissions**

These are linked primarily to the gases tied to the combustion process and the decarbonisation of the raw materials such as carbon dioxide, sulfur dioxide, and nitrogen oxides. The burning and grinding process also generates dust emission.

### **Waste**

The cement manufacturing process does not create waste as such. The only waste products are generated by ancillary activities, such as maintenance, storage and office activities.

### **Noise emissions**

Noise emissions are associated with certain manufacturing stages such as grinding.

### **Water supply and waste water**

The production process requires limited quantities of water, essentially connected with controlling the temperature of the gases from the kilns and cooling machinery.

### **Transport**

The methods used to transport raw materials and finished products are another point to consider in assessing the associated environmental impact.

### **Reporting data**

The Cementir Group considers respect for the environment to be a key value in its operations. Thus, complying with environmental protection laws in all the countries in which it operates, it determines its strategic choices with a view to satisfying the principles of sustainable development and promoting awareness of environmental protection among its managers, employees and other associates.

The 2009 Environmental Report is the result of a multi-step process carried out by Cementir Holding through a Steering Committee and a Corporate working group coordinated by the Holding Internal Audit department without the help of external consultants.





The Steering Committee, representing the main components of the Group, identified significant environmental concerns for the sector and for the company, the informational structure to be used and the scope of reporting.

The working group collected data from each plant.

Environmental data is reported by sending a reporting package to the plants included within the scope of reporting.

### KEY Performance indicators

In order to enable a composite, uniform and comparable assessment of the Group's environmental performance in terms of emissions and consumption, key performance indicators relating to production have been used.

Production is reported in metric tonnes of Total Cement Equivalent (tTCE). Which is a standard unit for production output, obtained by calculating the equivalent cement tonnage if all the clinker have been processed into cement.

This indicator was selected in consideration of the fact that the production of clinker, the primary component of cements, is the one with the greatest environmental impact.

The following charts show the consolidated data for 2009, 2008 and 2007.

Additional information on acronyms utilized and indicators calculation method is included in the annex in the final portion of the report.

### Scope of reference

The data used to calculate environmental performance refers to all the cement manufacturing plants in:

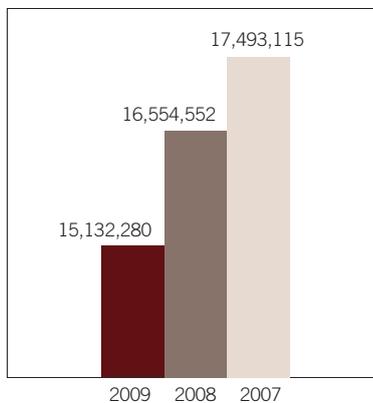
- **Italy:** Maddaloni, Arquata, Spoleto, Taranto
- **Denmark:** Aalborg (7 kilns)
- **Turkey:** Elazig, Izmir, Kars, Edirne
- **Egypt:** Sinai (Al Arish)
- **Malaysia:** Ipoh
- **China:** Anqing.

The output of these plants represents about 96% of the total Group cement output for 2009.

## NATURAL RESOURCES

**-6.25%**

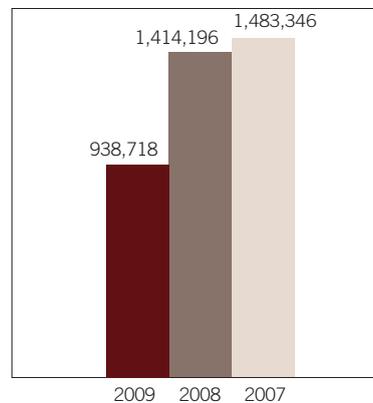
**% of non-renewable raw materials consumption (2009vs2008)**



Raw materials

**6.20%**

**% of alternative raw materials/raw materials (2009)**



Alternative raw materials

The cement manufacturing process starts with the extraction of raw materials from the quarries. These are mainly natural raw materials such as limestone, chalk, marl and clay which, once extracted, are used in the production process. They are primarily used in two stages. They are initially mixed to create the meal or slurry (first stage) for producing the clinker. Once the clinker is made, the raw materials are added to the clinker in the cement mills (second stage) to produce the different types of cement.

In 2009, the Cementir Group's plants used a total of about 15 million metric tons of raw materials to manufacture cement.

In order to contain or reduce the consumption of non-renewable raw materials, the Cementir Group promotes the use of alternative raw materials (thus called since they are not extracted from quarries but rather derive from other production processes), for example foundry sand and blast furnace slag. In 2009, Cementir Group plants have used approximately 940 thousands metric tons of alternative raw materials replacing approximately 6% of the natural raw materials. In particular, alternative raw materials made up more than 25% of the total raw materials used at the Taranto plant.

Another strategy implemented by the Cementir Group to reduce the use of non-renewable raw materials is the internal recycling of materials, such as, for example, the dust captured by filters, which are reused in the production process as raw materials. In 2009, the Group's plants reused about 840,000 metric tons of internally recovered materials through internal recycling.

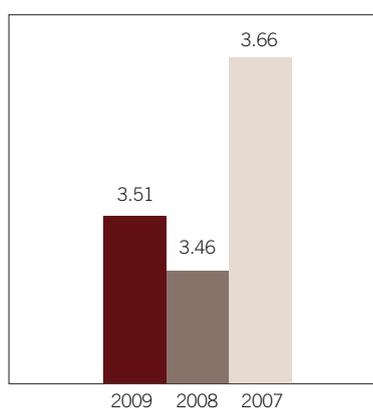


## ENERGY RESOURCES

The cement production process consumes considerable energy during the various processing stages. The energy used in the cement manufacturing plants is either electric or thermal. This latter is mainly used to start up and operate the kilns (1500 °C) and to operate the burners or heaters needed to increase efficiency and optimize the manufacturing process (for example, to dry raw materials and fuels). Electric energy is mainly used to operate the mills for grinding the raw materials, the clinker and fuels). In 2009, the Cementir Group's facilities used 34,000 TJ of thermal energy and 4,245 TJ of electric energy. The thermal energy needed to manufacture cement is traditionally produced by using fossil sources (combustible oil, pet coke, coal, natural gas). The Cementir Group, in compliance with the permits issued by local authorities and the applicable legislation of the countries in which it operates, promotes the use of alternative fuels in place of traditional fossil fuels. In 2009, alternative fuels used by Cementir Group plants to generate thermal energy included: tires, animal meat and bone meal and fats, used oil, contaminated textile waste. In 2009, 6.43% of the Cementir Group's thermal energy came from alternative fuels with an increase from 2008 of 18.5%.

**+1.51%**

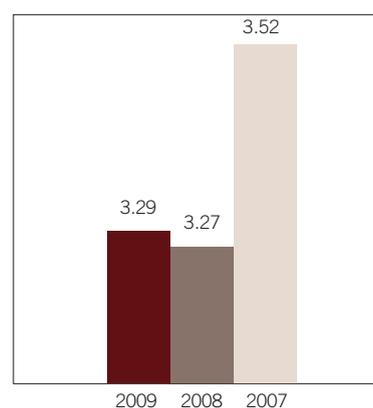
**Specific thermal energy consumption  
(2009vs2008)**



Thermal energy (GJ/tCE)

**+0.52%**

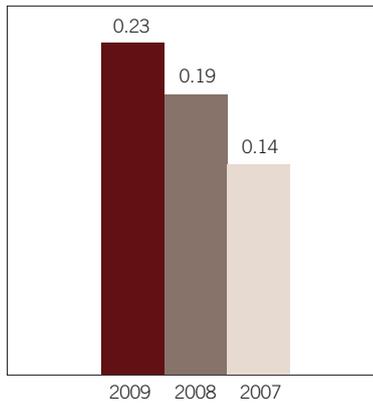
**Specific thermal energy consumption  
from fossil fuels (2009vs2008)**



Conventional thermal energy (GJ/tCE)

**+18.52%**

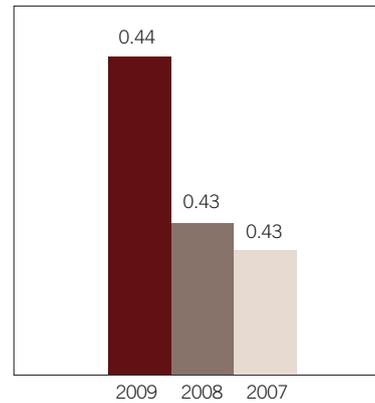
**Specific thermal energy consumption from alternative fuel (2009vs2008)**



Alternative thermal energy (GJ/tCE)

**+1.16%**

**Specific electric energy consumption (2009vs2008)**



Electric energy (GJ/tCE)

Specifically the Aalborg plant expended 30% (1, 313 TJ) of its thermal energy for grey production and 9% (0,4 TJ) for white production using alternative fuels. This effort helps to compensate environmentally for a rather high energy consumption due to wet and semi-dry process based on wet raw materials (chalk) in Aalborg plant.

In Aalborg the heat recovery plant gains heat from the exhaust gases to be delivered to Aalborg town. In 2009 0.76 GJ heat per tCE was recovered corresponding to 30,000 households.

Moreover Cimentas has increased consumption of alternative fuel in Izmir and Trakya plants following a project who aim at substituting 40% of fossil fuels with alternative fuels (see following chapter "Group's project").



## ATMOSPHERIC EMISSIONS

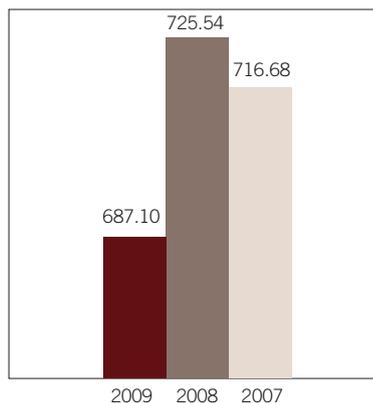
The cement manufacturing process generates atmospheric emissions, mainly carbon dioxide, dust and nitrogen and sulfur oxides. The kiln gasses are channeled and filtered using special filters prior to being released into the atmosphere.

Carbon dioxide emissions (CO<sub>2</sub>) in the cement manufacturing process are generated during the heating and of raw materials and the burning of fossil fuels.

Carbon dioxide emissions by Cementir Group plants in 2009 totaled 6,660 million metric tons, leading to an emission per metric tonne of cement ratio of 0.68 (t/t TCE) both values show an improvement towards corresponding 2008 data respectively 7,540 million metric tons and 0.72 t/t TCE.

**-5.30%**

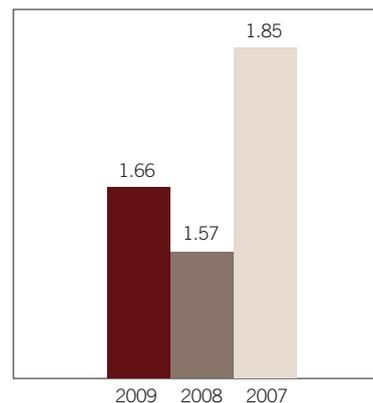
**Specific CO<sub>2</sub> emissions  
(2009vs2008)**



Carbon dioxide CO<sub>2</sub> (kg/t TCE)

**+5.64%**

**Specific NO<sub>x</sub> emissions  
(2009vs2008)**



Nitrogen oxides NO<sub>x</sub> (kg/t TCE)

Carbon dioxide is one of the greenhouse gases (GHG) blamed for climate change. GHG emissions are governed by the Kyoto Protocol, under the Framework Convention on Climate Change of 1992 approved in 1997, which establishes the commitments of the signatory nations to counteract climate change attributable to the emission of greenhouse gases by defining reduction objectives

Starting in 2005, the European Union, through the Emissions Trading Scheme (EU-ETS), moved up implementation of the Kyoto Protocol by three years by regulating carbon dioxide emissions through a cap and trade mechanism that allocates emission credits and allows participants to buy credits from others (or to obtain them using flexible mechanisms).

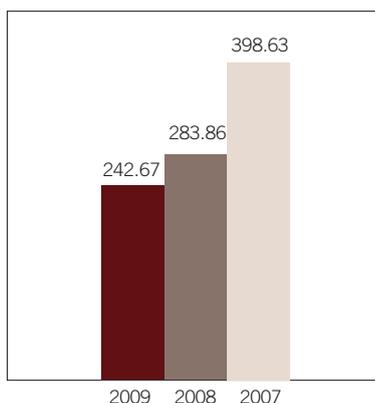
The Cementir Group's facilities in the EU (in Italy and Denmark) participate in Emissions Trading Scheme.

Emissions of nitrogen oxides (NOx) are linked to combustion, in particular the types of fuel used. In 2009, the NOx emissions of Cementir Group facilities came to 16,112 metric tonnes, equal to an emission per metric tonne of cement rate (g/t TCE) of 1.66, a 5.6% increase from 2008 (1.57 g/t TCE).

Emissions of sulfur dioxides (SO<sub>2</sub>) are linked to the presence of sulfur in the fuels and raw materials used. In 2009, the SO<sub>2</sub> emissions of the Cementir Group facilities amounted to 1,261 tonnes, equal to an emission per metric tonne of cement rate (g/t TCE) of 243, a 14.5% drop from 2008 (284 g/t TCE).

**-14.51%**

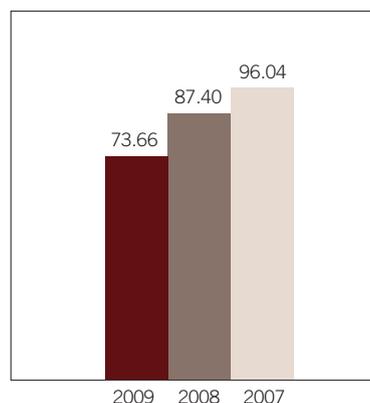
**Specific SO<sub>2</sub> emissions  
(2009vs2008)**



Sulfur dioxides SO<sub>2</sub> (gr/t TCE)

**-15.72%**

**Specific dusts emissions  
(2009vs2008)**



Dust (gr/t TCE)

In 2009, dust emissions by Cementir Group facilities came to 714 metric tonnes. This figure is 21% lower than the total emissions recorded in 2008. Dust emissions per metric ton of cement also fell by 16%, from 87 (g/t TCE) to 74 (g/t TCE).



## WATER SUPPLY AND WASTE WATER

**-6.81%**

**Water consumption  
(2009vs2008)**



The impact of the cement manufacturing process on water supplies is largely tied to consumption since the production of waste water is not significant either in terms of quantity or concentration of pollutants.

In the dry cement production process, water is used primarily to cool the circuits and to control the temperature of kiln gases. In the wet and semi-dry process, water content is greater and water is vaporized during production. In 2009, the Cementir Group facilities used a total of 4.51 million cubic meters of water decreasing from 2008 consumption of 5.18 million cubic meters. The Group's commitment to use water supplies more efficiently by implementing industrial water and rainwater recovery plants resulted in a 20% water consumption decrease. The average water consumption per metric ton of cement produced also decrease by 10% declining from 518 (l/t TCE) in 2007 to 465 (l/t TCE) in 2009. The internal recycling of process water, changed from 4,443 thousand cubic meters in 2007 to 4,626 cubic meters in 2008 and to 4,379 thousand cubic meters in 2009.

## TRANSPORT

Production at a cement manufacturing plant involves many transport activities:

- within the plant to move materials (using conveyer belts, dumpers, etc);
- outside the facility, for incoming materials and fuels and outgoing products.

Due to the distances covered and the related environmental impact (emissions and traffic created), outgoing transport is particularly important. It can be conducted using a variety of means of transport such as: trucks, trains, ships and conveyer belts. The choice of transport method used is primarily affected by the location of the facility and the infrastructure available in the surrounding area.

In 2009, the inbound transport of materials and the outbound transport of products was mainly conducted using trucks; for the Aalborg, Taranto, Izmir Ipoh and Anqing facilities also ships have been used, thanks to the existence of the required infrastructure.

With regard to incoming materials:

- 79.0% arrived via trucks;
- 4.2% arrived via ship;
- 16.8% arrived via the conveyer belt that connects the quarry with the plant (this movement of material is treated as external transport).

Products exiting Cementir Group facilities have been transported in 2009 by trucks (72.2%) and ships (26.9%). In 2008 data were respectively 70% and 29.5%. The following table shows percentage of outgoing products transported by ship:

Plant	Country	% of outgoing products shipped by sea		
		2009	2008	2007
Aalborg	Denmark	66.6	72.9	70.4
Taranto	Italy	32.0	27.8	39.3
Izmir	Turkey	48.0	38.0	28.0
Edirne	Turkey	11.4	0	0
Ipoh	Malaysia	82.3	80.3	ND
Anqing	China	50.3	66.5	54.5
Al Arish	Egypt	55	ND	ND

## WASTE

The cement manufacturing process does not produce waste, although ancillary activities, such as maintenance, storage and office activities do.

Waste produced at Cementir Group facilities is managed in accordance with the applicable laws in the countries in which the Group operates. Emphasis is placed on reusing and recovering materials.

The total waste produced by the Cementir Group's plants in 2009 came to 46,416 metric tons, of which 37% was recycled increasing by 20% from 2008.



## NOISE EMISSIONS

The cement manufacturing process generates noise emissions during various stages, especially in moving and grinding the raw materials and fuels.

Despite the fact that the plants are located in industrial areas, thus limiting possible disturbances to the public, the Cementir Group regularly samples the noise generated by the manufacturing process in order to ensure compliance with applicable laws and to abate noise levels. The containment of noise emissions seeks to reduce the impact on surrounding buildings and to provide a better working environment for Group employees.



## GROUP PROJECTS REGARDING THE ENVIRONMENT

### **Cimentas - Project for the use of alternative fuels and raw materials in Izmir and Edirne**

The investments planned for by the working group on the procurement of alternative fuels were carried out at the beginning of the second half of 2009 at the Izmir plant (kiln 3), and the process was then fine-tuned. In 2009, roughly 1% of the fuel used at the Izmir plant was in the form of waste-based alternative fuels. The current feed capacity through the main burner is 1.5 tons/hr and is to be increased to 5 tons/hr in May 2010.

The forecast for 2010 is to exceed a 5% substitution rate for kiln 3 and to consider a similar investment for kiln 1.

At the Trakya plant, 15% of the fossil fuels have been substituted thanks to the use of waste oil.

The long-term goal remains that of replacing 40% of fossil fuels with alternative fuels.

The group responsible for alternative fuels is also focusing on the use of alternative materials to replace raw materials used to produce clinker.





## **Cementir Italia - Environmental improvement actions taken at the Spoleto plant in 2009**

Important actions were undertaken in 2009 to improve the environmental performance of the plant and to ensure that the best techniques available for controlling and monitoring the environmental impact are being used. Specifically these involve:

1. the installation of the SNCR DeNOx system;
2. the installation of a Continuous Emissions Monitoring System (CEMS) for a kiln;
3. construction of a rain water collection and treatment system which, in the event of emergency, can also receive any water dumped from the closed circuit of industrial water used for cooling purpose.

### **SNCR DeNOx system**

The SNCR (Selective Non-Catalytic Reduction) process is recognised as the best technique available for controlling nitrogen oxide (NOx) in the cement industry. The process is based on the reaction between nitrogen oxides and ammonia in the presence of oxygen to form nitrogen and water vapour. The ammonia solution is injected through nozzles located on Kiln 1's cyclones and the dose is controlled by an automatic regulation system based on the output set point for the concentration of NOx in the gas.

The introduction of this NOx reduction system in March 2009 has led to better emissions performance in line with applicable regulations and has contributed to improving control over the combustion process for Kiln 1.

### **Continuous Emissions Monitoring System (CEMS) for Kiln 1**

The CEMS, placed into operation in March 2009, continuously measures the concentration of nitrogen oxide, sulphur oxide and dust.

The CEMS is comprised of a set of instruments for taking gas samples, acquiring and measuring the samples, analysing them and verifying the measurements made. The data collected will be analysed and recorded in the form of daily, monthly or annual reports.

Among the benefits of adopting the CEMS is that the data generated by the CEMS management software is an effective and immediate tool for determining whether regulations are being complied with and for providing an accounting to all the relevant stakeholders (interested in the environmental performance of the site). These data also offer solid help in managing and supervising the plant in order to optimise processes and verify the effectiveness of the emission reduction systems installed.

### **The system for collecting and treating rain water**

Work in this area related to the diversion of rainwater and industrial water used in cooling discharged in the event of emergency towards a treatment system consisting of a sedimentation, sand-bath filter and oil extraction phase followed by quartz-based filtration.

The environmental benefits include the improved quality of the water released into the sewer pipe. Managerial benefits relate to optimising the accounting for and qualitative assessment of effluents (a system for measuring the volume and taking samples every 24 hours was installed), and that such system offers the possibility of handling any emergencies quickly and effectively.





Ready-mix concrete is produced from a blend of aggregates, cement and water, with the aggregates acting as the support structure, while the cement reacts chemically with the water in order to bind the other ingredients. At times, in order to obtain particular levels of performance, such as greater fluidity or more rapid drying, various types of additives are dissolved in the water along with the base ingredients of the concrete.

Ready-mix concrete is packaged and produced in concrete-mixing plants, in which the mix is dosed out directly in batching plants. The mixing phase can take place directly in a pre-mixer or during transport in a cement-mixer truck, which allows to keep the product properly mixed, so that it maintains the fluidity it needs to be used in construction.

Once the concrete arrives on the work site, it is thereby ready to be used. Before being cast, the concrete often undergoes a special process known as “pumping”. This involves sending the concrete through pipes, which make it easier for the product to reach higher locations, such as upper floors, tunnel structures, and so on.

The activities performed during the various stages have a significant environmental impact, as outlined below.

### **Natural resources**

The raw materials used in the production cycle, such as sand and gravel of various sizes, are derived from quarried materials. Within this context, attention is placed on all the environmental aspects related to containing the impact on the ecosystem, restoring and recovering areas involved, and using raw materials.

### **Atmospheric emissions**

Atmospheric emissions primarily include emissions connected with the transport of aggregates, the unloading of cement, and the loading of cement mixers. All emission sources are equipped with special filters that significantly reduce the dust emitted, and these filters are subject to periodic maintenance. Emissions are constantly monitored and analyzed in the lab.

### **Water supply**

The water used in the production of ready-mix concrete serves to bind the aggregates, cement and additives.

### **Noise emissions**

Noise emissions are limited and associated solely with the loading of cement mixers and the transport of aggregates.

### **Performance indicators**

The following figures show the consolidated numbers on concrete production and raw materials and water used in 2009, 2008 and 2007.

## Scope of reference

The data used to calculate environmental performance for the concrete segment refers to the manufacturing plants in Italy, Denmark, Norway and Turkey. The output of these plants represents 94% of the total Group concrete output for 2009.

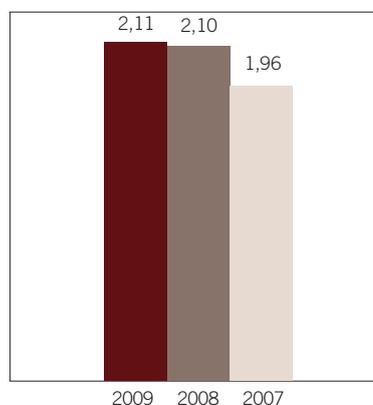
## RAW MATERIAL

In 2009, the Cementir Group's plants used a total of about 6 million metric tons of raw materials to manufacture ready mix.

Raw material and other material	2009	2008	2007
Sand	1,652,065	2,165,638	2,413,518
Stone	839,775	1,067,898	1,169,517
Other raw material	3,592,563	4,746,940	5,183,151
Additives	1,642	4,452	4,845
Cement	11,752	13,644	14,528
<b>Total</b>	<b>6,097,797</b>	<b>7,998,572</b>	<b>8,785,559</b>

The 24% decrease in raw material consumption is basically due to the reduced RMC production of 2009 as consumption of raw material per cubic meter of ready-mixed concrete produced is substantially in line with corresponding 2008 data.

### Non renewable raw material consumption



Non renewable raw materials tonnes per cubic meter of concrete



In order to contain or reduce the consumption of non-renewable raw materials, the Cementir Group promotes the use of alternative raw materials (thus called since they are not extracted from quarries but rather derive from other production processes), for example fly ash. In 2009, Cementir Group plants have replaced approximately 1.9% of the natural raw materials.

[tonnes]			
Alternative raw materials	2009	2008	2007
Fly ash	90,188	137,891	160,493
Microsilica	2,685	5,541	13,358
Other recycling materials	4,000	5,000	4,000
<b>Total</b>	<b>96,873</b>	<b>148,432</b>	<b>177,851</b>

## TRANSPORT

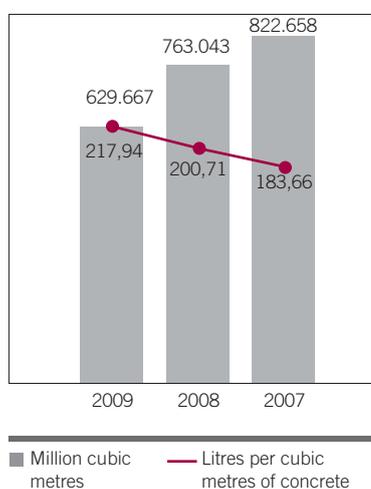
Production at a ready-mixed concrete manufacturing plant involves inbound transport of raw material and fuels and finished good (ready-mixed concrete) outbound transport.

In 2009, the inbound transport of materials and the outbound transport of products was mainly conducted using trucks; for the Unicon facilities in Norway also ships have been used, for approximately 20% of the total inbound transport of materials.

## WATER SUPPLY

In 2009, the Cementir Group ready-mixed concrete facilities used a total of 0.6 million cubic meters of water decreasing from 2007 and 2008. The average water consumption per cubic meter of ready mixed concrete produced has increased by 8.6% from 2008. This is due to the lower production of concrete in 2009 as the basic use of tap water for cleaning purpose of blending facilities and vehicles, washing routines, water usage inside buildings has increased per cubic meter of concrete produced.

### Water consumption







Internal recycling of process water has been considerable in Unicon plants totalling in 2009 approximately 35,000 cubic meters (see following paragraph “Group projects”).

## GROUP'S PROJECTS REGARDING THE ENVIRONMENT

### Unicon Denmark - Good for the environment through recycling

Recycling of water (processing water) from washing of systems, washing of vehicles and rainwater harvesting for production of concrete gain more and more ground in the concrete production process of Unicon.

Today there are recycling plants in approx. 50% of the mixing systems in Denmark. In detail the process is to drain residues from rinsing of mixing systems and concrete lorries and after this recycle the processing water from this rinsing in the concrete mixing process.

A few plants have chosen to wash out remainders of the concrete from supplies and rinsing water with materials from mixing systems and concrete lorries and after this recycle the dissolved pulverised parts in slurry form in the production process. This recycling process is more extensive, but has been used with advantage in areas where there have been material deposits with poor filler content or areas with municipal demands involving huge fees by depositing of concrete waste.

Recycling of processing water is a really good investment saving Unicon A/S payment of water fees for supply of drinking water for concrete production. But especially it also saves big amounts, which otherwise should be paid in discharge fee to the municipal wastewater treatment works.

However, the last profit must absolutely not be forgotten – e.g. the global environmental profit in the limitation of use of the fine drinking water.

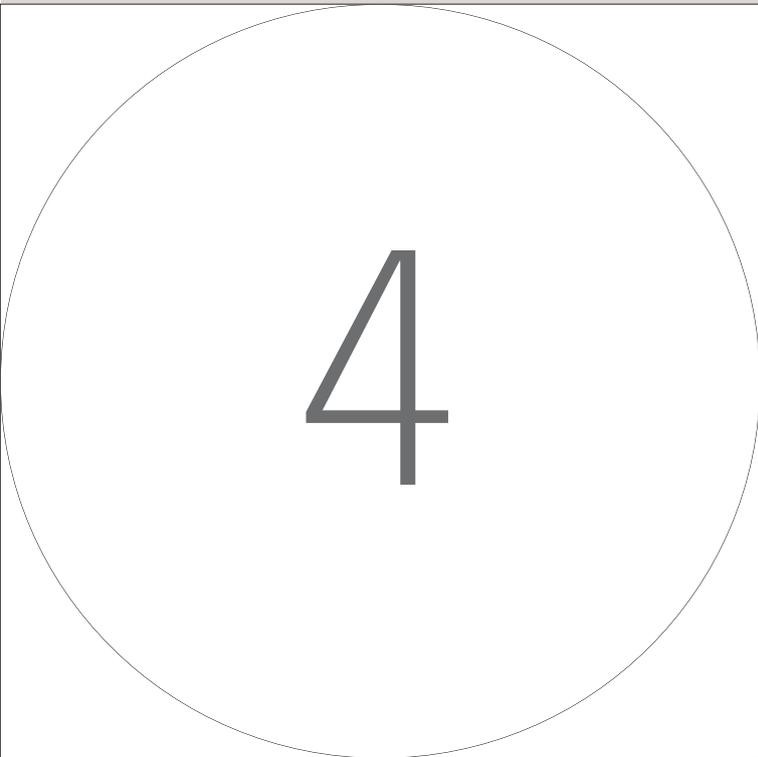
The drained off residual products and the congealed concrete rests are being purchased by the company HJ Hansen, who is specialist in recycling of many different products from the industry. HJ Hansen is crushing and sorting concrete rests to useable fill material, which within many areas has become a demanded product for refilling and ground protection in connection with establishment of for instance building site roads. It is an excellent material and with the right grading and following consolidation it might be like a coarse concrete coating.

There are also examples where you use crushed concrete fractionated in a big grain size and only a little fill material. This special product can be used for establishment of fire routes along runways in airports. This solution has been used in for instance Tirstrup Airport near Århus.

The unique thing about this solution is that a really good transportation way with high carrying capacity can be established contemporary with the fact that it can drain big quantities of surface water away from the area without the road sinking together and being unstable.

As it appears remainders of concrete is a very good product which through this recycling can replace pit materials, which result in the fact that raw material occurrence can be maintained for a longer period of time.





# 4

## PEOPLE ENVIRONMENT AND COMMUNITIES

- 57 Health and safety
- 63 Local communities and institutions





Respect for the health and safety of employees represents one of the primary objectives of the company. The Group uses the following tools to improve its performance:

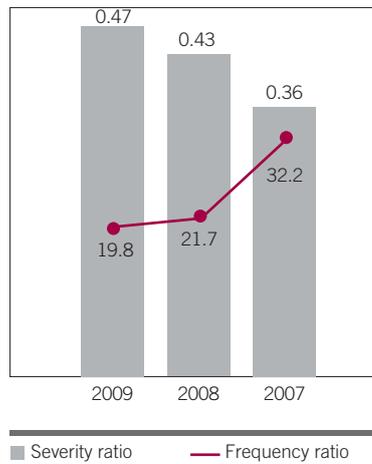
- ongoing training on specific health and safety issues and on the proper use of machinery (see the section “Training”);
- investment in and expenditure on safety devices (individual and facility-wide) and machinery to maintain a high level of technology (see the section “HSE investment”);
- adoption of worker health and safety management systems (see the section “Certifications”).

The frequency ratio, for Cementir Group plants, decreased from 32.2 in 2007 to 19.8 in 2009; on the other hand the severity ratio increased from 0.36 in 2007 to 0.47 in 2009.

These changes mean that there was a decrease in the total number of workplace accidents whereas the average length of such accidents has increased. Cementir Italy has undertaken a project call “Toward zero injury” in order to achieve a reduction in the seriousness of work-related injuries (see following chapter on Group projects).

No fatal accident has occurred in 2009 in the Group’s plants.

Accident ratios



## TRAINING

One of the keys to the Cementir Group's continual improvement of its HSE performance is training on environmental, health and safety issues.

Training programmes are targeted at all Group employees and are adjusted to address specific needs based on the duties of each employee in different HSE areas.

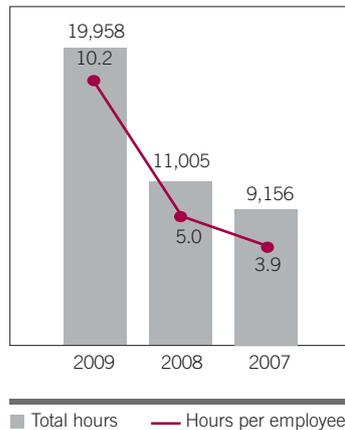
In 2009, the number of HSE training hours conducted by the Cementir Group in the cement manufacturing plants came to 19,958, for an average of 10 hours per employee. Both figures are much higher than those for 2008 and 2007. Training hours supplied in 2009 increased by 81% from 2008 and by 118% from 2007 testifying the group effort in this area.

The safety training program "Cementir: Safety as Part of the Company Culture" (see following chapter on Group projects) contributed in 2009 to Cementir Italy 246% increase of training hours delivered toward 2008.

The number of HSE training hours conducted by the Cementir Group in the concrete sector also shows the Group effort to improve HSE performance; in 2009 training hours supplied in the ready-mixed concrete manufacturing plants came to 1,484, for an average of 2 hours per employee, both figures are higher than those for 2008 and 2007.

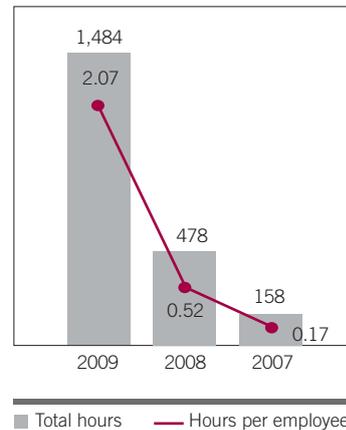
**+50.98%**

**HSE training hours per employee cement (2009vs2008)**



**+74.88%**

**HSE training hours per employee concrete (2009vs2008)**



## CERTIFICATIONS

The Cementir Group is active in adopting environmental management systems certified as compliant with ISO 14001 and worker health and safety management systems certified as compliant with OHSAS 18001 at its facilities in order to continually improve environmental performance and to achieve high levels of workplace safety and protection. The following table details cement plants certified according to the two above mentioned standards and to the standard EMAS and ISO 9001.



### Cement plants certified, in 2009

	ISO 14001	OHSAS 18001	EMAS	ISO 9001
Aalborg	X	X	X	X
Edirne				X
Elazig		X		X
Izmir	X	X		X
Kars	X	X		X
Maddaloni	X			
Spoletto	X			
Taranto	X			X

- **ISO 14001** - Is a voluntary international standard that establishes the requirements for an effective environmental management system (EMS). Fulfilling these requirements demands objective evidence which can be audited to demonstrate that the environmental management system is operating effectively in conformity to the standard.

An EMS meeting the requirements of ISO 14001 is a management tool enabling an organization of any size or type to: identify and control the environmental impact of its activities, products or services, and to improve its environmental performance continually, and to implement a systematic approach to setting environmental objectives and targets, to achieving these and to demonstrating that they have been achieved.
- **OHSAS 18001** - The international standard that sets the requirements for developing an occupational health and safety system ("OHSAS" stands for Occupational Health and Safety Assessment Series), is an international occupational health and safety management system specification. The OHSAS specification is applicable to any organization that wishes to:

  - establish an OH&S management system to eliminate or minimize risk to employees and other interested parties who may be exposed to OH&S risks associated with its activities
  - assure itself of its conformance with its stated OH&S policy
  - demonstrate such conformance to others
  - implement, maintain and continually improve an OH&S management system
  - make a self-determination and declaration of conformance with this OHSAS specification
  - seek certification/registration of its OH&S management system by an external organization.
- **The Eco-Management and Audit Scheme (EMAS)** - Is the EU voluntary instrument which acknowledges organizations that improve their environmental performance on a continuous basis run an environmental management system and report on their environmental performance through the publication of an independently verified environmental statement.
- **ISO 9001** - Is a voluntary international standard published in 1987 by the International Organization for Standardization, concerning the requirements of Quality Management System for organizations in all sectors and size.

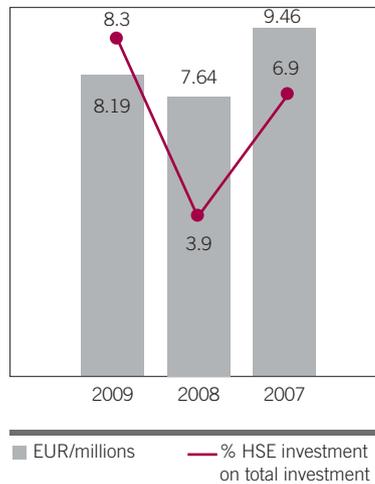
## HSE Investments

The Cementir Group's commitment to Health, Safety and the Environment (HSE) is shown by its financial and managerial efforts to:

- reduce the environmental impact of its manufacturing activities;
- ensure workplace safety;
- guarantee workers health.

HSE investment by the Cementir Group in 2009 amounted to EUR 8.2 million increasing from 2008 by 7.3%; HSE investment for the 2007-2009 period reached EUR 25 million. Safety investment in 2009 amounted to EUR 2 million in line with corresponding figure from 2008.

HSE investment



The environmental investment in 2009 amounted to EUR 6.2 million increasing from 2008 investment (EUR 5.6 million). Percentage of HSE investment on total investment has increased from 3.9% in 2008 to 8.3% in 2009.



## GROUP PROJECTS REGARDING HEALTH AND SAFETY

### Cementir Italia

#### Cementir: Safety as Part of The Company Culture

The safety training program “Cementir: Safety as Part of the Company Culture” had a dual objective:

- to develop knowledge and technical skills in the area of safety in the Cementir Italia workplace and of safeguarding the environment;
- to contribute to promoting awareness of the impact that one’s conduct can have on company processes and to promoting safety in one’s own workspace as a fundamental responsibility of each employee – i.e. to enhance the culture of personal prevention and the safeguarding of co-workers and the workplace.

The 14 training initiatives provided from February to July 2009 regarded:

1. safety in the company
2. risks related to extraction activities
3. risks related to the use of lifting equipment
4. accident risks
5. working in high places: risk of falling
6. risks related to workplace hygiene or other health-related risks
7. risks related to the use of video terminals and office ergonomics (e-learning programme)
8. training of fire-safety personnel (Article 7 of Min. Decree of 10 March 1990) and first aid training
9. occupational health and safety legislation
10. waste management
11. noise and air pollution
12. dust emissions within the plants
13. training on the company’s Safety System Management and integration with other standards
14. course on unsafe conduct for supervisors.

Location	Hours of training	Participants
Rome head office	88	49
Arquata Scrivia plant	108	64
Maddaloni plant	444	136
Spoletto plant	296	118
Taranto plant	276	115
<b>TOTAL</b>	<b>1,212</b>	<b>482</b>

At the end of the courses, a total of 954 assessment tests and 800 satisfaction questionnaires were given (at the end of each training initiative). The questionnaires showed a good level of satisfaction and pointed to the usefulness of the training provided.

## Cementir Italia Project “Towards Zero Injury”

Cementir Italia has been giving increasing importance to safety, and in recent years the company has developed significant initiatives, such as the one described above, which have resulted not only in regulatory compliance, but also, and above all, in a reduction in the number and seriousness of work-related injuries.

Nonetheless, when it comes to safety, it is necessary to work towards achieving zero injuries, a goal which has been reached by many excellent organizations, which have received significant benefits in terms of quality and productivity as well.

However, this goal is not an easy one to achieve, particularly because within Cementir, as in all companies, the leading causes of injury are due to the conduct of individuals and to the way in which they face risks that, although limited, cannot be completely eliminated from the workplace.

As such, it has been decided to launch the project “Towards Zero Injury”, which places particular emphasis on people, in addition to the technical and organizational aspects of safety. This project is to be developed with the help of a consulting firm that has successfully implemented similar projects within leading Italian organizations. The results point to a reduction in injury of at least 25% per year. The project was launched at the beginning of this year with a survey – which is currently under way – of the status of safety within the four Italian plants. This survey will highlight the strengths and areas for improvement in the items that make up a reliable safety management system. This will then be used as the basis for defining actions and mechanisms for Project “Towards Zero Injury”, which is to be developed immediately following the survey.





The Group's geographical structure, spanning 15 countries with a workforce of over 3,400, makes Cementir a "multi-local" group. This structure is also reflected in the development of relations with local communities and institutions. In fact, in their daily operations, the individual companies have engaged in specific communication and dialogue activities with communities and public institutions. Despite these activities are conducted at the local level, they nevertheless aim at pursuing the basic principles of complying with the law and respecting sustainable development.

*In 2009, the Group was involved in a variety of local level projects. The following table illustrates the primary areas of action, with a number of examples.*

#### **Investment and spending on local infrastructure to mitigate the environmental impact of its activities**

- **Rørddal Plant, Aalborg Portland**  
Low-Nox mainburner kiln 87, Dedusting filter coalmill 7, Energy savings on compressed air system, and ATEX-investments in coal mills.
- **Arquata Plant, Cementir Italy**  
Concrete pavement of the plant, site cleaning machine, sewage system of the plant, rain water discharge canals and dedusting system, triboelectric probes installed Arquata plant, Cementir Italy.
- **Maddaloni Plant, Cementir Italy**  
Concrete pavement of the plant, irrigation system upgrading, increasing areas of greenery, oxygen analysers, cooling water plant, workplace safety posters and fencing in the quarry.
- **Spoletto Plant, Cementir Italy**  
Electric plant update, dust recycling system on kiln 1, improvement on accident prevention measures, improvements of safety, quarry environmental recovery.





## Environmental and social plan, donations and sponsorships

- Cimentas  
Isikkent Education Campus financed by Cimentas education and Health Foundation.
- Aalborg Portland  
In autumn 2009 Aalborg Portland hosted a local COP15(United Nations Climate Change Conference 2009 held in Copenhagen) conference for Members of Parliament elected in Northern of Jutland and local companies in renewable energy.
- Aalborg Portland Malaysia
  1. Environmental Friendly Day (18th Jan 2009)  
Aalborg Portland Malaysia had organized Environmental Friendly Day on 18th Jan 2009. The purpose is to build better social responsibilities with our neighbouring residents and to give a better understanding and confidence of our manufacturing environment to the residents.  
Activities held were:
    - (i) Exhibition on environmental awareness
    - (ii) Talks on environmental – by Dept Of Environment
    - (iii) Dialogue with neighbouring residents
    - (iv) Plant tour
  2. Trees Planting Program on World Environment Day (05th June 2009)  
Aalborg Portland Malaysia has planted about 73 forest trees along the perimeter of the factory in conjunction with this day as a reminder of our obligations to the environment. A plate with name & signature of planters are placed at the trees as recognition to their effort in playing their roles of maintaining a greener environment.

## Participation in associations

- T.Ç.M.B.(The Turkish Cement Association environment committee)
- Cembureau (The European Cement Association)
- AITEC (The Italian Cement Association)
- ATECAP (The Italian Ready-mix concrete Association)

## Communication with stakeholders

- Plant visits (customers, public authorities, universities, schools)
- Publication of local environmental reports
- Aalborg Environmental Report 2009





**Cement equivalent (TCE - Total Cement Equivalent):** tTCE = tonnes Total Cement Equivalent. A standard unit for production output, obtained by calculating the equivalent cement tonnage if all the clinker have been processed into cement

**CO<sub>2</sub>:** Carbon dioxide

**Direct energy:** Internally produced energy

**Indirect energy:** Energy acquired from external sources

**g/t TCE:** Grams per metric ton of cement equivalent

**Joule:** A unit of measurement of energy (one joule is the work required to exert a force of one newton for one meter). A gigajoule (GJ) is equal to  $1 \cdot 10^9$  joules, while a terajoule (TJ) is equal to  $1 \cdot 10^{12}$  joules

**Frequency rate\*:** The rate used to indicate the frequency of accidents. The numerator is the number of accidents during the year and the denominator is the number of hours worked during that year. In order to make the result more understandable, the ratio is multiplied by one million. The index yields the number of accidents per one million hours worked

**Severity rate\*:** The rate used to calculate the damage caused by accidents (i.e. the severity of the consequences of workplace accidents). The numerator is the number of work days lost due to accidents and the denominator is the number of hours worked during that year. In order to make the result more understandable, the ratio is multiplied by one thousand

**Accident\*:** A chance event that occurs during work that causes permanent and/or temporary physical or mental harm or that causes the death of the worker

**l/t:** Litres per metric ton

**m<sup>3</sup>:** Cubic meter

**NO:** Nitric oxide

**NO<sub>2</sub>:** Nitrogen dioxide

**NO<sub>x</sub>:** Nitrogen oxides (NO and NO<sub>2</sub>)

**SO<sub>2</sub>:** Sulphur dioxide

\* In calculating the accident rate contained in the 2008 Environmental Report:  
- only injuries lasting more than one day are considered (excluding that on which accident occurred)  
- excluding accidents en route



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