

# CEMENT FOR BUILDING WITH AMBITION

 aalborgportland  
CEMENTIR HOLDING



WE MAKE IT EASY TO BUILD WITH AMBITION

# AALBORG PORTLAND

## ONE OF THE LARGEST CEMENT PRODUCERS IN THE NORDIC REGION

Aalborg Portland A/S has been a central pillar of the business community in Denmark – and particularly North Jutland – for more than 125 years, with major importance for employment, exports and development of industrial knowhow.

Aalborg Portland is one of the largest producers of grey cement in the Nordic region and the world's leading manufacturer of white cement. The company is at the forefront of energy-efficient production of high-quality cement at the plant in Aalborg. In addition to the factory in Aalborg, Aalborg Portland includes four sales subsidiaries in Iceland, Poland, France and Russia.

Aalborg Portland is part of Aalborg Portland Holding, which is the parent company of a number of cement and concrete companies in i.a. the Nordic countries, USA, Turkey, Egypt, Malaysia and China. Additionally, the Group has activities within extraction and sales of aggregates (granite and gravel) and recycling of waste products.

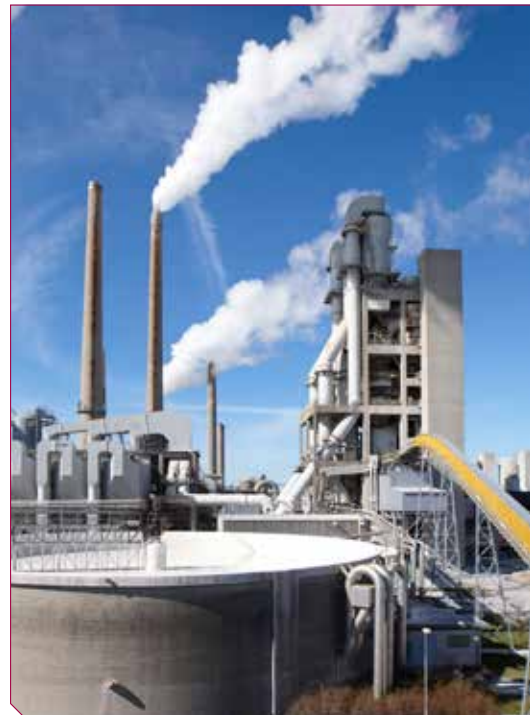
Read more on [www.aalborgportland.dk](http://www.aalborgportland.dk)  
and [www.aalborgwhite.com](http://www.aalborgwhite.com).

Data in this brochure is based on figures from 2015, unless otherwise stated.

Aalborg Portland Holding is owned by the Cementir Group, an international supplier of cement and concrete. The Cementir Group's head office is placed in Rome and the Group is listed on the Italian Stock Exchange in Milan.

Cementir's global organization is divided into geographical regions, and Aalborg Portland A/S is included in the Nordic & Baltic region covering Northern Europe and USA.

[www.cementirholding.it](http://www.cementirholding.it)





## CEMENT FOR BUILDING WITH AMBITION

- Cement has good climate properties – consistent with society's environmental goals
- Concrete is a durable, long-life material needing minimal maintenance. This benefits overall economy
- Constructions executed in white cement save on energy
- Concrete materials can be recycled, fully utilising all constituents
- Cement inspires the creation of beautiful building solutions

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## SUSTAINABLE PRODUCTION

- Sustainable utilisation of natural resources
- More than 400,000 tonnes of waste from industry and society are recycled in cement production in a resource-efficient partnership
- The plan is to double the percentage of alternative fuel used to make grey cement to 60% and reduce the consumption of fossil fuel
- In a few years, Aalborg Portland's own wind turbines will be able to supply up to 18% of company power consumption
- Heat from cement production provides district heating for 24,000 Aalborg households
- Sharply reduced emission of NO<sub>x</sub> by 35% since 2010

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## VALUE TO SOCIETY

- Leads the way in technological development – based on productive collaboration between research and manufacture
- Approx. 90% of white cement is exported, benefiting Denmark's balance of payments
- Collaborates – nationally and internationally – with other leading research environments
- Development of the cement of the future enabling increased uptake of CO<sub>2</sub>
- Hundreds of jobs in production, sales and development
- Approx. 40% of the value added went to society in the form of taxes, levies, VAT etc.

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# CEMENT FOR BUILDING WITH AMBITION

CEMENT IS USED FOR  
MANUFACTURE OF CONCRETE  
– A PRODUCT WITH ENDLESS  
APPLICATIONS:

- BUILDINGS
- BRIDGES
- AIRPORT RUNWAYS
- KERBS
- GARDEN PAVING
- AND MUCH MORE

## WE MAKE IT EASY TO BUILD WITH AMBITION

Our mission is to realise this vision by supplying cement, concrete and other construction materials of high quality. Aalborg Portland provides added value through innovative and sustainable products and services.

Aalborg Portland focuses on the individual customer and the individual user of the buildings constructed using our products. This focus is maintained both in day to day work and in the product development.

Cement and concrete are the most widely used building materials in the world. Global consumption is steadily rising.

The endless possibilities of cement-based products have been explored and exploited for centuries. And every day, architects, engineers and producers are searching for new fields of application.

The positive environmental properties of cement and concrete are well-documented. After just a few years, the total amount of energy consumed in building and operating concrete constructions will be lower than for similar structures made of other materials.



*Photo: Rabalder Parken, Roskilde, Denmark*

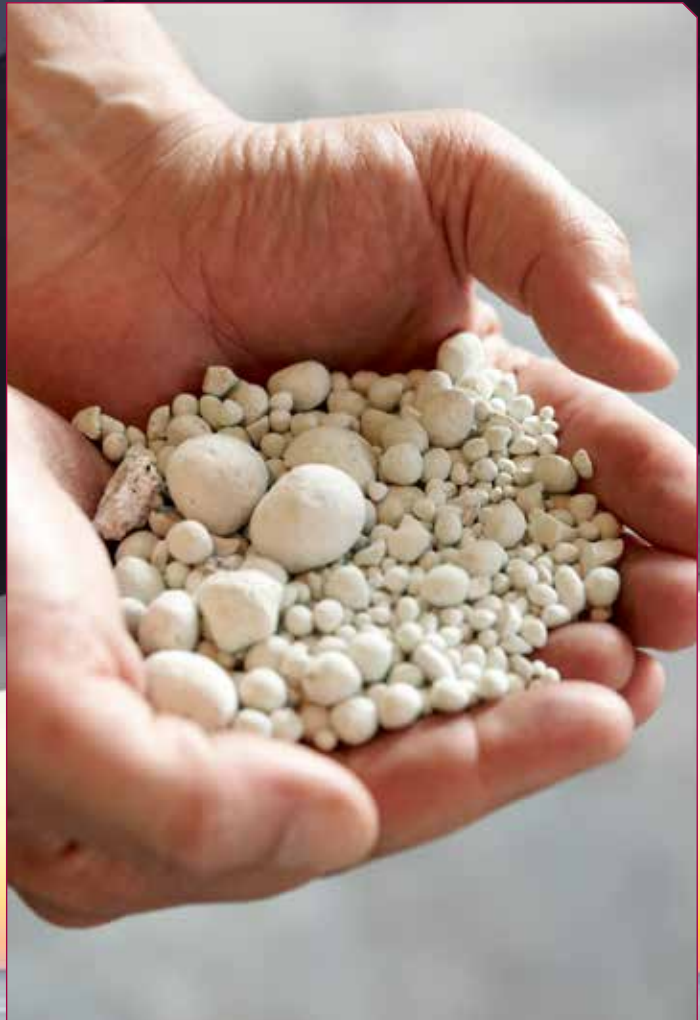
## THE POSITIVE PROPERTIES OF CONCRETE ARE WELL DOCUMENTED

- Concrete in buildings is suitable at retaining heat in cold conditions and at releasing heat when it is hot. After just a few years, the total amount of energy consumed in building and operating concrete constructions is lower than for similar structures of other materials.
- Increased use of concrete in building and construction can therefore contribute significantly to society's climate improvement goals.
- Concrete is a durable, long-life material.
- Concrete needs minimal maintenance.
- White or light-coloured concrete components save on energy for lighting and increase safety e.g. in tunnels and along roads.
- Concrete provides architects and tradesmen almost unimagined possibilities for creating beautiful solutions. Concrete therefore supports aesthetic ambitions and aspirations.
- Concrete does not burn.
- Concrete materials can be recycled, fully utilising all constituents.

## PRODUCTS FROM AALBORG PORTLAND HAVE ADDED ADVANTAGES OVER COMPETING CEMENTS

- Aalborg Portland supplies a homogeneous, well-defined, product, and developers, architects and tradesmen always know exactly what they can expect from the cement.
- Aalborg Portland's presence in Denmark means high security of supply in the domestic market.
- The products arrive at the agreed destination at the agreed time.
- Aalborg Portland provides extended technical support services.





#### **GREY CEMENT**

This is the principle construction material for creating infrastructure, building bridges and homes, developing ports and expanding airports.

#### **WHITE CEMENT**

This is primarily used for aesthetic or high-strength purposes. From terrazzo or tile grouts in bathrooms to road safety barriers where whiteness ensures visibility both night and day and in all weather conditions.

# SUSTAINABLE PRODUCTION

THE PRODUCTS SUPPLIED BY AALBORG PORTLAND MAKE A KEY CONTRIBUTION TO SOCIETY'S CLIMATE CHALLENGE. WE FOCUS ON SUSTAINABILITY AND ENVIRONMENTAL RESPONSIBILITY IN THE DEVELOPMENT AND MANUFACTURE OF THE PRODUCTS.

## SIGNIFICANT INVESTMENTS

Production of cement results in CO<sub>2</sub> and other emissions. But Aalborg Portland is committed to maximising energy efficiency and minimising environmental impact.

For many years, significant investments have therefore been made in Aalborg Portland in reducing emissions, particularly of CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub>. Since 2010, approx. EUR 32m have been invested in climate and environmental improvements.

These investments have had substantial impact: Aalborg Portland has reduced emissions over the same period by 77,000 tonnes for CO<sub>2</sub>, by 5% for SO<sub>2</sub> and by 35% for NO<sub>x</sub>. And these initiatives are set to continue in the coming years.







Since 2010, Aalborg Portland has invested EUR 32m in climate and environmental improvements and reduced emissions of CO<sub>2</sub>, SO<sub>2</sub> and NO<sub>x</sub> significantly.

↓ **77,000** tonnes

CO<sub>2</sub>

↓ **5%**

SO<sub>2</sub>

↓ **35%**

NO<sub>x</sub>

### NATURAL RESOURCES

Concrete is made from locally available materials: Sand, stone, water and cement. The raw materials for cement are available in abundance in the form of limestone, clay and slate.

Aalborg, where Aalborg Portland was established, has large limestone deposits, situated close to the earth's surface. This unique resource is quarried and used in the manufacture of cement.

Aalborg Portland has sourced limestone at several sites locally. And whenever a site has been quarried out, we have not merely left it looking neat and tidy, but we have restored the countryside and added attractive new landscapes to the region.

### RESPONSIBILITY FOR THE ENVIRONMENT

Aalborg Portland is at the forefront in helping to meet society's climate challenges. As an environmentally aware company, focus is placed on the sustainability of both products and production.

Aalborg Portland has a strong tradition of environmental respect which is reflected throughout the organization. Importance is also attached to openness on environmental issues and to constructive collaboration with authorities and research institutions.

## ENVIRONMENTAL OPENNESS

Aalborg Portland's energy and environmental conditions are disclosed openly and at length in an annual environmental report. In accordance with statutory requirements, this report sets out our policies, actions, results – and future targets and plans – and is reviewed by independent auditors.

The environmental report also describes Aalborg Portland's management systems for environment, energy and health & safety and our certifications for compliance with ISO 14001, EMAS, ISO 50001, OHSAS 18001 and Executive Order 1191 issued by the Danish Working Environment Authority.

You can find the most recent report on [www.aalborgportland.dk](http://www.aalborgportland.dk).

## PRODUCT DECLARATIONS

Aalborg Portland's environmental openness is also directly visible to the buyers of company products. Environmental Product Declarations based on CEN standard EN 15804 and subject to independent external verification, exist for the company's four most important cements.

## FOCUS ON HEALTH & SAFETY

A sound work environment and strong safety culture are vital to Aalborg Portland's ability to supply quality products which meet customer expectations.

Priority is therefore given to ongoing health & safety training and to involvement of the Health & Safety Organization in relevant issues. Continued focus is placed on safe work processes and on learning from near-accidents.

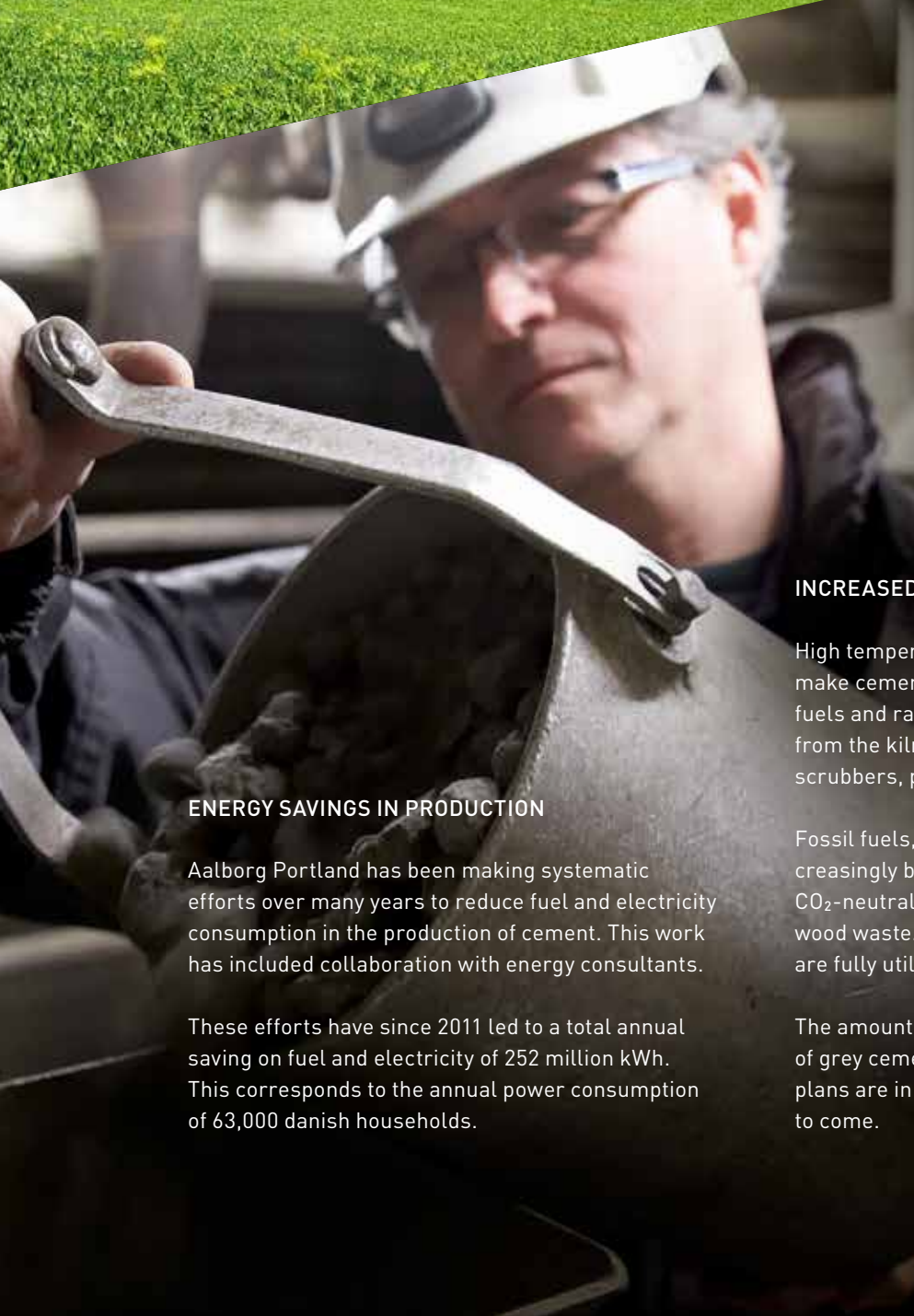




## ENERGY FROM WIND TURBINES

Aalborg Portland has plans to install as many as 5 large wind turbines. In this way, the company's consumption of scarce global natural resources will be further reduced.

The new wind turbines will potentially replace approx. 18% of the company's existing power consumption with renewable energy. Around 50% of the company's power consumption is already based on renewable energy. The project forms part of the City of Aalborg's wind energy plan.



### ENERGY SAVINGS IN PRODUCTION

Aalborg Portland has been making systematic efforts over many years to reduce fuel and electricity consumption in the production of cement. This work has included collaboration with energy consultants.

These efforts have since 2011 led to a total annual saving on fuel and electricity of 252 million kWh. This corresponds to the annual power consumption of 63,000 danish households.

### INCREASED USE OF ALTERNATIVE FUELS

High temperatures and unique process conditions make cement kilns ideal for the use of alternative fuels and raw materials. Furthermore, the flue gases from the kilns are effectively cleaned in filters and scrubbers, preventing any additional pollution impact.

Fossil fuels, particularly coal and petcoke, are increasingly being substituted at Aalborg Portland by CO<sub>2</sub>-neutral biofuel such as meat and bone meal and wood waste. All constituents in these alternative fuels are fully utilised and no new by-products are formed.

The amount of alternative fuels used in production of grey cement has reached more than 43%, and plans are in hand to increase this to 60% in the years to come.

## RECYCLING – FOR THE BENEFIT OF SOCIETY

The Aalborg cement plant recycles an increasing volume of surplus materials generated elsewhere in society. Aalborg Portland began using fly ash in cement production more than 30 years ago. Fly ash is a by-product of electricity production at power stations. A number of other by-products have since been included in cement production.

Under a longstanding partnership, we supply chalk slurry to a local power station, Nordjyllandsværket, which uses it in the flue gas cleaning process. This process in turn produces desulphurisation gypsum which is used by us as a replacement for natural gypsum. The circle is thereby complete. This is an example of effective industrial symbiosis which benefits both parties – and society.

In 2015, more than 400,000 tonnes of such materials were recycled, including:

**2,700** tonnes

Dried sewage sludge

**29,000** tonnes

Desulphurisation gypsum from flue gas cleaning at power stations

**75,000** tonnes

Sand from clearing the navigation channel at Hals Barre in the Limfjord

**120,000** tonnes

Alternative fuels (waste from industry)

**201,000** tonnes

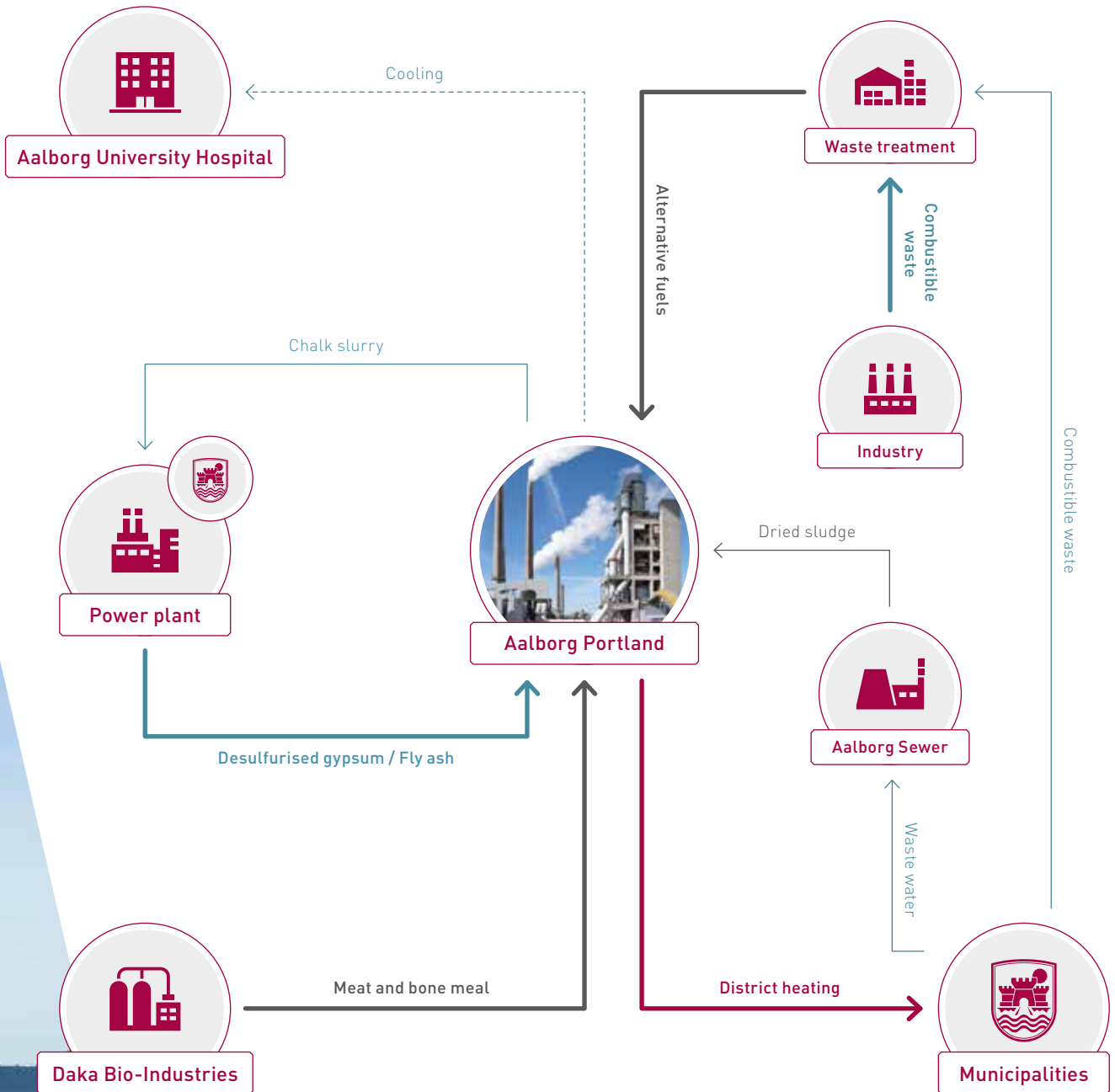
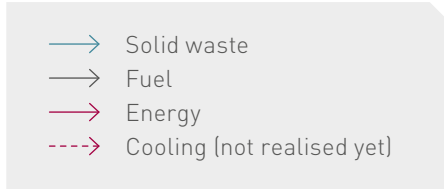
Fly ash from power stations

These types of waste must be disposed of, but they can also be used in cement production to replace equivalent amounts of raw materials and fossil fuels which would otherwise have to be quarried in Denmark or imported. Disposal of the waste would also have greater environmental impact than their use in cement production.

### HEAT FOR 24,000 AALBORG HOUSEHOLDS

Production of cement takes place at very high temperatures. Aalborg Portland cleans the flue gases from the kilns and uses the high temperature of the flue gases to provide district heating for the residents of Aalborg. The heat supplied corresponds to the annual heat consumption of around 24,000 households. This district heating is also used for the company's own factory and offices.

# VALUABLE SYMBIOSIS



# VALUE TO SOCIETY

THE GLOBAL DEMAND FOR CEMENT IS STEADILY RISING.

- GROWING POPULATION
- NEED FOR BUILDINGS AND CONSTRUCTION
- CREATION OF INFRASTRUCTURE

CEMENT IS ESSENTIAL FOR DEVELOPMENT EVERYWHERE.

At the same time, there is increased awareness of the impact that buildings have on the environment and on consumption of resources over their lifetime. This presents Aalborg Portland with an important challenge – but also with opportunities. New products and production methods are constantly being developed that provide still higher quality, still greater durability and still better environmental properties.



### DANISH TECHNOLOGY LEADS THE WAY

Over the years, Aalborg Portland has become the centre of a strong technological environment focusing on cement and concrete. The development and manufacture of products characterised by lower CO<sub>2</sub> emission has been a core objective for many years, and this has led to us becoming a world leader in new, resource-efficient cements.

This positive development has mainly come about as a result of the close ties with our customers, universities and other research institutions, and other companies in the building industry's value chain.

### SUBSTANTIAL EXPORTS

Approx. 90% of white cement and a very large percentage of the company's other cement products are exported, benefiting Denmark's balance of payments.

Cement manufacture is a global growth sector. At the same time, the world's environmental challenges have become steadily clearer. Strong growth potential therefore exists in the production and continued development of cements that combine high performance in terms of quality and durability with minimal environmental impact.

### IMPORTANT REGIONAL WORKPLACE

Aalborg Portland is one of the largest employers in the North Jutland region. In addition, many people are employed by businesses which supply the company with raw materials, other goods and services or which utilise our products.

Through the daily contribution to production, sales and development, Aalborg Portland's well-trained and dedicated work force creates value in the form of sustainable products and services. They make it easy to build with ambition.

### SOCIAL CONTRIBUTION: EUR 38M

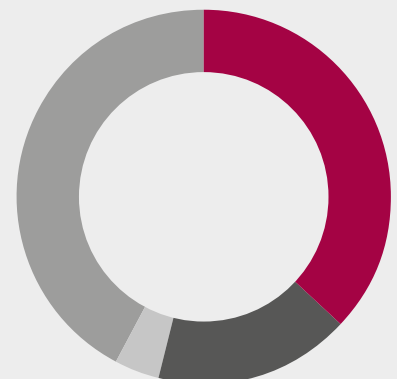
As a profitable business, Aalborg Portland makes substantial payments to the Danish state each year in the form of corporation tax. In addition, the company also pays environmental taxes, other levies and VAT as well as income tax and labour market contributions etc. on employee wages and salaries.

Total taxes comprised EUR 38m.\* This amounted to 37% of the company's value added of the year and was 10% more than the previous year.

\* Calculated using the international Total Tax Contribution model

## DISTRIBUTION OF VALUE ADDED 2015

Society	37%	●
Employees	17%	●
Interest on loan capital	4%	●
Transferred to equity	42%	●



## AT THE FOREFRONT OF TECHNOLOGICAL DEVELOPMENT

Aalborg Portland continuously strives to improve products and we therefore have extensive R&D activities.

The objective is to maximise value for customers and users in the form of product performance, quality and visual experience.

At the same time, we strive to reduce the consumption of energy and natural resources, to limit emissions from production and to keep down costs.

## THE CEMENT OF THE FUTURE

We have for a number of years given strong focus to the development of products and production methods characterised by low energy consumption and minimal emission of CO<sub>2</sub> and other substances. At the same time, however, the company has managed to retain the positive properties of the cement. Danish cement is therefore on average significantly stronger than other cement.

These efforts are continuing unabated. New leads being pursued in the ongoing research and development process in order to reduce CO<sub>2</sub> emission per tonne cement produced.

Another line being pursued is to replace part of the raw materials used in the cement production. For example, we work on developing components from natural materials, which can replace some of the middle product, clinker, which is made by the energy-intensive process in the cement kiln. This development has a global perspective as it will reduce the emission of CO<sub>2</sub> from the cement production, because it enables more local raw materials to be used in the production of cement.

## SUSTAINABLE CONCRETE

Aalborg Portland is engaged on several fronts in developing the concrete of the future. The goal is to provide increased value for manufacturers, customers and users. Our aim in this development process is to make the concrete even more environment-friendly, widen its applications and improve its properties, ensuring that the product is also robust in use and has long-life sustainability. The objective is to increase the strength and to reduce the consumption of materials as compared with conventional structures.

## CLOSE COOPERATION

Danish cement technology has a leading role in the world thanks to a productive partnership between research and manufacture. For example, Aalborg Portland's research and development activities are conducted together with customers, other companies in the building industry's value chain and other leading research environments both in Denmark and internationally. The Danish National Advanced Technology Foundation has also sponsored a number of projects, including the development of future cement.

Internationally, Aalborg Portland has a broad network of contacts covering leading universities in the field of cement and concrete research. By way of example, we co-founded the Nanocem research network which is today a global leader in the field of cement-based materials.

We have joined forces with Aalborg Municipality and Aalborg University, to strengthening the collaboration and the synergy between the company and the community.





## GLOBAL RESEARCH CENTRE IN DENMARK

Aalborg Portland's Research Centre lies in close proximity to the cement plant in Aalborg, enabling close collaboration with both sales and production. The centre has furthermore a global brief, collecting know-how and coordinating development projects across the international Cementir Group.



# HEALTHY FINANCIAL POSITION

FOR ANY COMPANY, A HEALTHY FINANCIAL POSITION IS THE FOUNDATION FOR ITS CONTINUED DEVELOPMENT. THIS ALSO APPLIES TO AALBORG PORTLAND.

Under the challenging market conditions of recent years, Aalborg Portland's sound profitability and solid financial base have been vitally important. They have provided strength in adversity and security both for our commercial and financial partners and also our employees.

They also provide the flexibility for long-term decisions, including decisions on major investment and continued R&D initiatives.

Finally, a healthy financial position is a prerequisite for constantly making a serious commitment to the best possible environmental solutions.

Companies place their investment and jobs where the business climate offers an attractive return. For a capital-intensive company like Aalborg Portland, long-term investment must be supported by an acceptable degree of security.

Key figures for Aalborg Portland Holding A/S can be found in the Annual Report on [www.aalborgportland.com](http://www.aalborgportland.com).

## FAIR COMPETITION

A level playing field where international competition is concerned is vital to Aalborg Portland's long-term decisions, including decisions on major investment in new environmental equipment and continued R&D. Conversely, distortion of competition may lead to reduced investment, loss of jobs and the import of cement products manufactured under conditions which are less environmentally sustainable than in Denmark.



We are continuously developing our products and services to meet customer and user needs.

We supply high utility products and services. At the same time we strive to achieve maximum efficiency, save on society's energy resources and limit our environmental impact.

**Michael Lundgaard Thomsen**  
Managing Director  
Aalborg Portland A/S



Aalborg Portland has an important role in relation to the community of which it is part.

Global cement demand continues to rise. Together with the increased awareness of environmental impacts and consumption of resources, this gives Aalborg Portland good opportunities for sale of our sustainable products.

**Henning Bæk**  
Executive Vice  
President, CFO  
Aalborg Portland  
Holding A/S



Aalborg Portland has an important role as a technological frontrunner in the global cement industry. For more than 125 years, the company has created value for our customers through innovative and sustainable products and services.

As part of Cementir Holding, Aalborg Portland is a key contributor to the global position of Cementir Holding.

**Riccardo Nicolini**  
CEO  
Aalborg Portland  
Nordic & Baltic

# WE MAKE IT EASY TO BUILD WITH AMBITION

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