ENVIRONMENTAL REPORT 2014

Environment and Health & Safety

aalborgportland
CEMENTIR HOLDING

Terminology

Alkali
Alkalis used at Aalborg Portland are sodium and potassium compounds.

Alternative fuels
Combustible waste products which replace fossil fuels and consist of a reprocessed fuel product, meat and bone meal, dried sewage sludge and tyre chips.

BAT
EU documents describing the Best Available Technique in different sectors. Used as basis for environmental approvals.

Cement clinker
Intermediate product that results from the burning of slurry in kilns and is ground to produce cement.

Cement mill
Facility which grinds cement clinker to cement.

CO
Carbon monoxide. A result of incomplete burning of fossil fuel. Converted in the atmosphere to CO_2.

CO_2
Carbon dioxide. Formed by burning of fuel and calcining of chalk. CO_2 emission is calculated according to EU guidelines.

dB(A)
Noise is measured in decibels, dB(A), which is a logarithmic scale. For example, the noise from leaves rustling in the wind is around 20 dB(A). The noise level in an ordinary living room is around 40 dB(A), in offices 60-65 dB(A), on a street with normal traffic 80-85 dB(A) and from a pneumatic drill approximately 100 dB(A).

EMAS
Eco-Management and Audit Scheme. EU scheme for the registration of environmental management systems.

Emission
Release of noise or gas. In flue gas emission the volumes released are metered continuously, except for CO_2 – see under CO_2.

Environmental Impact Assessment (EIA)
EU directive prescribing that installations having material potential environmental impact cannot be established until the procedure in the directive has been implemented, including preparation of an EIA Report, holding of a public inquiry, etc.

Filtrate water
Waste water formed in heat recovery boilers by condensation of flue gases.

Flue gas desulphurisation gypsum (FGD)
Gypsum formed by the desulphurisation of flue gases.

Fly ash
Material produced by scrubbing of flue gases in an electrostatic precipitator.

Fossil fuel
Coal, petcoke, oil and natural gas.

GJ
Gigajoule, a unit of energy equal to 1,000 MJ.

HCl
Hydrogen chloride.

Hg
Mercury.

Household energy consumption
Average annual consumption per household is:
Electricity: 4000 kWh. Space heat: 50 GJ.

IPL
System for handling Aalborg Portland's Workplace Assessments.

Iron oxides
Iron-containing residues from production of sulphuric acid and steel.

ISO 14001
Standard issued by the International Standards Organisation with guidelines for establishment and maintenance of environmental management systems.

ISO 50001
Standard with guidelines for establishment of energy management systems.

Life Cycle Analysis (LCA)
Method for assessing the environmental and other impacts which a product has on its surroundings from raw material extraction until final product disposal.

Material flows
Description of the resources which Aalborg Portland uses in the production of cement, the volumes which are produced, and the emissions and discharges which the production entails – see pages 22-23.

Microfiller
A filler material with particle size < 50 µm.

NH_3
Ammonia.

NO_X
Nitrogen oxides. Formed by combustion of fossil fuel. Contributory cause of acid rain.

OHSAS 18001
International guideline for establishment and maintenance of health & safety management systems.

Petcoke
A low-ash coke by-product from the refining of crude oil into petrol.

Process Management System
Aalborg Portland's system that ensures that the handling of all matters relating to environment, energy, quality and health & safety at the company takes place in a uniform manner and in accordance with policies, targets, guidelines and rules.

PRTR
European Pollutant Release and Transfer Register.

PSO levy
Levy obligating purchase of green electricity.

Pyrite ash
See iron oxides.

Raw meal
Cement clinker and incompletely burned raw materials. Raw meal may result from e.g. kiln stoppage.

SK7 production
Production of sand/chalk clinker takes place on Kiln 87 and is used for LOW ALKALI SULPHATE RESISTANT cement.

SO_2
Sulphur dioxide. Formed by combustion of fossil fuel. Contributory cause of acid rain.

Substitution
Replacement of a raw material by a waste product. For example, fly ash substituted for clay.

tTCE
tonne Total Cement Equivalent. A standard unit for the production which is obtained by calculating the equivalent cement tonnage if clinker sales and changes in clinker stocks had been processed into cement. Each type of clinker is therefore multiplied by a factor that expresses addition of other materials for production of cement.

WA
Workplace Assessment

Contents

Environmental Report 2014 – Target group

The 2014 Aalborg Portland Environmental Report is intended to provide interest groups with a straightforward insight into the company's principal environmental impacts and health & safety activities and into the measures being taken to realise ongoing improvements.

The report also outlines how the environmental management system is used and is evolving. The 2014 Environmental Report conforms to the statutory regulations for environmental accounts.

The interest groups are:
Customers, employees, suppliers, present and future investors, financial institutions, insurance companies, public authorities, neighbours, political groups and non-governmental organisations.

Aalborg Portland's activities 2014 – environment, energy and health & safety

This Environmental Report is the Management's review of the most significant activities in 2014 in the area of environment, energy and health & safety for Aalborg Portland's Danish cement production and storage terminals in Denmark.

In 2014, Aalborg Portland was able to celebrate its 125th anniversary. The year was positive financially, although the factory remained below full capacity in terms of sales and production. Building activity has yet to return to the same level as before the financial crisis in 2008.

The company's owners decided in 2014 to effect major investments in the Aalborg factory. Among the investments implemented was an enlargement of the alternative fuel installation, for which the budgetary framework was EUR 5.6m. The installation has entered into service and will make it possible to realise the strategic goals of substituting the fossil fuels coal and petcoke with fuel produced from industrial waste. In 2014, 33% of the fuel energy supplied to Kiln 87 was based on alternative fuel, and the new installation will enable 45% of the thermal energy requirement to be provided by waste.

A larger alternative fuel fraction will also reduce the factory's emission of NO_X (nitrogen oxides). In the last five years, NO_X emission has fallen by 40% against the 2010 level as a result of targeted investment in NO_X cleaning technology and in equipment for increased use of biofuel. The fraction of biofuel in the waste contributes also to reduction in CO_2 emission.

In 2014, together with the authorities, focus was placed on obtaining the necessary permits to install wind turbines at Bredhage. With the five turbines planned it will be possible to source around 20% of total factory power consumption from sustainable energy.

The two initiatives mentioned above are very much in keeping with the Danish Government's desire for environment-friendlier electricity and a circular economy based i.a. on use of waste as a resource. Both investments are instrumental in promoting sustainable cement production in Denmark, and this has unlocked a grant from the Government's funding scheme for sustainable energy projects.

Aalborg Portland has for many years placed strong focus on using alternative fuels and raw materials. In 2014, 100,817 tonnes of alternative fuel were used, including industrial waste, meat and bone meal and dried sewage sludge from the City of Aalborg.

In 2014, the cement factory also used 378,181 tonnes of alternative raw materials, which included fly ash from power stations and sand dredged from the Limfjord at Hals Barre and Løgster Rende. Through the established symbiosis with Nordjyllandsværket power station, whereby Aalborg Portland supplies chalk slurry for the power station's desulphurisation equipment, Aalborg Portland received 25,000 tonnes of FGD gypsum in return which will be recycled together with 28,000 tonnes of its own FGD gypsum.

Projects carried out in the period 2010-2014 to improve the energy efficiency of Aalborg Portland's existing production plant 2014 have produced an annual energy saving in power and fuel of 222 million kWh, equivalent to the annual electricity consumption of 56,000 households. Projects begun and completed in 2014 included installation of an advanced process control system for Cement Mills CM 2 and CM 7/10.

Going forward, there will be continued focus on reducing energy consumption by more efficient use of power and fuel. In this way Aalborg Portland will contribute to achieving the Government's increased targets – established by agreement between the Climate and Energy Minister and the grid and distribution companies – for Denmark's future energy-saving activities.

Against the background of the Environmental Impact Assessment performed and the granting of environmental approval for microfiller to be used for landscape modulation in conjunction with chalk excavation, the utilisation of this by-product continued in 2014. Accordingly, the product is now used as a resource and Aalborg Portland's need for landfill has significantly diminished. Environmentally, this is a positive initiative, which is also in harmony with the Government's thoughts on circular economy. When excavation is complete it will enable the chalk pit to be reborn as "Rørdal Lake Park", a recreational resource providing the population of Aalborg with amenities for water sports and other leisure activities.

Waste heat from factory cement production has been utilised environmentally for many years to provide

Michael Lundgaard Thomsen, Managing Director

district heating for the residents of Aalborg. In 2014, the thermal energy supplied was equivalent to the annual heat consumption of 23,000 households, and focus is currently on developing new ways to expand this in future.

Aalborg Portland's environmental management system is to a high degree based on employee involvement. This also applies in the area of health & safety.

The company's most important resource is its people – they are both the driving force and the prerequisite for ongoing improvements. In a busy and hectic work environment it is of the greatest importance that our human resources are treated with consideration and that constant focus is given to improving routines, equipment and processes.

The workplace should provide a foundation of well-being, security, health & safety for the daily lives of our people. Our health & safety organisation has an important role to play in ensuring this.

In 2014, many preventive initiatives were introduced with view to improving health & safety. These included setting up a specially trained task force drawn from the Health & Safety Groups to advise our employees on heavy lifting.

In the administrative environment, as part of the routine inspection of office working conditions, additional focus was given to ergonomically correct equipment and fixtures.

Going forward, risk assessment is one of the tools which will be used in the systematic appraisal of health & safety work. Risk assessment is about evaluating the consequence of a hazard and analysing the likelihood of the hazard occurring. Risk assessment can handle both physical and psychological risk factors relating to the work.

With a view to strengthening Aalborg Portland's safety culture among all our employees, internal courses were held at which relevant aspects of health & safety were targeted.

Through a continuing long-term and future-oriented, stable levy policy, where the politicians seek to protect against anti-competitive environmental levies in Denmark, we at Aalborg Portland will be able to continue our environmental investments. These investments send a clear signal about our strong commitment to energy efficiency, environment, climate, health & safety to the benefit of the company and its employees – entirely in keeping with the wishes of the Government and the community for a sustainable society.

Michael Lundgaard Thomsen
Managing Director
April 2015

125th anniversary – selected focus on environment, energy and health & safety

Since 1889, when the Rørdal factory was founded, the efficiency of cement production equipment has been transformed. In step with developments in society, strong focus is now also placed on environmental, energy and health & safety technology. People who remember Rørdal before the 1960s say the area was grey with dust before the arrival of electrostatic precipitators.

Energy

In the 1970s the energy crisis was instrumental in the closure of three cement plants, and Aalborg Portland is today Denmark's sole cement producer.

Recovery of waste heat and desulphurisation of flue gases

Energy efficiency entered into focus, and the first installation to combine recovery of waste heat with desulphurisation of flue gases entered into operation in 1990. Today, this installation has the capacity to supply the City of Aalborg with enough district heating to meet the annual needs of 36,000 households, and is equipped with scrubbers that use chalk slurry to remove up to 98% of the sulphur from the SO_2 in the flue gases. A useful by-product of flue gas desulphurisation is gypsym, which is added as an ingredient in the cement production process.

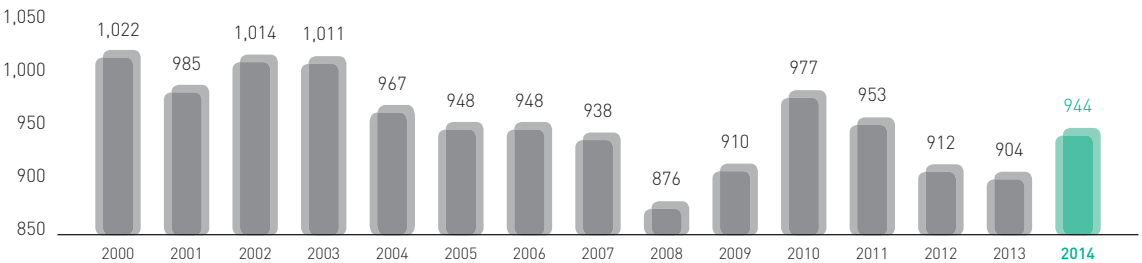
Climate and CO_2 reduction

Towards the end of the 1990s, attention turned to climate and reduction of the greenhouse gas CO_2. In the period 2000-2014 the overall CO_2 emission for Aalborg Portland decreased by 8%, from 1,022 kg to 944 kg CO_2 per tTCE, due to energy savings and changeover to alternative fuel. For some types of grey cement the reduction has been even greater, e.g. 29% for LOW ALKALI SULPHATE RESISTANT cement, from 1,317 kg to 935 kg CO_2 per tTCE.

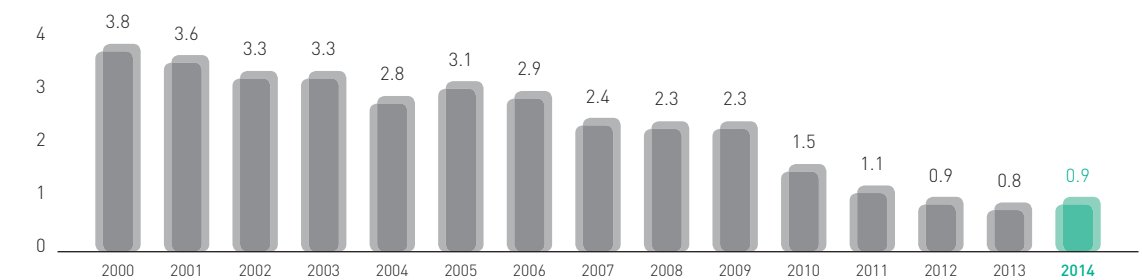
NO_X reduction

In the mid-00s, measures such as SNCR (Selective Non-Catalytic Reduction) and Mixing Air, were introduced to reduce NO_X. From 2000-2014 these technologies have helped cut harmful NO_X emissions by no less than 76%, from 3.8 kg to 0.9 kg NO_X per tTCE.

CO_2 – relative figures – kg per tTCE



NO_X – relative figures – kg per tTCE



Operating incidents

Aalborg Portland contingency planning has sometimes been called upon. One incident stands out due to its scale and duration.

Fire in alternative fuel store

On 23 October 2005 an outdoor store holding alternative fuel caught fire, causing a fierce blaze that was unable to be put out with water by the Aalborg Fire Authority. After five days the fire was finally extinguished by bulldozing earth over the burning fuel. Today, the fuel store is partitioned to prevent any future fire attaining the same scale.

Chromate-neutral cement

Since the start of the 1980s, users of Aalborg Portland's cement mortar and concrete supplied by Aalborg Portland can no longer contract the skin disease chromate eczema. Today, our cement still undergoes an anti-chrome-eczema process that was developed by Aalborg Portland's research department and which has led to improved conditions for bricklayers and concrete workers.

Sustainable development

Aalborg Portland is committed to promoting sustainable development based on the following principles:

- Environment shall be an integral part of the development in the company's activities, including reduction of the company's environmental footprint.
- Our environmental activities shall be anchored through participation of all employees and in dialogue with the community.
- Environmental indicators shall signal sustainable development.
- Production and economic growth shall take place without relative increase in energy consumption, emissions, use of chemicals, creation of waste, and other consumption of resources for the individual products.
- Resource-efficiency shall be promoted by means such as substitution of non-renewable resources and introduction of new technologies.
- The global perspective shall be invoked by CO_2 emissions trading, Joint Implementation, the Clean Development Mechanism and other means.

Environmental vision, environmental and energy policy

Environmental vision statement: Aalborg Portland is committed to being a responsible company promoting sustainable development.

The policy set out below applies to the Aalborg cement plant and to storage terminals in Denmark.

Our policy is to:

- Respect statutory legislation and relevant official requirements. If a limit is exceeded we will inform the authorities and prepare remedial action plans.
- Promote sustainable development and cleaner technology within the scope of economic feasibility.
- Set pro-active targets for our future work and review our targets once a year at the Management's seminar established for that purpose.
- Support our customers in achieving their environmental targets by developing and helping to develop sustainable cements and concrete products which improve the life cycle of concrete.
- Protect the environment by reducing emissions and consumption of energy and raw materials per tonne of cement product through energy efficiency measures, energy management and other means.
- Inform our suppliers and subcontractors of relevant procedures and requirements.
- Adopt an active and open approach towards communication, knowledge and dialogue with customers, employees, authorities, neighbours, organisations and other collaboration partners.
- Educate and motivate our employees to ensure that we live up to the requirements contained in our policies, targets and action plans.
- Oppose introduction of further anti-competitive environmental levies and work for a reduction of the existing burden.

To realise these objectives we will:

- Maintain and develop a process management system covering external environment, energy and CO_2. The system is certified according to ISO 14001, ISO 50001 and the Danish Energy Agency's supplementary requirements hereto and is registered under the EMAS scheme.
- Publicise our policy, targets, action plans and results in the form of an annual Environmental Report.
- Formulate and use indicators as guidance mechanisms to achieve defined targets.
- Assess our products, facilities and significant renovation projects in relation to the scope of this policy, and support energy-efficient procurement and sustainable project engineering.
- Be an active collaboration partner in Danish environmental and energy policy by utilising alternative raw materials and fuels.

Manufacture of cement

The manufacturing process for grey and white cement is essentially identical but there are variations in the kiln configuration. The section "Kiln process" below describes the semi-dry process for the production of grey cement.

Sourcing of raw materials

Cement is manufactured chiefly using the natural raw materials chalk and sand, which are the key components in all cements produced at Aalborg Portland. The chalk is excavated from the company's on-site chalk pit, while the sand is quarried at Sandmosen and dredged from the Limfjord at Hals Barre and Løgstør Rende, which also helps keep the fjord navigable.

Initial processing of raw materials

Production starts with the chalk being processed in a slurry drum while the sand is ground in a sand mill. The two ingredients are then mixed to form a slurry.

Kiln process (grey cement)

The slurry is injected into a dryer-crusher together with fly ash. In the dryer-crusher the material is converted with the help of hot flue gases into raw meal. This is conveyed via a separating cyclone to the cyclone preheaters where it is heated to 750° C.

In the calciners the raw meal material is further heated to 900° C, releasing the carbon dioxide. The material subsequently enters the 74-metre long rotary kiln where it is gradually heated to a temperature of 1500° C to form cement clinker. The clinker is then cooled in the clinker cooler.

The heat for the kiln process is provided by coal, petcoke and alternative fuels, including waste products, dried sewage sludge and meat and bone meal.

Heat recovery

In 2014, heat recovered from the kiln process during production of white cement and supplied to the City of Aalborg was sufficient to meet the annual heat consumption of 23,000 households.

Grinding in cement mill

After stockpiling in the clinker store the clinker is ground in the cement mill to a fine powder to which a few percent of gypsum is added to produce the types of cement required.

Packing and distribution

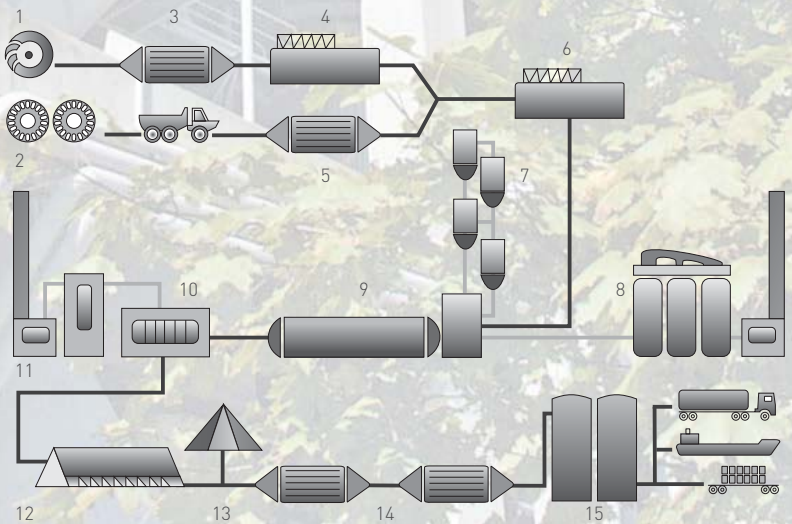
The cement is distributed in bags or in bulk by road or ship.

A quality product

The finished cement product is ready for use in building projects of all sizes worldwide. Cement is a quality product which is used in concrete, mortar etc. and adds strength, stability and long durability to buildings and structures.

From raw materials to cement

1. Chalk excavator
2. Sand dredger
3. Slurry drum
4. Chalk slurry
5. Sand mill
6. Finished slurry
7. Cyclone tower
8. Electrostatic precipitator
9. Rotary kiln
10. Clinker cooler
11. Electrostatic precipitator
12. Clinker store
13. Gypsum store
14. Cement mills
15. Cement silos



Aalborg Portland's products

Aalborg Portland manufactures both white and grey cement, quality products which are distributed in bags and in bulk to the domestic and export markets.

Aalborg Portland's cements are subject to Bureau Veritas Certification, which ensures that the products conform to the requirements of product standard EN 197-1 and are therefore CE-labelled.

Cements manufactured for the Danish market include the following:

BASIS® cement
Suitable for pre-cast concrete units and concrete products.

RAPID® cement
Suitable for ready-mixed concrete, pre-cast concrete units, concrete products, floors and screeds. Also suitable for masonry mortars, including lime cement mortars, used in building and rendering etc.

LOW ALKALI SULPHATE RESISTANT cement
Specially developed for concrete used for civil engineering structures such as bridges or constructions in contact with sulphate-bearing groundwater.

BASIS® AALBORG cement
Suitable for general concreting and construction work on building sites, such as foundations, floors, masonry, rendering etc.

MESTER® AALBORG cement
Suitable for lime cement mortars used in construction, pointing, rendering, roofing etc.

AALBORG WHITE® cement
General-purpose cement, but the preferred choice when the specification calls for white or pigmented concrete.

Product information
It is important for us as the manufacturer that information about our products is readily accessible. The purpose for each individual product must be stated in the product information and also in the technical documentation formulated with view to compliance with relevant legislation.

It is possible to read about our products on our website www.aalborgportland.dk and to download relevant documents.

Declaration of Performance (DoP)
Declarations have been prepared for our individual products bearing the cement name, CE marking and declared interval for the properties required in the cement standard, occasionally supplemented by properties that are of particular importance to our customers.

Safety Data Sheets (SDS)
Safety Data Sheets accompany our products and thereby form the basis for the customer's preparation of Workplace Instructions (WI) in the customer's own business. Details of any risks associated with working with the product are stated, as are details of relevant wear protection. The Safety Data Sheets are prepared in accordance with CLP (Classification, Labelling and Packaging) regulations.

European Chemicals Agency (ECHA) (REACH)
All our products are registered with the European Chemicals Agency (ECHA), and relevant documents comply with REACH.

Casting of concrete wall with cement of the future

Future concrete wall and conventional concrete wall for comparison

Sustainable production of cement and concrete
Aalborg Portland is involved in the development of a variety of cements of the future.

The objective is to create cements which can ultimately be produced using less energy and in some cases with up to 30% less CO_2 emission.

In 2014, Aalborg Portland continued to develop cements and concretes of the future which, viewed over a life cycle, will contribute to reducing society's emission of CO_2 and other environmental impacts.

Full-scale casting of concrete
with cement of the future
A retaining wall has been cast at Aalborg Portland using CO_2-reduced cement of the future.

For the past four years Aalborg Portland has been researching the development of cement of the future which has reduced CO_2 emission in the production process. In this cement, part of the clinker is replaced by grey microfiller and burnt clay, which reduces the emission of CO_2. This work is supported by Denmark's Innovation Fund, and has been developed in partnership with the universities of Aalborg and Aarhus and FLSmidth which has produced the burnt clay.

The cement was first tested in the laboratory and the results were good. However, full-scale testing of the cement in concrete is necessary for determining the properties of the cement in practical application.

For full-scale testing, six tonnes of cement were produced by mixing RAPID® cement, grey microfiller and burnt clay. Preliminary trials were then carried out at Unicon. These were successful and a larger batch of concrete was ordered and sent to Aalborg Portland for casting. For the purpose of comparison, part of the wall was built using the conventional concrete mix consisting of RAPID® cement and fly ash. The two types of concrete proved very similar in terms of their properties when both fresh and cured.

CO_2 emission from the test concrete was around 18% less than from the conventional concrete. We are convinced that even better results can be achieved with further development of the cement.

There is a long way to go before the new cement can be put into production. The development process is partly taking place under the "Green Concrete II" project in which Aalborg Portland, Unicon and a large number of other parties will for the next four years be researching new cements and concretes. However, the positive results to date have positioned Aalborg Portland at the leading edge of development where low-CO_2 cements of the future are concerned.

Environmental and energy management

At Aalborg Portland we have an integrated Process Management System that describes the flows and procedures in all our processes. This system meets the criteria in the standards under which we are certified. These are currently:

ISO 14001, EMAS III, ISO 50001, OHSAS 18001, Working Environment Authority Executive Order No. 87, ISO 9001, Maritime Authority Regulation No. 6 of 9 October 2002 on Bulk Carriers, Safety Technical Authority quality control guidelines for electrical work and installation, ISPS regulations on security of port facilities against terrorism, and DS/EN 197-1/-2 concerning quality of cement products.

The integrated nature of the system is important for the individual employee as it takes a "process-oriented" approach whether the context is environment, energy, quality or health & safety.

The system is governed by a vision statement, policies, targets and action plans.

Management's review

The Environment & Energy Group conducts ongoing administrative follow-up on the Environmental and Energy Management System, including progress on activities in the general action plan.

Health & safety is reviewed on page 36.

In October 2014, a seminar was held to review and define policies, targets and action plans relating to environment, climate and energy for 2015.

Key elements in Management's review of March 2015 included:

- External and internal auditors have performed audit and internal control of the CO_2 plan approved by the Danish Energy Agency for 2013-2020.
- Factory CO_2 emission for 2014 has been verified by Bureau Veritas Certification and can therefore be reported to the quota register in March 2015, enabling corresponding emission quotas to be cancelled by 30 April 2015.
- The EMAS report was verified externally in March 2014 and the Environmental and Energy Management System was audited externally in May.
- The Environment & Energy Group has held three meetings as part of its Environmental Management System follow-up. These included two follow-ups on the status of overall environmental and energy targets.
- Review of follow-up and status of 2014 climate and environmental targets in general environmental action plan.

Internal audit

Certification carries with it obligations. One such obligation is to perform an internal audit of process management. Importance is placed on the audit process and its findings being of value to the company.

Audit is an interactive process between Aalborg Portland's departments and the internal audit group, which consists of seven auditors with a variety of background competences.

The annual plan for internal audit ensures that process management is audited at regular and scheduled intervals:

- Conforms to what has been planned and agreed.
- Complies with the criteria contained in the standards.
- Is effectively implemented.
- Is maintained at all organisational levels.

For all audits performed: Deviations and improvement proposals are retained in action plans, and deviations are recorded for further processing.

In addition to internal audit of the CO_2 plan and energy management, focus was also placed on the terms of our environmental approvals, permits and other requirements contained in authority decisions.

This applies e.g. to inspection of fuel and raw material stores, on-site landfills and the chalk pit, including recovery facilities relating to chalk pit rehabilitation.

The four audits carried out in 2014 with particular focus on environmental terms have yielded a good response for discussing deviations raised and for ensuring ongoing improvements.

Principal environmental impacts

Cement manufacture is associated with significant consumption of raw materials and energy. It therefore gives rise to a number of direct environmental impacts in the form of flue gas emissions, wastes, noise, effluent, etc. Additionally there are indirect environmental impacts outside the factory from product distribution, sourcing and processing of fuels and raw materials, and production of electricity at power stations.

Materiality criteria

The starting point is the "PRTR list" – the list of pollutants and emission thresholds for reporting to the European Pollutant Release and Transfer Register. In our environmental and energy work the principal direct and indirect environmental impacts are determined and chosen according to the following criteria:

- Spread of substances, as well as climate and environmental impact
- Large volumes and costs
- Environmental approval terms, and consideration for neighbours
- Optimisation of raw material resources
- Recycling of wastes from other industries
- Potential for energy savings
- Transport to and from the factory
- Product development – research into sustainable production of cement and concrete.

The nature of the production process and the fact that the cement plant is situated well away from its closest neighbours means that Aalborg Portland does not consider odour to be relevant for environmental reporting. No discharge is made to the ground.

Environmental approval

Environmental impacts are governed by Aalborg Portland's environmental approvals and permits, which cover terms of operation, including:

- Terms of emission for all principal sources of atmospheric pollution: kilns, cement and coal mills, cooler stack and boiler plant
- Terms of emission for factory noise
- Handling and reporting of serious operating issues and breakdowns
- Operation of raw material and fuel stores
- Operation of on-site landfills
- Discharge of process waste water, cooling water, rainwater, etc.

Compliance with terms of approval, and the daily environmental work at the factory, help ensure that no material nuisance is caused to neighbours.

Environmental and energy performance

As follow-up on our environmental and energy work, key performance indicators have been selected for production of grey and white cement. These KPIs are relative values where consumption and emission are set against production.

See also the relative values in "Material flows – key performance indicators 2014" on pages 28-29, showing developments for the past five years.

KEY PERFORMANCE INDICATORS	Unit	2010	2011	2012	2013	2014
Grey cement production						
Energy	GJ per tTCE	5.07	4.61	4.29	4.28	4.50
CO_2	kg per tTCE	809	792	764	761	781
NO_X	kg per tTCE	0.97	0.64	0.63	0.58	0.62
White cement production						
Energy *	GJ per tTCE	7.12	6,96	6.59	6.48	6.74
CO_2 *	kg per tTCE	1,124	1,154	1,139	1,124	1,144
NO_X *	kg per tTCE	2.42	2.11	1.54	1.25	1.39

* Adjusted for heat recovered and supplied to Aalborg's district heating system.
Adjustment relating to CO_2 and NO_X is calculated according to the 125% thermal efficiency method for district heating.

The resource-efficient partnership

Aalborg Portland converts wastes and by-products into cement and district heating. The company seeks to promote sustainable development by basing large parts of its cement production on recycling material flows from society and industry in a resource-efficient partnership. This utilisation is in harmony with the Government's wish for resources to form part of a circular economy.

For example, wastes and homogenous by-products from other industries can be recycled and utilised as fuel and raw materials in production of cement.

In addition, waste heat from flue gases at Aalborg Portland is recovered and supplied to the City of Aalborg's district heating network before the gases are released through the factory chimneys. In this way, the overall environmental impact is reduced significantly.

By recycling and using alternative fuels and raw materials in cement production, wastes and by-products are fully utilised. All the constituents are consumed and no new wastes formed. High temperatures and special process conditions make cement kilns ideal for using alternative fuels and raw materials. In addition, filters and scrubbers in the kiln system effectively clean the flue gases so that no further pollution is caused.

In 2014, Aalborg Portland used 479,000 tonnes of alternative fuels and raw materials in producing 1.9 million tonnes of cement. This replaced an equivalent volume of natural raw materials and fossil fuels that would have had to be sourced in Denmark or imported. Aalborg Portland has the capacity to handle 700,000 tonnes of alternative fuels and raw materials annually.

Society and industries

Power stations

Navigation channels
Sulphuric acid – factory
Recycled paper – factory
Recycled aluminium – factory
Biomass-fired plants
Collection schemes
Daka Bio-Industries
Sewage treatment plants

▶ Waste product

- ▶ Fly ash and desulphurisation gypsum
- ▶ Sand
- ▶ Iron oxide
- ▶ Paper sludge
- ▶ Aluminium by-products
- ▶ Dross
- ▶ Industry waste
- ▶ Meat and bone meal
- ▶ Dried sewage sludge

▶ Cement production

Consumption of alternative fuels and raw materials

▶ Cement and district heating with climate and environmental improvements

- Recycling of alternative fuels and raw materials
- Utilisation of waste from other industrial production
- Lower CO_2 and NO_X emission
- Fewer ultimate wastes and smaller quantities
- Lower overall environmental impact

Raw materials

Cement is manufactured using raw materials, such as chalk, sand and gypsum, from natural resources. To limit the impact on the natural reserves of these materials, Aalborg Portland in 2014 replaced 10% of these natural resources with alternative raw materials in the form of wastes and by-products from other industries and society which in this way are utilised as a resource.

Aalborg Portland began using fly ash – a waste product from power stations – more than 30 years ago. Subsequently a number of additional alternative raw materials have been included in production.

Sand from dredging

Sand dredgers keep the navigation channels at Hals Barre and Løgstør Rende in the Limfjord open for the passage of ships. This is a community service in which Aalborg Portland plays a part. The dredged sand, which would otherwise be dumped in the Kattegat, is used by Aalborg Portland to replace quarried sand. This avoids damaging both the marine environment and the landscape. As the cement factory lies next to the Limfjord, this solution is also logistically efficient as the dredgers can dock alongside the factory and pump the sand ashore into settling tanks for dewatering.

Gypsum from desulphurisation

Gypsum from desulphurised flue gases (FGD gypsum) is employed as an additive in cement production. FGD gypsum is produced by both Aalborg Portland itself and by a local power station, Nordjyllandsværket, and is used to replace natural gypsum and anhydrite sourced in Morocco and Canada.

Using FGD gypsum also limits the number of long consignments of natural gypsum by sea.

The local partnership between Aalborg Portland and Nordjyllandsværket is a good example of industrial symbiosis. Aalborg Portland supplies chalk slurry to the power station for use in the desulphurisation process and receives FGD gypsum in return.

A specially developed road transporter delivers chalk slurry to the power station and brings back the FGD gypsum, thereby halving the number of road journeys required.

Fly ash

Fly ash, a mineral product from electricity and heat generation at coal-fired power stations, has been utilised at Aalborg Portland since the 1970s. Fly ash is used in cement production to replace natural clay which would otherwise have to be sourced in Denmark.

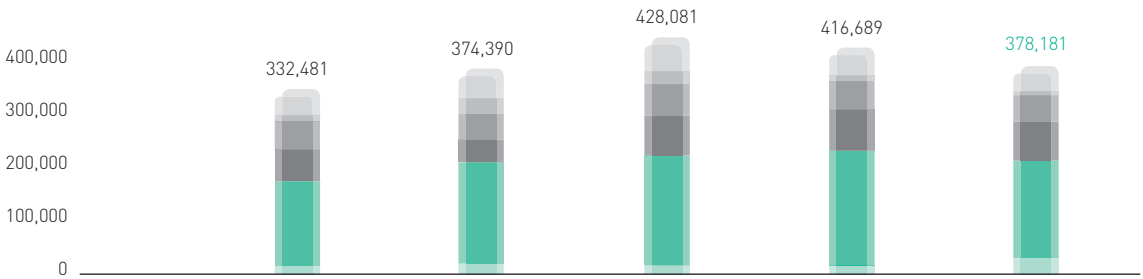
Paper sludge

Paper sludge is a by-product of the manufacture of recycled paper. Aalborg Portland decreased its consumption of paper sludge in 2013 due to the closure of its Danish supplier and the cement factory is currently utilising its remaining reserves.

Iron oxide

A by-product from the manufacture of sulphuric acid, iron oxide is a necessary source of iron for production of grey cement.

Alternative raw materials – tonnes



	2010	2011	2012	2013	2014
Iron oxide	30,182	45,331	44,728	41,769	39,102
Paper sludge	17,897	22,186	24,845	5,492	3,165
FGD gypsum	52,407	52,853	55,022	58,680	53,490
Sand	57,728	43,489	81,311	79,980	64,314
Fly ash	158,949	189,990	204,148	213,176	189,339
Other	15,318	20,541	18,027	17,592	28,771

Overall consumption of alternative raw materials fell in 2014. This was chiefly due to reduced consumption of dredged sand and fly ash caused by changed demand for cement products, with large sales of LOW ALKALI SULPHATE RESISTANT cement for infrastructure projects.

Energy

Manufacturing cement is energy-intensive and demands large amounts of fuel and electricity.

The replacement of fossil fuels, such as coal and petcoke, by alternative fuels began in the early 1990s. In 2014, alternative fuels (which included combustible wastes) accounted for 33% of the energy used in producing grey cement.

Waste is energy
The use of waste contributes to a resource-efficient society as valuable fuel is not lost by landfilling but is instead utilised as a resource by replacing coal and petcoke in cement production.

Whereas a waste incineration plant creates secondary wastes, at a cement plant all the input materials are integrated in the cement chemistry and in the finished cement product.

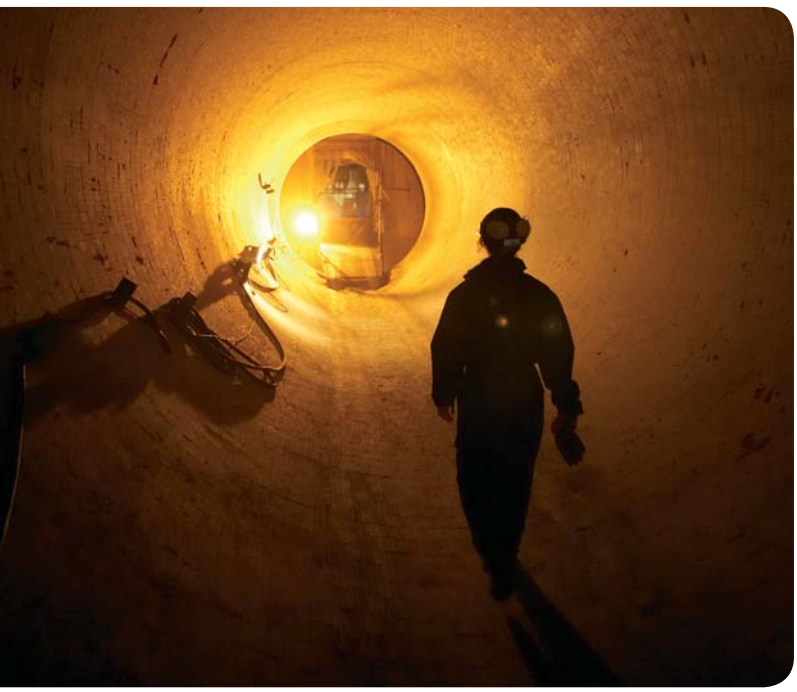
Using fuel derived from waste also helps reduce emission of CO_2, NO_X, SO_2 etc. in the flue gases, and biomass content is utilised and is to the benefit of the global climate. For example, meat and bone meal are considered wholly carbon-neutral, and the biomass carbon fraction in mixed industrial waste is typically 30-40% when replacing fossil fuels.

Dried sewage sludge and low-cost district heating
The City of Aalborg supplies dried sewage sludge as a carbon-neutral biofuel to Aalborg Portland, which uses it to replace coal and other fossil raw materials. In return, Aalborg Portland supplies the city's residents with low-cost district heating in the form of surplus heat recovered from cement production.

This surplus heat makes a significant contribution to Aalborg's district heating network. At maximum cement production the heat supplied corresponds to the annual heat requirement of some 36,000 households.

In addition, since Aalborg Portland won back the contract to receive dried sewage sludge from the City of Aalborg, the distance travelled by the sludge on the roads of Jutland has been reduced from 800 km to 8 km. The sludge was previously transported to North Germany.

Fuel consumption
In 2014, the consumption of fuel energy was 11% down on 2010 but 5% higher than in 2013. This was due to periods of unstable kiln operation with sub-optimal utilisation of energy. In 2015, the target is to reduce the number of kiln stops and achieve stable operation through increased renovation of the kiln plant.



View inside a rotary cement kiln during scheduled shutdown

Installation for recovery and supply of waste heat for district heating

Electricity

Electricity is key to cement plant operation. Consumption in 2014 was 250,048 MWh.

The distribution of electricity consumption is shown in the graph below. The principal consumption units are the kilns and cement mills.

The consumption of electricity consists of factory base load and a variable element that depends on the size of production on primary installations.

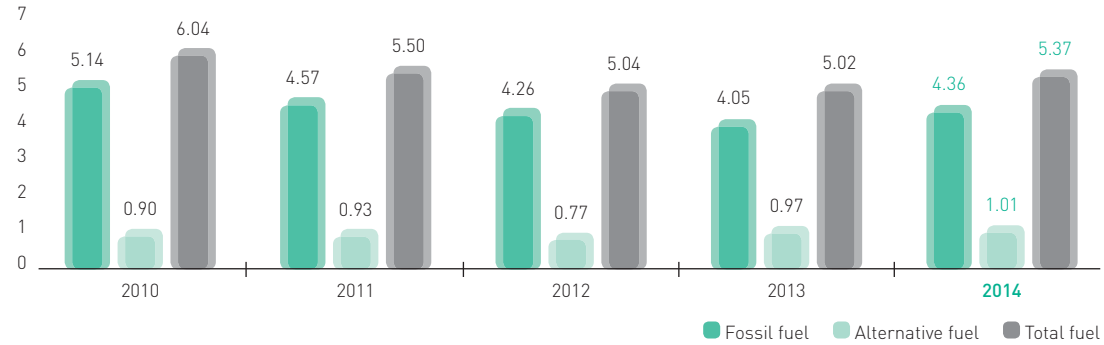
In 2014, the relative electricity consumption was 7.6% smaller than in 2010 at higher and therefore more efficient production. At the same time it was 3.6% up on 2013, which was due to higher base load and more one-string operation on Kiln 87. In 2015, the aim is to switch to two-string operation on Kiln 87 for SK7 production and reduce the base load.

Energy savings

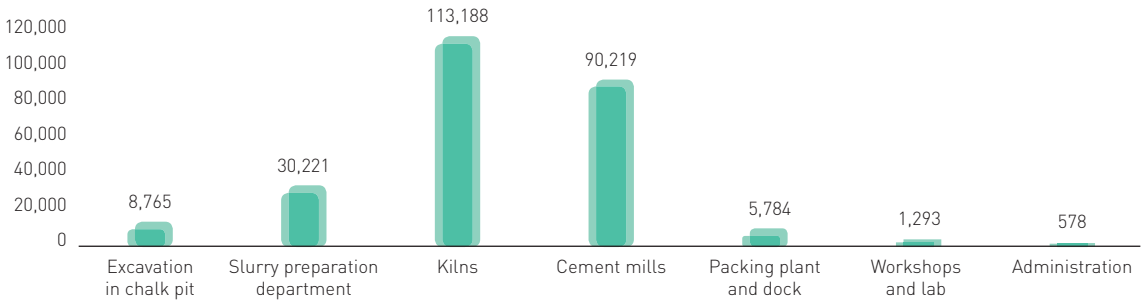
Aalborg Portland has for many years striven hard to find energy savings in the plant's power and fuel consumption.

In recent years, increased focus on improving the energy efficiency of existing production equipment has led to projects which between 2010-2014 have delivered savings of more than 222 million kWh. This is equivalent to the annual power consumption of 56,000 households.

Consumption of fossil and alternative fuel – GJ per tCE

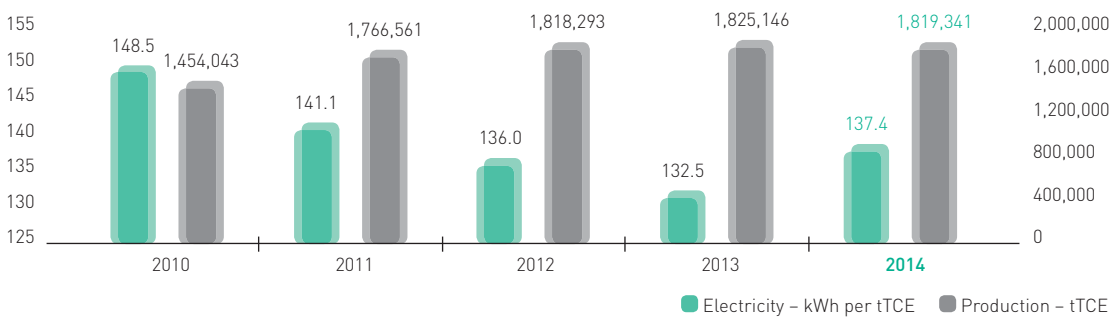


Distribution of electricity in 2014 by consumption points – MWh



Electricity consumption – kWh per tCE

Production – tCE



Alternative fuel – a milestone is reached

In March 2014, Aalborg Portland applied for environmental approval to upgrade an alternative fuel installation. The investment framework for this project is EUR 5.6m. A grant has been obtained from the Government's funding scheme for sustainable energy projects, which supports conversion of installations from fossil fuel to renewable energy.

A decision on the environmental approval was received from the Environmental Protection Agency on 21 January 2015.

A milestone has been reached: The installation has entered into service and will reach full implementation in the course of 2015.

The application to the Environmental Protection Agency in Aarhus included the following:

- Aalborg Portland wishes to increase its use of combustible non-hazardous waste (CMB) as alternative fuel replacing fossil fuel.
- The existing CMB conveyer and feeder installation can supply approx. 93,000 tonnes a year, corresponding to around 34% of the total thermal energy requirement for Kiln 87 at full clinker production.
- At present, CMB fuel can be supplied to Kiln 87's two calciners but not to the kiln's main burner.
- In order to increase the substitution of fossil fuel it is necessary to increase the supply of CMB fuel to Kiln 87's two calciners and implement a system for supplying CMB to Kiln 87's main burner.
- When this project is implemented it will be possible to increase the feed volume by 25,000 tonnes per year, replacing approx. 14,000 tonnes of petcoke annually. This will enable approx. 45% of Kiln 87's total thermal energy requirement to be supplied by CMB.
- Besides the direct replacement of fossil fuel in the kiln installation, there will be a saving on oil used to dry petcoke and coal in the coal mill.
- Increased firing with CMB fuel will mean an appreciable change with regard to atmospheric emission, noise, waste, discharge of waste water, and risk of contamination to soil and groundwater.
- The project sought will not lead to seepage and subsequent contamination to soil and groundwater, and surveys to produce a baseline report are not therefore needed.
- The modification sought is not considered to warrant a change to the company's existing environmental terms.

New investment in installation for increased use of alternative fuel on Kiln 87

Atmospheric emissions

There are a number of emission sources at the Aalborg Portland factory, ranging from large chimney stacks to small workshop extractors.

The company has a total of around 400 points of emission that necessitate air cleaning. This is done by a variety of filters.

The contents of the largest stacks are continuously logged by gauges which measure the relevant concentrations.

Regular samples are also taken from a number of extractors for further analysis. These samples are analysed to further document the content of the extractors. The sampling and analysis are performed by an impartial accredited laboratory.

Flue gases

CO_2

Relative CO_2 emission increased by 4.6% compared with 2013 due to increased fuel consumption at periods of unstable kiln operation and increased one-string operation on Kiln 87.

NO_X

Tighter NO_X emission regulations introduced in the period 2004-2007 led to development and installation of cleaning equipment on all kilns. Relative emission has therefore fallen by 73% on 2003.

In 2013, new technology was introduced, leading to optimised NO_X cleaning efficiency. However, changed operating conditions in 2014 caused an increase in NO_X emission from 0.77 to 0.88 kg per tTCE.

In the grey cement kilns, NO_X is reduced by injecting aqueous ammonia. Since 2011 this has led to an increased emission of ammonia (NH3). However, this emission remains within the limits specified in our environmental approval.

SO_2

Relative emission has fallen over the years, but increased from 0.32 to 0.37 kg per tTCE in 2014. This was primarily caused by a change in the desulphurisation process in the scrubbers for operational reasons. A low gypsum content was necessary in the filtrate water to avoid problems with pipeline blockages.

CO

Relative emission has fallen slightly from 0.92 to 0.91 kg per tTCE.

Dust

Relative emission increased from 0.04 to 0.05 kg per tTCE. This was primarily due to increased production, which led to a change in the specific cleaning efficiency of certain filters.

Complaints prompted by dust emission caused by operating issues are described on page 34.

Emission limits

Aalborg Portland's environmental approval dating from 2009, which was last amended in 2012 to meet stricter kiln emission standards (BAT), includes requirements for emission levels and limits during kiln operation.

The required daily averages for SO_2, NO_X, CO, HCl, NH3 and dust were exceeded 32 times in 2014. These cases were notified to the Environmental Protection Agency in Aarhus immediately and in the monthly reports.

The table overpage shows the five main sources of air emission, the related requirements, and Aalborg Portland's current average emission levels.

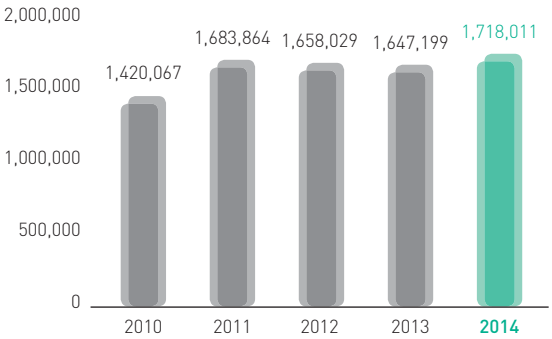
NO_X, SO_2 and dust emissions are determined by averaging continuously recorded data.

Limits stated are average emissions per 24-hour period.

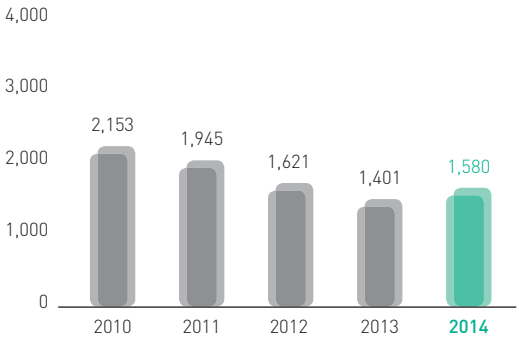
For clarity the table shows the average daily level over the year.

Atmospheric emissions – CO_2 and NO_X

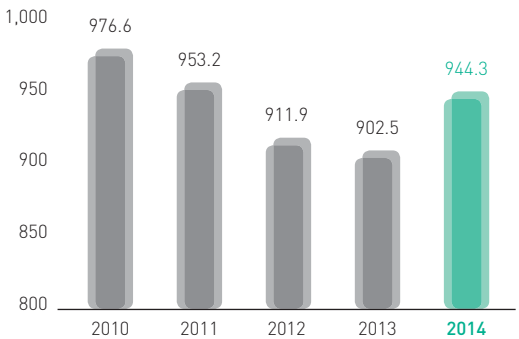
CO_2 – absolute figures – tonnes



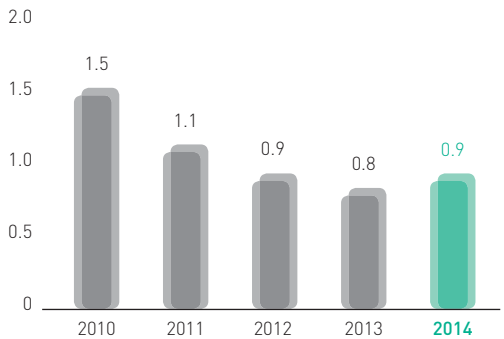
NO_X – absolute figures – tonnes



CO_2 – relative figures – kg per tTCE



NO_X – relative figures – kg per tTCE



Limits and levels during operation – the five main sources

	NO_X		SO_2		Dust	
	Limit *	Averaged level 2014 **	Limit *	Averaged level 2014 **	Limit *	Averaged level 2014 **
Heat recovery kiln 73/79	550	362	375	12	25	2
Heat recovery kiln 74/78	650	194	425	243	25	3
Heat recovery kiln 76	500	112	250	160	25	0.1
Kiln 85	750	797 ***	500	71 ***	35	11 ***
Kiln 87	400	181	10	0.6	25	11

* Daily average according to 2012 environmental approval
** Daily average over the year
*** The data relate to 2009. The limit value for NO_X was 800 mg/Nm^3

All values are stated in mg/Nm^3 dry flue gas at 10% oxygen content

Noise

Aalborg Portland's noise emission originates from many different stationary sources, both indoors and outdoors, and also from on-site traffic.

The noise sources include chimney stacks, kilns, cement and coal mills, belt conveyors, fans, ships loading and unloading, lorries, and excavation and rehabilitation operations in the chalk pit.

An off-site noise survey for Aalborg Portland was carried out in 2006. GPS was used to determine the location of all noise sources, improving the data on which the noise calculations were based.

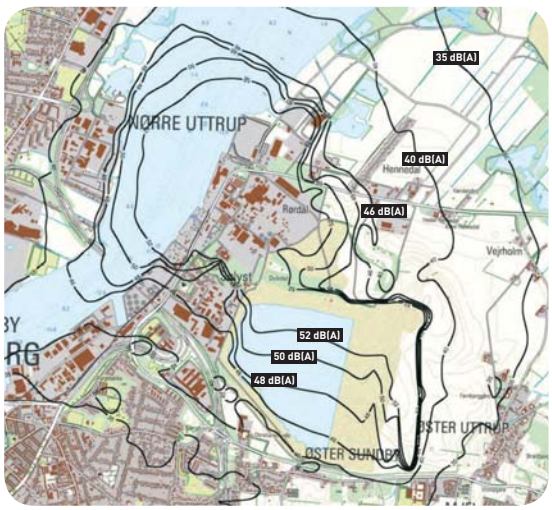
The noise survey was last updated in February 2014 in connection with the application to modify an existing installation to supply alternative fuel to Kiln 87.

The result of the noise calculation with all installations simultaneously working at maximum (worst case scenario) show that noise limits specified in the current environmental approval will be complied with at all surrounding locations by e.g. enclosure of feed conveyors to Kiln 87's calciners and main burner (cf. photo).

When the installation referred to is operational, measurements taken at new and changed noise sources will be required to verify continued compliance with noise limits.

Actual noise contribution from the factory is considered to be below the theoretical maximum as, unlike in 2007 before the financial crisis and building slowdown, all factory equipment is rarely in operation and in full production simultaneously.

In 2014, work continued on extending the noise embankment northwards from the south-eastern corner of the chalk pit. The purpose of the embankment is to screen the village of Øster Uttrup from the noise of operations in the chalk pit.



Noise map in dB(A) – evening conditions

Noise suppression of feed to Kiln 87 by enclosure of conveyor installation

Extension of noise embankment at Øster Uttrup

Water

Water is used in a variety of processes in the manufacture of cement and also for cooling production equipment.

Aalborg Portland obtains technical water for production purposes from on-site wells drilled in a limestone aquifer situated outside designated drinking water areas. A number of solutions to supply water and limit consumption have been introduced over the years and are described below.

Aalborg Portland is licensed to extract a total of 5.2 million m^3 annually. In 2014, 4.0 million m^3 was extracted as the equivalent load of the water resource. This included 1.3 million m^3 of water from chalk excavated below the water level in the chalk pit.
The remaining 2.7 million m^3 included 1.7 million m^3 obtained from 15 on-site wells close to the factory, and 1.0 million m^3 obtained by lowering of groundwater around Kilns 76 and 85.

Relative water consumption increased by 4% compared with 2013. This was principally due to increased need for lowering of groundwater.

Cooling from lowering of groundwater
Over the years, local lowering of groundwater level has proven an effective solution for keeping dry underground basements, passages and conveyor systems. In addition, more than 800,000 m^3 of the water is recycled for cooling the factory's compressor plant, which would otherwise have to be cooled with groundwater extracted specifically for this purpose.

Dual-system water supply
Following bacterial contamination of the drinking water supply in 1998 the supply network was split into two systems, one for drinking water and one for technical water. Technical water is used for production purposes. In 2014, the supply of drinking water was provided by the City of Aalborg after pesticide residues were detected in two of Aalborg Portland's drinking water wells. Pesticide concentrations in both wells are now falling and approaching compliance with the permitted limit of 0.1 µg/litre in drinking water.

Recycling of filtrate water
Filtrate water is produced in the heat recovery and flue gas desulphurisation installation. Until 2004 this filtrate water was released into the Limfjord. At the same time, high production levels meant that the limit of 5.2 million m^3 for water extraction had almost been reached. The effective solution was – and still is – to recycle the filtrate water in cement production. In 2005, 460,000 m^3 of technical water

that would otherwise have had to be extracted from the water reserves, were replaced in this way. Equivalent water discharge into the Limfjord ended at the same time – a win-win situation. In 2007, when production was at a high level, the volume of filtrate water recycled reached 520,000 m^3, but at lower production the volume fell to 431,700 m^3 in 2014.

Remediation wells
In 2007, three remediation wells were drilled to protect the factory's water supply from contamination by trichloromethane and tetrachloromethane originating from land formerly leased by Aalborg Portland to the Danish military. The contaminated water is used in the factory for technical purposes. The remediation wells proved highly effective as early as 2008.

Pumping continued in 2014 as tetrachloromethane was still above the permitted limit of 1 µg/litre in drinking water.

Collection of surface water
In 2014, approx. 13,000 m^3 of surface water was collected from the storage site adjacent to the slurry preparation department and used in slurry production. The extraction of technical water was reduced correspondingly.

Monitoring programme
Since 1991 an external company has performed annual hydro-geological surveys and analyses of water quality. Ongoing reporting provides an overview of developments, thereby ensuring effective protection and use of our water reserves.

Surface water and waste water
Aalborg Portland discharges waste water into the public sewer system. Surface water and cooling water are released directly into the Limfjord. Waste water discharged to the public sewer system passes through the municipal sewage treatment plant before release into the Limfjord. Waste water and surface water which may contain mineral oils and sand are passed through on-site sand filters and oil-water separators at Aalborg Portland.

Factory waste and by-products

Waste is sorted close to source into bins, skips and oil and chemical stations located around the factory. The waste is recycled, incinerated as directed by the City of Aalborg, or landfilled on site at Aalborg Portland.

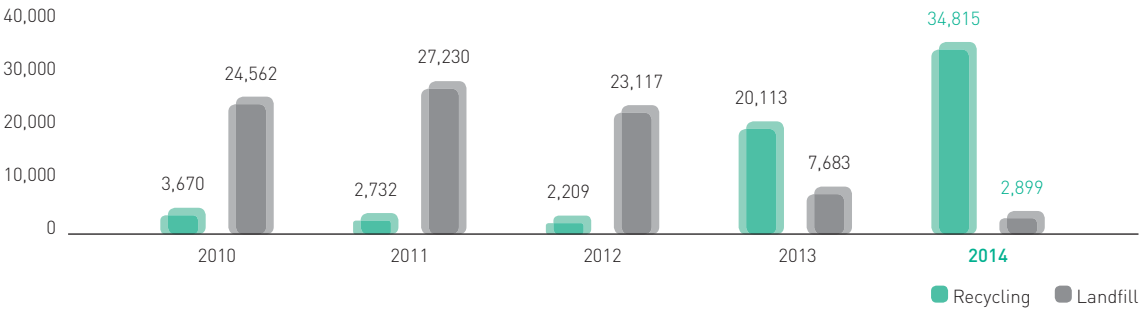
More than 98% of the waste is non-hazardous, the remainder being defined as hazardous oil and chemical waste and mixed waste for external landfill.

New waste strategy implemented
Since 2013 there has been a marked change at Aalborg Portland – away from landfill towards increased recycling. The amount of waste landfilled on site has thus been reduced by more than 20,000 tonnes or 89% compared with 2012.

Utilisation of factory by-products
Aalborg Portland's waste statistics have principally been changed by the project to use microfiller – a kiln by-product – to rehabilitate the chalk pit. More project details can be found on page 27.

Waste recycling is in harmony with the Government's resources policy which supports the use of waste to replace raw materials. At the same time the need to find capacity for new public landfills is diminished.

Waste – from landfill to recycling – tonnes



WASTE – amount in tonnes	2010	2011	2012	2013	2014
TOTAL WASTE	**28,936**	**30,256**	**25,655**	**28,052**	**38,260**
UTILISED NON-HAZARDOUS WASTE	**4,250**	**2,888**	**2,432**	**20,307**	**35,132**
Recycling	3,670	2,732	2,209	20,113	34,815
Microfiller from kilns	-	-	-	16,235	27,399
Sweepings	-	-	-	1,403	1,683
Sand and grate material	2,366	1,187	1,079	235	377
Building waste	222	173	37	92	1,191
Metals	662	1,148	610	555	414
Paper and cardboard	11	4	15	13	14
Glass	-	0	-	0	0.6
Plastics	-	23	4	703	649
Electronic scrap	5	0	6	-	1,031
Other recyclables	404	196	458	876	3,087
Incineration	580	156	223	193	317
Mixed combustible	561	141	209	180	301
Municipal collection	19	16	14	14	16
UTILISED HAZARDOUS WASTE	**125**	**138**	**106**	**62**	**229**
Oil	124.3	134	102	55	216.1
Chemicals	0.4	4	3	7	13.4
DISPOSAL OF NON-HAZARDOUS WASTE					
On-site landfill	**24,464**	**27,221**	**23,094**	**7,210**	**2,522**
DISPOSAL OF HAZARDOUS WASTE					
Off-site landfill	**98**	**9**	**23**	**473**	**377**

Land use and biodiversity

Biodiversity means variation or diversity in nature.

Areas used for production, buildings, storage and landfill are important for biodiversity on the land owned by Aalborg Portland in the Rørdal district.

The total site area is 1,200 hectares, which includes 187 hectares used in cement production. The other 1,013 hectares are a mosaic of lakes, woods, meadows, salt marshes, fallow and farmland.
84% of Aalborg Portland's land therefore offers good scope for biodiversity.

The distribution of land use is as follows:

Aalborg Portland land in Rørdal area (hectares)	**1,200**
Factory	120
Active chalk quarry	51
Landfill site	12
Iron oxide facility	4
Total land used	**187**

Land distribution 1,013 hectares 187 hectares

Back to nature

A large military installation has been removed from Aalborg Portland's land. The army began demolishing the former Rørdal barracks in 2013, and the area was finally handed back to Aalborg Portland in May 2014.

Several of the buildings had been constructed in World War II as an aerodrome for the Germany occupying forces and included a large hangar used for servicing the German fighter aircraft.

The site was then extensively used for servicing and refitting army vehicles. Since 2008 the buildings had no longer been used, and when the army's lease expired the empty buildings were removed and the entire area decontaminated.

The site is today green fallow land with mixed vegetation.

Transformation of disused military facility at Rørdal to green area

The chalk pit

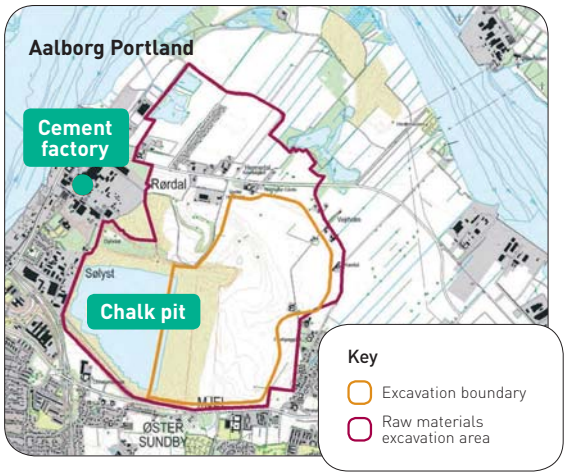
The chalk pit lies close to the factory and will cover around 240 hectares when fully excavated. A significant part of the chalk pit will be the lake with its azure blue waters typical of lakes in chalk quarries.

Aalborg Portland has a permit to quarry chalk in the Rørdal area within the designated excavation zone in the Raw Materials Plan for North Jutland. The permit is valid for the next 37 years, until 2052, when excavation in the chalk pit is expected to be finished.

Rehabilitation of chalk pit – Rørdal Lake Park

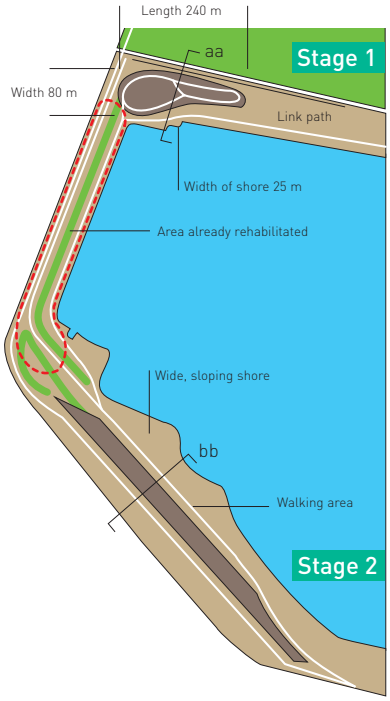
The concept behind the rehabilitation plan is the development of the chalk pit as "Rørdal Lake Park", which will offer the local population a variety of leisure and sporting activities in a recreational area close to the city.

The plan envisages the lake being used for sailing, water-skiing, diving and bathing. The areas around the lake will be used for activities such as hang gliding, mountain biking, jogging, walking, etc.



The basic principle of the plan is that the steep slopes on the perimeter of the chalk pit, mainly to the west and north, and the areas close to the lake, will remain as they are. The chalk will therefore be left exposed and in time become colonised by the unique vegetation characteristic of chalky areas.

Use of microfiller in construction of embankment as part of chalk pit rehabilitation



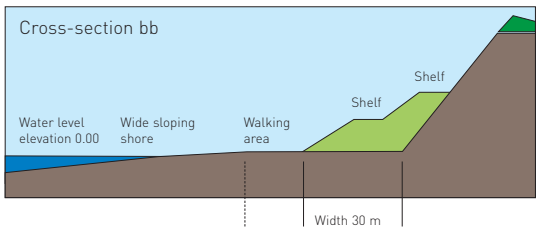
Utilising microfiller in the chalk pit

Establishment of banks and terraces has commenced in two adjacent areas of the chalk pit (Stages 1 and 2) to enhance the visitor experience.

Stages 1 and 2 are situated at the northern and western ends of the chalk pit where adjacent earth banks will be backfilled with layers of microfiller.

The microfiller will be capped with topsoil and grassed. Trees may also be planted to create variety.

Stage 2



Stage 1

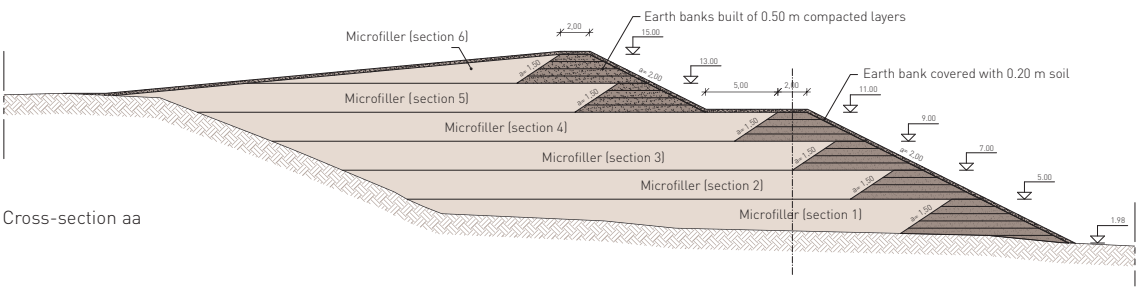
The purpose of the embankment (60,000 m³ of microfiller) is to create a natural transition between the former transfer station and the lakeside. The embankment will also screen the factory from view and act as a partial noise barrier between the factory and the public area planned for the northern and western parts of the chalk pit.

Stage 2

This consists of constructing terraces in the western part of the chalk pit, using the same method as Stage 1, with 200,000 m³ of microfiller.

The plan envisages the terraces being used for a variety of sporting activities, such as mountain biking, jogging and hang gliding. A system of paths and open spaces is also envisaged.

Work on Stage 1 continued in 2014 with backfilling of microfiller. Work has begun on constructing the earth banks in Stage 2 using around 450 tonnes of filler materials. Microfiller will be used in Stages 1 and 2 for rehabilitation and landscape modulation.



Schematic for construction of embankment with microfiller (Stage 1)

Material flows

Key performance indicators 2014 – Aalborg Portland cement plant

The material flows are stated using both absolute figures and relative values as key performance indicators.

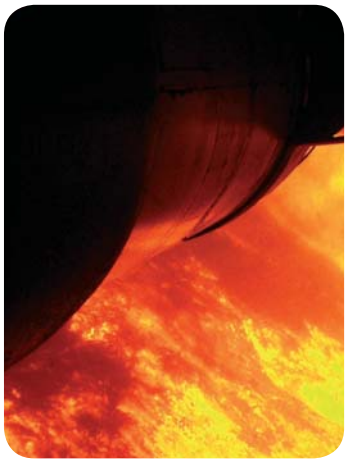
The absolute volumes are stated as tonnes in the wet state. The relative volumes are based on the quantity (kg) of materials in the wet state used to make one tonne of Total Cement Equivalent (tTCE), which is a standard unit for production. This is obtained by calculating the equivalent cement tonnage if all clinker had been processed into cement.

The relative values thus enable year-on-year comparison of the material flows independent of any variations in size of cement production, changes in clinker stocks and sales of clinker.

INPUT

	Absolute figures – tonnes *					Relative figures – kg * per tTCE				
	2010	**2011**	**2012**	**2013**	**2014**	**2010**	**2011**	**2012**	**2013**	**2014**
COMBUSTION AIR										
(O2, N etc.)	454,032	570,452	557,128	543,819	593,783	312.3	322.9	306.4	298.0	326.4
RAW MATERIALS										
Chalk	2,400,904	2,937,540	2,939,060	2,963,408	3,064,648	1,651.2	1,662.9	1,616.4	1,623.7	1,684.5
Water	2,688,259	3,057,496	3,052,623	2,782,798	2,881,522	1,848.8	1,730.8	1,678.8	1,524.7	1,583.8
Sand	110,626	128,047	106,838	107,246	129,488	76.1	72.5	58.8	58.8	71.2
Gypsum	21,646	31,469	32,769	29,778	32,126	14.9	17.8	18.0	16.3	17.7
Other	31,253	29,885	39,442	27,013	24,536	21.5	16.9	21.7	14.8	13.5
Packaging	1,091	1,101	1,003	1,027	1,129	0.8	0.6	0.6	0.6	0.6
RECYCLABLES										
Fly ash	158,949	189,990	204,148	213,176	189,339	109.3	107.5	112.3	116.8	104.1
Sand	57,728	43,489	81,311	79,980	64,314	39.7	24.6	44.7	43.8	35.4
FGD gypsum	52,407	52,853	55,022	58,680	53,490	36.0	29.9	30.3	32.2	29.4
Paper sludge	17,897	22,186	24,845	5,492	3,165	12.3	12.6	13.7	3.0	1.7
Iron oxide	30,182	45,331	44,728	41,769	39,102	20.8	25.7	24.6	22.9	21.5
Other	15,318	20,541	18,027	17,592	28,771	10.5	11.6	9.9	9.6	15.8
Total	**332,481**	**374,390**	**428,081**	**416,689**	**378,181**	**228.6**	**211.9**	**235.5**	**228.3**	**207.9**
FUELS										
Coal	78,285	54,679	36,150	46,265	44,820	53.8	31.0	19.9	25.3	24.6
Petcoke	161,393	204,211	213,894	191,767	207,863	111.0	115.6	117.6	105.1	114.3
Fuel oil	8,435	7,222	5,615	4,689	4,447	5.8	4.1	3.1	2.6	2.4
Alternative fuel	68,080	83,022	81,899	97,250	100,817	46.8	47.0	45.0	53.3	55.4
Total	**316,193**	**349,133**	**337,558**	**339,972**	**357,947**	**217.4**	**197.7**	**185.6**	**186.3**	**196.7**
	(MWh)	(MWh)	(MWh)	(MWh)	(MWh)	(kWh per tTCE)	(kWh per tTCE)	(kWh per tTCE)	(kWh per tTCE)	(kWh per tTCE)
ELECTRICITY	**216,419**	**249,188**	**247,241**	**241,742**	**250,048**	**148.8**	**141.1**	**136.0**	**132.5**	**137.4**
INTERNAL RECIRCULATION										
Microfiller	95,768	110,453	107,376	115,816	109,429	65.9	62.5	59.1	63.5	60.1
Water **	397,113	407,897	329,887	342,171	431,700	273.1	230.9	181.4	187.8	237.3
Own FGD gypsum	29,947	22,969	27,190	29,641	28,439	20.6	13.0	15.0	16.2	15.6
Recycling of clinker/raw meal	14,715	30,749	17,253	21,287	37,081	10.1	17.4	9.5	11.7	20.4
Recycling of cement from silo cleaning	1,311	609	268	753	1,505	0.9	0.3	0.1	0.4	0.8
District heat from heat recovery	(GJ) 28,992	(GJ) 21,055	(GJ) 24,278	(GJ) 21,197	(GJ) 24,090	(MJ per tTCE) 19.9	(MJ per tTCE) 11.9	(MJ per tTCE) 13.4	(MJ per tTCE) 11.6	(MJ per tTCE) 13.2

* Determined with water content of materials. ** Recirculated water has been adjusted for previous years as all filtrate water has been recycled since 2005.



OUTPUT

	Absolute figures – tonnes *					Relative figures – kg * per tCE				
	2010	**2011**	**2012**	**2013**	**2014**	**2010**	**2011**	**2012**	**2013**	**2014**
FLUE GASES										
CO_2	1,420,067	1,683,864	1,658,029	1,647,199	1,718,011	976.6	953.2	911.9	902.5	944.3
NO_X	2,153	1,945	1,621	1,401	1,580	1.5	1.1	0.9	0.8	0.9
SO_2	680	620	504	587	682	0.47	0.35	0.28	0.32	0.37
CO	1,113	1,068	1,372	1,678	1,649	0.77	0.60	0.75	0.92	0.91
Dust	35	52	62	81	91	0.02	0.03	0.03	0.04	0.05
NH_3	-	18	28	38	39	-	0.01	0.02	0.02	0.02
HCl	13	5	2	2	6	0.009	0.003	0.001	0.001	0.003
Hg	0.03	0.02	0.01	0.04	0.03	0.000022	0.000010	0.000004	0.000020	0.000014
PRODUCTS										
Cement	1,553,003	1,810,647	1,798,013	1,796,553	1,877,284	1,068.1	1,025.0	988.8	984.3	1,031.8
Clinker ***	-87,935	-32,514	19,591	12,839	-47,969	-60.5	-18.4	10.8	7.0	-26.4
Filler ***	-149	2,373	2,016	1,026	1,583	-0.1	1.3	1.1	0.6	0.9
Chalk slurry to power station (Nordjyllandsværket)	16,203	10,230	4,358	10,109	17,945	11.1	5.8	2.4	5.5	9.9
Total	**1,481,122**	**1,790,736**	**1,823,978**	**1,820,528**	**1,848,843**	**1,018.6**	**1,013.7**	**1,003.1**	**997.4**	**1,016.2**
Adjustment	-	-	-	-	-	-18.6	-13.7	-3.1	2.6	-16.2
Total Cement Equivalent	**1,454,043**	**1,766,561**	**1,818,293**	**1,825,146**	**1,819,341**	**1,000.0**	**1,000.0**	**1,000.0**	**1,000.0**	**1,000.0**
Packaging	1,091	1,101	1,003	1,027	1,129	0.8	0.6	0.6	0.6	0.6
WATER										
Water vapour	1,149,406	1,361,524	1,317,884	1,371,187	1,361,211	790.5	770.7	724.8	751.3	748.2
Cooling water, incl. Kiln 85 groundwater	2,086,319	2,256,291	2,358,260	2,216,054	2,241,899	1,434.8	1,277.2	1,297.0	1,214.2	1,232.3
Groundwater lowering (Kiln 76)	157,937	313,446	272,284	96,102	221,125	108.6	177.4	149.7	52.7	121.5
Waste water	27,612	38,588	33,820	27,813	28,835	19.0	21.8	18.6	15.2	15.8
HEAT RECOVERY FOR DISTRICT HEATING	(GJ) **1,177,344**	(GJ) **1,204,501**	(GJ) **1,045,751**	(GJ) **1,072,975**	(GJ) **1,152,611**	(MJ per tCE) **809.7**	(MJ per tCE) **681.8**	(MJ per tCE) **575.1**	(MJ per tCE) **587.9**	(MJ per tCE) **633.5**
WASTE ****										
Recycling	3,670	2,732	2,209	20,113	34,815	2.5	1.5	1.2	11.0	19.1
Incineration	580	156	223	194	317	0.4	0.1	0.1	0.1	0.2
Landfill	24,562	27,230	23,117	7,683	2,899	16.9	15.4	12.7	4.2	1.6
Oil and chemical waste	125	138	106	62	229	0.1	0.1	0.1	0.03	0.1
Total	**28,937**	**30,256**	**25,655**	**28,052**	**38,260**	**19.9**	**17.1**	**14.1**	**15.3**	**21.0**

*** Incl. sales and change in stocks. **** Waste volumes are classified into hazardous and non-hazardous wastes on page 24 with indication of whether the materials are utilised or disposed of.

Investments in climate and environmental improvements

Aalborg Portland has continuously made significant investments in improved climate and environmental technology and health & safety. In the period 2010-2014 a total of EUR 24.8m has been invested in a wide range of technology improvement projects.

In 2014, Aalborg Portland invested a total of EUR 6.9m in climate and environmental improvements, including energy-saving projects, accident prevention, and health & safety.

Investment projects in 2014 included i.a.:

- Increased supply of alternative fuel to Kiln 87
- Preliminary study and EIA for wind park
- Collection tank for water used in extinguishing fires
- Emission gauge on Kiln 87 for continuous metering of mercury emission
- Preparation of new environmental database
- Start of switch to two-string operation for SK7 production
- Preparation of shutdown of steam production to save energy
- Advanced process control system for Cement Mills CM 2 and CM 7/10
- Preventive safety – inspection and replacement of handrails and gratings.

Investment to improve environmental technology also included:

- New alternative raw materials and fuels, cf. also pages 14-15.
- Inclusion of environment-friendlier products in research projects with universities and other partners to develop cements of the future. See also "Full-scale casting of concrete with cement of the future" on page 11.

Aalborg Portland continues to plan initiatives that will reduce consumption and emission levels and have a positive knock-on effect on environment. These initiatives are guided by the environmental action plan, for which targets, activities and results appear on pages 32-33.

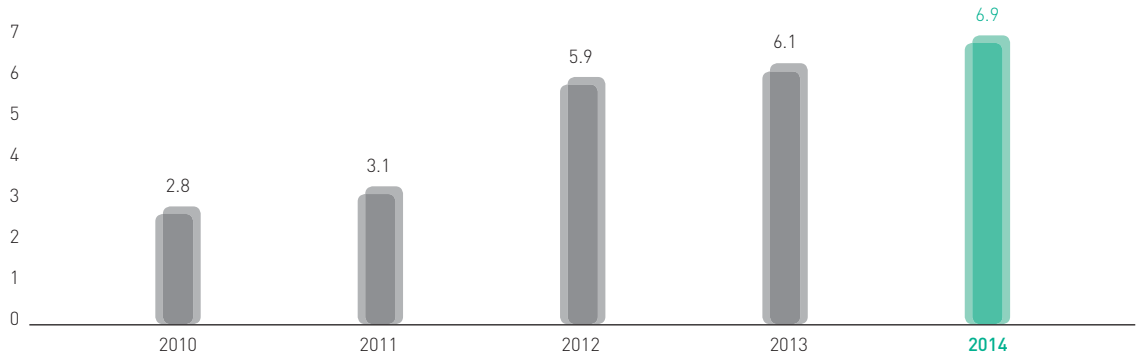
Preventive maintenance

In 2014, the total maintenance costs for production plant were EUR 3.8m. Preventive maintenance in the form of filter replacement impacts on e.g. dust emission, and repairing leaks in the kiln system prevents the ingress of false air, thereby saving on energy consumption.

Strong focus is also placed on production reliability in order to meet set targets. For example, replacing kiln lining bricks as and when necessary minimises the number of unscheduled kiln stops.

The work of preventive maintenance results in stable and optimal operation of production plant and cleaning systems, thereby also minimising environmental impacts.

Investments in climate and environmental improvements – EURm



Construction of new conveyor and feed installation for supply of alternative fuel to Kiln 87

Environmental and energy targets – activities and results

TARGETS 2014	STATUS 2014	TARGETS 2015
ELECTRICITY SAVINGS – strategy 2011-2015 Continued focus on reduction of base power load and on power-saving measures.		Continued focus on reducing base power load and on power-saving measures.
The 2014 target is to introduce power-saving measures, including for base load equipment, to achieve annual electricity savings of 3,100 MWh. Implement the following projects: • Install advanced process control system for Cement Mills CM 2 and CM 7/10. • Install two-string instead of one-string operation for SK7 production	Target achieved by installation of advanced process control system for cement mills CM 2 and CM 7/10 that will provide give annual electricity savings of 3,441 MWh. Changeover to two-string instead of one-string operation for SK7 production will first be fully implemented in 2015 due to unfinished construction work in the clinker store.	The 2015 target is to achieve annual electrical savings of 2,799 MWh through power-saving measures, including for base load equipment. Implement the following projects: • Two-string operation instead of one-string operation for SK7 production. This will provide improved energy efficiency for electrical equipment on Kiln 87. • Upgrade of filter cleaning for Cement Mill 7/10. This will reduce compressed air consumption. • Optimisation of flue gas exchangers for Kilns 74 and 78. This will reduce fan power consumption. • Modification of Cement Mill 4 for HDC production. This will lead to improved energy efficiency.
The target of reducing the specific variable power consumption in 2015 by 8% against 118 kWh per tTCE in 2010 is unchanged as new electrically-powered equipment is expected to be installed in 2014 that will mean a reduction in CO_2 emission.	Target will be achieved in 2015. The specific variable power consumption has been reduced to 112 kWh per tTCE, a fall of 5% against 2010.	Reduce specific variable power consumption by 8% against 118 kWh per tTCE in 2010.
Reduce base power load by 5% in 2015 against 45,856 MWh in 2011.	The base power load for 2014 was 45,856 MWh, which was unchanged against 2011. The effect of power-reducing initiatives in 2012-2014 was offset by higher production as the base power load includes production-dependent power consumption from the chalk pit. The target for 2015 will be reformulated and stated as a proportion of production.	Reduce base power load by 5% in 2015 against 26 kWh per tTCE in 2011.
WIND TURBINES The target is ultimately to replace 40% of power consumption with renewable energy from wind turbines installed on Aalborg Portland's land. The 2014 target is to embark on the EIA process, detailed planning of the wind park project, and obtaining planning permission.	On 15 December 2014 Aalborg City Council approved a proposed addendum to the urban area development plan for erection of five wind turbines at Bredhage. Between 22 December 2014 and 23 February 2015 the proposal, Environmental Impact Assessment (EIA), and Environmental Assessment (EA) went to public inquiry.	The target is ultimately to replace 40% of power consumption with renewable energy from wind turbines installed on Aalborg Portland's land. The 2015 target is to install the wind park consisting of five wind turbines, corresponding to 20% of power consumption.
FUEL SAVINGS The 2014 target is to implement measures to achieve an annual fuel saving corresponding to 4,800 MWh by two-string instead of one-string operation for SK7 production.	Target not achieved as changeover to two-string instead of one-string operation for SK7 production was not fully implemented in 2014 due to unfinished construction work in the clinker store.	The 2015 target is to implement measures to achieve an annual fuel saving corresponding to 11,680 kWh by the following projects: • Two-string instead of one-string operation for SK7 production, providing improved fuel energy efficiency for Kiln 87. • Phasing out steam plant, thereby reducing fuel oil consumption.

Target achieved Target not achieved

Five out of ten environmental and energy targets were achieved in 2014.

TARGETS 2014	STATUS 2014	TARGETS 2015
ALTERNATIVE FUEL The target is ultimately to replace at least 60% of the fuel energy for grey cement production (Kiln 87) and at least 20% of the fuel energy for white cement production (Kilns 76 and 74+78) by means of alternative fuel, reducing CO_2 emission.		The target is ultimately to replace at least 60% of the fuel energy for grey cement production (Kiln 87) and at least 20% of the fuel energy for white cement production (Kilns 76 and 74+78) by means of alternative fuel, reducing CO_2 emission.
The 2014 target is to replace 40% of the fuel energy for Kiln 87 and 4% for the white cement kilns.	Target partially achieved. 33% of fuel energy was replaced for Kiln 87. Operating problems with the feed conveyor and chlorine bypass prevented full target being realised. Target achieved. 4.5% of fuel energy was replaced for white cement kilns.	The 2015 target is to replace 41% of the fuel energy for Kiln 87 and 4.6% for the white cement kilns.
Install a conveyor system to supply alternative fuel to Kiln 87's two calciners and main burner. An external grant has been received which supports equipment conversion from fossil fuels to renewable energy. The full impact will not be registered until 2015.	Target achieved. A new conveyor system has been installed both for Kiln 87's two calciners and the main burner, cf. article on page 18.	
CO_2 REDUCTION Continue focus on reducing CO_2 emission by increasing use of biofuel and ultimately developing new cements *.		Continue focus on reducing CO_2 emission by increasing use of biofuel, and ultimately developing new cements *.
Target unchanged: Reduce CO_2 emission from grey cement production by 3% against 76 kg CO_2 per tTCE in 2012.	Target not achieved. CO_2 emission from grey cement production increased by 2% against 2012 to 781 kg CO_2 per tTCE. This was due to the need for energy renovation work on Kiln 87 which is scheduled for start-2015.	Target unchanged: Reduce CO_2 emission from grey cement production by 3% against 764 kg CO_2 per tTCE in 2012.
Target unchanged: Reduce CO_2 emission ** from white cement production by 2% against 1,139 kg CO_2 per tTCE in 2012.	Target not achieved. CO_2 emission ** from white cement production increased by 0.4% against 2012 to 1.144 kg CO_2 per tTCE as less heat than expected was recovered for district heating. This was due to the need for energy renovation work on the heat recovery system, which is scheduled for early 2015.	Target unchanged: Reduce CO_2 emission ** from white cement production by 2% against 1,139 kg CO_2 per tTCE in 2012.
NO_X REDUCTION Reduce specific NO_X emission by 2% against 0.77 kg per tTCE in 2013 by continuing to optimise NO_X cleaning and by increased use of NO_X-reducing alternative fuel.	Target not achieved. Specific NO_X emission increased to 0.87 kg per tTCE. This was due to operational factors as, with the technologies introduced, NO_X cleaning efficiency lies within an optimised normal range.	Achieve low NO_X emission of 0.77 kg per tTCE with the NO_X-reducing technologies introduced.
WASTE Reduce landfill volume by 3,700 tonnes against 2013 (7,210 tonnes) – a reduction of 51% – by continued use of filler materials for construction works and by recycling various waste fractions.	Target achieved. The volume of waste landfilled on site was 2,522 tonnes, a 65% decrease against 2013. This was due to utilisation of filler materials in chalk pit rehabilitation.	Utilise 20,000 tonnes of previously landfilled filler materials in rehabilitation of the chalk pit.

* Research projects promoting climate-friendly and sustainable development are described on page 11 in "Full-scale casting of concrete with cement of the future".
** Adjusted by the CO_2 fraction for heat recovered and supplied to Aalborg for district heating. The adjustment is based on the 125% thermal efficiency method.

Environmental dialogue

Aalborg Portland is party to the following important activities to ensure and strengthen ongoing environmental dialogue with stakeholders and interest groups:

- Continuous contact with central and local environmental authorities in Denmark and EU as legislative proposals and regulations that will impact the company are constantly being developed.
- Involvement of environmental information provided by suppliers when establishing contracts with suppliers.
- Publication of 2014 Environmental Report – due mid-April 2015.
- Aalborg Portland received 84 visits and a total of 1,942 visitors in 2014. The visitors were given an environmental briefing and had opportunity to ask questions.
- Aalborg Portland employees address external seminars and meetings.
- Aalborg Portland's current and previous Environmental Reports are available on the company's website.
- Employees in the company's departments participate in Energy & Environmental Focus Teams.

The Environmental Report is distributed to numerous interested parties nationally and internationally, including neighbours, owners, authorities, politicians, the Danish Society for Nature Conservation, customers and suppliers.

The report is also available in the factory to all employees and is published on the company's website.

To optimise the commitment of and dialogue with internal and external stakeholders regarding our environmental activities, all parties are urged to submit views and suggest improvements concerning our reporting.

Operating issues

Procedures for dealing with operating breakdowns and accidents are defined in Aalborg Portland's Process Management System and in our environmental approval. This ensures that all relevant authorities are contacted when dealing with issues that may lead to environmental risk or pollution.

The number of dust emissions at Aalborg Portland resulting in complaints increased from 19 to a total of 21. These emissions principally related to issues with Kiln 87 where several precipitator breakdowns of short-duration were experienced. Diffuse dust from the clinker store combined with strong winds also prompted complaints.

Number of releases resulting in complaints

	2010	2011	2012	2013	2014
Dust	14	11	9	19	21
Noise	2	0	1	0	1
The Limfjord	1	1	0	2	1
Other	0	0	0	0	1

Requirements to suppliers

Aalborg Portland's general supplier contracts have been amended with a description of our systematic focus on environment, energy and health & safety, including our certified management systems.

Aalborg Portland also emphasises that priority is given to partnerships with suppliers who are certified and environmentally and socially aware. We reserve the right to audit relevant factors relating to supplier partnerships. Three supplier audits are planned for 2015.

New suppliers are subject to assessment prior to contract signature.

Sustainable distribution

In 2014, Aalborg Portland's distribution activities involved shipping of approx. 1.9 million tonnes of cement to domestic and export customers.

Our influence on the method of carriage to export markets is chiefly limited to the choice of ship transport, and this part of distribution may therefore be termed an indirect environmental impact.

In the domestic market, however, we are better able to exert influence on the environmental impacts of distribution in the form of exhaust emissions, road wear, etc. We therefore also have a responsibility to conduct our distribution in a sustainable manner.

In 2014, 72% of our cement was distributed by ship and 28% by road.

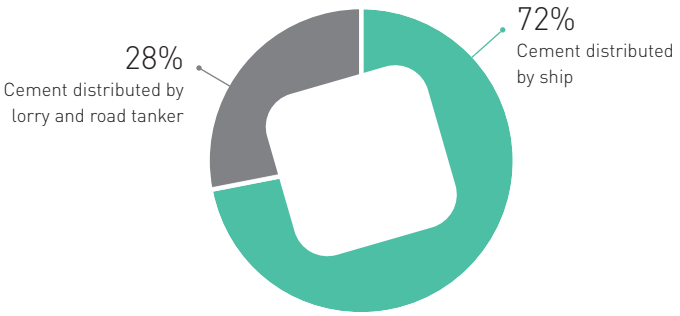
All our cement manufacture takes place in Aalborg, from where the major part of the cement produced is transported by ship to our eight Danish storage terminals strategically positioned nationwide. Onward distribution to the customer takes place by road.

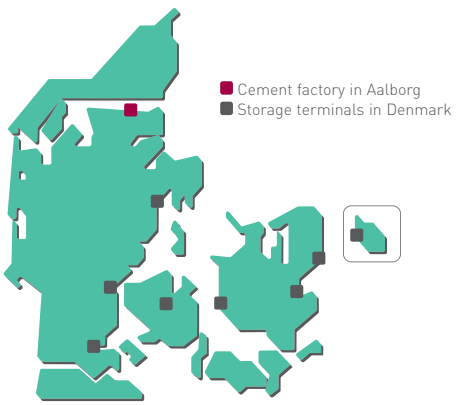
The average distance from terminal to customer is just 65 km, which means we avoid long-haul transport by heavy road tankers.

This strategy was also followed in 2011 with establishment of a storage terminal in Aabenraa for white cement destined for export to the European market. This terminal removes 2 x 270 km of transport from Jutland's motorways as the carriage of cement from Aalborg to Aabenraa now takes place by ship, which is a more sustainable mode of transportation.

Some road haulage is contracted out to third parties. Customers in northern Jutland are supplied direct from Aalborg. Distribution of all bagged cement also takes place from Aalborg.

Aalborg Portland's focus on use of alternative fuel represents an indirect CO_2 benefit as alternative fuel can be sourced locally, therefore travelling a much shorter distance than coal, petcoke and oil.





Health & safety

Satisfied customers and a good work environment

How can they be combined?
Work environment at Aalborg Portland is about more than rules and regulations. As manufacturers we must be fully focused on customer expectations and requirements and able to deliver the goods – every time. Without a good work environment we cannot provide our customers with the right quality and deliver at the right time.

A good work environment contributes to the safety and physical and mental health of the individual employee in both short and long term – and strengthens the company's productivity and competitiveness, reduces sick absence and promotes job satisfaction, wellbeing and flexibility. This benefits employees, customers and shareholders.

People perform best when they feel happy and secure. We believe that a good work environment is essential to a successful working partnership in which we all contribute with our individual skills. With a good work environment as our foundation we can deliver the right quality at the right price.

Winds of change continue to blow

Change has come to stay, nothing is permanent. That is a fact of modern life. Activities and expectations as regard work environment also change. New expectations include greater freedom of choice, greater trust and fairness, a more meaningful job, and a good balance between work life and home life – we are, after all, whole beings. As a company we must therefore continuously reassess whether what we are doing is right and whether we are moving with the times.

Today, time is one of the great challenges. This means it is important to make the best use of it. With this in mind we have introduced LEAN – a systematic work methodology that can help us utilise our time and resources as effectively as possible.

Management's quality, health & safety review

In April 2015, the Management held its annual QHS review which took stock of developments in 2014 and mapped out the direction for 2015.

Health & safety organisation

Aalborg Portland's H&S organisation plays a vitally important role for the factory work environment and takes a pro-active approach to preventive activities.

The H&S organisation held its annual one-day seminar in November. After reviewing developments for the year, the meeting divided into intensive work groups to define targets and improvement proposals for the year ahead. The day was one of profound commitment and positive interaction that was reflected in the results.

The Health & Safety Committee holds quarterly meetings, the first of which defines goals for the year ahead. The goals are defined based on input from the annual meeting of the H&S organisation and events which occurred the previous year.

The individual Health & Safety Groups hold ad hoc meetings throughout the year and undertake independent factory inspections.

Target achieved Target not achieved

Two out of eight targets were achieved in 2014.

TARGETS 2014	STATUS 2014	TARGETS 2015
WORK ACCIDENTS Target: < 8 reported accidents. Max. 14 accidents per one million working hours.	Target unfortunately not achieved. A total of 14 accidents were reported and the accident rate (accidents per one million working hours) increased to 27.	**WORK ACCIDENTS** The long-term (2018) target is nil accidents. The 2015 target is max. 9 accidents with more than one day's work absence. The 2016 target is max. 6 and the 2017 target is max. 3.
PSYCHOLOGICAL WORK ENVIRONMENT Improved psychological work environment through focus on prevention. Target: Fewer stress cases than in 2013.	Target not achieved. A major project focused on wellbeing and stress is planned for implementation in 2015 and 2016.	**PSYCHOLOGICAL WORK ENVIRONMENT** Improve the psychological work environment. Target: Fewer stress cases than in 2014.
SAFETY CONSCIOUSNESS Increase health & safety consciousness. Target: 10% improvement on the score from "Safety Culture 2013".	Target not achieved. However, H&S consciousness will remain an everyday focal area.	**ENHANCED WELLBEING** A targeted initiative will be introduced to enhance everyday wellbeing and job satisfaction. Target: Improve wellbeing score in upcoming Wellbeing and Motivation Survey.
AWARENESS AND COMPLIANCE WITH SAFETY REGULATIONS Target: 10% improvement on the score from "Safety Culture 2013".	Target not achieved. This will be a focal topic at "Safety Culture 2015" courses.	
SAFETY COURSE Strengthen safety culture by providing an internal safety course for all employees. Target: 100% attendance.	Target almost achieved – 90% course attendance.	
ROLLING WORKPLACE ASSESSMENTS Plan for workplace assessments within individual processes. Target: Define and implement method.	Target not achieved.	
SAFETY GUIDELINES Update all safety guidelines in SAP (100%) Establish plan for ongoing update. Target: 100% completion.	Target achieved. Ongoing update will take place in future.	
HEAVY LIFTING (MUSCULOSKELETAL DISORDERS) Train internal team to implement/give guidance on Workplace Assessments in this area. Target: Team Trained.	Target achieved. Task Force formed – ready to go ahead in conjunction with Workplace Assessment survey in the year ahead.	

Health & safety policy

Aalborg Portland is committed to providing quality products which match customer requirements and expectations. Health & safety is an integral part of normal working and there is constant focus on improvement.

Guidelines
Company activities must at all times be carried out in compliance with legislation and internal H&S guidelines and shall be mindful of our core values: Grow with passion for effectiveness, integrated diversity, act with concrete simplicity, rigorous flexibility, accountability for the future.

Employees
Within the scope of technical and economic feasibility, Aalborg Portland will create the best possible framework for a safe and healthy work environment by using the best available solutions and methods.

Aalborg Portland will ensure that all employees are trained and motivated to work actively to improve health & safety.

It is the responsibility of all employees to assist in improving health & safety in and around the performance of their work.

External contractors
Aalborg Portland recognises its responsibilities and obligations towards external contractors working in the company's production environment.

Society
Aalborg Portland adopts an open and active role in interaction with employees, authorities, customers, suppliers, organisations and other collaboration partners.

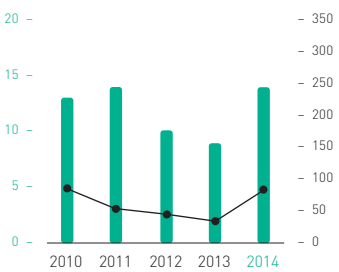
Policy, targets and objectives
The H&S Organisation proposes targets for the year ahead at its annual meeting.

These targets are discussed at the Management's QHS Review which defines the final targets for the period. Health & Safety policy is updated regularly and at least every two years.

	2010	2011	2012	2013	2014
Accidents reported to the Working Environment Authority					
Number of accidents reported	13	14	10	9	14
Number of days lost	87	52	47	30	84
Accident frequency / Time lost – Hourly paid and salaried employees					
Accident frequency – accidents per one million working hours	20.8	22.1	17.9	15.7	26.8
Time lost – hours lost per 1,000 working hours	1	0.6	0.6	0.4	1.2
Accident frequency / Time lost – Hourly paid employees					
Accident frequency – accidents per one million working hours	44.4	48.8	32.2	36.5	49.2
Accident frequency – accidents per one million working hours (stone, clay and glass industries)	29.6	24.0	19.2	19.1	*
Time lost – hours lost per 1,000 working hours	2.3	1.3	1.3	0.9	2.3

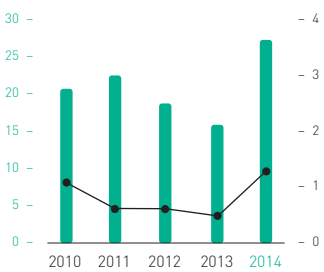
* Data not available

Accidents reported to the Working Environment Authority



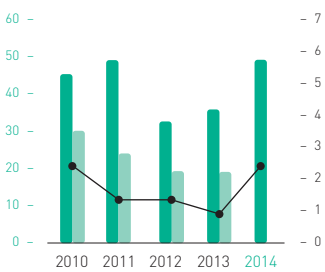
Number of accidents reported
Number of days lost

Accident frequency / Time lost Hourly paid and salaried employees



Accident frequency – accidents per mill. working hours
Time lost – hours lost per 1,000 working hours

Accident frequency / Time lost Hourly paid employees



Accident frequency – accidents per mill. working hours
Accident frequency (stone, clay and glass industries)
Time lost – hours lost per 1,000 working hours

Accident prevention – changing the safety culture
Health & safety training can make a decisive difference to work accidents, and in 2014 we held another internal H&S course which was compulsory for all production workers. The objective was again to strengthen safety and to influence and improve employee attitudes. We also launched a customised H&S training course (based on the statutory programme) for all our managers, likewise with a view to influencing attitudes towards health & safety.

As well as our daily accident prevention work, follow-up is also carried out. Accidents occurring are systematically registered and their cause thoroughly analysed and documented so that we can learn from them and avoid a repetition.

High priority is also given to instructing new employees in accident prevention.

Risk assessment
Going forward, risk assessment is one of the tools which will be used in the systematic appraisal of health & safety work. Risk assessment is about evaluating the consequence of a hazard and analysing the likelihood of the hazard occurring. Risk assessment can handle both physical and psychological risk factors relating to the work. Documented risk assessment provides the foundation for determining which measures to implement, and thereby the input for action plans.

Work accidents and prevention
In 2014, a total of nine work accidents were reported to the Working Environment Authority, i.e. accidents resulting in more than one day's work absence. This was way above the 2014 target (8) and was very surprising in view of the intensified preventive focus, to which the Health & Safety Groups also contributed. A total of seven less serious accidents were recorded, i.e. accidents not resulting in absence from work.

Accident frequency (number of accidents per million working hours) was 27 for 2014.

The accident level for the six winter months was virtually the same as the previous year and was chiefly due to slippery surfaces and access ways.

Psychological health at work was again strongly influenced by change and the high pace of daily work. Wellbeing policy and preventive activities have yet to have an impact. Preventive intervention as early as possible remains our target in order to improve the chances of helping both the persons concerned and co-workers.

In 2015 and 2016, funding to "crack the curve" will be made available by the Working Environment Authority. A process has therefore been established which focuses on wellbeing, stress and prevention generally and encompasses all organisational levels.

In 2014, focus was again placed on musculoskeletal disorders in both the production and the administrative environment.

With a view to preventing such disorders, a special task force was trained in the final quarter of 2014 to advise the employees on heavy lifting. As part of the Workplace Assessment survey, which is due to be implemented in 2015, the task force will have a major task in charting the locations where heavy lifting takes place.

As part of H&S inspections, attention was paid to ergonomically correct equipment/fixtures in the administrative environment. Systematic focus has also been given to persuading sedentary employees to stand up/move in the course of their working day.

Overview of injuries incl. external companies	Number	%
Head excl. eyes	4	15
Eyes	3	11
Back, incl. spinal column and vertebrae	2	7
Large parts of the body	0	0
Upper limbs	11	41
Lower limbs	5	19
Other injury	2	7
Total 2014	**27**	**100**

Wellbeing policy

The purpose of our wellbeing policy is to promote health, wellbeing and job satisfaction in the workplace and thereby prevent stress.

At Aalborg Portland we recognise the need for balance between work life and home life as contented employees are more efficient, take less sick leave and deliver a good, high-quality performance that benefits both the company and their co-workers.

Our objective is to provide a good physical and psychological work environment where the individual employee can at all times feel secure and content, also at times of hectic activity and change.

We want all our employees to feel part of a team with a common task and a collective responsibility for each other and for our company goals.

Core values

All our employees are expected to treat one another, both in actions and in words, with the same respect and consideration that they themselves would wish to receive.

This philosophy is enshrined in Aalborg Portland's five core values:

- Grow with passion for effectiveness
- Integrated diversity
- Act with concrete simplicity
- Rigorous flexibility
- Accountability for the future

Activities to promote wellbeing

It is the manager's responsibility to ensure that balance exists between tasks and resources so that both physical and psychological wellbeing and other factors relevant to the individual's work situation are included in an ongoing dialogue with the employee.

Aalborg Portland presides over a number of tools for supporting wellbeing, including:

- Competence development
- Annual performance appraisals
- Workplace Assessment – survey of physical and psychological work environment
- Pensions and health insurance
- Various information channels
- Joint Consultative Committee, Health & Safety Committee, etc.
- Sick leave and retention policy
- Alcohol and smoking policy
- Motivation survey
- Subsidised staff association, clubs and societies
- Gift of get-well flowers for employees who are incapacitated
- Stress management (contingency measures and plan for return to work)
- Part-time work option (based on individual assessment)

On joining Aalborg Portland, employees are urged to take out an insurance policy (Mølholm Behandlingsforsikring), which covers psychological help and treatment for alcohol abuse.

Bullying and harassment

The Management of Aalborg Portland strongly distances itself from all forms of bullying and harassment. Such behaviour is not compatible with our core values and may therefore have repercussions for the perpetrator's employment.

Bullying is defined as offensive behaviour taking place regularly over a long period, or repeated gross conduct, perpetrated by one or more persons against one or more other persons who find it hurtful or degrading. Such behaviour only becomes bullying, however, when the targeted persons cannot defend themselves effectively. It is therefore important that employees affected should protest or seek help in protesting.

Teasing which is perceived as good-natured by both parties is not considered bullying or harassment, and the same applies to isolated disputes.

Part-time working

Some employees may find it necessary to temporarily reduce their working hours, taking a corresponding cut in pay. The possibility for part-time working is assessed individually and must be discussed with an immediate superior.

Smoking and alcohol

Smoking indoors at Aalborg Portland is prohibited. Smoking outdoors is permitted unless signposted as prohibited due to fire risk, cf. the "Smoking policy".

Consumption of alcohol is not considered conducive to professionalism and wellbeing at Aalborg Portland, and only non-alcoholic beer is therefore available in the company's canteen.

Follow-up

Employee wellbeing is monitored by means of the following tools:

- Annual performance appraisals
- Motivation surveys
- Sick leave statistics

This follow-up also extends to employees covered by an agreement for gradual return to work.

Dialogue meeting – Working Environment Authority
In October 2014, we accepted an invitation from the Working Environment Authority to attend a dialogue meeting on the duties, responsibilities and roles of the building developer under the Working Environment Act. A constructive meeting with relevant input for further work.

Factory Emergency Corps
In 2014, Aalborg Portland's Factory Emergency Corps continued its three-year programme with an evacuation drill and an emergency drill. The aim is to ensure that we can continue to maintain an effective resource for dealing with emergencies.

Psychological work environment
Work to improve the psychological work environment is ongoing and takes place in a collaboration between the Management, HR and the H&S organisation. The results of the wellbeing survey determine the measures which will be implemented. In 2015 and 2016, funding will be provided by the Working Environment Authority to expand activities in this area.

Audit
Regular internal audit is an important method for the evaluation of health & safety in the workplace. The audit process embraces the whole of the work environment, including both the physical and the psychological aspects. An annual third-party audit is performed in accordance with OHSAS 18001.

Fitness
The Aalborg Portland fitness centre remains popular with many employees and it is still possible to obtain guidance from an instructor. There are also badminton courts which are also very popular.

In 2014, as in previous years, employees from Aalborg Portland took part in the annual DHL relay race.

Diet
Our canteen dietary concept of a healthy buffet, from which employees can compose a good and wholesome meal of their choice, remains a success. 1-3 day campaigns on a variety of themes are also held.

The inclusive labour market
Aalborg Portland undertakes job absence and job retention interviews to ensure that employees who for any reason are required to take frequent or prolonged sick leave are contacted so that their services can be retained.

In 2014, annual performance appraisals were again held with all employees, both salaried staff and hourly paid workers. Topics discussed included wellbeing, the psychological work environment and the need for training leading to new skills and qualifications.

Collaboration between the HR function and the H&S organisation was strengthened further in 2014. The two bodies interact on many levels, particularly with regard to the psychological work environment, and teamwork is good. Sick leave policy is an area of common interest, ensuring that the situation of the individual employee is addressed as early as possible as part of a co-ordinated and positive overall process.

Measurement and calculation of material flows

The information used in compiling this Environmental Report was obtained from Aalborg Portland's environmental database which receives raw data from a variety of recording systems.

The methods of measurement used in conjunction with data capture are described below:

- Raw materials, recyclables and fuels are determined by flow meters and weighing devices installed in the production process.
- Water consumption is measured by water meters.
- Electricity consumption is measured by kWh meters.
- Packaging is calculated from inventory statements.
- CO_2 emission for 2010-2014 is determined according to the approved CO_2 plan for Aalborg Portland and verified externally.
- NO_X, SO_2, CO, HCl, NH3 and dust emission from kilns is determined by continuous metering in exhaust stacks. The same applies to dust concentrations in discharges from cement and coal mills, while air volumes from these sources are based on sampling.
- Hg quantity is calculated by continuous measurement of kiln air volumes and Hg concentration samples from yearly performance measurements. This does not apply to Kiln 87 where continuous measurement of Hg concentration was established in 2014.
- Products are determined by weighing and calculation.
- District heating production is measured by calorimeter.
- Wastes are determined by weight on weighbridge and annual statements from external waste receivers.
- Cooling water is calculated on the "water balance principle" in which the following flow-metered outputs – water vapour, groundwater lowering at Kiln 76 and waste water (sanitation water and washing water) are deducted from measured inputs: water consumption, groundwater lowering and water content in materials and fuels.
- Combustion air is calculated indirectly by deducting the input side of the materials flow from the output side.
- Work accidents and time lost are determined from data reported to the Working Environment Authority.
- Noise calculation is performed by an accredited external firm based on measurement at source and subsequent computation.

Continuous emission and flow gauges and weighbridges are subject to regular inspection and calibration by DANAK accredited companies.

Financial highlights and social contribution

Environmental levies

In spring 2014, Aalborg Portland received a partial repayment of the Danish NO_X levy following the EU Commission's approval of the basic allowance. While this is a positive development for Aalborg Portland, the additional costs represented by the increase in the NO_X levy still remain. To this must be added a substantial burden arising from the PSO levy. These Danish levies thus continue to pose a considerable disadvantage for Aalborg Portland in competition with other European companies, which are not subject to these charges.

19%

increase in Aalborg Portland's PSO levy from 2012-2014

The company has incurred the following direct environmental levies:

EURm	2012	2013	2014
PSO levy	3.2	3.5	4.2
NO_X levy	2.1	3.9	1.9
Waste levy	1.5	0.4	0.1
Electricity levy	1.0	0.7	0.1
Energy levy	0.6	0.9	0.8
Raw materials levy	0.6	0.5	0.5
Sulphur levy	0.1	0.3	0.3
Total	**9.1**	**10.2**	**7.9**

Social contribution

Aalborg Portland's cement production in Denmark is of significant economic importance to the nation.

In 2014, Aalborg Portland's value added was calculated as EUR 107m.

Of this, EUR 34.5m (32%) went to society in the form of VAT, company tax, other taxes and employee income tax. EUR 17.1m (16%) went to the employees in the form of wages and pension contributions (after tax). EUR 50.3m was transferred to the company's equity.

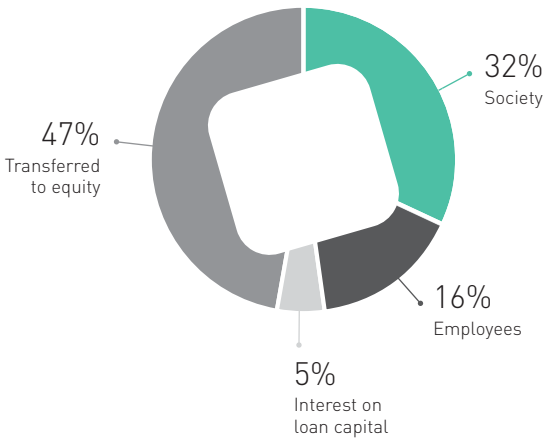
A social contribution is also created through our subcontractors involved in transport, maintenance, facility management etc. at Aalborg Portland.

Distribution and value added

EURm	2012	2013	2014
Net sales	185	188	192
Spent on materials, services, depreciation, etc.	94	107	85
Value added	**91**	**81**	**107**
Society	32	34	35
Employees	16	18	17
Interest on loan capital	2	4	5
Transferred to equity	40	25	50
Dividend to the owner	0	0	0
Total	**91**	**81**	**107**

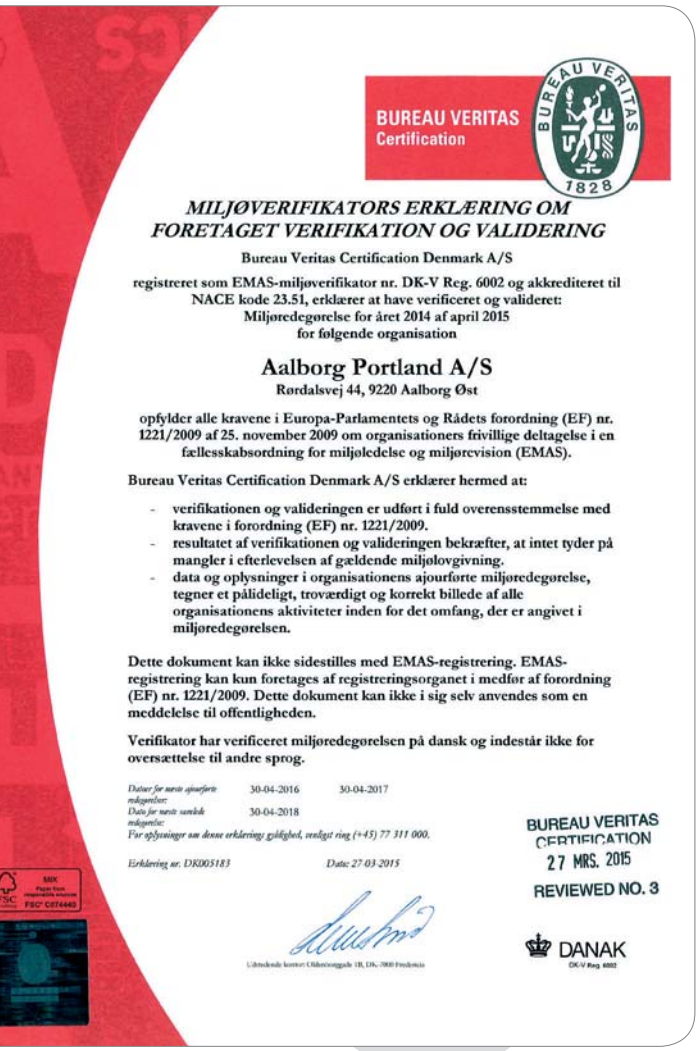
EUR 34.5m

of the value added went to the public sector, corresponding to an increase of 8% from 2012-2014



Environmental verifier's report and EMAS registration

The environmental verifier of Bureau Veritas Certification has reviewed the Environmental Report and issued the statement shown below. Based on this statement the Environmental Protection Agency has issued a Certificate of EMAS Registration and endorsed the Environmental Report.



BUREAU VERITAS Certification

MILJØVERIFIKATORS ERKLÆRING OM FORETAGET VERIFIKATION OG VALIDERING

Bureau Veritas Certification Denmark A/S

registreret som EMAS-miljøverifikator nr. DK-V Reg. 6002 og akkrediteret til NACE kode 23.51, erklærer at have verificeret og valideret:
Miljøredegørelse for året 2014 af april 2015
for følgende organisation

Aalborg Portland A/S
Rørdalsvej 44, 9220 Aalborg Øst

opfylder alle kravene i Europa-Parlamentets og Rådets forordning (EF) nr. 1221/2009 af 25. november 2009 om organisationers frivillige deltagelse i en fællesskabsordning for miljøledelse og miljørevision (EMAS).

Bureau Veritas Certification Denmark A/S erklærer hermed at:

- **verifikationen og valideringen er udført i fuld overensstemmelse med kravene i forordning (EF) nr. 1221/2009.**
- **resultatet af verifikationen og valideringen bekræfter, at intet tyder på mangler i efterlevelsen af gældende miljølovgivning.**
- **data og oplysninger i organisationens ajourførte miljøredegørelse, tegner et pålideligt, troværdigt og korrekt billede af alle organisationens aktiviteter inden for det omfang, der er angivet i miljøredegørelsen.**

Dette dokument kan ikke sidestilles med EMAS-registrering. EMAS-registrering kan kun foretages af registreringsorganet i medfør af forordning (EF) nr. 1221/2009. Dette dokument kan ikke i sig selv anvendes som en meddelelse til offentligheden.

Verifikator har verificeret miljøredegørelsen på dansk og indestår ikke for oversættelse til andre sprog.

Dato for næste ajourførte redegørelse: 30-04-2016 30-04-2017
Dato for næste samlede redegørelse: 30-04-2018
For oplysninger om denne erklærings gyldighed, venligst ring (+45) 77 311 000.

Erklæring nr. DK005183 *Dato: 27-03-2015*

BUREAU VERITAS CERTIFICATION
27 MRS. 2015
REVIEWED NO. 3

DANAK

Certifikat for EMAS-registrering
Certificate of EMAS-Registration

EMAS
VERIFICERET MILJØLEDELSE

Aalborg Portland A/S

Rørdalsvej 44
DK-9220-Aalborg Øst

Registreringsnummer
Registration Number
DK-000132

Registreret første gang
Date of first registration
02-03-2000

Certifikatet er gyldigt indtil
This certificate is valid until
01-06-2015

Udstedelsesdato
Date of issue
08-04-2015

Denne organisation har indført et miljøledelsessystem, og udarbejdet en miljøredegørelse i henhold til forordning (EF) nr. 1221/2009 med det formål at fremme en løbende forbedring af organisationens miljøindsats og resultater, og informere offentligheden herom. Miljøledelsessystemet og miljøredegørelsen er verificeret af en uafhængig tredjepart.

This organisation has established an environmental management system and prepared an environmental statement according to Regulation (EC) No. 1221/2009 to promote the continual improvement of environmental performance and to inform the public hereof. The environmental management system and the environmental statement are verified by an independent third party.

Lars Hindkjær
Direktør
Director-General

Miljøstyrelsen
Miljøministeriet