



ENVIRONMENTAL REPORT 2008



Aiming at Sustainable Development

Based on our environmental strategy, the aim of our efforts for the environment is to highlight important target areas for improvement and to maintain the environmental management system in cooperation with the line organisations. Nordkalk's products and working methods are being developed in order to minimise the environmental impacts of quarrying and processing. Our Environmental Strategy 2009-2013 emphasizes efficient energy and raw material use, dust reduction and effective monitoring of emissions from our operations. These are included in the environmental objectives of the divisions for the next few years. The Nordkalk Corporation's Operating Policy comprises environmental, quality and OHS principles, and these require continuous improvement. In 2008, we signed an internal Mine Closure Policy to ensure that after-care of all discontinued quarries proceeds in a uniform, acceptable manner.

Nordkalk's new management system that covers the whole Group was created last year. The old subsystems have been integrated into a single management system including quality and environmental management systems, principles of an OHS system and other procedures and routines applicable to the whole Group. As planned, Nordkalk received so-called multi-site certificates in the beginning of the year 2009: the quality certificate (ISO 9001:2000) covers the whole Group, the environmental management certificate (ISO 14001:2004) is valid at the Polish and Swedish sites as well as Finnish production plants, and the occupational health and safety certificate (OHSAS 18001:2007) at the Swedish and Polish sites and in Lappeenranta, Finland.

In recent years, environmental efforts have focused on developing our energy efficiency, and good results have been achieved at many sites. The Swedish production plant successfully reduced power consumption by replacing old equipment. In Köping, Sweden, equipment is being built that enables the use of alternative fuels in lime kilns. In Tytyri, Lohja, Finland,

we have improved our control and monitoring system, resulting in more efficient operation and lower power consumption. At Pargas lime plant, the optimisation of coal grinding has reduced fuel consumption, while the new high-pressure compressor brings down power consumption. In Tytyri, we have been able to increase the recovery of waste heat for use in a district heat network.

All Nordkalk sites work to ensure the continued improvement of energy efficiency. Energy efficiency is highlighted when planning new investments and existing processes are optimised to reduce power consumption. New personnel were recruited to work with these issues. In 2008, Nordkalk joined an energy efficiency agreement of the Finnish industries, which encourages the introduction of new energy-efficient technology and utilisation of renewable energy sources.

Reducing dust is another central objective of our environmental efforts. In Tytyri, electrical and textile filters have been renewed, and measurements indicate that dust produced by the lime kilns has been cut down by one half, and dust emissions from the grinding plant even more. Incidental dusting at all sites is controlled by wetting roads and yards and by asphaltting them. In Miedzianka, Poland, a new crushing line is under construction, which will reduce both dust and noise emissions.

Nordkalk is making active efforts to cut down its emissions both in the air and water. The company is involved in a number of research and development projects aiming at improving the state of the environment. The utilisation and final deposition of carbon dioxide, for example, is being studied in partnership with research institutes. Such studies yield information that helps to increase energy and material efficiency, thus reducing environmental impacts. The studies are also looking at carbon dioxide recovery methods suitable for lime burning.

Nordkalk also aims at replacing fossil fuels for carbon neutral ones. Primarily, this means fuels based on clean biomass, and secondarily sorted waste, which is fumigated into a form suitable for burning.

Nordkalk's products are also used for environmental management. The company is involved in a number of water and water system projects, such as a project aiming at more efficient waste water treatment in sparsely populated areas. Projects relevant to improving the quality of water systems are ongoing e.g. in Nokia and Kerimäki. Different types of lime-based products are also used for example for the production of drinking water, neutralisation of process waters and cleaning of flue gases at coal-fired power plants.

Legislation

The EU Directive concerning the management of waste from extractive industries, which entered into force on 1 May 2006, was implemented in a number of member states in summer and autumn 2008. The articles concerning sorting of waste are still ambiguous, but we hope that our surplus stone will be excluded from the comprehensive assessments proposed in the Directive. In 2009, Nordkalk will draw up local plans for the processing and storage of waste rock for all of its quarries.

The new chemical regulations of the European Union, REACH, entered into force on 1 June 2007. REACH aims at improving the protection of human health and the environment and maintaining the competitiveness of the EU's chemical industries. Nordkalk has met its obligations under the first phase of REACH and completed a preliminary registration of substances that are within the scope of this regulation. The company was also involved in establishing a European forum that discusses issues relevant to these substances and shares information on them. The actual REACH registration of substances will take place in November 2010.



Many of Nordkalk's customers depend on the excellent quality of Gotland limestone. Stone from Storugns is burned into quicklime e.g. in the kiln of KPAB.

An Environmental Permit Sought for a New Quarry in Gotland, Sweden

In order to ensure access to raw materials, Nordkalk has applied for a permission to quarry limestone in Bunge, Northern Gotland, in 2012-2035. The location of Bunge is favourable even in terms of the existing infrastructure; it is located at a distance of some nine kilometres from Storugns, where the rock will be sorted, processed and shipped. One of the most significant advantages offered by Bunge is its situation further away from residential areas than the current quarry.

Under current legislation, opening a new quarry is a complex process, in which natural and economic values must be balanced. Nordkalk has extensive experience in the lime industry in various countries, and based on this experience, the company has together with consultants and authorities conducted more extensive research than usual on the environmental impacts of quarrying. These studies will be helpful, as Nordkalk must in its operations take into

account the unique nature of the area and maintain a balance between natural values and quarrying activities.

The Environmental Court heard the application in December 2008 and decided against Nordkalk. Nordkalk appealed the decision to a higher environmental court. In its decision, the Environmental Court highlighted national conservation perspectives and considered that alternative locations and solutions to quarrying existed which were possible and reasonable for Nordkalk. However, many of our customers depend on the quality of Gotland limestone in particular. The current quarry in Gotland will be exhausted by 2012, and our goal is to get the new quarry in operation before this time.

The Nordkalk Corporation's Operating Policy

Nordkalk extracts, processes and delivers limestone and offers services related to these operations.

Guidelines for operations

- We comply with environmental legislation and regulations.
- Our values - Trust, Competence and Quality - guide our operations.
- We deliver the right product, quality and service at the agreed time.
- We strive to minimise the environmental impact of our operations.
- The working environment shall be good and safe for everybody.

Continuous improvement

Our aim is to continuously improve our products and services while taking into consideration economic aspects and the environmental impact of our operations.

We maintain active communication with our customers and we improve our performance by following up any shortcomings.

As part of our strategic and annual planning we make plans for improvement that cover quality, the working environment and environmental aspects together with goals and measures and the investments related to these. When an investment is evaluated in Nordkalk, an assessment of its impact on the working environment and the environment must be carried out.

We regularly monitor our targets for quality, working environment and environmental impact.


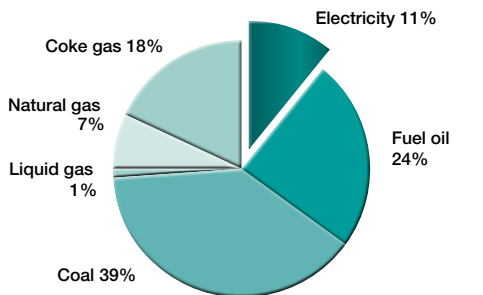


Responsibility

All persons in supervisory position are required to ensure that the personnel understand their role and have the authority and competence needed for their work. We all bear a duty to point out defects and errors. Nordkalk's president has overall responsibility for ensuring that the operating policy is followed.

Communication

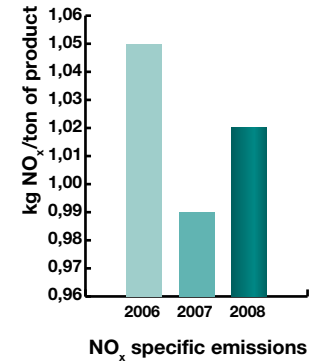
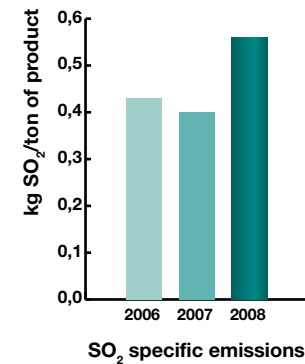
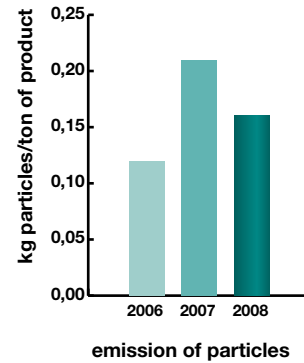
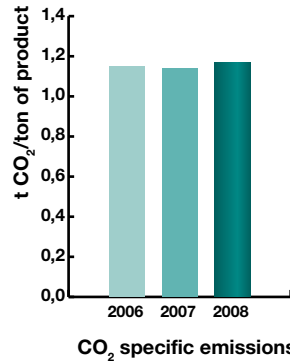
This policy is reviewed regularly and updated when necessary. It is distributed to the personnel and is also available to Nordkalk's stakeholders.

Environment Is Taken into Consideration at Every Stage of Operations

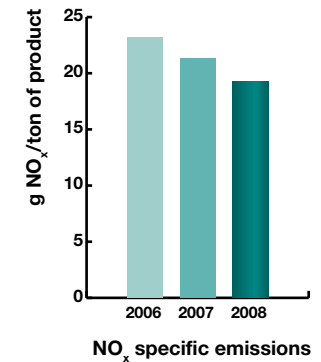
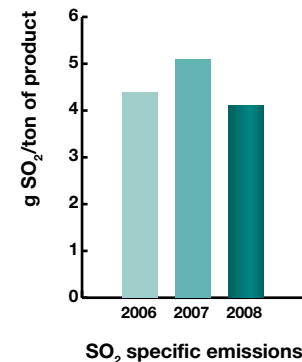
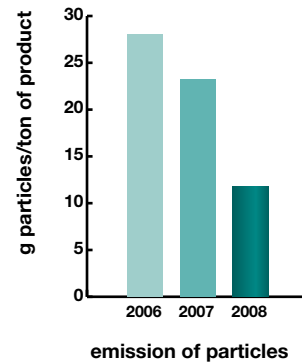
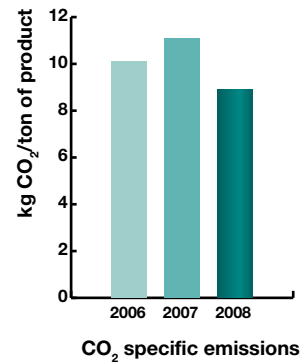
Goal		Action														
<p>Material</p> <ul style="list-style-type: none"> • Increase use of surplus stone: during the period of 2009-2013 it shall increase to 85% 		<ul style="list-style-type: none"> • Introduce new surplus stone products with consideration to the regulations of the EU directive concerning the management of waste 														
<p>Energy</p> <ul style="list-style-type: none"> • Reduce electricity consumption by 5% during 2008-2016 • Reduce use of fossile fuels in lime production by 2-5% during 2009-2013 	<p>Sources of energy used within the Nordkalk Group</p>  <table border="1"> <caption>Sources of energy used within the Nordkalk Group</caption> <thead> <tr> <th>Source</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Coal</td> <td>39%</td> </tr> <tr> <td>Fuel oil</td> <td>24%</td> </tr> <tr> <td>Coke gas</td> <td>18%</td> </tr> <tr> <td>Electricity</td> <td>11%</td> </tr> <tr> <td>Natural gas</td> <td>7%</td> </tr> <tr> <td>Liquid gas</td> <td>1%</td> </tr> </tbody> </table>	Source	Percentage	Coal	39%	Fuel oil	24%	Coke gas	18%	Electricity	11%	Natural gas	7%	Liquid gas	1%	<ul style="list-style-type: none"> • Measures and investments to reduce electricity consumption • Production planning and process supervision over existing processes and equipment • Increase use of alternative fuels • Renew processes' supervision systems • Improve kilns' burners and burning techniques
Source	Percentage															
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Liquid gas	1%															
<p>Emission</p> <ul style="list-style-type: none"> • Reduce emissions from production 		<ul style="list-style-type: none"> • Measuring of emission levels in different phases of production • Continuous improving of filters 														
<p>After-care</p> <ul style="list-style-type: none"> • All Nordkalk's mines will have an after-care plan 		<ul style="list-style-type: none"> • Long-term plans to support sustainable development 														

Specific Emissions into Air

Quicklime



Carbonate products



The figures are based on measurements and calculations for Nordkalk's facilities in Finland and Sweden. The increase of emissions is a consequence of increased fuel consumption. The increase of particle emissions from lime kilns in 2007 was caused by filter problems. Regarding carbonate products, the decrease of flue gas emissions is partly due to the completion of a project involving soil removal and quarrying surplus stone. The measurements show that dust emissions are lower than the estimated guarantee values for the filters.

Emissions and Secondary Products

FINLAND		2004	2005	2006	2007	2008
Emission into air	CO ₂ (t)	715 166	665 003	701 352	694 021	623 955
	particles (t)	211	204	187	284	198 ¹
	SO ₂ (t)	107	217	325	282	300 ²⁾
	NO _x (t)	406	595	670	722	562
Emission into water	solid material (t)	20	13	9	10	10 ³⁾
	BOD ₇ ATU (t)	1	2	1	2	2
Secondary products	filter dust (t)	54 352	51 791	52 282	48 725	50 105
	* utilized (t)	26 194	26 921	29 459	40 389	32 650
	slaking residue (t)	17 033	18 647	16 151	16 228	14 111
	* utilized (t)	8 411	10 355	16 151	9 490	6 884
	surplus stone (t)	1 448 785	1 602 610	1 286 688	1 305 954	1 944 682
	* utilized (t)	1 128 657	1 374 426	731 054	879 667	1 360 534
	flotation sand (t)	272 621	190 115	193 968	216 460	218 711
	* utilized (t)	60 859	42 476	66 462	53 045	32 045
	kiln waste (t)	14 067	17 270	15 886	14 443	16 379
	* utilized (t)	5 587	111	686	611	598
Environmentally hazardous waste	* backfilling (t)	2 056	2 319	1 214	1 020	347
	oil+greases (t)	63	66	63	53	20

SWEDEN		2004	2005	2006	2007	2008
Emission into air	CO ₂ (t)	448 118	572 673	454 645	508 302	482 863
	particles (t)	35	41	27	50	28 ⁴⁾
	SO ₂ (t)	111	106	129	147	231 ²⁾
	NO _x (t)	288	312	482	376	495
Secondary products	filter dust (t)	16 421	25 928	31 025	30 364	23 991
	* utilized (t)	15 026	21 924	19 004	78 930	20 550
	slaking residue (t)	1 332	1 560	1 559	273	1 410
	* utilized (t)	1 332	450	1 559	0	1 410
	surplus stone (t)	980 801	836 306	821 404	892 214	744 566
	* utilized (t)	470 700	462 917	257 808	287 867	187 931
	washing sludge (t)	28 000	36 000	37 000	38 500	35 500
	kiln waste (t)	1 591	1 633	1 393	2 084	0
Environmentally hazardous waste	oils+greases (m ³)	378	209	437	423	304 ⁵⁾

ESTONIA		2004	2005	2006	2007	2008
Emission into air	CO ₂ (t)	41 210	37 535	43 393	46 195	44 760
	particles (t)	299	305	405	434	502
	SO ₂ (t)	2	1	2	2	4
	NO _x (t)	30	30	35	15	41
Secondary products	filter dust (t)	1 600	1 856	2 180	0	0
	* utilized (t)	1 600	1 856	2 180	0	0
	kiln waste (t)	2 364	518	805	156	0
	surplus stone (t)	0	182 700	208 100	331 667	241 936
	* utilized (t)	0	14 300	19 100	10 900	7 100
Environmentally hazardous waste	oils+greases (m ³)	3	3	0	4	3

POLAND		2004	2005	2006	2007	2008
Emission into air	CO ₂	10 252	14951	12 472	15 684	12 626
	particles (t)	30	19	13	15	0
	SO ₂ (t)	6	9	8	9	7
	NO _x (t)	28	38	35	43	36
Secondary products	surplus stone (t)	98 928	123 361	129 280	147 170	379 490
	* utilized (t)	200 000	262 237	225 000	355 351	343 453
Environmentally hazardous waste	oils+greases (t)	19	20	15	11	22

RUSSIA		2006	2007	2008
Emission into air	CO ₂	18866	28273	41189
	particles (t)	0	31	45
	SO ₂ (t)	0	0	0
	NO _x (t)	13	16	19
Secondary products	kiln waste (t)	6062	6466	9185
	* utilized (t)	0	0	0
	surplus stone (t)	6609	11974	14650
Environmentally hazardous waste	* utilized (t)	1445	8600	10908
	oils+greases (t)	0	0	0

Nordkalk started production in Russia in October 2005. Therefore no statistics from earlier years are included in the tables.

The figures given in the tables represent both measured and calculated values.

- ¹⁾ Filter disturbances in 2007
- ²⁾ Fuel mix has been changed and burning temperature increased.
- ³⁾ Ihalainen industrial area, Lappeenranta.
- ⁴⁾ Filter disturbances in 2007
- ⁵⁾ The figure includes waste oil from vessels docking at Storugns.

Environmental Products

Nordkalk products are also used in environmental care. Different kinds of limestone-based materials can be used to prevent and remedy environmental problems. Lime products play an important role in water treatment and cleaning flue gases. New products and applications for environmental care are being developed all the time.

Carbonate products, together with both quicklime and slaked lime, are used to purify drinking water and clean waste water. Lime products are used to regulate the pH value, alkalinity and hardness of drinking water to prevent and reduce corrosion in the distribution network or consumers' taps and other household equipment. In waste-water treatment Nordkalk's products are used to regulate the pH value and alkalinity of the effluent so that it can be treated at the sewage plant. They also make it possible to efficiently remove nitrogen so that the eutrophying burden of waste water in watercourses is reduced. The sludge resulting from the treatment of waste water can be made more hygienic with the aid of quicklime, in other words, lime-stabilised. Nordkalk Velox is a product for more efficient composting of sludge and other wastes and for combating unpleasant odours. Nordkalk Velox can also be used to neutralise obnoxious smells from waste water.

Nordkalk Filtra P is granular filter material that removes phosphorus and so improves the cleaning of waste water in sparsely populated areas. In this way it effectively combats eutrophication in watercourses. It is best used in the final stage of purification after ground filters or small water-treatment plants. Nordkalk's latest product in this range, Sauna-Seppo, launched in 2005, contains Nordkalk Filtra P filter material to remove phosphorus from the washing water at summer cottages.

The liming of arable land can prevent the release of nutrients causing eutrophication into watercourses. Different kinds of ground limestone products are used for reducing acidity in the soil. This enables plants to make better use of the nutrients, which reduces the amount of nutrients washed out of the soil into watercourses.

When heat and electricity is being produced by burning either fossil fuels or household and industrial wastes, acid substances, e.g. sulphur and chlorine compounds, emerge in connection with burning and they must be separated from the combustion gases before they can be conveyed into a chimney. When sulphur dioxide reacts with humidity in the atmosphere, sulphuric acids are formed. The rain falling onto the earth's surface is thus acid and consequently harmful to the nature. Plants growing in acid soil are not able to utilize all the nutrient substances and fish cannot survive in lakes that are too acid. Liming individual watercourses is a method for returning the quality of the water of acidic watercourses to what it was before acidification took place. Usually liming is carried out with the help of nature's own remedy, namely finely ground limestone.

The flue gases of power plants can be efficiently purified with the help of quicklime or slaked lime, limestone powder or dolomite. By using a so called wet method with limestone sludge, the emissions of carbon dioxide can be reduced by even over 90 per cent. Waste incineration produces more emissions of chloride and fluorine than of carbon dioxide. Also their amounts can be reduced with the help of limestone-based products. The wastewaters resulting from the wet method can be neutralized with limestone powder and/or slaked lime.





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