Nordkalk

ENVIRONMENTAL REPORT 2006

Number One in Northern Europe

Nordkalk is the leading manufacturer of limestone-based products in Northern Europe. Nordkalk operates at 39 locations in eight different countries. The company has concentrated its deposits and production plants to the region around the Baltic Sea. Nordkalk's roots are to be found in Pargas in Finland, where limestone has been extracted industrially for more than a hundred years.

Nordkalk extracts limestone at 20 different locations from its own deposits, and processes it into crushed and ground limestone, flotated calcite, and quick and slaked lime. Nordkalk's range of products also includes dolomite and wollastonite.

Nordkalk products are used in the paper, steel and building materials industries and also in environmental care and agriculture. Nordkalk's principal customer is industry, which accounts for 86 per cent of total sales. The paper industry uses limestone and quicklime for fillers and coating pigments. The manufacture of steel necessitates lime to remove impurities at different stages of the manufacturing process. In the sugar refining industry, too, lime plays a role in removing impurities.

Building materials form one of the oldest uses for limestone products, and the building materials industry is today Nordkalk's second largest customer segment after the paper industry. Lime is also used in making glass and paint. Dolomite is an important raw material for the fertiliser industry and wollastonite is used in the manufacture of plastics and ceramics, for example.

In road and ground engineering lime is used to stabilise the soil. Lime can help to stop subsidence and improve bearing properties. The asphalt used for surfacing roads also contains limestone powder.

Lime appears in many facets of our everyday lives, perhaps most obviously in the countryside when the time comes to lime the fields. Lime reduces the acidity of the soil. It is also used to neutralise the acidity of watercourses and forests. Limestone-based products clean the flue gases from coal-fired power stations. They are also used to regulate the pH value of our drinking water and to clean our waste water.

Nordkalk's values – trust, competence and quality – determine our operations.

- We rely on ourselves, our colleagues and partners. We believe that cooperation is a win-win solution for both partners. We understand our customers' processes, which helps us to cope with ever-changing demands.
- We can deliver the right product for every situation. We see the opportunities that lie in improving both our own and our customers' processes.
- The quality of our raw materials, our products and our work is reflected in the final products manufactured by our customers.
- We supply the right product at the right time.

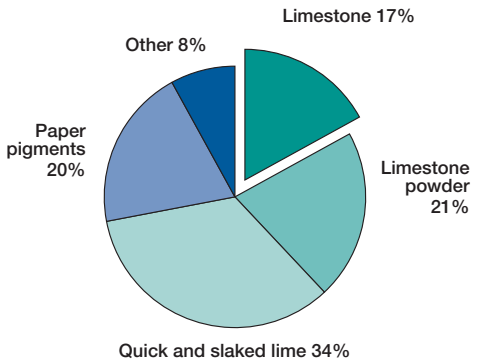
The year 2006 was one of growth

Nordkalk's sales increased in 2006 by 13 per cent and rose to EUR 303.8 million. Profit for the financial period grew by 75 per cent, amounting to EUR 24.5 million. The company's result for the year was burdened by high energy and freight costs and by structural changes in the Finnish papermaking industry.

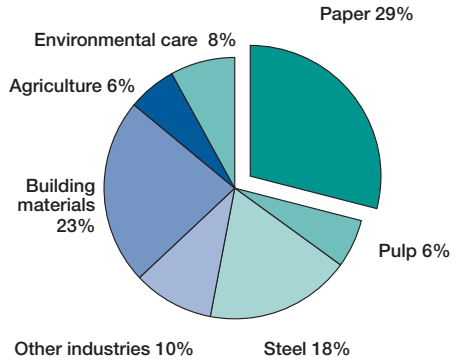
The positive trend in Poland and the Baltic States continued while in Russia modernisation of the lime plant at Alekseevka continued according to plan. In Norway Nordkalk in cooperation with Franzefoss Minerals started building a new lime kiln. The boom in the steel and building materials industries continued.

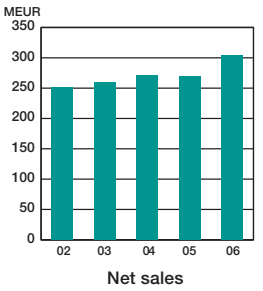
The total number of persons in Nordkalk's employ at year-end was 1,304. Nordkalk is preparing to face a number of challenges in the future; these include, for example, the retirement of the large age groups. In Finland Nordkalk has helped to develop a new occupational qualification for the mining industry and in autumn 2006 a two-year course for foremen and supervisors was started to meet the increased demand for labour as growth continues.

Products
(as a percentage of total sales)

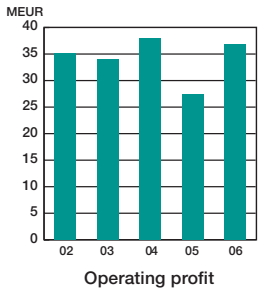


Sales by customer segment
(as a percentage of total sales)

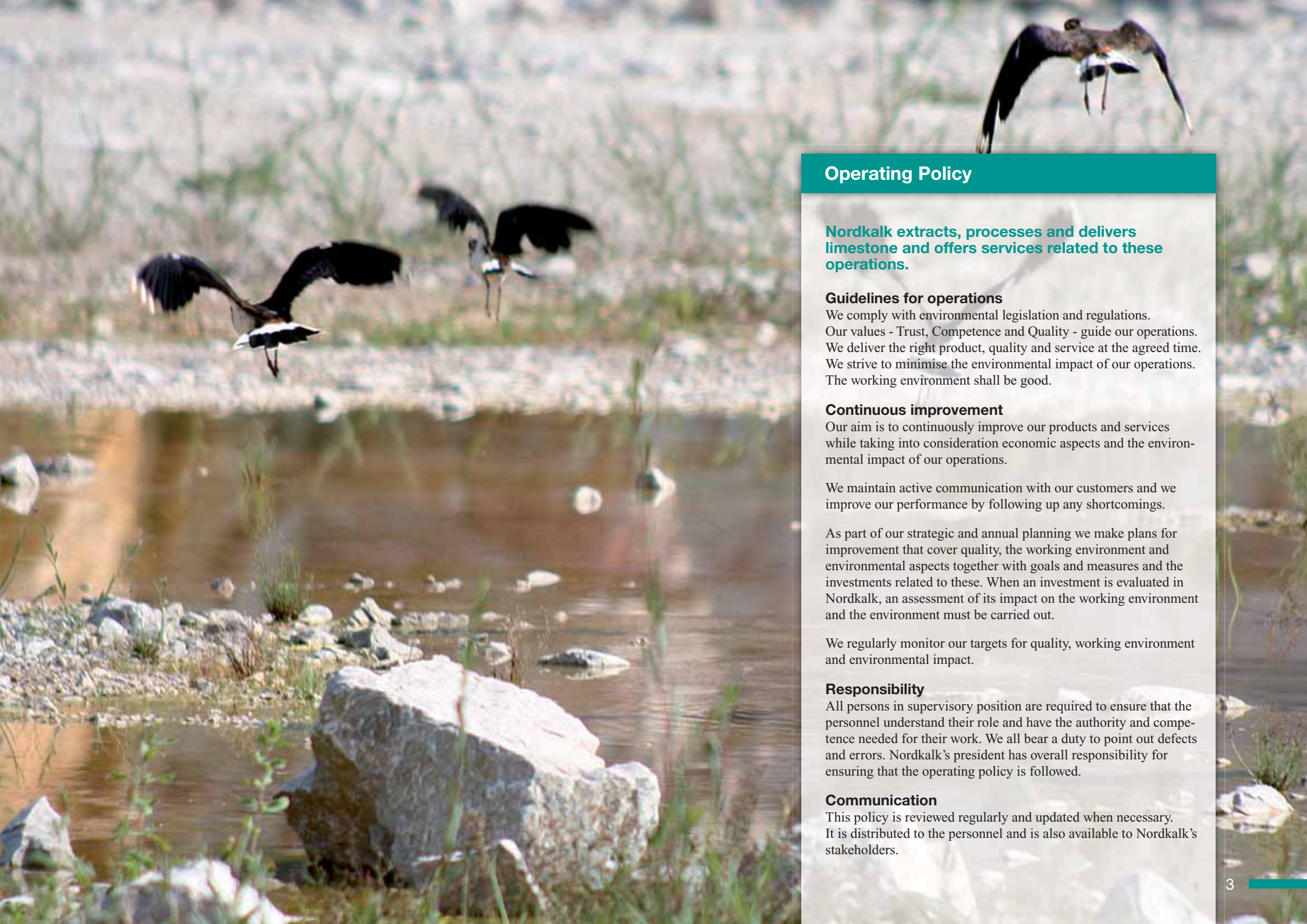




Net sales



Operating profit



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.

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.

Our aim is sustainable development

In 1995 Nordkalk set up an environmental and quality department. The department's task was defined as creating and maintaining an environmental management system for Nordkalk in collaboration with Nordkalk's line organisations. The environmental management system supports Nordkalk's endeavours to achieve sustainable development, which means taking the environmental impact of its operations into account when drawing up the goals for its activities. Environmental plans form an important part of the annual strategic planning process, and Nordkalk's operations are subject to regular monitoring. Responsibility for matters concerning production lies with the divisional managers.

The environmental effects of Nordkalk's operations are monitored and evaluated on a continuous basis in accordance with the Nordkalk Group's operating policy. This report provides an account of how Nordkalk's operations affect the environment together with the measures that have been taken or are planned to reduce the adverse environmental impact in all the countries where we operate. The level of environmental protection in Nordkalk is good. Our operations comply with present requirements as laid down by law and by the authorities. Furthermore, we regularly follow new legislation that is being drawn up in order to ensure that our activities meet future demands.

Nordkalk endeavours to develop its products and production methods so as to minimise the effects of extraction and processing on the environment. Careful and diverse monitoring leads to increased awareness of environmental aspects. It also makes it possible to continuously improve Nordkalk's operations according to Nordkalk's operating policy. This is an inseparable part of Nordkalk's environmental work. This policy was updated at year-end; it covers both the earlier policies for quality and the environment and the principles of occupational safety. All Nordkalk's production plants in Finland and its entire operations in Sweden and Poland have been awarded ISO 14001 environmental certificates. Now that Poland has also received its certificate, in December 2006, 87 per cent of our operations are certified.

The Nordkalk intranet has an environment page with information about the environmental work. The aim of the page is to heighten awareness among the personnel of environmental issues and responsibility and to inspire as many as possible to take part in Nordkalk's environmental work.

In addition to the measures taken to protect the environment during production, Nordkalk also offers advice on environmental liming matters to its customers. When drawing up contracts with entrepreneurs and sub-contractors Nordkalk now requires an assurance that the requirements of its operating policy will also be met. The sub-contractors are checked regularly in this connection by means of environmental audits.

Nordkalk operates at various locations around the Baltic Sea, and the company actively aims to reduce its emissions and effluents all the time. Nordkalk is involved in many research and development projects that aim to improve the state of the environment. The utilization and disposal of carbon dioxide, for example, is studied together with Finnish research institutions. Another project is the liming of the Alinen watercourse at Nokia to improve the quality of the water. Nordkalk also participates in the Pro Saaristomeri (Pro Archipelago Sea) project. This was started in 1999 by the Southwest Finland Environmental Centre, the Regional Council for Southwest Finland and the SW Finland Employment and Economic centre; its aim is to improve the quality of the archipelago seawater. Nordkalk also participates in different waste-water projects to improve the purification of waste water in sparsely inhabited areas. To this end Nordkalk has evolved new products that bind phosphorus and nitrogen.

At Louhi in Finland, for example, Nordkalk cooperates with the South Savo Environmental Centre, the town of Savonlinna and nearby local authorities in a project designed to maintain the right oxygen balance in the upper course of Enovesi, which forms part of the Saimaa Lake system.

Environmental permit to extract limestone on Gotland

Nordkalk has applied for an environmental permit to extract limestone during the period 2010-2035 at Bunge in the north of the island of Gotland, Sweden. Bunge is admirably located in relation to the current infrastructure, sorting and processing facilities at Storugns and for transport by sea. One of the principal advantages of the Bunge quarry is that it lies farther from residential areas than the Klinthagen quarry, a good thing from a social perspective.

In order to be able to begin extraction at Bunge and to know what impact it will have on the environment Nordkalk has worked with two parallel environmental assessments. One addresses the question of the environmental consequences of test mining and the other extraction on a large scale. So far there is nothing to indicate that the consequences would be negative, for ground water in the areas, for example. The environmental authorities awarded Nordkalk a permit for test mining at Bunge. The extraction began in the autumn 2006 and ended in February 2007.

Opening a new quarry is a complex procedure given today's legislation and restrictions. Nordkalk has a long experience of extracting limestone in different countries. Based on this experience, Nordkalk has carried out in cooperation with consultants and authorities extensive studies on the impact of extraction on the environment and hydrogeology. The ongoing studies will form a basis, among other things, for a monitoring programme for the future operations at Bunge.

Environmental impact

Nordkalk extracts and refines limestone at 26 different locations in Finland, Sweden, Estonia, Poland and Russia. Some of Nordkalk's production plants are situated in towns and built-up areas, which means that the surroundings place great demands on operations. The most disturbing aspects of Nordkalk's operations are noise, vibration and dust. Other aspects are disposal of surplus stone and other by-products from the production processes.

Since 2005 Nordkalk has been a signatory to an agreement in Finland on the purchase of hydroelectricity. The agreement covers eight of Nordkalk's eleven plants and was extended in 2006 to include a ninth facility. The agreement is in force until 2007.

Production processes

Limestone is extracted from the bedrock in either quarries or underground mines. The stone is then transported for rough handling and sorting, after which it goes on to be processed further elsewhere. These operations cause vibration, noise and dust. Quarrying results in changes in the landscape. Nordkalk's extraction processes result not only in the limestone that is actually used by Nordkalk, but also in surplus stone that can be crushed and used for macadam. Ground water seeps by way of fissures in the bedrock into the mines, and surface water collects in the quarries. This may affect the level of the ground water in the area.

Carbonate or limestone products, i.e. calcium carbonate ($CaCO_3$), consist of crushed, ground or sieved limestone. The grinding of the limestone is a dry process so that dust formation poses a major environmental problem in plants where this is done. The dust emissions can be effectively controlled, however, by passing them through filters.

Carbonate products are used for soil improvement, to clean flue gases in coal-fired power plants and to regulate alkalinity of water, for example. They are also used in different building materials, in animal feed and as a filler in paper and asphalt.

Nordkalk produces calcite and wollastonite from the limestone extracted from the quarry at Lappeenranta. Nordkalk's subsidiary, Suomen Karbonaatti Oy, then further processes the calcite to make paper pigments. The flotation process is a largely closed system. If necessary, water can be siphoned from the basins under controlled conditions into a nearby small river, to which flows water from the local water treatment plant, too.

Quicklime is produced by heating crushed and sorted limestone to a temperature of some 1100 ºC in either a rotary or shaft kiln. Quicklime (CaO) is grainy and floury in appearance. It is sifted into different fractions or ground to a fine flour. Coal, oil or gas may be used to fuel the process. Flue gases from the process contain oxides of nitrogen (NO_x), carbon dioxide (CO_2) and varying amounts of sulphur dioxide (SO_2). The manufacturing process also releases dust into the air and, in order to reduce this, the emissions are passed through a highly effective electric or textile filter.

The products are used in the manufacture of iron and steel, for processing sulphite ores, for making pulp and paper pigments, for stabilising the soil and for cleaning water. Coal-fired power plants and refuse incinerators use slaked lime that they process themselves from quicklime to clean flue gases.

Slaked lime is made by adding water to quicklime. The calcium oxide reacts with the water to produce calcium hydroxide ($Ca(OH)_2$), slaked lime, which is a dry, powder-like flour, light in colour. The process of slaking lime releases heat and steam. Efficient dust removal, however, means that the quantity of particles discharged into the atmosphere is minor. Slaked lime is used in municipal and industrial water purification processes, for cleaning flue gases and by the building materials industry.

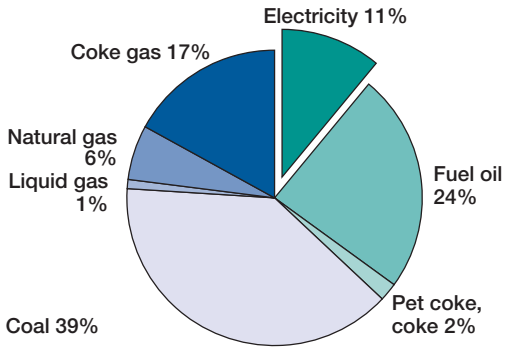
Energy consumption

The process of crushing, grinding and sifting carbonate products consumes electricity. Moreover, liquid gas or fuel oil is used for drying carbonate products. The specific consumption of energy in 2006 was 0.24 GJ per tonne of produced carbonate product. Energy analyses have identified potential ways of saving energy in the manufacture of carbonate products.

The process of burning lime requires high temperatures. Calcination of the limestone takes place in lime kilns at a temperature of about 1100 ºC. The heat is derived from coal, fuel oil, coke or natural gas. Coke gas is a by-product in the steel-making industry and can be used as a fuel in the lime kilns if they are situated in the immediate vicinity of a steel mill. Using other fuels to replace coal and oil in the lime industry poses a problem. The impurities in the fuels permeate the lime products, the purity demands for which are extremely strict. Moreover, the thermal values for most renewable fuels are in general low so that the quantities of fuel required increase and necessitate major changes in the processes. The specific energy used in the production of quicklime has dropped since the end of the 1990's, and in 2006 it was 5.3 GJ per tonne of lime.

Nordkalk's emissions of carbon dioxide emanate from its consumption of energy but carbon dioxide is also released into the atmosphere during the actual process of making quicklime. Carbon dioxide is released from calcium carbonate under the influence of heat and the final product is calcium oxide, quicklime. Theoretical calculations indicate that about a third of the carbon dioxide produced by Nordkalk comes from the fuel used and the rest from the raw material. Quicklime is an irreplaceable raw material for both environmental and industrial purposes. In some of the processes employed by Nordkalk's customers, such as the manufacture of PCC used for paper pigments, for example, the carbon dioxide released when the lime is burnt is reintroduced into the product when recarbonisation occurs.

Sources of energy used within the Nordkalk Group



Environmental impact

Energy-saving agreement

Nordkalk continued the industrial energy-saving agreement in Finland concluded in the year 2000. The agreement continues until the end of 2007. The aim is to study further ways in which energy consumption can be reduced at all Nordkalk's plants, especially in its production processes, by carrying out analyses with the help of a special energy consultancy. As a result of the analyses each location has drawn up a plan for more efficient energy-saving measures in which attention focuses on operating methods that affect energy consumption. An example of the most important measures that have been put into practice to save energy is the way in which waste heat from the lime kilns is recovered. This heat is then fed into local district heating systems or used in Nordkalk's own production.

Emissions trading in 2006

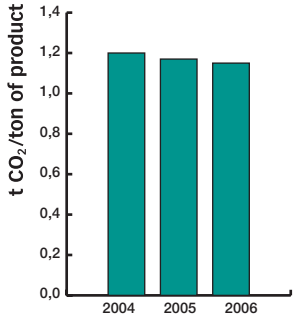
Nordkalk's lime burning operations in Finland, Sweden and Estonia are subject to the provisions of the emissions directive. All emissions of carbon dioxide produced in the course of burning lime are monitored and reported to the authorities in accordance with emissions legislation. The carbon dioxide produced as a result of burning lime originates from the carbonate in the limestone and the fuel required for burning. Fuel accounts for about a third of the emissions of CO_2.

The manufacture of lime in Sweden in 2006 was lower than planned partly because of extensive kiln repairs during the year. This led to reduced production volumes and lower carbon dioxide emissions; this meant that Nordkalk could sell emissions rights for EUR 2.4 million during 2006. For the next stage of emissions trading covering the years 2008-2012 Nordkalk has applied for emission rights in accordance with the current directive.

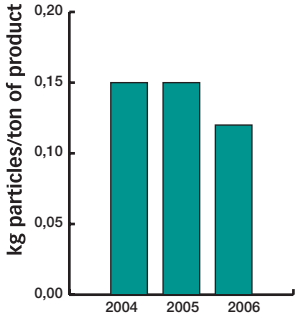
Specific emissions in air

The figures are based on measurements and calculations for Nordkalk´s facilities in Finland and Sweden. The increase of the NOx and SO_2 emissions in quicklime production depends on the higher burning temperature required by the stone raw material and on the changed measuring technique in Sweden. From 2005 the figures for particles released are for individual measuring points; this is reflected in the reduced figures concerning carbonate products.

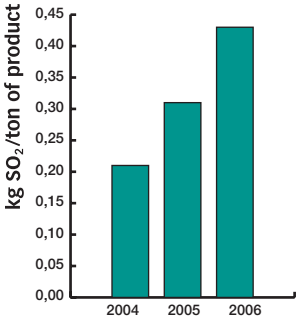
Quicklime



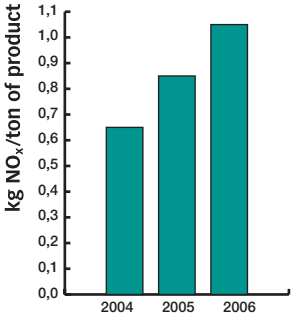
CO_2 specific emissions



emission of particles

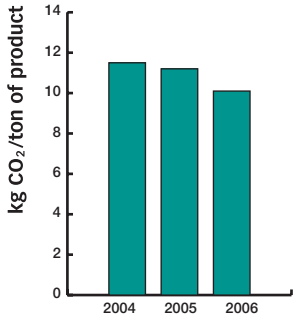


SO_2 specific emissions

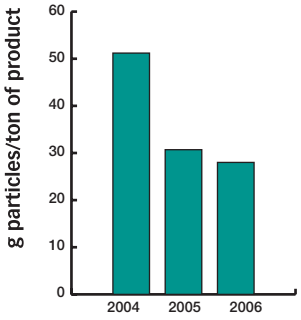


NO_x specific emissions

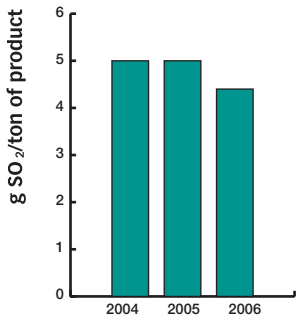
Carbonate products



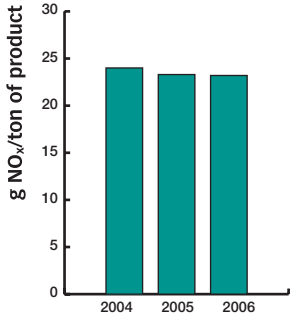
CO_2 specific emissions



emission of particles



SO_2 specific emissions



NO_x specific emissions

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. Sales of products for the environmental care accounted for eight per cent of Nordkalk's total sales in 2006. The delivery volumes were almost at the same level as a year ago but their share has decreased in proportion to Nordkalk´s growing total sales. Lime products play an important role in water treatment and cleaning flue gases. Water treatment accounts for about 60 per cent of sales of environmental products and flue gas cleaning for about 40 per cent. 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 a 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.

In addition to eutrophication a further problem in watercourses is acidification. 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. Air pollution is the most common cause of acidification in watercourses.

When energy is generated by burning fossil fuels, acidic compounds, such as sulphur dioxide, are developed and have to be removed from the flue gases. In the atmosphere sulphur dioxide reacts with moisture in the air to form sulphuric acid. The rain that then falls to the ground is acidic and harmful to the environment. In acidic soil plants are unable to make use of the nutrients they need, and fish cannot live in lakes that are too acidic.

The flue gases from power stations can be effectively cleaned with limestone powder, quicklime or slaked lime before they enter the chimneys. Emissions of sulphur dioxide can be reduced by even more than 90 per cent. The chlorine and fluorine emissions from waste incinerators can also be reduced with the aid of limestone-based products. Limestone products are also used to cut the levels of these in flue gases. In some plants the emissions are scrubbed with water and the resultant acid water is then neutralised with limestone powder and/or slaked lime.

In the year 2006 Nordkalk used EUR 1.2 million in environmental investments. Different development projects according to the operating policy are in progress at the production plants. The most important of these are aimed at reducing dust emissions and noise and to make more efficient use of stone and fuel. Nordkalk also regularly improves its monitoring and supervising routines.

The environmental management system has led to many improvements, in handling hazardous waste and sorting refuse, for example. Finding more efficient uses for surplus stone and minimising the amount that needs to be dumped constitute one of the most important aims of the environmental programme for Nordkalk's mines and quarries.

Lappeenranta in Finland published an updated version of its environmental report for the Ihalainen industrial area. It includes environmental perspectives for the whole of the industrial site, where other companies as well as Nordkalk operate.

At Tytyri in Finland Nordkalk has cooperated with the local government authority of Lohja and companies at the Pitkäniemi industrial estate to publish a brochure that provides information about the companies operating there and their environmental aspects. The brochure is aimed in the first place to residents of the Kiviniemenranta housing estate.

Dust and other emissions

Reducing dust emissions is one of the most important environmental measures in Nordkalk's operations, and efforts to cut the amounts of dust released are being continuously improved. By scattered dust emissions is meant that extremely fine particles are released into the air, principally from loading bays and storage sites and from the wheels of vehicles. Better traffic arrangements at Nordkalk's different industrial sites can reduce the amount of dust released and improve safety. Many of Nordkalk's plants have asphalted their roads and their yards, increased wetting, built noise barriers and planted trees. As far as possible water from the company's own mines or quarries is used for wetting dusty areas and roads. The effects of the measures taken are monitored, and the majority of the plants measure the dust fallout at their location regularly. The measurements taken at Sipoo, for example, show that the amount of dust in the air at the plant has been reduced to a quarter of what it was in the early 1980's.

The Pargas site in Finland has also made strong efforts to reduce dust. The conveyor belt from the quarry and refining line has installed new sieving equipment; this has reduced emissions of dust in the interior work places considerably. Measurements of scattered dust emissions at the storage area show that dust was kept to a minimum and the annual average figure was less than 50 per cent of the recommended level.

At Miedzianka in Poland new equipment for separating dust particles has been installed on the crushing line to reduce the amount of dust in the area. In early 2007 dust filters will be installed on the grinding line.

At KPAB and Köping, Sweden, a system has been installed for continuous monitoring of the emissions. At KPAB a special dosing system for active carbon has also been brought on stream to reduce flue gases.

At Sipoo some 3,000 m^2 have been asphalted and a facility built for washing truck wheels in order to facilitate cleaning of the area and reduction in the spreading of dust on to public highways.

The lime plant at Lappeenranta continued a project that was started in 2004 and aims at reducing the consumption of coal. This has led to disruptions and dust emissions being reduced by a half; energy consumption has also dropped.

Noise and vibration

Nordkalk's plants make continuous improvements in efforts to cut down the noise from machines and other equipment. Another important consideration is to update work routines so that exposure of both workers and the environment to noise can be reduced. Measurements of noise levels in recent years have shown that the situation has improved markedly.

Nordkalk's quarries are situated near residential areas, and this has to be taken into account when planning and carrying out blasting. In 2006 Nordkalk studied the amount of vibration affecting homes situated in the vicinity of the Lappeenranta quarry. On the basis of the results changes will be made to blasting methods when needed in order to reduce the amount of vibration.

At Pargas and Lappeenranta in Finland and at Storugns in Sweden charging in the extraction areas has been developed in order to reduce the disturbance caused by vibration to people living near the quarry or mine. Efforts have been made to optimise the drilling depth, the direction of the drilling hole and the amount of explosives used so that the stone loosens as smoothly as possible. This means less vibration. Efforts are also being made by taking greater account of the geological conditions, by using several different kinds of explosive at the same time and by limiting and directing the explosion area. At Tytyri a vibration meter has been acquired that continuously monitors the amount of vibration and a directive, "Vibration caused by extraction at the Tytyri mine", has been drawn up.

Water

The state of both ground and surface water is subject to continuous monitoring. Analyses carried out at Lappeenranta, for example, indicate that the water released into watercourses from the industrial site consists mainly of rainwater and is of good quality. Nordkalk also monitors the state of ground water; there are some twenty measuring points within the Lappeenranta industrial site. The measurements show that the water is of good quality. The level of the ground water has not dropped even though mining continues at increasingly lower levels.

The Miedzianka plant in Poland supplies ground water to nearby households and the Tytyri plant in Finland supplies ground water to the local waterworks.

The refining plant for wollastonite at Lappeenranta has installed a new filter for its process water. This makes possible more efficient circulation of the water and has reduced the annual need for pumping water from the river by 80,000 m^3, which corresponds to approximately ten per cent of the Ihalainen industrial site's water need. The reduced need for pumping has naturally led to reduced energy consumption.

District heating and energy

Waste heat from the lime kilns is used in local district heating systems at Lappeenranta, Lohja and Pargas. If the corresponding amount of heat was produced by means of fuel oil, carbon dioxide would be released into the atmosphere. In 2006, the amount of heat delivered was equivalent to an amount needed to warm up almost 2500 houses and provide warm water to them. Sales of waste heat decreased slightly in 2006 as a consequence of the warm summer and autumn.

An efficiency project started at Tytyri to reduce energy consumption when burning lime resulted in a reduction compared with the preceding year. The project involves the installation of a new control system for the rotary kiln that aims at saving energy and also reducing CO_2 emissions. The first results of this on-going project are promising; the final results will be ready later this year.

The Parfill plant in Pargas has invested in new low- and high-pressure compressors, rebuilt air intakes and automated regulation of the dew point and amount of air; this is calculated to bring about considerable savings.

In the kaolin process at Sipoo the personnel continuously monitor the temperature and humidity in the air released into the atmosphere to be able to optimise and calculate the reduced consumption of gas.

Efficient exploitation of deposits and landscaping

The annual quantity of surplus stone depends on geological factors and the way quarrying is planned. Nordkalk aims to increase the use of surplus stone. In Finland about 60 per cent of the surplus stone produced was reused in 2006.

Renewal of sorting procedures led to an increase in capacity and made possible better use of Nordkalk's deposit at Lappeenranta. The proportion of total material extracted that was supplied to customers increased from 66 per cent to 82 per cent. Resources are being used more efficiently and the quality of the stone supplied to the customer has improved.

Materials handling has been made more efficient at the Pargas lime plant by nine per cent compared with the previous year. In 2006 only one per cent of all material handled was dumped.

At Louhi the efficiency of the use of stone in the burning process was increased by approximately ten per cent, which is a record for the Louhi plant. This means that it was possible to reduce extraction and transport from the mine.

Nordkalk aims to expand its use of overburden. Its goal is to sort the material that can be used for restoration purposes (e.g. humus and clay) and store these separately for future use. At Lappeenranta soil analyses have been carried out and the information gained used in planning how to store the different materials.

Waste from production

The amount of refuse from the Pargas quarry has fallen by a half compared with previous years. The latest agreement on waste management has meant that the amount of waste and its handling are monitored even more carefully and accurately than before.

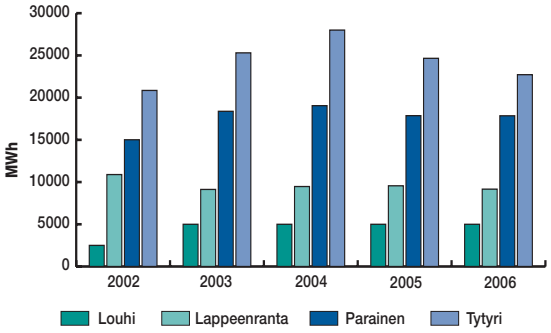
At Tytyri two additional abandoned areas in the underground mine are used to store fly ash from power plants.

Dusting can be reduced by wetting roads.

Environmental achievement of the year 2006

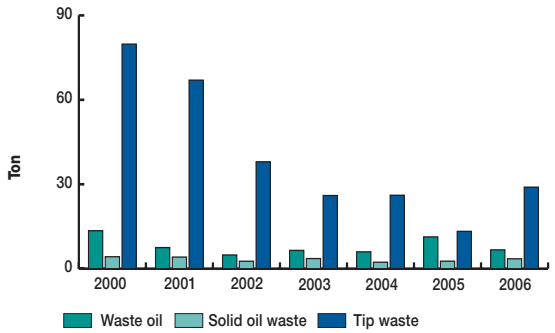
Nordkalk's internal award of merit for environmental achievement for 2006 went this time to the System team in Poland. The team has effectively constructed environmental, quality and occupational safety systems for the operations in Poland. They were certified according to the ISO 14001, ISO 9001 and OHSAS 18001 standards in December 2006.

Recovered heat



Waste heat produced at the lime plants in Finland is used as district heat. In 2006 sales of waste heat were somewhat lower than in the previous years due to the warm summer and autumn.

Environmentally hazardous waste and tip waste



The amount of waste from the Pargas quarry has fallen considerably since year 2000. The increase of the amount of tip waste during 2006 results from repair work in the quarry area.

Emissions and Secondary Products

FINLAND		2002	2003	2004	2005	2006	
Emission in air	CO_2 (t)	696 725	677 084	715 166	665 003	701 352	
	particles (t)	207	200	211	204	187	
	SO_2 (t)	75	101	107	217	325	1) 2)
	NOx (t)	502	381	406	595	670	2)
Emission in water	solid material (t)	5	19	20	13	9	3)
	BOD7 ATU (t)	1	1	1	2	1	
Secondary products	filter dust (t)	52 530	53 409	54 352	51 791	52 282	
	* utilized (t)	37 624	29 551	26 194	26 921	29 459	
	slaking residue (t)	16 028	14 081	17 033	18 647	16 151	
	* utilized (t)	9 372	10 968	8 411	10 355	16 151	
	surplus stone (t)	1 782 470	2 253 181	1 448 785	1 602 610	1 286 688	
	* utilized (t)	1 304 445	1 533 212	1 128 657	1 374 426	731 054	
	refining waste (t)	183 264	199 975	272 621	190 115	193 968	
	* utilized (t)	39 446	31 500	60 859	42 476	66 462	
	kiln waste (t)	11 526	11 496	14 067	17 270	15 886	
	* utilized (t)	538	987	5 587	111	686	
	* backfilling (t)	470	9 107	2 056	2 319	1 214	
Environmentally hazardous waste	oil+greases (t)	58	42	63	66	63	

SWEDEN		2002	2003	2004	2005	2006	
Emission in air	CO_2 (t)	415 109	459 763	448 118	572 673	454 645	
	particles (t)	116	113	35	41	27	4)
	SO_2 (t)	50	47	111	106	129	5)
	NOx (t)	306	290	288	312	482	5)
Secondary products	filter dust (t)	37 607	27 727	16 421	25 928	31 025	
	* utilized (t)	36 012	25 917	15 026	21 924	19 004	
	slaking residue (t)	1 716	1 319	1 332	1 560	1 559	
	* utilized (t)	1 716	1 319	1 332	450	1 559	
	surplus stone (t)	669 407	1 036 638	980 801	836 306	821 404	
	* utilized (t)	329 936	377 453	470 700	462 917	257 808	
	washing sludge (t)	26 000	26 000	28 000	36 000	37 000	
	kiln waste (t)	1 994	1 526	1 591	1 633	1 393	
Environmentally hazardous waste	oils+greases (m^3)	444	506	378	209	437	6)

ESTONIA		2002	2003	2004	2005	2006
Emission in air	CO_2 (t)	34 583	38 123	41 210	37 535	43 393
	particles (t)	182	321	299	305	405
	SO_2 (t)	2	2	2	1	2
	NOx (t)	17	29	30	30	35
Secondary products	filter dust (t)	2 999	2 100	1 600	1 856	2 180
	* utilized (t)	2 999	2 100	1 600	1 856	2 180
	kiln waste (t)	557	850	2 364	518	805
	surplus stone (t)	61 597	0	0	182 700	208 100
	* utilized (t)	0	0	0	14 300	19 100
Environmentally hazardous waste	oils+greases (m^3)	4	6	3	3	0

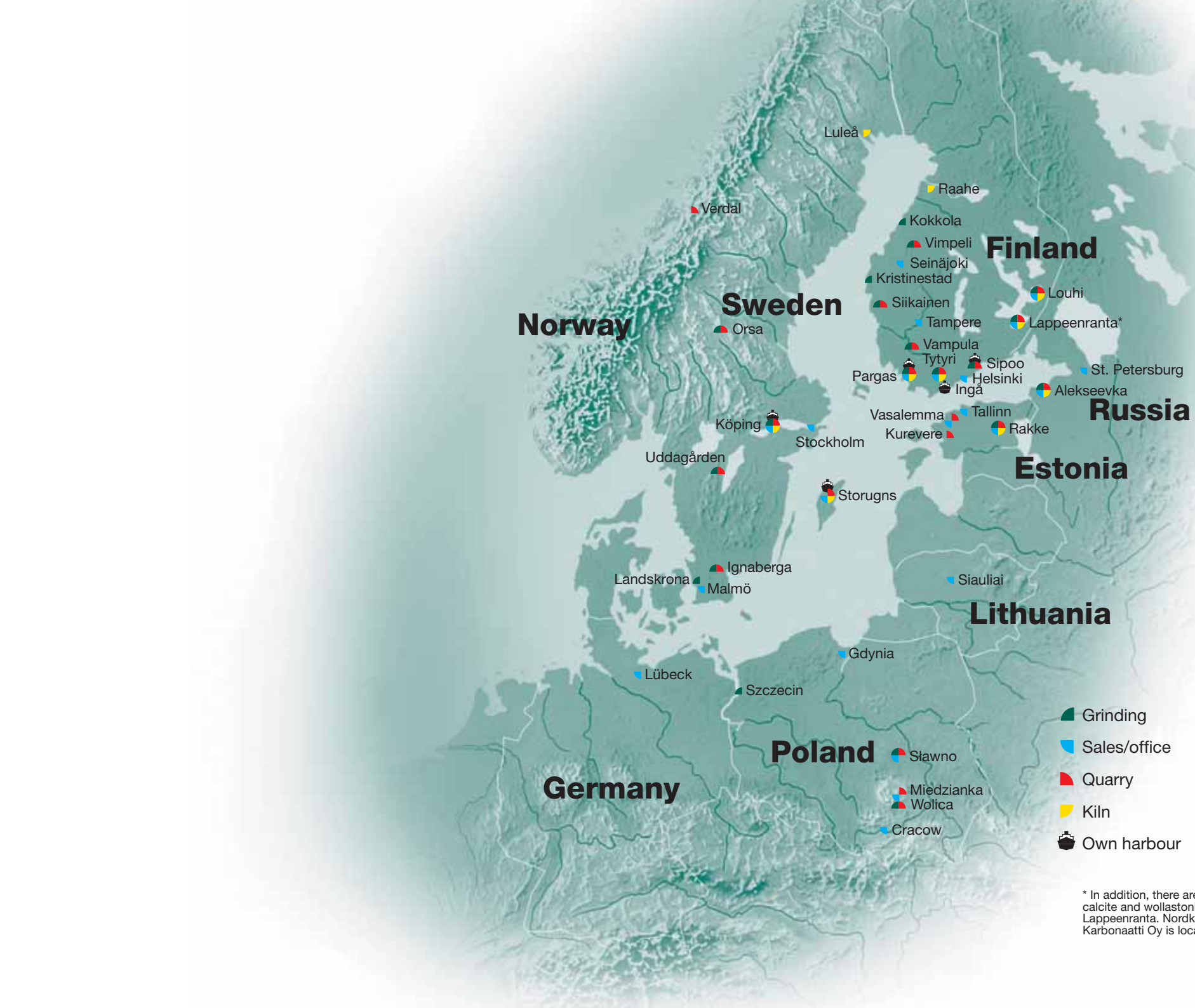
POLAND		2002	2003	2004	2005	2006
Emission in air	CO_2	7993	9082	10252	14951	12472
	particles (t)	12	22	30	19	13
	SO_2 (t)	6	8	6	9	8
	NOx (t)	20	23	28	38	35
Secondary products	surplus stone (t)	333623	0	98928	123361	129280
	* utilized (t)	333623	225147	200000	262237	225000
Environmentally hazardous waste	oils+greases (t)	19	23	19	20	15

RUSSIA		2006
Emission in air	CO_2	18866
	particles (t)	0
	SO_2 (t)	0
	NOx (t)	13
Secondary products	kiln waste (t)	6062
	* utilized (t)	0
	surplus stone (t)	6609
	* utilized (t)	1445
Environmentally hazardous waste	oils+greases (t)	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) Result of changes in fuel mix.
2) The burning temperature has been increased.
3) Ihalainen industrial area, Lappeenranta.
4) The new filter at Köping was brought on stream in 2004.
5) The burning temperature has been increased and the measuring technique changed.
6) The figure includes waste oil from vessels docking at Storugns.



* In addition, there are flotation plants for calcite and wollastonite and a factory service in Lappeenranta. Nordkalk´s subsidiary Suomen Karbonaatti Oy is located in Lappeenranta.

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