

Kährs[®]
QUALITY IN WOOD SINCE 1857



KÄHRS ENVIRONMENTAL REPORT EMAS 2011

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KÄHRS ENVIRONMENTAL REPORT 2011

It is my pleasure, as the new president of AB Gustaf Kähr, to welcome you to read our Kährs 2011 EMAS environmental report.

Entering our 155th year in the wood industry we see great things ahead at Kährs with many opportunities for sustainable innovations in our operations and throughout our organization. Environmental sustainability is a key strategy for our company and it has been the foundation for our longevity and success.

In 2011 Kährs had many focused environmental activities.

Some of the projects:

- Certifications were achieved for many of Kährs products for the German DIBt, SASO, French VOC and FloorScore for LEED, green construction projects.
- Our biomimicry based industrial water research project with Linnaeus University moved from the research phase to a working systems phase, with global interest in its findings and its potential in treating industrial waste water.
- Our energy reduction plan activities were completed as planned in 2011 and these activities are expected to continue to show an energy reduction of 3.000 MWh every year.
- The company's products and operations reduced global CO₂ (GHG) in the

atmosphere by approximately a net of 55.000 tonnes.

- Kährs hosted and organized the very first FSC®-Fairtrade® certified timber key Leader's forum at the Chilean Embassy in Stockholm and produced the world's first wood flooring from FSC-Fairtrade certified timber
- Kährs biofuel by-product material produced approximately 295.000 MWh of carbon neutral electricity and provided much of the district heat for the city of Nybro.
- Ongoing continuous process improvement in our production yielded strong results and we continue everyday to improve our efficiencies.



We have but one path at Kährs; environmental sustainability and this path is leading us to innovative products, material efficiencies, reduced costs and reduced environmental impact.

We believe that "doing well, while doing" good fully embodies our Beauty with a Conscience culture and we look forward to a bright future at Kährs.

Lars Höglund
President



ABOUT EMAS

EMAS is the EU's voluntary environmental management program. Its purpose is to promote environmental management, environmental improvements and environmental audits in industry and to provide the public with information on the environmental status of the participating companies.

Det Norske Veritas (DNV) is accredited as an environmental verifier by EMAS and by SWEDAC (accreditation number 1053).

DNV has audited Kährs' factories and ascertained that their environmental management systems meet the requirements set out in the EMAS regulation (no. 1221/2009).

With effect from 2006 all Kährs' Swedish units will be registered collectively as Kährs Nybro SE-000055.



Approval

DNV has audited the environmental statement for 2011 and found it correct and sufficiently detailed to fulfil EMAS' requirements.

The audit covers the production units at Nybro and Blomstermåla, and Kährs' joint functional facilities in Nybro and Malmö. The next verified environmental statement for Kährs will be prepared in the first half of 2013.

Stockholm 2012-04-16

Ann-Louise Pått

Management Representative

DNV Certification AB

About Kährs

Name of company:

AB Gustaf Kähr

CEO: Lars Höglund

Owner: Triton

Global sales: in more than 50 countries

The EMAS registration comprises the following sites: Kährs operations in Nybro, Blomstermåla and Malmö.

Production Nybro: Approx. 5 M m² wood flooring

Number of employees: 730

ENVIRONMENTAL YEAR SUMMARY

Environmental activities during 2011 were strategically focused on meeting increasing customer and regulatory demands for product certifications, transparency, traceability of wood sourcing and we continued our eco-efficiency improvements in all areas of our operations.

Kährs is also expected by stakeholders and the company culture to be a socially responsible company and we work to follow the principles of social, economic and environmental considerations in our planning and activities.

Our production facilities are located in the middle of our small town, close to residential housing, which is why the matter of noise, dust and traffic are of importance to our community. Ongoing testing shows that we are meeting the required levels today while a few noise emissions will need to be reduced to meet future requirements.

An irrigation process for logs was started at our Nybro site. The use of captured storm water and a recirculation system reduced our need for the use of local water. Natural tannins are leached from oak which gives a dark color to runoff water. Researchers from Linnaeus University will be testing different, natural methods to reduce discoloration and tannins in a pilot project during 2012.

Climate change pressure and the reduction of our carbon footprint influence all

of our planned activities, especially in transportation and energy consumption. New methods and investigations of reducing the use of fossil fuel are a priority today. One of Kährs strengths is a very high proportion of renewable raw material for both the production of floors and biofuels, this is key advantage.

The shipping of our wood flooring to over 50 countries does result in a lot of transportation, mostly by ships and trucks. The dependence on transporting powered by fossil fuels is thus part of the impact on the climate and requires future improvements and research.

One carbon offset however is that Kährs has a surplus of biofuel from operations and our wood products store carbon dioxide during the decades the floor is in use and we stored more carbon than emitted in 2011.

The new, 18.500 m² local LEED certified warehouse in Nybro is one step during 2011 that has reduced our carbon footprint, by reducing transportation.

Positive results/ measures

- Kährs has received many important product emission certifications that is a direct effect of our good control of chemicals used as listed in our product certifications and registrations in this report.
- The amounts of solvents in our products are kept low due to our design for the environment product development process.
- In 2011 we have implemented the results from the research project for treatment of process water. Interesting tests for the treatment of irrigation water is ongoing as well.
- 25 projects, to continue to reduce the use of energy, were implemented in 2011.

Difficulties

- The amount of waste listed as hazardous has increased some as a direct effect of adjustments in production and testing of new lacquering products in research and development.
- Chemical management needs continued improvement in accordance to the updated risk analysis.
- To reduce the amount of tannins in our irrigation water is a challenge for the ongoing research project



KÄHRS - ALWAYS ABOUT WOOD

In 1857 Johan Kähr the elder moved from Mönsterås to the small, but thriving community of Nybro in Småland. He brought with him a lathe and a few other tools to setup a shop crafting wooden utility goods such as parts for spinning wheels. These simple beginnings became the foundation of the modern Kährs today.

In 1919, Gustaf Kähr, grandson of Johan Kähr, set up the company AB Gustaf Kähr. Under his leadership the company developed and became an important and innovative producer of wooden doors, toys, furniture and flooring.

Gustaf was dedicated to find efficient ways to use the sustainable wood raw material and to improve the stability of wood when used in building materials. His perseverance paid off when in 1937 he received the patent for the invention of the modern multi-layer, laminated door.

Following upon this success he worked hard to find a solution for the problem of gapping, twisting and cupping of solid wood floors. After several years Kährs was awarded a patent, in 1941, for the invention of today's modern engineered hardwood floor, the multilayer floor.

Kährs today

As we continue our work to become more eco-efficient and sustainable, we have been working to centralize all operations back to Nybro, Sweden

Recent actions include:

2009 moving our operations in Ljusdal to Nybro.

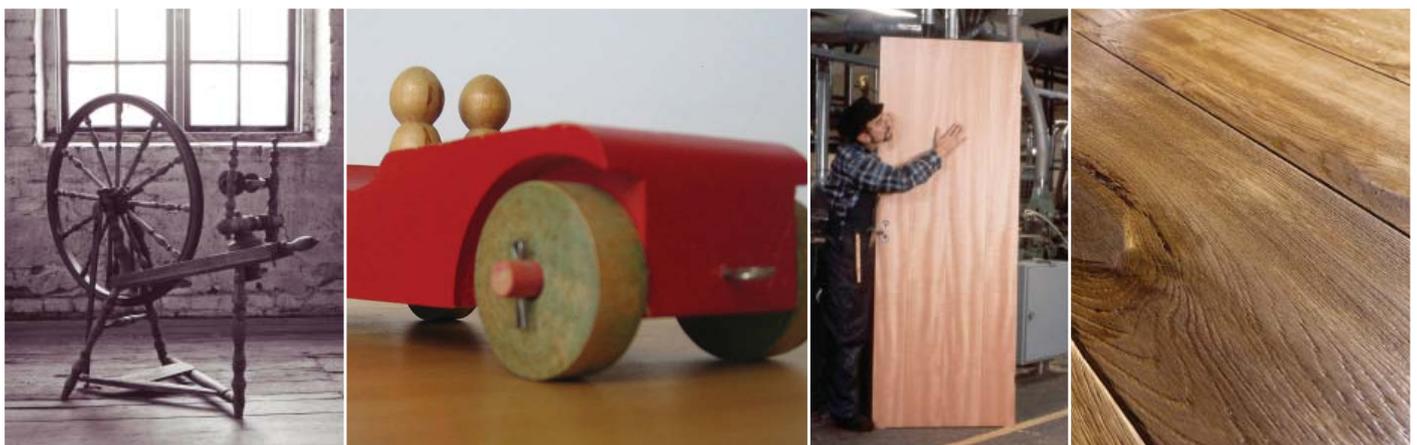
2010 moving our main distribution centre from Kalmar to Nybro to a new, efficient, and green certified 18,500 m² warehouse. This warehouse is the first in Scandinavia to be certified LEED (Leadership in Energy and Environmental Design).

The building has 166.000 m³ and uses district heating from our wet wood by-product. Additional savings have been made by using low-energy lighting, and reducing the number of forklifts needed. The warehouse location also eliminated about 1800 large truck transports to the old site in Kalmar. This reduced our GHG emissions and provides other efficiencies.

2011, announcing the closing and relocation of key personnel from our Malmö office to centralized operations in Nybro improving efficiencies, communication, speed to market and reducing costs.

TIME LINE

- 1921** begin using waste wood as biofuel for steam energy
- 1937** first patent, multi layer wood door, global
- 1941** first patent multi layer wood floor, global
- 1958** first factory finished floor, global
- 1965** first sports floor system, global
- 1984** first solvent-free, lacquer system, global.
- 1995** first veneer wood floor, Linnea, global.
- 1999** first glueless joint, Woodloc®, global
- 2004** first new generation Activity Floor, global
- 2010** first Woodloc® 5S, next generation wood joint, global
- 2010** first certified LEED (green) warehouse, Scandinavia
- 2011** DIBt, French VOC A, certification, FloorScore Certification Nybro 30 mm - 15 mm
- 2011** first joint label FSC-Fairtrade certified wood floor, global



Kährs and Linnaeus University

During 2011, supported by the KK Foundation and other industry partners, Kährs began the construction of a full scale treatment plant for storm water and process waste water.

Other partners in the project are Casco Adhesives (Akzo Nobel), Sherwin-Williams, Revatec AB and Kalmar Energi.

Background: Kährs in cooperation with William Hogland, professor in environmental engineering and recycling, and his team at Linnaeus University, Kährs has built a pilot plant for treatment of storm water.

The facility consists of carefully selected plants in an artificial wetland, which includes both aerobic and anaerobic steps

to clean the water from pollution. This work supports the next step in Kährs ambition to be a leader in the wood industry for the handling of industrial waste water.

FSC®-Fairtrade® Certified Wood.

In 2011 Kährs began working with the world's first floor made of Fairtrade-FSC certified wood, Roble and Rauli from the Curacautin Valley in Chile.

By purchasing FSC-Fairtrade certified wood from small and local producers, poverty is alleviated and sustainable development is promoted, which encourages responsible forestry and biodiversity.

This long-term project creates a strong corporate social responsibility for Kährs and a strong relationship between

Kährs, SSC Forestry, Fairtrade, FSC, Chile and other leading environmental NGOs, and other government forest agencies.

Our hope is that this project and others will create a sustainable future for the forests and the people in the Curacautin area, while leading the way for other economically and commercially disadvantaged fairtrade sites around the world.

“Fair Trade, not aid”

Having both FSC and Fairtrade certification provides incentives - such as market access, fair pricing and the Fairtrade Premium - additional funds to invest in social, economic and development projects.



Kährs Roja Roble/Rauli with FSC®-Fairtrade® certified wood

KÄHRS ENVIRONMENTAL WORK

1. Environmental aspects

The cornerstones of Kährs environmental activities are knowledge of the company's impact, the regulations under which we are subject to and the environmental requirements needed and expected by our stakeholders.

The environmental aspects are updated and reassessed each year to ensure that Kährs is developing in an environmentally correct fashion and making measurable improvements. These aspects support our long focus on continuous process improvement in the organization.

2. Planning of the most important environmental aspects

Kährs' environmental policy sets the direction for our environmental activities.

All environmental factors are assessed once a year and these assessments show which are our most significant environmental aspects and having the greatest effect on the environment. The environmental goals and program are then paired against the background of at least one significant environmental aspect.

Kährs has all-encompassing environmental goals for energy efficiency and responsible forestry. These goals are broken down and followed up by the group's management in the same way as the other KPIs (Key Performance Indicators) in the management system.

The environmental targets are the motivation and benchmarks for continual improvements in our environmental activities. Regulations and other stakeholder requirements are monitored constantly to identify those that apply to the various units within Kährs. These regulations are collected in a common register, and a manager is held responsible for these procedures. The consequences of the statutory requirements are defined for each section.

3. Implementation

The employees most affected by the significant environmental aspects are key in carrying out the environmental program at Kährs.

A large number of these people work in the line organization, and are also given on-going training to cover the environmental issues that affect their work. The company draws in from broad participation through improvement groups in TPM (total productive maintenance), that operates in all production lines.

4. Monitoring

Measurements are taken continually and records are kept to monitor and measure the company's environmental impact.

A deviation handling system allows for checks to show that the internal processes function correctly and to ensure that incorrect actions are not repeated. Internal audits are performed regularly throughout the year by specially trained personnel who monitor compliance with the environment management system.

The internal audits help the management in assessing whether the management system is effective and will lead to improvements. The legal demand of self-monitoring is supported by the environmental system.

5. Action

The Kährs management group follows up on the environmental program and environmental management system.

Any significant new environmental aspects are presented at the review, and new environmental objectives are set, after which the company enters a new phase of Planning - Implementation - Monitoring and Action.

6. Transparency

This EMAS report is reported publicly at www.kahrs.se.

EMAS audits and reports going back 15 years show the history and transparency of our environmental program.

As an element in maintaining the company's ISO 14001 certification and EMAS registration, third party auditors from DNV verify compliance with the EMAS regulation and ISO 14001 standards annually.

Information is available on our Intranet. The material is used for internal training, but also as material for presentations to customers and other external stakeholders.



Model showing the Kährs environmental management system

The deviation handling system hosted on the Kährs' Intranet provides easy accessibility for employees to view events and proposals for change that can easily be put forward. Environmental issues are communicated internally within the company and externally. The environment management system is a series of processes that are documented and printed in company manuals. Procedures and instructions, specific precautions, or routines to deal with identified environmental risks are accessible via the Kährs Intranet.

ENVIRONMENTAL POLICY

OUR VISION

Kährs should be the first choice for customers and consumers by delivering superior high quality wood floors.

OUR BUSINESS MISSION

Kährs offer an assortment of high quality wood floors for private, public and commercial usage - in combination with an outstanding service offer to customers/distributors.

This through a market driven approach, where Kährs main focus are design, innovation, customer service, quality, reliability and environment.

OUR ENVIRONMENTAL PRINCIPLES

- Our commitment to the environment must be genuine and all issues handled with the upmost thought and respect.
- We will strengthen our environmental commitment further and create a long term sustainable business, for the benefit of current and future generations.
- We must contribute to and support responsible forestry.
- We must lessen our environmental impact through continuous improved management of chemicals, raw materials and energy.

agement of chemicals, raw materials and energy.

• Our development and wood floor manufacturing processes must reflect the natural life-cycle, following the principles of sustainable development.

• We must fully understand and comply with legislation and environmental requirements, and apply this method throughout the whole supply chain.

ENVIRONMENTAL ASPECTS

An environmental aspect is a part of an organization's activities, products or services that affect or could affect the environment.

The identified environmental aspects are evaluated separately to decide whether they each should be regarded as significant or not. In order to make the assessment, the following points must be evaluated:

Legal: Connection to legal requirements (regulations) and if any connection is found the environmental aspect is treated as significant.

Risks: How large is the exposure of

risks from accidents are due to the activity, service or product.

National environmental targets.

Scope: Amount of emissions and resources used

System conditions:

1. The concentrations of substances from the crust of the earth must not be systematically increased in the natural surroundings.

2. The concentrations of substances

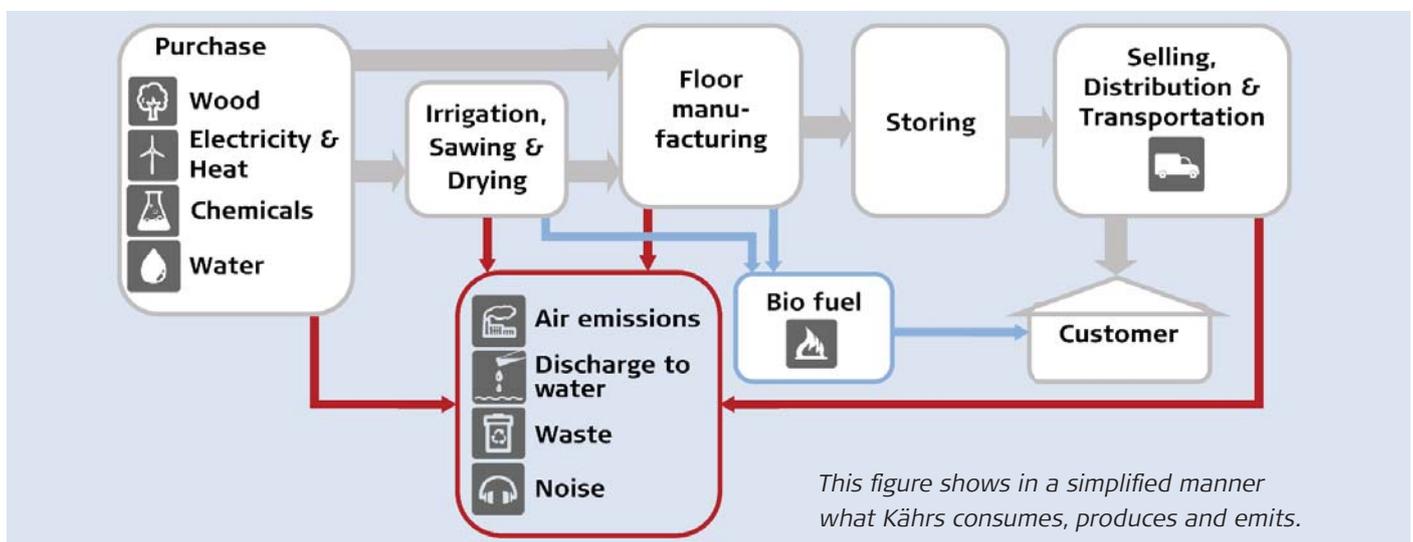
For more information see the last page for contacts.

produced by society must not be systematically increased in the natural surroundings.

3. The physical basis for natural productivity and diversity must not be systematically impoverished.

4. Effective and fair distribution of resources to satisfy human needs.

The environmental program is concentrated on the significant environmental aspects.



SIGNIFICANT ENVIRONMENTAL ASPECTS

Some aspects present no environmental impact during normal operation, but only in connection with an incident or accident. The ecological balance in the next section presents the key trends and developments for Kährs significant environmental aspects.

Significant environmental aspect	Activity that affects the environment	Environmental impact	Risk	Symbol in the report
Risk from non-sustainable forestry	Purchase of wood	Felling that is not sustainable in the long term	Wood material from felling operations that do not meet requirements could be delivered to Kährs	
Climate impact	Transport of materials to, from, between and within Kährs' factories	Emissions of carbon dioxide from fossil fuels to the atmosphere leads to increased levels of carbon dioxide and enhanced greenhouse effect		
Energy use	Drying of materials is the process that uses the most energy in Kährs	Acidification, emissions of carbon dioxide and consumption of resources in the conversion of energy		
Air emissions of dust	Extraction and transport of sawdust	Spreading of particles that are harmful to breathe in creates a poorer air quality	Major fire in the factory. Breakdown of filter with high emission in a short time. May result in nuisance to neighbouring residents.	
Air emissions of nitrogen oxides and sulphur oxides	Transport of materials to, from, between and within Kährs' factories	Acidification of soils, lakes and streams		
Air emissions of volatile organic compounds (VOC)	Surface treatment, filling, gluing and maintenance of machines and buildings	Deterioration of air quality	Emissions are diffuse and the use of smaller containers ensure a low risk of major discharges	
Discharge of pollutants to the soil in the surface water or waste water drain net.	Cleaning process equipment factory floors saw blades and trucks. Events that result in discharge of chemicals. Irrigation and storing of wood chips of oak	The industrial process waste water can disturb the biological processes in the municipal purification plant. Bio-accumulable wastes are absorbed in the sludge of the purification plant. During normal operations the environmental impact is insignificant.	Risk of leakage when chemicals are loaded or unloaded, if they can cause pollution to the recipients of surface water or to the soil. Extinguishing with water during a large fire.	  
Hazardous waste	Cleaning gluing machines, filling machines and surface treatment machines generates polluted water from washing, which is classified as hazardous waste	Waste is not efficient utilization of material. Hazardous waste makes a risk of violating System Condition No. 2.	Storing hazardous waste constitutes a risk of seepage to contiguous soil and watercourses	
Noise	Transport, extraction fans and transport of sawdust	Noise level causes a nuisance for neighbours	Risk of nuisance resulting from inadequate maintenance or dimensioning and project planning	

A Green symbol = positive development during 2011.

A Yellow symbol = the situation is stable

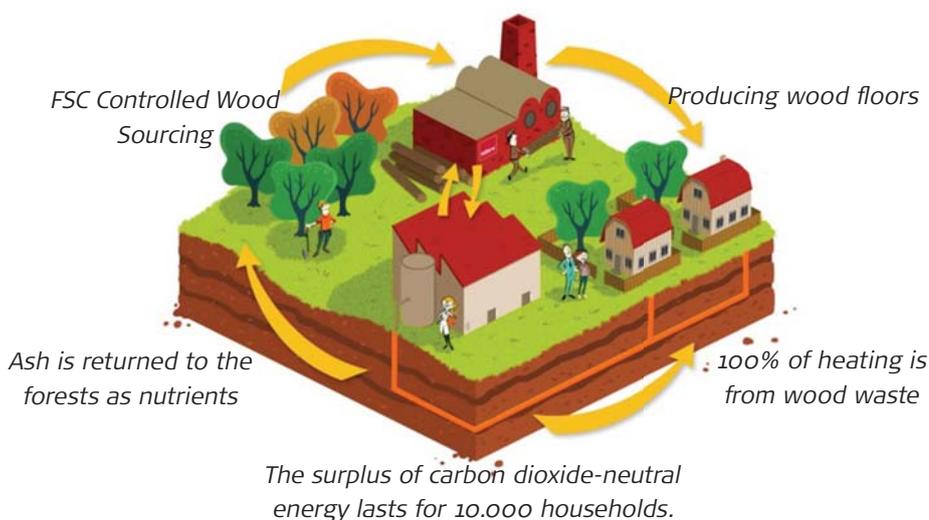
A Red symbol = environmental impact is increasing, needs immediate attention

ECOLOGICAL BALANCE 2011

Here we present the ecological balance of Kährs and the two production sites. The summary of Core Environmental Indicators is only made for Kährs in total as the main facility in Nybro is main site and Blomstermåla is part of Kährs' sawmill operations.

The basis used for calculating key performance indicators is the number of square meters (m²) of Nybro produced wood flooring.

All values in the ecological balance refers to full-year 2011



Water Source & Usage

Municipal drinking water	30 000 m ³	7 l/m ²
Ground water	6 000 m ³	1 l/m ²
River water for irrigation of logs	60 000 m ³	14 l/m ²
Storm water for irrigation of logs	10 000 m ³	2 l/m ²

The largest amount of water usage is for the irrigation of logs and to regulate humidity in the drying process. Process wastewater from gluing, filling, scouring machines and blade rinsing is either treated in the water treatment plant at Kährs or it is collected and disposed of properly as a hazardous waste. The wastewater processed at the water treatment plant is allowed to be discharged to the municipal sewage treatment plants.

The irrigation water is used to keep approximately 12,000 m³ of oak and ash logs hydrated in the log yard at Nybro and Blomstermåla. In 2011 a new process was installed for irrigation of the

logs in Nybro. Most of the water needed is collected storm water and supplemented if necessary with a backup source of ground water.

As mentioned earlier in this report collaboration with the Linnaeus University research project is being carried out to improve the management of process water, surface water and leachate: "Integrated Wastewater Management for the Wood Industry - Process water, Storm water and Leachate." During 2011 a pilot plant for treatment of storm water was started to be put into operation with the Linnaeus University researchers. The work continues on a larger scale, fully functional process, during

2012 together in cooperation with LNU. The leaching from the biofuel storage and timber results in elevated levels of oxygen-demanding substances. Treatment of this water in the pilot plant, which consists of a wetland and aeration zones, have yielded positive results. The principal risks of contamination of water or soil are connected with loading and unloading of chemicals. These risks have been identified in Kährs' risk analysis, and there are procedural routines in place to prevent incidents and to minimize the impact on the environment in case of accidents.



Read about the LNU project



Material efficiency

Wood material	112 000 t	25 kg/m ²
Logs	59 405 t	
Sawn wood and semi manufactures	52 389 t	
Chemicals for the products		
Auxiliary materials	2 944 t	658 g/m ²
Renewable	770 t	172 g/m ²
Non-renewable	2 174 t	486 g/m ²
Other chemicals		
Maintenance chemicals	16,8 t	3,8 g/m ²
Renewable	0,4 t	0,1 g/m ²
Non-renewable	16,4 t	3,7 g/m ²
Fuel	125 t	28 g/m ²

Wood material

Wood raw materials consist of coniferous wood and broad-leaved deciduous wood or semi-manufactured core material.

The wood raw material is first sawn in Nybro or Blomstermåla and then dried, processed, assembled and surface treated.

To produce wooden flooring, other materials such as glue, filling and lacquer are also needed. The packaging is also an auxiliary material, and at Kährs it consists of recycled corrugated cardboard and plastic wrap which can be recycled.

Kährs' main strategy is to use primarily Swedish wood raw materials. Almost 70% of all the wood in production used comes from Swedish forests, while only 3% originates outside of the European Union.

The oak logs that are bought directly from forest owners come from forests in southern Sweden, which are in average within a 160 kilometers radius to our sawmill.

Logs purchased from Denmark and Germany almost exclusively are shipped by train and ships. Partial manufacturing for the veneer flooring Linnea takes place in central Europe and consists of an HDF board with a wood veneer top layer.

Chemicals for the product

Before any new chemicals are introduced for use in any of our operations they are individually assessed for environmental and safety criteria aspects. Approved chemicals are then listed in our database, the chemical register,

where information about each chemical also can be found, such as material safety data sheets. Currently, about 500 approved chemicals are listed.

A water-based glue is used to join the multi-layers in our flooring. Since the surface (top) layer hardwood is not entirely smooth after sawing, a wood filler can be applied to smooth out the surface if necessary.

After sanding, the surface (top) layer is then prepared for a surface treatment. Lacquers and or oils are used for the surfaces of the flooring to produce the desired appearance and performance.

The different finishes we can apply give the flooring a long-wearing surface. Kährs finish lacquers are water-borne and UV cured.

The stains and oils contain small amounts of VOC's which are emitted during curing. The final products meet indoor air certifications E1 and CARB (ATCM) Phase II.

Other chemicals/materials

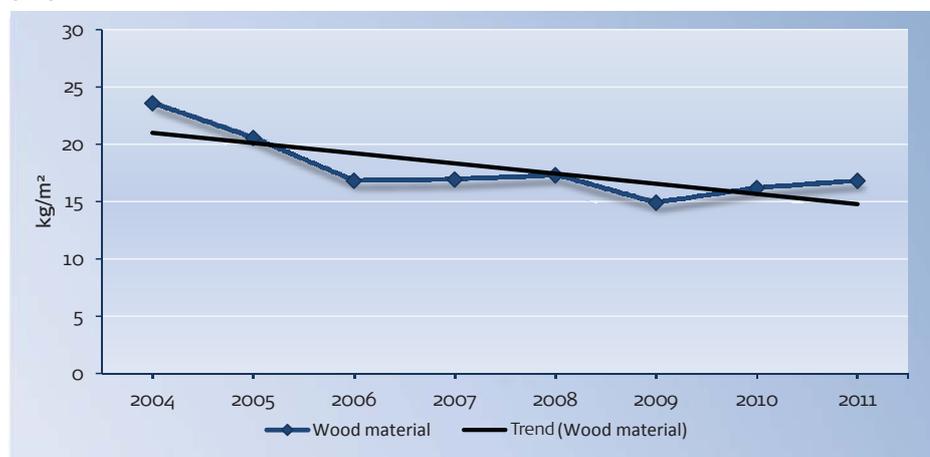
Maintenance materials such as lubricating oils for machinery are also listed in our chemical registry.

The renewable auxiliary materials also consist of wax and cardboard for packaging. The supply of renewable auxiliary materials is limited and constitutes a challenge in product development and purchasing.

Among non-renewable auxiliary materials are the plastic wrap, plastic banding and metal banding used in pallet packaging, the metal and plastic can be recycled. The paper in all of our carton packaging is from recycled paper while the paper used in printing of our product magazine is FSC Mix certified.

Fuel

The fuel category listed here is almost exclusively diesel and or alkylate petrol, the name comes from the word alkylation, which is the name of the process used to extract the raw product, based used to run the small material handling machines including forklifts, loaders trucks and chainsaws at our facilities.



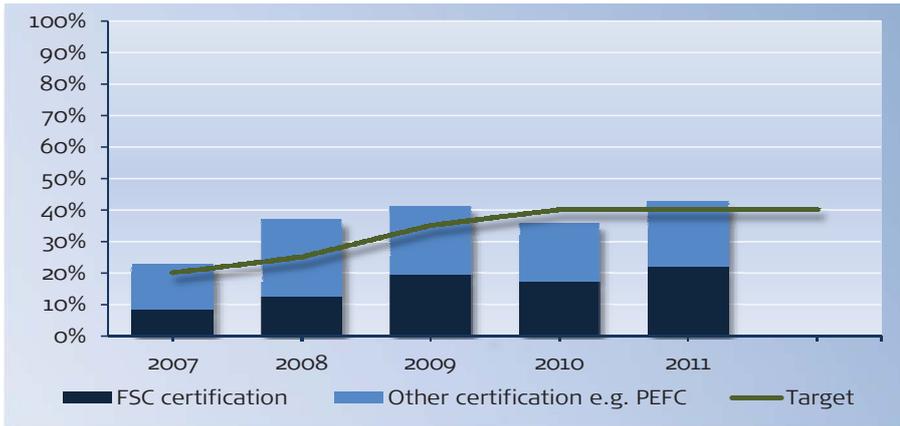
Amount of wood material to produce 1 m² wood flooring in floor factory (sawmill excluded). Logs converted to sawn timber



Biodiversity

Responsible forestry **One of Kährs' main environmental targets is to increase the sourcing of certified wood.**

Environmental targets - Certification



In 2011, the target certified wood purchases, calculated on the total volume purchased, was 40%. Kährs achieved 42,6% of purchases as certified wood. The different timber certifications available to Kährs include FSC, FSC-Fairtrade, FSC Controlled wood, PEFC and other certified wood materials Kährs considers acceptable in consultation with leading environmental NGO's.

All timber purchases, by our standards, must be in compliance with the requirements of the Lacey Act today and in 2013 the EU Timber Regulation.

Purchasing FSC controlled wood as the minimum acceptable level is a good way to give support to responsible forestry. This also encourages the forest owners as they can take the "step approach" and smaller investment increments on

their way to achieving full FSC certification, typically in five years or less.

Kährs does purchase today, with consultation of the leading global environmental NGO's, FSC certified tropical species in small amounts. Any species classified as tropical must be FSC certified for Kährs to consider purchasing

The major reason why the certified wood target will be difficult to increase in the near term is our strategy to increase the direct purchase of Swedish raw material from private, local forest owners. This local sourcing is classified as low risk by the FSC but due to costs considerations many of the small landowners choose not to become FSC certified today. Sweden, while a global leader in responsible forestry practices, has limited volumes of FSC Oak available.

A sustainable forest is the foundation of Kährs' business

One of Kährs' main environmental aspects is the risk of using wood from a non-sustainable forest. It is our belief that a future, sustainable supply of controlled wood is of outmost importance not only for Kährs but as global concern.

The majority of the hardwood we use is Oak. Over 80% today.

The Swedish oak tree is harvested and maintained according to the Swedish Broad Leaf Act (Ädellövsskogslagen).

There is financial and technical support from the EU and Swedish government to replant and take care of the Swedish broadleaf forests.

Kährs hardwood purchasers have contact with over 1000 forest owners. These contacts include discussions and education to encourage and to protect high nature values in the forest.

Normally there is no conflict between nature conservation and floor production connected to old oaks. It's very important that forest owners actively take care of their protected valuable broadleaved forest, otherwise they will be overtaken by spruce and other softwood species.

Kährs carries out a number of activities to support a growing, active forest and to further strengthen the southern Swedish oak forestry:

Special forest days for the education of local forest owners.

Production and distribution of the Kährs "Oak" (Ek) educational magazine to 7000 forest owners.

Special bonuses to local forest owners on delivery of their timber to Kährs.





Waste & Recycling

To energy recovery	160 t	35,8 g/m ²
To material recycling	244 t	54,7 g/m ²
To landfill	33 t	7,4 g/m ²
Sent as hazardous waste	158 t	35,3 g/m ²

Flooring manufacturing creates a quantity of material by-product. This heading does not include statements about the residual products, chips and sawdust, since these run through separate flows. These flows run through the power and heating plants situated close to the production sites (see under Energy use & Production of biofuel).

Material by-product that is sent for energy recovery consists domestic refuse (for instance) and anything from sand paper to chair cushions. Under material recovery, recyclable waste is included, such as office paper, metal and plastic. Anything that is unsuitable for material recovery or for burning is included under landfill disposal, which may be items such as concrete waste.

The category of waste and recycling includes a significant environmental aspect, which is hazardous waste. This waste consists of items like batteries, waste from the filling and surface treat-

ment processes, and electronic waste such as capacitors containing PCB.

The waste is collected in approved containers for their particular purpose, and stored and managed under control at the production centers. The containers are collected by special vendors to handle the waste professionally and to ensure that it is correctly, environmentally processed.

The quantity of "hazardous" waste increased, primarily because there have been more frequent changeovers in the production processes, and therefore more cleaning.

The intensive work to develop new products includes many tests of chemical products that can increase the need for hazardous waste disposal.

Major renovations in 2011 led to an increased amount of waste to the landfill.

Waste from renovations handled by construction companies is not reported here.

In 2011 the new warehouse is included in the report.

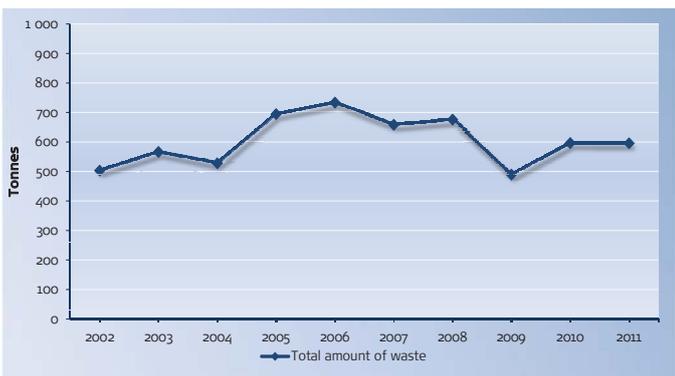
All together the overall waste decreased compared to 2010 and this is a good step in the right direction.

More efficient equipment to compact recyclable plastic, does not increase recovery amounts, but they do reduce transportation and lower costs for recycling.

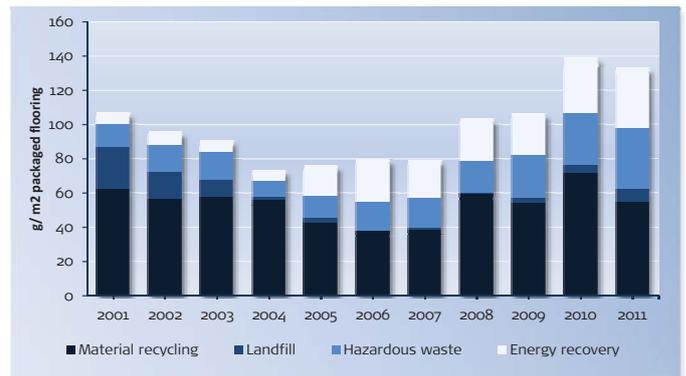
Electronic waste, such as computers and telephones have not been sent away during the year. Improvement in the local collecting stations and containers make it easier however to separate different components when necessary.

Even though all waste is dealt with in an environmentally acceptable manner, it still interrupts the natural cycle. Waste, and especially hazardous waste, constitutes a risk of emissions with an environmental effect.

In order to take the next step and reduce the quantity of hazardous waste, new cleaning methods are required, and we must improve our methods and knowledge concerning environmental practices in the various manufacturing processes.



Total amount of waste 2002-2011, expressed in tonnes.



Amount of waste per square meter manufactured floor 2001-2011. Total and broken down by waste fraction.



Energy Efficiency and Bio-fuel Production

Electricity consumption	38 285 MWh	8,6 kWh/m ²
Heat consumption	37 005 MWh	8,3 kWh/m ²
Transportation energy (fossil)	35 000 MWh	8 kWh/m ²
Production of biofuel	295 000 MWh	66 kWh/m ²
Net-Energy Produced (Carbon Neutral)	150 000 MWh	34 kWh/m ²

All heat energy at the Nybro headquarters is generated from our own wet-waste, bark and branches, which is collected from our sawmill.

Our dry-waste (sawdust) is purchased by a local energy company to produce

wood pellets for energy generation. The residue ash from the burning of the wood pellets is spread back into local forests as a nutrient.

All electrical energy consumed at Kährs is registered as 100% renewable hydro-

power. The total quantity of fossil based fuel which was used for Kährs' transportation in 2011 was approximately 35 000 MWh.

The total amount of biofuel energy produced from our by-product material, at an efficient cogeneration plant provides approximately 90 000 MWh of electricity and 170 000 MWh of heat. Kährs produces an excess of energy, approximately 150 000 MWh of carbon-neutral, fossil-free energy in 2011.

Environmental target - Energy use

Our environmental target is to decrease energy use by 3 GWh per year in 2012, as we did in 2011.

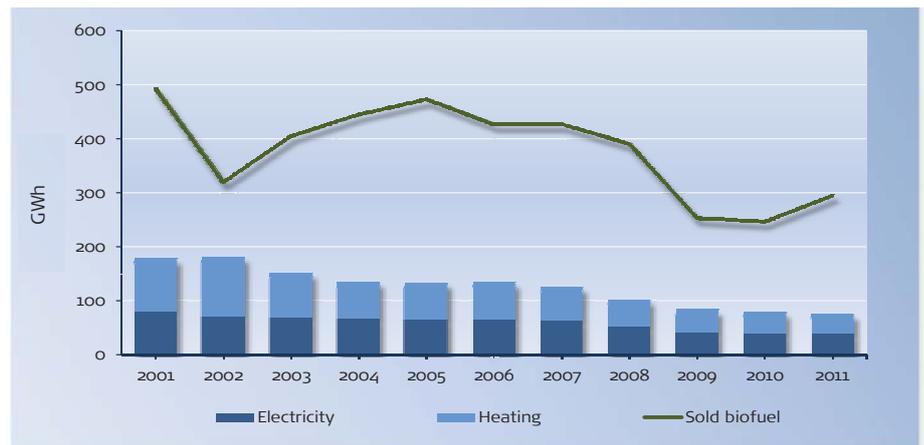
Many activities for possible reducing energy use were analysed and prioritized items were implemented, for example:

- The central vacuum cleaner was programmed to only run during production hours, saving approx. 400.000 kWh/year.
- A new steering system including a new heating device was installed in our acclimatization hall. An investment that saves around 2.000.000 kWh/year.

Note: The work to achieve our environmental goals of energy reduction is affected by many factors including weather, mild or harsh winters and increases or decreases in production volumes.

During 2012 we will continue with several targeted energy reduction projects and analyse potential new ones:

- The most important one is to set up a system that enables us to measure our energy use throughout our facilities in great detail. This will create more energy reduction opportunities.
- Investigate recapturing the energy (heat) from the air is discharged through our large filtration systems.



Kährs energy use 2001-2011.



Kährs energy use per m² 2005-2011.

Energy use during 2011 has decreased compared with 2010. All conversion of energy has some effect on the environment, primarily in

the form of climate influence because of the fossil fuel consumption and the formation of acid gases. More efficient energy usage reduces the environmen-

tal impact, and also makes renewable energy available for other consumers who use fossil fuels at present.



Emissions

VOC (Volatile Organic Compounds)	2,8 t	0,6 g/m ²
Dust (estimated quantity)	3 t	0,7 g/m ²
TOC in process water, to sewage plant, estimated	< 0,6 t	

Emissions to the atmosphere from production processes are primarily diffused emissions of VOC and dust from the filter installations.

The VOC's originate from dissolving agents in lacquer, stain and glue, and from various chemicals used in machine and building maintenance. The largest part of the dissolving agents is used for cleaning in the production processes and are handled as hazardous waste

and sent for treatment by regulated waste service providers.

The VOC emissions have decreased since 2006, which are partly due to reduced production and partly due to product development in gluing technology. Large quantities of wood chips and wood dust are transported by pipelines through our large filters at Kährs' plant in Nybro. A preventive maintenance program ensures that the filtration equipment operates well. Our maintenance is designed

to prevent costly repairs in the filters by measuring, examining and listening to the equipment to maintain or replace parts as determined. A measurement survey completed in 2011 shows that the terms of our operating permit are met.

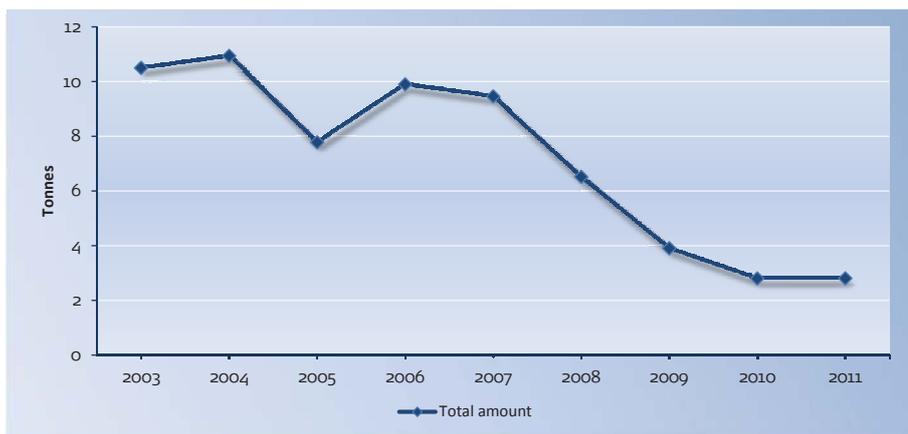
Other emissions to the atmosphere.

The heat energy for production is obtained, as mentioned above, from the burning of biofuel. The burning process releases carbon dioxide, nitrogen oxide, sulphur dioxide and dust. The carbon dioxide emissions contribute to the greenhouse effect, but the burning of biofuel does not cause a net increase of carbon dioxide in the atmosphere. However, nitrogen oxide and sulphur dioxide contribute to acidification.

This energy conversion does not take place on Kährs' premises, and no emission is therefore stated for this in the report.

Process waste water

All process waste water that is not treated as hazardous waste is treated in sedimentation/adsorption processes to reduce organic material substances, these are difficult to treat in the sewage plant in Nybro Kommun. The improvement of this treatment process is done in collaboration with researchers from Linnaeus University.



Emissions of VOC from Kährs 2003-2011.



Transportation

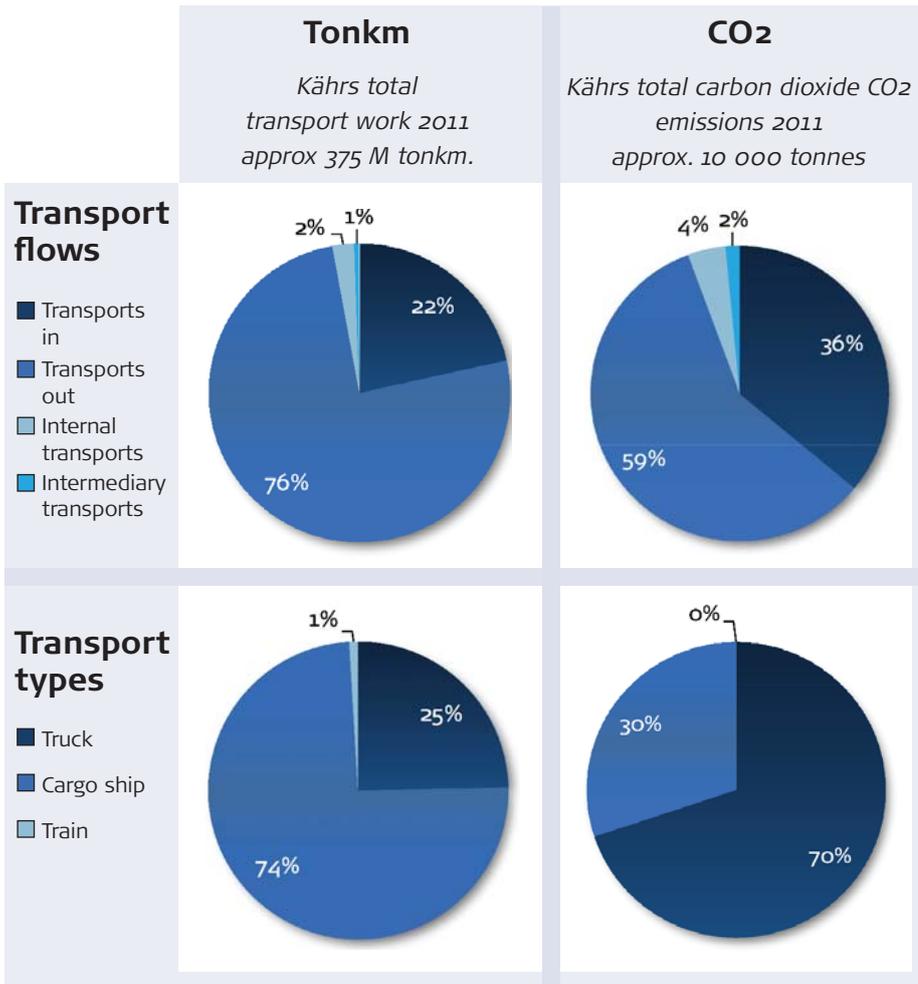
Transport	Transport work	Carbon dioxide CO ₂	Nitrogen oxide NO _x	Sulphur oxide SO _x
Material to Kährs (in)	81	3 411	33	11
Products out of Kährs (out)	284	5 516	73	65
Intermediary transport (between)	2	143	1	~0
Internal transport (within)	*9	389	8	~0

Units: Transportation work in million ton/km, emissions in tons.* All internal use converted to trucks

All calculations of transportation emissions are based on material from NTM and DB Schenker contractors. The distribution shows that the dominant forms

of transportation are by ship and by truck. Transportation by rail comprises of incoming transport of logs to the Blomstermåla sawmill. Ships are used

primarily to transport incoming wood material from Europe and other sources, and for outgoing transport of finished flooring to customers around the



world. Truck transportation is used for short distance transport between suppliers and the production sites, and for transport needs that cannot be served by ship or train.

Most transportation work is via cargo ships, but the largest carbon dioxide emissions come from road transports.

Company cars.

Kährs' policy on company cars makes demands on the type of fuel and efficiency of the vehicle. Today, more than a thirty per cent of our company cars are classified as environmentally preferred, this share is increasing each year. These cars are driven about a one million kilometers each year, so the percentage increase of eco-cars is a good step in the right direction.

Greenhouse gases.

Kährs sells and ships its hardwood flooring all over the world, which can involve very long-distance transport. The resulting fossil carbon dioxide emissions contribute to intensified greenhouse effects and thus an increase of the climate change risk.

The influence on the greenhouse effect is measured in GWP₁₀₀.

Kährs' fossil carbon dioxide is derived exclusively from transport, and amounts to approximately 10000 tons or 10 000 000 GWP₁₀₀. In this year's report we have changed to include a new source of emission factors and included transportation between different outsourced production sites and different Kährs storage sites. The result is a higher value of the emissions.

Reduced carbon dioxide emissions

Our main activities to reduce carbon dioxide are to increase the efficiency in the logistic planning and use transportation suppliers that give lower carbon dioxide emissions.

In 2011 Kährs reduced the use of some very distant located wood species, which reduced the amounts of long-distance transports of sawn wood. Some of these wood species will be supplanted by local wood species, primarily oak, which grows closer to the main unit in Nybro and thus requires transport over shorter distances.

The relocation of our warehouse from Kalmar to Nybro reduces transport both for delivery to the warehouse, as well as the return trip.

With a good year of sales this gives a reduction of about 250 tons of fossil fuel based carbon dioxide.

When all internal use of energy and use for transports are subtracted from the total amount of biofuel produced, there is still 150 000 MWhs left. This corresponds to an emission of CO₂ from a oil heating of 40 000 ton.

Burning wood does not have a net increase of atmospheric carbon dioxide, when the forests are replanted. A Kährs floor can have life cycle of fifty years, and it is then usable as biofuel or into another wood based product or use.

The greatest decrease of carbon dioxide reduction is in the use of wood floor. Kährs sold quantity, during 2011, stored over 65 000 ton of CO₂ for 50 years in installations.



Noise

Noise is caused primarily by the fans and filters in the manufacturing processes and dryers, but can also be in connection with some transportation noise such as loading/ unloading of materials or road/motor noise.

Noise may be harmful or least cause a nuisance to people inside and outside the company premises (nearby residents). In order to avoid noise com-

plaints, preventive maintenance is continuously carried out on the sources of our noise, including fans and filters. Our responsibility for noise is taken into consideration when planning projects and our noise levels are monitored frequently during the year. The noise management system is described in our project routines. Noise is included specifically under the terms of the permits for each

of our sites and the results from noise measurements are included in the statements for each facility.

Noise measurements taken during 2011 showed that we fulfil all noise demands as we continue to try and be a good neighbour to the residents near our facilities and responsible for our employees well-being.



Kährs is situated in the middle of the town Nybro.

Upper left: Only a few minutes from the entrance of Kährs, at the town square, merchants offer their products several times a week.

Upper right: Nature is always close by.

Lower left: Between the town hotel and the town hall is the sculpture by Vicke Lindstrand (Glas i Centrum/Glass in the centre) that has become a symbol of Nybro and the "Kingdom of Crystal" as the area is called. Between the buildings a glimpse of Kährs can be seen.

Lower right: Handmade glass has been made in the area since 1742. Established for the same main reason as Kährs - the rich supply of trees.

RISKS

Once a year, Kährs' risk analysis is updated in an environmental point of view, by a group responsible for environment, fire, recovery and safety.

After the analysis, an action plan is established of what should be corrected to reduce risks. Measures based on the

previous risk analysis have been carried out, e.g. fire alarm systems in offices and the expansion of spark prevention in filters. In 2011, a new risk assessment was carried out.

Implemented measures have been followed up and a new action plan for 2012 is developed, where the management of chemicals is one of the central points. During the year, exercises have been

carried out to deal with potential fires and chemical spills in Nybro.

An audit of chemical risks is in progress and testing of emergency measures in specific locations has also been implemented. According to the risk analysis, the major environmental risks are associated with fire and filter failure and loading and unloading of chemicals.

INTERNAL AND EXTERNAL AUDITS

Internal audits are a functional tool in the follow-up of important processes, by ensuring compliance and activities of the requirements and targets set in the management system.

The company management gives priority to the processes that are evaluated in the audit findings. The standards for each management system (SS-EN ISO 9001:2008 and SS-EN ISO 14001:2004 together with the EMAS regulations) define the requirements for internal audits.

Internal audits are carried out at planned intervals to ascertain whether the management system:

- Has been introduced and maintained appropriately to achieve its purpose.
- The group in internal auditing has been reinforced in 2011 after additional training in environmental auditing.
- Ten internal auditors, with different roles in the company provide for a very competent group of auditors. Planning, execution and reporting are designed to evaluate and support continuous im-

provements in Kährs according to the PDCA wheel.

- The audits are carried out according to Kährs' shared management systems for environment and quality. Verification of the effectiveness of the system at the different production sites is included in the audit.

External audits.

Periodic audits of the management system for environment and quality has been carried out during the year.



SUMMARY

KÄHRS NYBRO – Permitting Terms

We have made an application for and taken in use, an irrigation process. Measurements to improve the quality of released water are ongoing.

Projects are ongoing to reduce noise and prevent future disturbances, which has been collected in an action plan. No complaints about noise were received during the year.

Activities to develop the handling of process waste water was carried out in 2011 and will go on during 2012

Efforts to develop the self-control programs continue. Notes from inspections

have been taken into action or are in progress and are reported in the environmental report.

A new storage building for flammable chemicals and handling of lacquers, adjacent to the lacquering lines, was taken in use.

No elevated levels that indicate any environmental impact from the landfill has been registered.

Term (Date of issue)	Guideline	Status
3. Discharge of VOC (2005-02-04)	Max 0,75 tons of VOC per started million m ² . As a limit value, however, 15 tons of VOC per year.	Met: 0,48 tons per started million m ²
4. Noise (2005-02-04)	55 dB (A) Monday - Friday. 07:00 to 18:00 45 dB (A) at night 10:00 p.m. to 7:00 50 dB (A) at other times The maximum momentary noise level at night may be 55 dB (A).	Target for night met in the current operating times.
5. Noise (2005-02-04)	At a new establishment, measures shall be taken to reduce noise emissions to the Swedish Environmental Protection Agency's guidelines for newly established industry.	Requires measures according to an action plan reported to the regulatory authority.
9. Dust (2008-11-25)	2 mg/Nm ³ dry air, measured as random sampling.	Measurement performed, < 1 mg/ Nm ³ . Maintenance and monitoring of the filters is made according to the regular maintenance system.
10. Water (2010-09-09)	Process wastewater shall undergo sedimentation and adsorption before it is released to the municipal sewage network.	Met through startup and operation of a pilot treatment plant.
11-14. Water (2010-09-09)	The residues arising from the sedimentation and adsorption shall be disposed of as waste. Outgoing water must not damage the municipal sewage network, water treatment plant or the recipient. In the environmental report, Kährs shall annually present its work to reduce the amount of process waste water and pollutants into the municipal sewage treatment plant.	Work to implement in process is under way. Glue and sawdust from treatment processes are disposed as waste for energy use.

KÄHRS BLOMSTERMÅLA

Transport and the risk of accidental discharge into the nearby Alsterån will be the most important environmental aspects connected with the Blomstermåla sawmill in the future. Kährs is included in the Alsterån Water Council and follows the program for recipient monitoring. No complaints concerning external environmental findings have been received during the year. In 2011, some minor changes were implemented at the plant in Blomstermåla:

The watering system has operated the entire season and log irrigation was extended temporarily during the summer. Runoff monitoring from the irrigation have been completed and reported to the Environmental Protection Office.

Over 75% of the transports of timber that was delivered to Blomstermåla were by train and boat during 2011.

The Environment Inspection Committee in Mönsterås made an inspection visit of the sawmill. Activities to improve the routines for the storage of hazardous waste and for the storage of wood dust have been implemented.

The control of sawdust has been improved to decrease the spread of sawdust in adjacent area.

Evaluation of the irrigation system and irrigation water will be done during 2012 in cooperation with Linnaeus University.

The sawmill in Blomstermåla processed 18 000 m³ of logs during 2011.

In the irrigation process 7600 m³ of logs was irrigated with 60 000 m³ water from Alsterån.

CERTIFICATES

All Kährs' production units are covered by the Kährs' certified quality and environmental management system in accordance to ISO 14001 and EMAS registration and ISO 9001. The certificates are available for download at www.kahrs.com



Location	EMAS	FSC	ISO 9001	ISO 14001	FSC-Fairtrade
Blomstermåla	2000	2006	2005	2000	
Nybro	1997	2005	1999	1997	2011

FSC is an international organization that works for responsible forestry, which must respect the needs of the environment and of people who live in and from the forest. Kährs' "chain of custody" certification means that we may buy FSC material, manufacture and sell flooring products as "FSC Mix" products.

EMAS. The purpose is to promote environmental improvements. It is a voluntary EU program that requires public audits of environmental conditions.

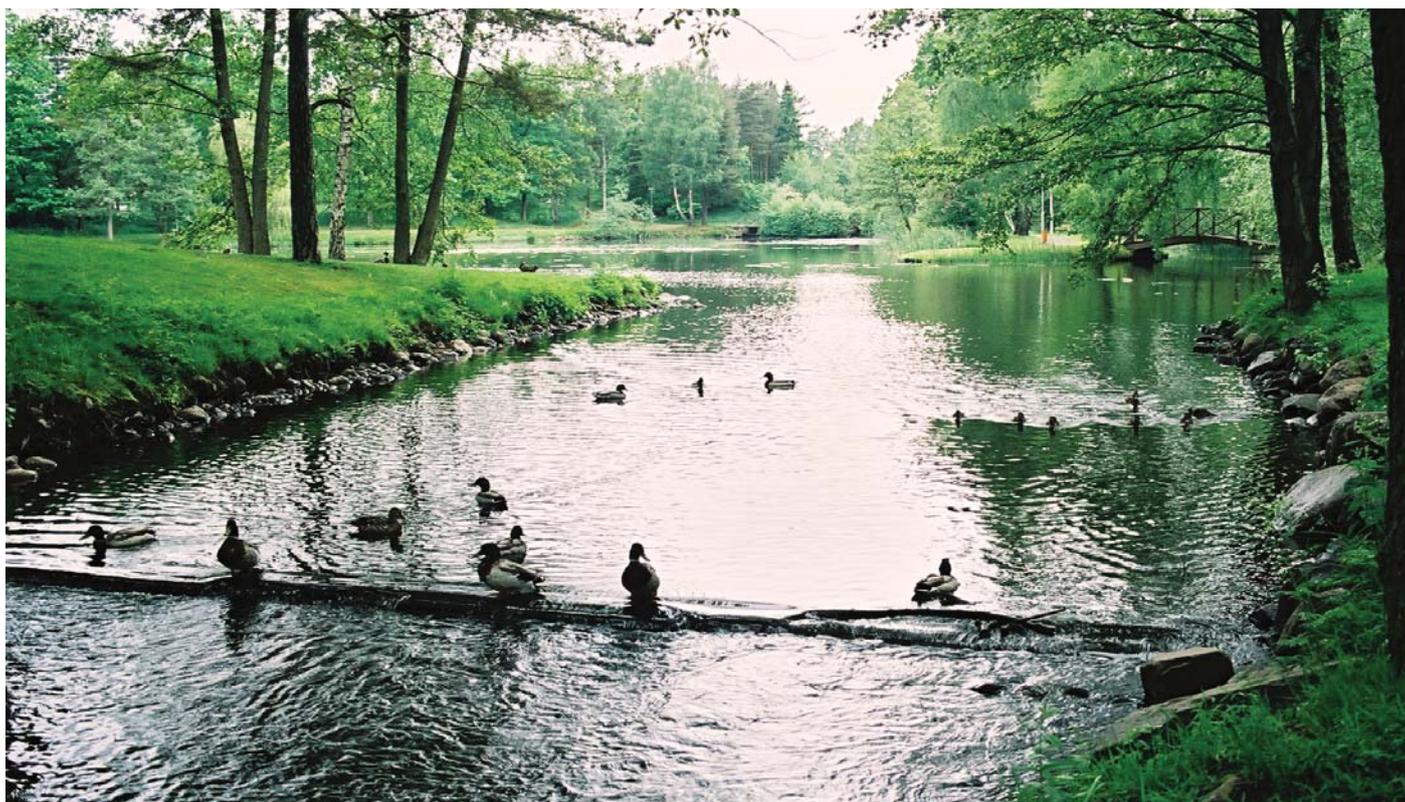
ISO 14000 Family of related, auditable, international standards and supplementary guidelines that apply to an organization's environmental management system. Administered by the International Organization for Standardization.

ISO 14001 is an international standard for environmental management, designed to protect the environment, prevent pollution and achieve constant environmental improvements.

ISO 9000 is the international quality management system.

ISO 9001 is a set of internationally agreed standards that provide guidelines for a Quality Management System

Fairtrade is an independent product labelling standard and organization tackling poverty and injustice through fairtrade. Aiming at better prices, decent working conditions, local sustainability in disadvantaged regions of the world, but primarily the southern hemisphere.



CERTIFICATIONS, REGISTRATIONS



Kährs is registered under BASTA. Substances that are hazardous for human health and the environment have no place in sustainable building. Anyone who has an influence on product choice in the construction process therefore needs to ensure that the products meet the BASTA-requirements, which are requirements that ensure that the products do not contain hazardous substances. Therefore, always request from your suppliers, contractors and consultants that the products which will be included in a construction project meet the BASTA requirements.



Kährs complies with the requirements of CARB – California Air Resources Board, Airborne Toxic Control Measure (ATCM) 92120 Phase 1 and Phase 2 for formaldehyde. In April 2007 CARB approved a measuring method, the airborne toxic control measurement (ATCM) to reduce formaldehyde emissions from composite wood products and finished products that contain composite wood products. Title 17, California Code of Regulations, sections 93120-93120.12

Lacey Act Compliant
16 U.S.C 3371 et seq.)

Kährs complies with the requirements of the Lacey Act of the Government of the USA. The Lacey Act makes it an illegal act to import, export, transport, sell, receive, take possession of or buy plants or products that have been traded in any way that contravenes domestic or international law.

The Lacey Act sets a ground breaking precedent for the global trade in plants and plant products, including wood and timber, acknowledging and supporting other countries' efforts to govern their own natural resources and putting in place powerful incentives for companies trading in these commodities to do the same.



The Blue Angel (Der Blaue Engel) is a German label, which shows that the product is among the best within its product category, from an environmental point of view.



Kährs became the first wood flooring producer in the world to be dual certified under a joint program between FSC and Fairtrade (FLO Cert)



When it comes to indoor air quality, a primary concern is the emission level of specific volatile organic compounds (VOC's). FloorScore IAQ Certification means that a flooring product is independently certified by SCS to comply with the volatile organic compound emissions criteria of the California Section 01350 Program. This seal tells you that the products have been independently certified by SCS to comply with the volatile organic compound emissions criteria of the California Section 01250 standard.



From Jan 1st, 2012, construction products, decoration and furnishing products to be traded in France for the first time are to be labelled with an emissions classification on the basis of VOC emissions tests. From Sept 1st, 2013, this obligatory emissions' classification and labelling regulation will also apply to products which are already on the French market.

GLOSSARY

Auxiliary material

Material other than wood that is included in finished wood flooring

Carbon dioxide (CO₂)

Is included in the natural cycle and contributes to the greenhouse effect. Burning fossil fuels results in a net increase in carbon dioxide, which may affect the climate.

DNV

Det Norske Veritas Certification AB - the certification body for Kährs environment and quality management system.

Dust

Particles that can cause contamination if discharged.

E1

A requirement for formaldehyde emissions according to European Standard EN 14342:2005 (Wood Flooring), class E1 is < 0.124 mg/m³.

EMAS

Eco-Management and Audit Scheme - the EU's environment management and environmental auditing program.

Environmental aspect

Part of an organization's activities, products or services that affect or could affect the environment. Kährs' significant environmental aspects are identified, evaluated and prioritized. Expression of Kährs significant environmental aspects, outcome and how we work with them are described in this environmental report.

Examination of permit applications.

Process of decision making on permits for activity that can be dangerous to the environment. Committees, the ECD and the application are involved. The decision is taken by the Environment Inspection Committee of the County Administrative Board.

Formaldehyde

A toxic compound that is found naturally in green plants (including trees) and fruit. Also found in many glues. The glues used by Kährs are within the E1-norm.

Fossil fuel

Oil, coal and natural gas which are not classified as renewable.

FSC

Forest Stewardship Council - an organization that works internationally for environ-

mental certification of ecologically, economically and socially sustainable forestry.

GWh

Gigawatt hour - an energy unit = million kWh (kilowatt hours).

GWP₁₀₀

The GWP factor indicates how much effect a gas has on the climate compared with carbon dioxide. One kg of carbon dioxide corresponds to 1 GWP. This is calculated on a 100-year perspective, which means for instance that biofuel does not add any carbon dioxide. The hydrocarbons subject to restriction under the Kyoto protocol (various forms of HFC) have GWP values between 120 and 12 000, depending on their absorption of radiation and atmospheric lifetime.

HDF

High Density Fiberboard - layers used as the cores of Linnea floors.

KPI

Key Performance Indicators, key figures used in management to monitor and control a company.

LNU

Linnaeus University, Sweden

MWh

Megawatt hour - an energy unit = thousand kWh (kilowatt hours).

Nitrogen oxides (NO_x)

A group of gaseous compounds of nitrogen and oxygen, which are formed in combustion. In humid air nitrogen oxides are converted to nitric acid, which falls in the form of acid rain. Emissions of nitrogen oxides also have a fertilizing effect.

NTM

Nätverket för Transporter och Miljön (the Network for Transport and the Environment)

PEFC

The Programme for the Endorsement of Forest Certification. An international non-profit, non-governmental organization promoting sustainable forest management

Renewable

When a resource is used up more slowly than it is regenerated. Examples are water, wood and various biomass products. Non-renewable means something that is depleted faster than it is regenerated,

e.g. products based on fossil oil, such as diesel or plastics.

Responsible forestry

Wood material that comes from suppliers who can show verification that the forest of origin is managed in a sustainable manner. Examples of verification are FSC, PEFC, documented origin, underwater sawing

Sulphur dioxide (SO₂)

A gas that is formed when fossil fuel is burned, and the sulphur in the fuel is oxidized by atmospheric oxygen. In contact with humid air sulphur dioxide is gradually converted into sulphuric acid, which contributes to acidification.

System conditions

Four system conditions for a sustainable society (*Source: The Natural Step.*):

- The concentrations of substances from the crust of the earth must not be increased in the natural surroundings.
- The concentrations of substances produced by society must not be increased in the natural surroundings.
- Conservation of space for the natural cycle and diversity
- Efficient and fair housekeeping with natural resources

Tonkm

Tons per kilometer - unit of transport work performed. It is calculated as the number of tons transported times the number of kilometres.

UV-lacquer

Lacquer that is hardened by exposure to ultraviolet (UV) light.

VOC

Volatile Organic Compounds - A collective designation for organic compounds (solvents) primarily consisting of carbon, hydrogen and oxygen. VOCs contribute to the formation of ozone close to the soil.



KÄHRS ENVIRONMENTAL REPORT EMAS 2011



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