

NVIRONMENTAL REPORT EMAS 2010

VERIFIED ENVIRONMENTAL MANAGEMENT

This environmental report covers Kährs-production facilities in Nybro and Blomstermåla, Sweden Translation of the Swedish approved report

Contents

Kährs Environmental report 2010	. 3
What is EMAS?	.4
About Kährs	.4
Summary of the environmental year	- 5
Kährs then and now	.6
Environmental policy	.8
Kährs Environmental work	.8
Environmental aspects	LO
Ecological balance 2010	12
Risker	22
Internal and external audits	22
Summary Kährs Nybro with terms of permits	23
Summary Kährs Blomstermåla	24
Product compliance	25
Glossary	26
Contact	28





Kährs Environmental report 2010

I am pleased to introduce our 2010 EMAS report sharing our environmental findings, our challenges, our goals and our vision. Our corporate social responsibility vision and purpose in 2010 guided Kährs to more localized operations, increasing support for environmental initiatives and more eco-efficient production.

We are honored in 2010 to have constructed the first $LEED^{TM}$ certified rated Leadership in Energy and Environmental Design constructed warehouse in Scandinavia, built by our partner Skanska.

In 2010 Kährs was also recognized globally at the Eco-Tech '10 scientific conference for our environmental study and report using a natural treatment process for the handling of our storm water.

We are not however satisfied with the results we achieved in energy efficiency primarily due to lower production volumes. We look forward to getting back in line with our goals and having higher volumes produced in 2011.

Just as much of Scandinavia, Europe and North America in the mid and late 1800's created large scale deforestation during their industrial revolution. Developing nations today are going through this same, destructive cycle that we all must help to reverse as quickly as possible. Much of the deforestation globally is to grow crops, provide heating and cooking fuel, for conversion to grazing land, or for urban construction and growth. We believe we can help reduce poverty, increase bio-diversity and increase reforestation by supporting forest certification.

It is our honor at Kährs to be the first wood producer in the world bringing Fairtrade-Forest Stewardship Council certified wood to the marketplace in 2011. This dual labeled certified wood is coming from Curacautin, Chile and this only possible because of the cooperation of FSC, Fairtrade, WWF, SSC Forestry and the governments of Chile and Sweden working together with Kährs. We are glad to support Fairtrade-FSC wood as we believe this pilot project will increase the value of the forests, wages and forest knowledge for the local cooperative of farmers providing them with incentives to responsibly forest for generations to come.

In this Year of the Forest, 2011 the United Nations resolution reads in part to say "...concerted efforts should focus on raising awareness at all levels to strengthen the sustainable management, conservation and sustainable development of all types of forests for the benefit of current and future generations." I believe that our purpose and corporate social responsibility is in harmony with this resolution. To help create a just society, within environmental limits, while delivering a sustained and profitable business growth for Kährs.

Per Skårner CEO and Group Director







What is 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.

Approving. DNV has audited the environmental statement for 2010 and found it correct and sufficiently detailed to fulfill 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 2012.

Stockholm 2011-04-21

Vaure all (Much)

Ann-Louise Pått

Management Representative DNV Certification AB Read more about EMAS at www.miljostyrning.se

About Kährs

Name of company: AB Gustaf Kähr CEO: Per Skårner Owner: Nybron Flooring International (head office in Jona, Switzerland). Find out more about NFI at: www.nybron.com Turnover 2009/10: 143 MEUR Global sales: in more than 50 countries Own sales organization: in 10 countries

AB Gustaf Kähr started business in Nybro, Sweden in 1857. Nybro is situated in the Kingdom of Crystal, some distance west of Kalmar and Öland. The Nybro unit forms the heart of the Kährs Group. Nybro is also where the greatest part of the group's parquet flooring is made, from logs to packaged parquet floorboards. The whole of the supply chain organization is also located in Nybro, together with the group administrative offices, product development and the environmental functions. Sales and marketing units are located in Malmö and within the subsidiaries. In Blomstermåla, Kährs second sawmill is located, which supplies the Nybro factory with sawn wood.







Summary of the environmental year

The environmental activities during 2010 have been focused on fulfilling the increasing customer demands about product certification and traceability. A higher priority of own purchases have affected the outcome of our goals. The interest in certified products is increasing in the market, which shows that we are on the right track. The handling of the forest is important and not just the species of wood being used. Therefore, a project with FSC (Forest Stewardship Control) wood for certified sourcing is in progress. One example of this is flooring to be made of dual labeled FSC-Fair trade certified wood from a pilot project in Curacautin, Chile benefiting small farmers.

Kährs production facilities are located in the middle of our village, close to residential housing, which is why the matter of noise is of important. Measurements show that the target values of Kährs activities are not being exceeded. Some noise sources will, however, be adjusted to meet long term requirements.

The work with the Linnaeus University, whose aim is to develop treatment technology for wood industry process water, has continued. The knowledge of flow and pollutants in storm water from timber, timber yard surfaces and woodchip stocks, as well as various process wastewaters, has led to suggestions for treatment methods. Kährs Nybro demands of process wastewater have been established based on research results.

Future climate changes and measures to limit these will influence all activities; most evident are increased costs for transportation and energy. In order to become climate proponents, new methods and approaches of reducing the use of fuel are required. Kährs has a very high proportion of renewable raw material for both the production of floors and biofuels which is strength.

Shipments to the Kährs facilities and distribution of flooring products to over 50 countries result in a lot of transportation. The dependence on transporting powered by fossil fuels is thus part of the impact on the climate. A counterpoint is that we have a surplus of biomass and our wood based products store carbon dioxide during all the many years the floor is in use. Moving our warehouse from Kalmar to Nybro and having it Leed-certifies are measures in part to reduce our carbon footprint.

Positive results/measures

- The amount of solvents in new products are kept low due to our product development process
- Less transporting and resource consumption through increased yield and more self-sawing of domestic raw materials
- The implementation of the results from the university water research projects into full scale activities
- Several successful measures to reduce the use of energy have been implemented with 25 projects started in 2010.



Bruce Uhler Environmental ambassador



Åke Erlandsson Environmental manager





Difficulties

- The amount of waste produced per floor square meter has increased because of product design needs and adjustments in production
- Chemicals management needs to be improved in accordance to the updated risk analysis

Kährs then and now

The beginning. In 1857 Johan Kähr was living in the Nybro area and started to craft wooden articles for local farmers. Slowly he made a name for himself in the region and thus began Kährs. Even today the Kährs' brand, which can be purchased in 55 countries, is still headquartered where it all began 150 years ago.

In 1919 Guustaf Kähr, grandson of Johan Kähr, set up the company as AB Gustaf Kähr. The products developed from wooden articles for spinning wheels and toys to making doors and furniture. Trying to find a workable solution to the expansion and contraction of solid doors, which let cold air in during the winter and retain it in the summer, Kährs starts developing and testing the first laminated engineered door in the world.

Engineered Flooring Developed and Patented. Following the success of the world's first laminated/engineered doors, the company wanted to find a solution to the problem of gapping in wood floors in the early 1930's. It turns out to be another brilliant solution, to a difficult problem, and thus the world's first engineered wood floor was patented in 1941.

From a modest start in 1857 in the Swedish forests, we today inspire natural living around the world. Kährs have a genuine commitment to nature and the environment. This commitment symbolizes our passion for wood, nature's material that we have worked with since commencing business more than 150 years ago. Our respect for the environment goes beyond the making of sound flooring from responsibly managed material – we make beautiful floors that can last a lifetime.

Kährs Original Collection & Linnea. Kährs Original Collection is our largest product line of natural wood flooring. The Original collection optimizes the use of our natural resources while being enjoyed for generations. Kährs Linnea, launched in 1995, was the first wooden floor in the world with a glue-free joint system – the patented Woodloc® locking system. Linnea is beautiful to live with and is a combination of the aesthetic and practical in modern living.

Certification. Kährs became the first wood floor manufacturer to receive the quality certification ISO 9001. Ljusdal, which was phased out in 2009, received the certification in 1996 and Nybro in 1999. The company also became the first to be certified according to the environmental ISO 14001 standard. Nybro was approved in 1997, Ljusdal in 1998 and Blomstermåla in 2000. Over 15 years ago Kährs also became the first company in our industry to be audited under the strict EMAS (Eco Management Audit Scheme).



The Kähr family



The principle of our multi-layered parquet





Kährs today. As we continue to become more eco-efficient, we look at all areas in order to improve our entire supply chain. In 2009 we moved our operations in Ljusdal to Nybro. In 2010 we moved our main distribution center from Kalmar to Nybro, where we, in cooperation with Skanska, have built a new 18 500 m² warehouse. The building is the first warehouse building in Scandinavia to be certified with LEED (Leadership in Energy and Environmental Design). The building holds 166 000 m³ and is heated with Kährs' self-produced biofuels. Additional savings have been made by using low-energy lighting, district heating from our wood waste and reducing the number of trucks. The relocation of the warehouse is also calculated to remove approximately 1800 truck trips between Kalmar and Nybro every year. These changes will help us reach our goal of reducing Kährs' climate impact and improve our eco-efficiency. The building has been certified with LEED Silver.

Kährs and the Linnaeus University. Together with Dr. William Hogland, professor in environmental engineering and recycling at the 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. The success of this three-year project has created valuable data, which was shared with companies and environmental experts from 34 countries during the environmental conference Linnaeus EcoTech 2010. The conference was arranged by Dr. Hogland and his research team and held at Linnaeus University.

During 2011, supported by the KK Foundation and other creative partners, Kährs will begin the construction of a full scale treatment plant for storm water. "The project is really exciting and it's fantastic that we are able to clean our water at the same time as we create a beautiful wetland area. Here we at Kährs have an opportunity to become a role model for environmental work, regionally and internationally, since we're not only cleaning the water from pollution, but also lowering our water usage", says Per Skårner, CEO and Group Director of AB Gustaf Kähr. Partners in the project are Casco Adhesives (Akzo Nobel), Becker Acroma, Anlager Sweden AB, Revatec AB and Kalmar Energi.

FSC and Fairtrade joined. We are pleased that we during 2010 had the opportunity to begin working with the world's first Fair Trade/FSC certified floor, made by wood from the Curacautin Valley in Chile. By purchasing Fairtrade certified wood from small and local producers, poverty is held back and sustainable development is promoted, which encourage a sound forestry and biodiversity. This long-term project creates a strong relationship between Kährs, SSC Forestry, Fair Trade, FSC, Chile and Sweden. The collaboration will begin this year and will create a sustainable future for forests and people in Curacautin, while leading the way for other economically and commercially disadvantaged fair trade sites around the world. Having both FSC and Fairtrade certification will provide incentives - such as market access, fair pricing and the Fairtrade Premium - additional funds to invest in social, economic and development projects. This will benefit the local farmers, the workers in the forest and in the saw mill as well as the local communities







Kährs' new warehouse in Nybro is LEED Certified









Kährs Environmental work



Model showing how the Kährs environmental management system works

1. Environmental survey

The cornerstones of Kährs environmental activities are knowledge of the company, the legislation we are subject to and the requirements of our associates and customers. These support our efforts to achieve constant improvements. Since Kährs has been ISO 14001 certified and EMAS registered for many years, the company has the company's environmental aspects well under control. They are updated and reassessed each year to make

sure we are developing in the right ways and making real improvements.2. Planning of the most important

environmental aspects Kährs' environmental policy, shown on the right, sets the

direction for our environmental activities.

All environmental factors are examined once a year at each of Kährs' units. The assessment we have made shows which are the most significant environmental aspects (with the greatest effect on the environment), and the environmental goals and program are set up against the background of at least one significant environmental aspect. Environmental impacts and risks in the significant environmental aspects at Kährs are examined in the next section.

Kährs has all-encompassing environmental goals for energy use and forestry. These are broken down and followed up by the group management in the same way as the other KPIs (Key Performance Indicators) in the management system. The various units in the company can also set up their own environmental goals in line with the environmental policy and the all-encompassing goals. The environmental targets are the motivation for continual improvements in environmental activities. Legislation and other requirements are monitored continually to identify those that apply to the various units of Kährs. This legislation is collected in a common register, and a manager is responsible for these and other operating procedures. The consequences of the statutory requirements are defined for each section.

Environmental policy

OUR VISION

• Kährs should be recognized as the clear market leader in Europe, and have a strong global presence.

This through its size and a market driven approach, where Kährs main focus are design, innovation, customer service, quality and reliability, with the purpose to strengthen the brand.
Kährs should grow substantially, both organically as well as by acquisitions.

OUR BUSINESS MISSION

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

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

We must contribute to and support responsible forestry.
We must lessen our environmental impact through continuous improved

management 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.

Per Skårner, CEO and Group Director 2008-10-29





3. Implementation

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

A large number of them work in the line organization, and are also given training to cover the environmental issues that affect their work. We draw in broad participation through improvement groups in TPM (total productive maintenance), which operates in all production lines. Through the deviation handling system, which is easily accessible on the intranet, events and proposals for change can easily be put forward. Environmental issues are communicated internally in the company and externally. All matters included in the environment management system are documented as processes and in manuals. Most of the procedures and instructions that regulate efforts to protect the environment in the organization are accessible via the Kährs Intranet. There are specific precautions or routines to deal with identified environmental risks.

4. Monitoring

In order to monitor and measure the company's environmental impact, measurements are taken continually and logs are kept.

A deviation handling system is in place to check 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 inspections also aid the management in assessing whether the management system is effective and leads to improvements.

5. Action

The Kährs management 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

The company's environmental program and environmental impact are reported in a public environmental statement, which can be seen on Kährs' website at www.kahrs.se.

As an element in maintaining the company's ISO 14001 certification and EMAS registration, impartial external auditors from DNV verify compliance with EMAS standards 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 visitors. EMAS audits going back more than ten years show the transparency of our environmental program.



Oak



Walnut

This figure shows in a simplified manner what Kährs consumes, produces and emits.

The table on the next page shows Kährs 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.

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 one by one to decide whether they should be regarded as significant or not. In order to make the assessment, the following points must be evaluated:

- Links if any with legal requirements. If any connection is found, the environmental aspect must be treated as significant.
- **Risks.** How great the risks of accidents are for the activity, service or product.
- Links to national environmental targets. .
- Scope
- System conditions: .

Purchase

- 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 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, which are the points of departure for improvement plans.





Ash









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 neighboring residents.	
Air emissions of nitrogen oxides and sulfur 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	The process waste water runs through the waste- water drainage system to the municipal purification plant, or alternatively it is handled as dangerous waste. 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	Storing hazardous waste constitutes a risk of seepage to contiguous soil and watercourses	Storing hazardous waste constitutes a risk of seepage to contiguous soil and watercourses	0
Noise	Transport, extraction fans and transport of sawdust	Noise level causes a nuisance for neighbors	Risk of nuisance resulting from Inadequate maintenance or dimensioning and project planning	





Ecological balance 2010

Here we present the ecological balance of Kährs and the two production sites. A summary is only made for Kährs total since the main facility in Nybro is dominant and Blomstermåla is part of Kährs' sawmill operations.



Production

Wood flooring, own production	4 300 000 m ²	
Wood flooring, external production	77 000 M ²	
Number of employed at yearly basis	730 persons	

In 2010 Kährs produced less wooden flooring than in the previous year. This is largely due to recession in the building market and in general demand around the world.

The fact that several significant environmental aspects of Kährs have become better or worse than previous years is closely linked to changes in the produced volume. In absolute numbers, many aspects have a better outcome than in previous years, but since the outcome is divided by the volume produced, the rate increases. Therefore, we have decided that in the reporting of every environmental aspect not to comment on the outcomes which have direct correlation to the volume produced. We confine ourselves to present the outcomes and comment on improvements/deteriorations that have to do with decisions and activities made by us.

The basis used for calculating key indicators was the number of square meters (m^2) of our own production of wood flooring.



Wood material	124 000 t	30 kg/m²
Logs	62 000 t	
Sawn wood and semi manufactures	62 000 t	
Chemicals to the product		
Auxiliary materials	2 300 t	540 g/m²
Renewable	200 t	50 g/m²
Non-renewable	2 100 t	490 g/m²
Other chemicals		
Maintenance chemicals	18 t	4 g/m²
Renewable	0,4 t	0,1 g/m²
Non-renewable	18 t	₄ g/m²
Fuel	130 t	30 g/m²

Wood raw materials consist of coniferous wood and broad-leaved deciduous wood or semi-manufactures in the form of board materials. The material is first sawn in Nybro or Blomstermåla, and then dried, processed, assembled and Over 165 000 000 m² Kährs floors are installed around the world





Cherry





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.

Wood material. Kährs' main focus is to refine primarily Swedish wood raw materials. 73 % of all the wood used comes from Swedish forests, while only 1 % originates outside of Europe. The oak logs bought directly from forest owners come from forests in southern Sweden, which is within a 160 kilometer radius to Kährs' sawmill. Logs purchased from Denmark and Germany mainly go by train and boat. Partial manufacturing for the veneer floor Linnea comes from central Europe and consist of a HDF board with a veneer top layer.



Beech





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 in an efficient way. In our opinion a future supply of controlled wood is of outmost importance.

The Swedish oak tree is harvested and maintained according to the Swedish Broad leaved Act (Ädellövsskogslagen). Support is available for plantations but these are complicated by grazing elk and deer. To support a growing, active forest, Kährs implemented in 2010, special forest days for the education of local forest owners. We also produced and distributed the Kährs "Oak" (Ek) magazine to 7000 forest owners. These activities will continue in 2011. Special bonuses are paid to local forest owners on deliveries, to further strengthen the southern Swedish oak forestry. This 10-year project "Oak Damages" (Ekskador) in the county of Kalmar studied diseases afflicting oak trees and has been developed together with several organizations and in part sponsored by Kährs. Read more at www.kahrs.se.

Auxiliary material. Glue is used to join the various layers in multi-layer parquet and is water based. Since the wood is not entirely smooth after sawing, filler is applied to smooth out the unevenness. After polishing, the surface is prepared for surface treatment. Lacquer, glaze and oil are used for surface treatment of the floor board to produce the desired appearance. This treatment also gives the floor a very hard wearing surface. Kährs finish lacquers are waterborne and UV cured. The glaze and oil contain small amounts of volatile organic carbons, known as VOCs, which are given off when drying.



Local Deliveries Can Be Quite Small



Glue, filler, lacquer and oil are included, together with various maintenance materials such as lubricating oils, under chemicals. Before any chemicals are introduced for use in operations, they are individually assessed from a number of environmental and work-environmental criteria. Approved chemicals are collected in a database, the chemicals register, where other information about each chemical also can be found, such as safety data sheets. Currently, about 500 approved chemicals are listed in the chemical register.

The renewable auxiliary materials 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 plastic and metal used in packaging.

Fuel. The fuels mentioned here are almost exclusively diesel and alkylate petrol used to run the machines in our production facilities, such as loaders and trucks but also chainsaws.

Environmental targets in responsible forestry

Kährs' main environmental target is to increase the use of certified wood raw materials and we aim towards the use of controlled raw wood materials exclusively.

Environmental targets - Certification.

The various certifications Kährs work with are FSC, PEFC and MTCC, but other certified wood materials Kährs Outcome.

consider acceptable are also purchased but the FSC offers the highest standard.

In 2010, the target for the proportion of certified wood, calculated on the total volume purchased, was 40%. The outcome was 37%, which is an increase compared to 2009 when 35% certified wood was achieved.

One major reason why the target was not achieved in 2010 is the deliberate increase in direct purchase of Swedish raw material

Percentage of certified wood (FSC, PEFC, MTCC or equal certification)





Maple

Over 98% of the material used by Kährs to make wooden flooring comes from renewable raw materials.



from private forest owners (low risk source), instead of certified imports. In 2011, Kährs will continue working towards the same target of 40%.





Environmental targets - Controlled wood.

The environmental target for controlled wood is calculated from the proportion of suppliers per wood species and country of origin that meets the requirements of controlled wood during the year's deliveries. Follow-ups are conducted four times a year in accordance to the conversion model for FSC.

The target for 2010 was 50% and the outcome was 44%. In 2009 the outcome was 48%, but the target was lower and set to 45%.

Results

wood

100%

80%

60%

40%

20%

0%

2009

2010

Percentage of suppliers of controlled

Out-

come

Target

In 2010, over 75% of the purchased wood raw material met the requirements of controlled wood. In 2010, our evaluation of the controlled wood strengthened to fully comply with the FSC requirements. Several suppliers from the USA and Canada have therefore been reclassified. That is because today they cannot present traceability all the way back to the logging areas (low risk areas) used for separate deliveries to Kährs. Since the definition of controlled wood has changed, the target figures above have been recalculated and the target will be reformulated in 2011.



Municipal drinking water	20 000 m ³	5 l/m ²
River water for watering logs (Blomstermåla)	40 000 m ³	9 l/m²

Besides for washing and showering, the municipal drinking water is used for cleaning in our various processes. However, the largest amount of water is used to regulate humidity in drying. Sanitary waste water and water from washing in some production processes run into the municipal drainage system and then into the water treatment plant. Process wastewater from glue, filler, scouring machines and blade rinsing is either taken care of in a provisional water treatment plant at Kährs or being collected as hazardous waste.

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 routines to prevent incidents and to minimize the impact on the environment in case of accidents.

In collaboration with Linnaeus University, a 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,

Kährs pursues a sustainable forestry



A wetland area in a pilot scale





Storm water and Leachate. Interesting trials are being carried out in this project in collaboration with Kährs' suppliers of glue and lacquer.

In 2010 a pilot plant for treatment of storm water was in operation. Leaching from fuel 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 work continues in 2011.

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Waste & Recycling

To energy recovery	140 t	30 g/m²
To material recycling	300 t	70 g/m²
To landfill	20 t	5 g/m²
Sent as hazardous waste	130 t	30 g/m²

Flooring manufacturing also results in a quantity of waste. This heading does not include statements about the residual products, chips and sawdust waste, since these run through separate flows in the power and heating plants situated close to the production sites (see under Energy use & Production of bio-fuel).

Waste that is sent for energy recovery consists, for instance, of domestic refuse and anything from abrasive band to chair cushions. Under material recovery, recyclable waste is included, such as paper, metal and plastic. Anything that is unsuitable for material recovery or for burning is included under landfill, which may be items such as concrete waste, insulation or porcelain fuse covers.

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 treatment processes, and electronic waste such as capacitors content PCB. The waste is collected in suitable containers for the 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 processed.



Product development offer new products but also more waste





In 2011, our customers will be able to lay a Kährs floor made of oak from Visingsö.







Amount of waste per square meter manufactured floor 2001-10: total value and broken down by waste fraction.

The quantity of hazardous waste increased, primarily because there have been more frequent changeovers in the production processes, and therefore more cleaning. Major renovations in 2010 have led to an increased amount of waste, both for recycling, but also energy recovery. The waste from renovations that the construction companies handle is not reported here.

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 the environment in the various manufacturing processes. The bio-fuel generated at Kährs' facilities in the form of bark, shavings and sawdust is sufficient to heat more than 20 000 local houses.





Energy use & Production of bio-fuel

Electricity consumption	38 ooo MWh	8,9 kWh/m ²
Heat consumption	41 000 MWh	9,6 kWh/m²
Production of bio-fuel	246 ooo MWh	57 kWh/m²

All facility heat energy comes from our own waste fuel material, i.e. from burning chips generated from the sawmill or from the processing of wood. All electrical energy bought is registered as renewable, generated from 100% renewable sources.

The quantity of fuel which was spent on Kährs' transports was in 2010 in the order of 25 000 MWh. Our total amount of produced biofuel would in an efficient cogeneration plant provide 75 000 MWh of electricity and 140 000 MWh of heat, which means we are a net producer of carbon-neutral energy for heat and electricity.





Kährs energy use between the years 2001-10. Sold biofuel (bars) are deduced on the right y-axis.



By optimizing climate control of the acclimatization dryer, we calculate to save 2000 MWh per year from 2011 (according to Kährs Energy Conservation Plan)



Energy use during 2010 has diminished compared with the previous year. 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 environmental impact, and also makes renewable energy available for other consumers who use fossil fuels at present.

Environmental target - Energy use

The environmental target in energy was in 2010 to reduce energy use by 5% against the year 2009, i.e. to 17,2 kWh/m² packed floor. Energy use in 2010, however, was 18,5 kWh/m², which are an increase compared with 2009. New target of 2011 are to implement energy saving measures that can reduce energy use by 3 GWh/year.

The work to achieve the environmental target of

Kährs' targets for energy use in 2010



energy is affected by many factors, such as mild or harsh winters and increase or decrease in production. All these factors have resulted in increased energy use per m² packed floor in 2010.

Action plans to achieve the energy target includes measures to control heating and ventilation in an efficient way. Several measures have been implemented in 2010, such as energy savings education and information for the staff, which will help to reduce energy use. For 2011, revision of the temperatures and operating conditions of the distribution system for internal heat is planned. Also, the reuse of waste heat from factories has a great potential to reduce energy use.





Emissions to the atmosphere

VOC	2,8 t	0,65 g/m²
Dust (estimated quantity)	3 t	0,7 g/m²

Emissions to the atmosphere from production processes are primarily diffuse emissions of VOC and dust from the filter installations. The VOC originate from dissolving agents in lacquer, stain and glue, and from various chemicals used in machine and building maintenance. The greater part of dissolving agents used for cleaning in the production processes, are handled as hazardous waste and sent for treatment as such. The VOC emissions have decreased since 2006, which are partly due to reduced production and partly due to product development in gluing technology.



A large particle filter on the roof of Kährs' floor factory





Large quantities of wood shavings and wood dust are transported by pipelines through filters at Kährs' plant in Nybro. A preventive maintenance program ensures that the filter equipment operates well. Our maintenance is designed to prevent accidents in the filter by measuring, examining and listening to the equipment and in proper time maintain or replace parts as needed. A measurement survey completed in 2011 shows that the terms of our permit are met.

Other emissions to the atmosphere. The heating energy for the production units is obtained, as mentioned above, from burning bio-fuel. The burning process releases carbon dioxide, nitrogen oxide, sulphur dioxide and dust. The carbon dioxide emissions contribute to the greenhouse effect, but bio-fuel does not cause a net increase of carbon dioxide in the atmosphere. However, nitrogen oxide and sulphur dioxide contribute to acidification. The energy conversion does not take place on Kährs' premises, and no emission is therefore stated for this in the report.





🕞 Transportation

Transport	Transport work	Carbon dioxide CO₂	Nitrogen oxide NO _*	Sulphur oxide SOx
Material to Kährs (in)	70	2 200	20	10
Products out of Kährs (out)	100	2 200	30	20
Intermediary transport (between)	20	300	5	5
Internal transport (within)	*10	400	10	0

Units: Transportation work in million ton/km, emissions in tons.* All internal transports 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 road. Transport by rail comprises incoming transport of logs to the Blomstermåla sawmill. Shipping is primarily used 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. The category of intermediary transports includes externally manufactured products to our warehouse (KDC).





73% of all wood used in the Kährs flooring production is Swedish, while only 1% originates from outside Europe.

Company cars. Kährs' policy on company cars put demands on fuel type and model. Today, more than a third of our company cars are classed as green cars and ten percent gas cars. Because these cars are used about a million kilometers in one year, the percentage of green cars is a good step in the right direction when it comes to Kährs' environmental work.

Greenhouse gases. Kährs sells wooden flooring all over the world, which involves long-distance transport. The resulting fossil carbon dioxide emissions contribute to intensified greenhouse effect 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 5000 tons. The discharge of carbon dioxide has been reduced





compared with 2009, which is due to reduced production and shorter export distances, and continual improvements of engines involved.





A Kährs floor helps to reduce the amount of carbon dioxide in the atmosphere while the floor is in use.

By choosing a Kährs floor for a living room, a customer stores about 14 kg carbon dioxide per m².

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 bio-fuel or into another wood based product or use. This means that in the flooring produced in 2010 more than 60 000 tons of carbon dioxide are "stored" in the flooring.

Reduced carbon dioxide emissions. A reduction in export to the USA among others has resulted in significantly lower carbon dioxide emissions from shipping than in earlier years. At the same time, relocation of the one-strip production to Nybro has reduced the amount of fossil carbon dioxide emitted in 2010 by approximately 540 tons.

In 2010 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 reduction in carbon dioxide will be approximately 80 tons per year.

The relocation of our Kährs Distribution Center (KDC) warehouse from Kalmar to Nybro reduces transport both for delivery to the warehouse, as well as the return trip. In addition, it saves on those shipments to customers who would have gone from KDC via Nybro. With a good year of sales this gives a reduction of about 250 tons of fossil fuel based carbon dioxide.



Noise is caused primarily by fans and filters in the manufacturing plant, but also in connection with transport (loading/unloading or road/motor noise). Noise may be harmful or least cause a nuisance to people both inside and outside the company premises (employees, neighbors and nearby residents). In order to avoid noise problems, preventive maintenance is continuously carried out on fans and filters. The question of noise is taken into consideration in various decisions





Jarrah - An Australian wood species



included in the management system and adopted by the organization. Has been introduced and maintained appropriately to achieve its purpose. The group in internal auditing has been reinforced in 2010 after additional training in environmental auditing. Ten internal auditors, with different roles in the company provides for a very competent group of auditors. Both planning, execution and reporting are designed to evaluate and support continuous improvements in Kährs according to the PDCA wheel. The audits are carried out

according to Kährs' shared management systems for environment and quality. Effectiveness verification of the system at the different production sites is

External audits. Periodic audits of the management system for environment

audits. Internal audits are carried out at planned intervals to ascertain whether the management system: Complies with the requirements in this standard and with the requirements

Internal audits are a tool in the function follow-up of important processes, by ensuring compliance and endeavor of the requirements and targets set in the management system. The company management gives priority to the processes that are evaluated in the audits. 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

Internal and external audits

and quality has been carried out during the year.

unloading of chemicals.

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 2010, a new risk assessment was carried out. Implemented measures have been followed up and a new action plan for 2011 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

the statements for each facility. Risks

when planning investment projects and rebuilding. The noise management is also described in project routines. Noise is included specifically under the terms of the permits for each of our sites and the results for noise conditions are included in

Once a year, Kährs' risk analysis is updated in an environmental point of view, by

The quantity of energy that Kährs sends out in the form of bio-fuel is far greater than the amount of energy consumed both in the factories and for

transport.



improvements





included in the audit.





Summary Kährs Nybro with terms of permits

Taking over the one-strip production from Ljusdal has resulted in several projects which has affected the number of chemicals and has brought new noise sources, such as new dryer and new filters. 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.

Final terms for handling of process waste water was established in September by the Environment Inspection Committee (see table below).

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 has been built adjacent to the lacquering lines in the factory. This will be operational in 2011.



An aerial view of AB Gustaf Kährs plant in Nybro

No elevated levels	that indic	ate an	/ enviro	nmental	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 m².
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.





Summary Kährs Blomstermåla

In 2010, Kährs' risk analysis was enhanced, but no new risks were identified for the Blomstermåla sawmill. Transport and the risk of discharge into the nearby Alsterån will also be the most important environmental aspects connected with the Blomstermåla sawmill in the future. Kährs is included in Alsterån Water Council and follows the program for recipient monitoring. No complaints concerning external environment have been received during the year. In 2010, 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.
- The sawdust magazine roof has been dismantled for safety reasons, resulting in a possible risk of increased spread of dust in the neighborhood.
- A facility for maintenance of vehicles has been released leading to a new survev.
- Training in fire safety and general order and tidiness has been given during the year.

During the year, the Environment Inspection Committee in Mönsterås made an inspection visit to the sawmill. The notes have been taken into action.

Certificate

All Kährs' production units are covered by Kährs' certified quality and environmental management system in accordance to ISO 14001 and EMAS registration and ISO 9000. The certificates are available for download at www.kahrs.com

	Exercise Exercis Exercise Exercise Exercise Exercise Exercise Exercise Exer	FSC Martinet Sources The Annual Sources Martinet Sources	AB Gutat Kain: Cert. No. 2000-5604-AQ-1481	Environment
Location	EMAS	FSC	ISO 9000	ISO 14001
Blomstermåla	2000	2006	2005	2000
Nybro	1997	2005	1999	1997



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 and manufacture and sell flooring products as FSC approved.

EMAS. The purpose is to promote environmental improvements. It is a

voluntary EU program that requires public audits of environmental conditions.

ISO 14001 is the 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.



A view of Alsterån at Kährs sawmill in Blomstermåla.







Product compliance



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 BASTArequirements, 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. §§ 3371-3378

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.



Kährs has begun an application process for Svanen labeling of some products. Svanen is the official eco-label and is operated on behalf of the government, without business or profit interests. Svanen constantly reinforces the requirements for obtaining constant environmental improvement of the eco-labeled products.



Blue Angel (Der Blaue Engel) is a German label, which shows that the product is among the most environmentally friendly within its product category. Blue Angel put demands on power consumption, noise and emissions. The label also requires minimization of pollutants such as heavy metals and halogenated flame retardants, as well as requirements for recycling.



Kährs new central warehouse was designed to meet the LEED (Leadership in Energy and Environmental Design) rating system. This means that high demands have been met on the warehouse's environmental characteristics, which include the examination of energy, water, site, air quality, and materials used as well as other environmental impacts. In the assessment for LEED there is an environmental point system and Kährs new warehouse in the first Sweden is LEED certified warehouse in Scandinavia.





Auxiliary material

Material other than wood that is included in finished wood flooring

BASTA

The purpose with BASTA is to accelerate the phasing out of dangerous substances from the construction products. For more information: www.bastaonline.se

CARB

California Air Resources Board. Air Environment Authority in the State of California.

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.

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 environmental 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.

ISO 14000

The collective designation for international standards in the environmental area, administered by the International Organization for Standardization.

KPI

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

Lacey Act

Law in the U.S. which makes it an illegal act to import, export, transport, sell, receive, acquire or purchase plants or products which have been traded in a manner as violates national or the international laws.







LEED

Leadership in Energy and Environmental Design. An environmental classification system for global assessment of a building's environmental impact, which covers the energy aspect as well as other environmental impacts.

MTCC

Malaysian Timber Certification Council.

MWh

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

Nitrogen oxides (NOx)

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

A voluntary initiative for certification of sustainable forestry around the world and tracking of wood from certified forests further in the processing and marketing chain.

Renewable

When a resource is used up more slowly than it is regenerated. Examples are water, wood and various biomass products. Nonrenewable 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:

- 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

Source: The Natural Step.

Tonkm

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

UV-lacquer

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

UWL

Underwater Logging. Timber harvested under water, mainly in connection with hydroelectric dams.

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

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