

ENVIRONMENT & SUSTAINABILITY EMAS 2015

The Conscience Report

Beauty with a conscience

When you choose a wood floor you also make a good environmental choice, both for your indoor environment and for our planet. Kährs Group, with its roots dating back to 1857, is one of the oldest manufacturers of wood flooring in the world. It is also one of the most innovative. Our inventions have radically changed the wood flooring industry globally – and have also contributed to sustainable development. By using wood, supporting the replanting of forests and showing consideration for the environment in every step of our processes, we do our best to further, continued sustainable development.

This report describes our environmental and sustainability work, what we achieved in 2015 and our goals for the future. We call it our Conscience Report. For the 20th consecutive year we are reporting in accordance with EMAS (the Eco-Management and Audit Scheme), the EU's voluntary environmental management tool. Our goal is not only to maintain but also strengthen our position in the development and production of sustainable wood flooring.



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About Kährs Group

Kährs Group is a world-leading flooring manufacturer of hardwood and resilient flooring with a number of leading brands in its product portfolio, Kährs, Karelia and Upofloor. Kährs Group, which delivers products to more than 70 countries, is the market leader in Sweden, Finland, Norway and Russia and holds a strong position in other key markets, such as the UK and Germany. The Group has approximately 1,550 employees and annual sales of EUR 300 million. The President and CEO is Christer Persson. The owners are Triton & Hartwall Capital.

Read more at www.kahrsgroup.com

This report covers Kährs Group's Swedish units, organised within the subsidiary AB Gustaf Kähr and its operations in Nybro, Blomstermåla and Malmö, which produce about 6 million m² of wood flooring and employ 760 people.

About EMAS

EMAS is the EU's voluntary environmental management and environmental auditing regulation, Number 1221/2009. It aims to improve environmental work at companies and organisations and make it more efficient. EMAS conveys a credible message about the result of the environmental work through an assessed/audited and approved environmental report.



SUSTAINABILITY DEEPLY ROOTED IN OUR CULTURE

Kährs Group is one of the world's leading floor manufacturers. This means that we not only have the opportunity, but also the responsibility to influence and pursue issues that are important to our customers, ourselves and the bigger world. This is the 20th consecutive year that we are reporting on our environmental work according to EMAS. By setting clear goals and reporting on how our operations are developing in relation to our goals make us a long leader of transparency in our industry.

One important reason why we have achieved our market position is that we have always adopted a long-term approach – to quality, products and manufacturing as well as our relations with customers, partners and the rest of society. You could say that sustainability is in our DNA.

More and more of our stakeholders, not the least our customers, are regarding sustainability as increasingly important. A conscious and integrated approach to sustainability and responsibility is a prerequisite for companies in a leading position and it permeates and involves all parts of the business. Such commitment helps build a stronger brand, making us more attractive to our customers and making it easier for us to attract and retain the best employees.

In 2015 Kährs Group worked on a broad front on issues regarding responsible and sustainable enterprise. The work was initiated by our own targets for development, by legislation and directives, and by requirements and requests from customers and our owners.

We strive to ensure that all employees have a good understanding of the Group's values and guidelines in areas such as HR, business ethics and environment. During the year we held company wide training courses in the company's code of conduct for employees throughout the global organisation. We have also adopted and introduced a code of conduct for suppliers, which has been signed by all major suppliers.

Sustainability issues have received their own forum: the Compliance Committee, consisting of myself as president and CEO alongside a number of other representatives of Group management and our environmental ambassador. Our board of directors and owners monitor our development through key performance indicators and reports issued by the Compliance Committee.

Legislation and regulations on sustainability are also highly significant to our operations. Activities concerning both the EU Timber Regulation and the EU Energy Efficiency Directive were performed in 2015. Our system for due diligence according to the Timber Regulation, i.e. that we compile information, for example showing that the timber has been legally harvested, now also encompasses a third-party audit of our Chinese cooperation partners. Our system was third-party verified to comply with the EU directive for import of timber products from countries outside the EU.

During the year, various projects were also initiated that aim to simplify and improve the efficiency of logistics at the company and reduce unnecessary transportation of our products – thereby reducing carbon dioxide emissions. The projects will be completed in 2016 and the outcome results of the measures are also expected during the year.

Christer Persson
President and CEO



2015 environmental year summary

In 2015 our customers continued to increase demands for environmentally beneficial certifications, but also on our environmental management system. This is positive for Kährs Group as we have always the ambition of being at the forefront with our environmental work. The sealing of the old landfill facility in Nybro marks the end of an old way of disposing of waste. Greater interest in sustainable processes and understanding of the entire lifecycle of our products lead to increasing knowledge.

Kährs Group's comprehensive approach to running our business responsibly and sustainably and the expectations of stakeholders means that we observe principles of social, economic, governance and environmental consideration in our planning and operations.

Our production facilities are located in the heart of urban areas, close to residences and other municipal operations which make issues concerning noise, dust, surface runoff water and traffic very important. Our own frequent measurements show that we meet necessary limits.

Work on product certifications places demands on the entire operation at Kährs Group, from product development and purchasing via production and environmental and health and safety functions, to marketing and communication departments.

The issue of climate change and the need to reduce our carbon dioxide emissions affect our activities – especially transports and use of energy. One of the strengths of the wood flooring business is a very high proportion of renewable raw materials for the production of flooring and as biofuel. Delivering our floors to over 70 countries leads to a high quantity of transportation, however, mainly

by ship and truck. Dependence on fossil fuels for transport is accordingly a part of the climate impact, and thus requires future improvements and analysis.

As one form of carbon offset, our manufacturing operations in Nybro and Blomstermåla have a surplus of carbon neutral bioenergy from our operating activities and our wood

products store carbon dioxide during the decades the floors are in use. The wood flooring sold, stored much more carbon dioxide than we released during 2015.

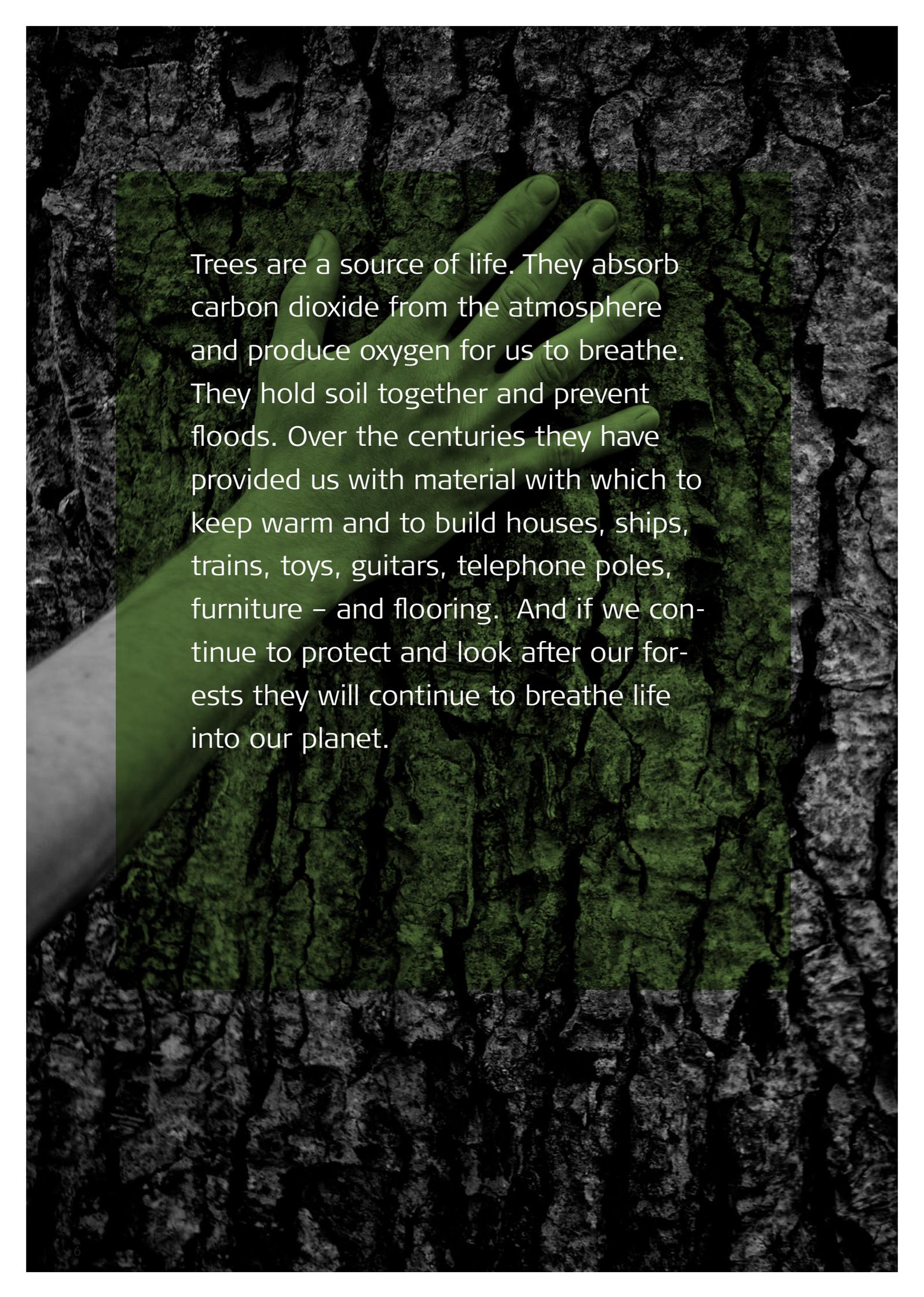
Natural tannins leach from the oak, in wood chip piles or in irrigation, which produces dark runoff water that is filtered through the soil or treated in a vegetation based sediment filter.

POSITIVE RESULTS/ MEASURES 2015

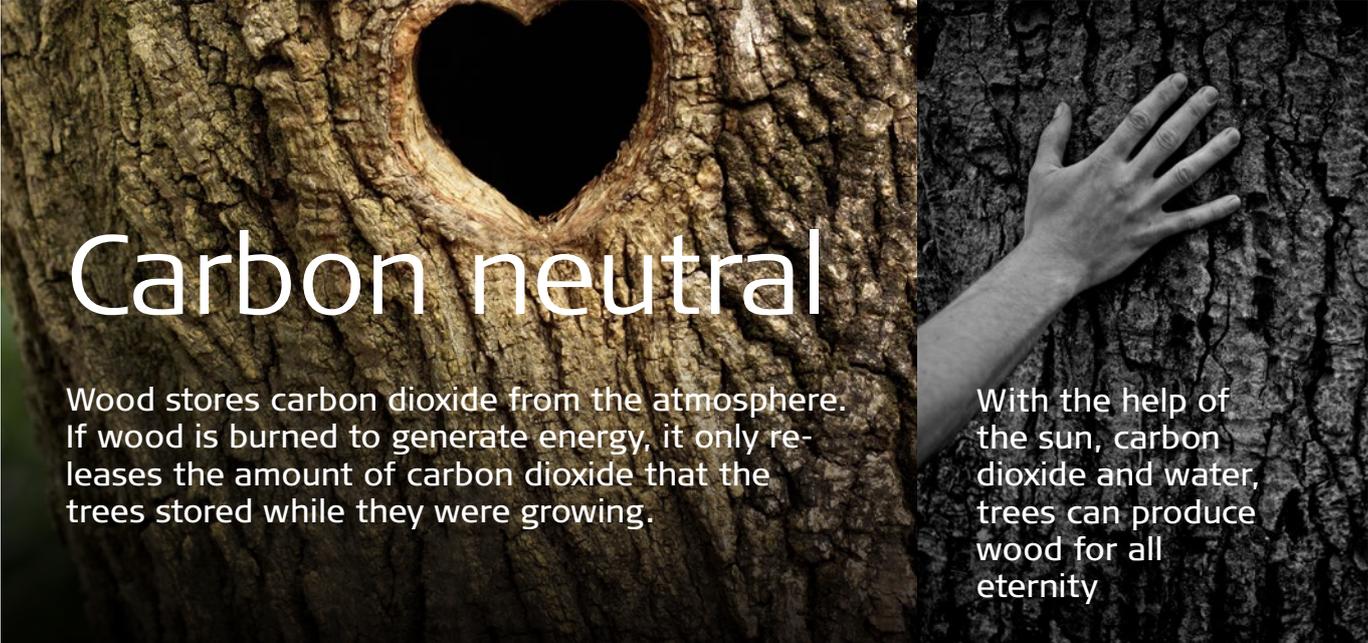
- Establishment of a Group-wide forum for sustainability issues, the Compliance Committee
- Final sealing of an old landfill facility on Kährs' site in Nybro
- Through collaboration with our chemical suppliers we require new specifications and products to meet customer demands and requirements with regard to various product certifications
- Six million square metres of wood flooring store more than 90,000 tonnes of carbon dioxide
- We continued to support projects to benefit the protected stag beetle

FUTURE CHALLENGES

- Increasing transportation between Kährs Group units and external suppliers will lead to increased carbon dioxide emissions. Our challenge is to optimise the logistics to reduce carbon dioxide emissions and our carbon footprint.
- Chemical management requires continuous improvement in accordance with risk analysis.
- The action plans to reduce energy use and the amount of waste have not been sufficient to reach the targets; nonetheless, energy use and waste per square metre of produced wood flooring did decrease.

A close-up photograph of a person's hand touching the rough, cracked bark of a tree. A semi-transparent green rectangular overlay is placed over the hand and part of the bark. The text is centered within this green area. The background is the dark, textured bark of the tree, with a vertical crack running down the center.

Trees are a source of life. They absorb carbon dioxide from the atmosphere and produce oxygen for us to breathe. They hold soil together and prevent floods. Over the centuries they have provided us with material with which to keep warm and to build houses, ships, trains, toys, guitars, telephone poles, furniture – and flooring. And if we continue to protect and look after our forests they will continue to breathe life into our planet.



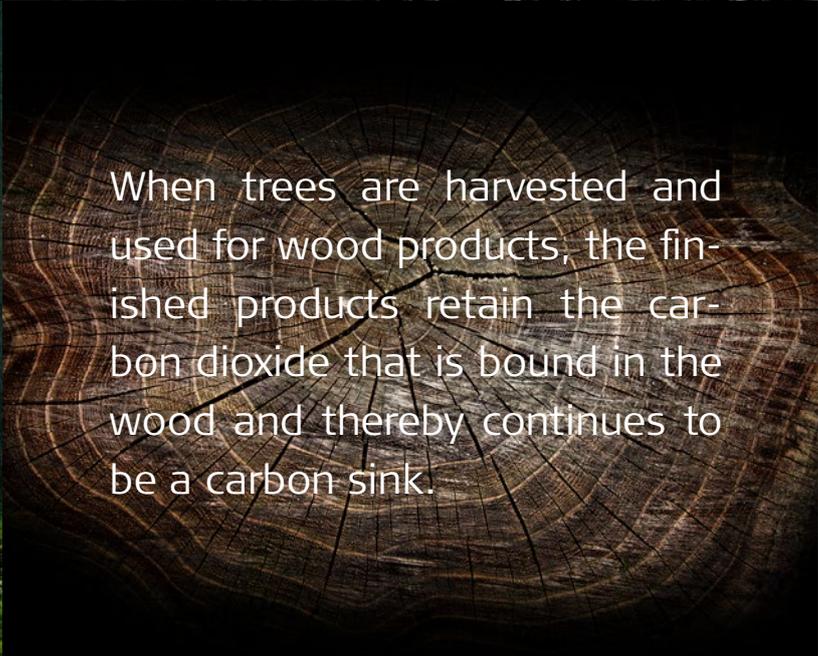
Carbon neutral

Wood stores carbon dioxide from the atmosphere. If wood is burned to generate energy, it only releases the amount of carbon dioxide that the trees stored while they were growing.

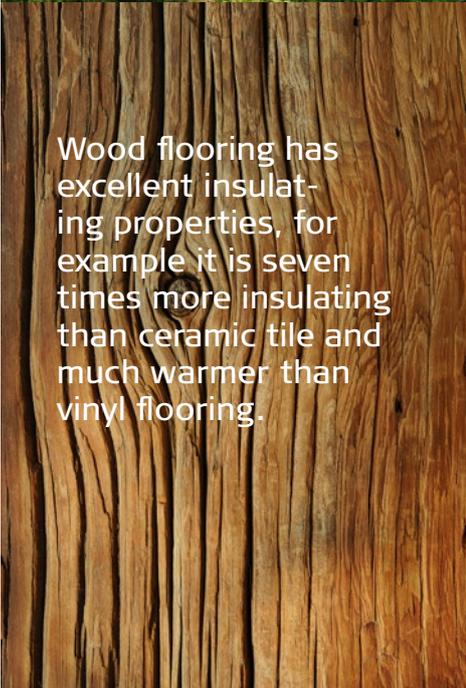
With the help of the sun, carbon dioxide and water, trees can produce wood for all eternity



Europe's forests are growing about 6,000 km² per year

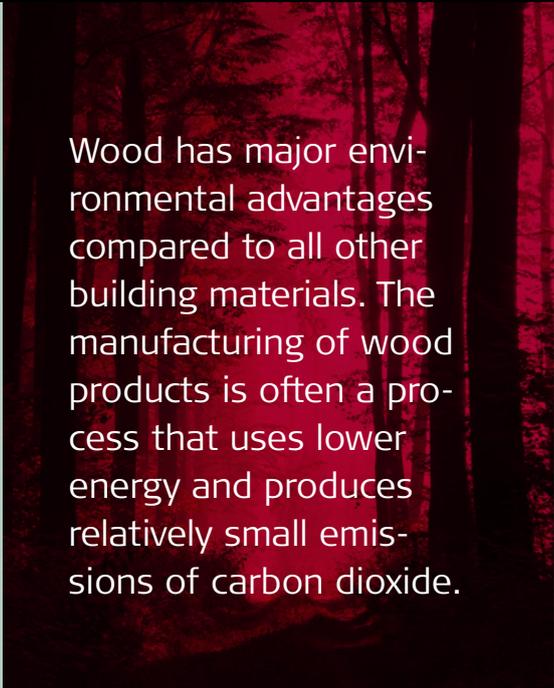


When trees are harvested and used for wood products, the finished products retain the carbon dioxide that is bound in the wood and thereby continues to be a carbon sink.

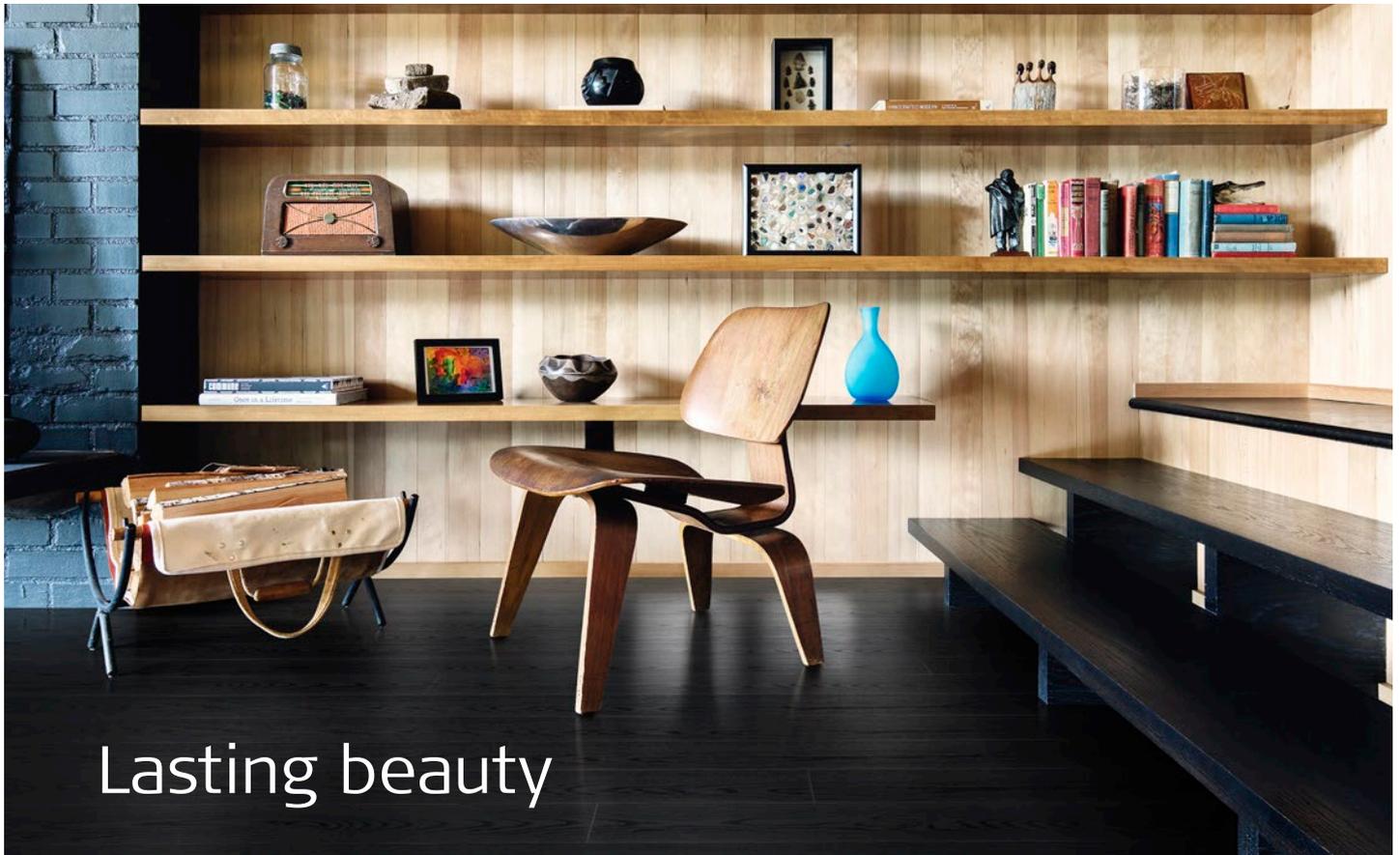


Wood flooring has excellent insulating properties, for example it is seven times more insulating than ceramic tile and much warmer than vinyl flooring.

Swedish broad-leaved deciduous forests (hardwood) are protected by legislation that aims to preserve their acreage



Wood has major environmental advantages compared to all other building materials. The manufacturing of wood products is often a process that uses lower energy and produces relatively small emissions of carbon dioxide.



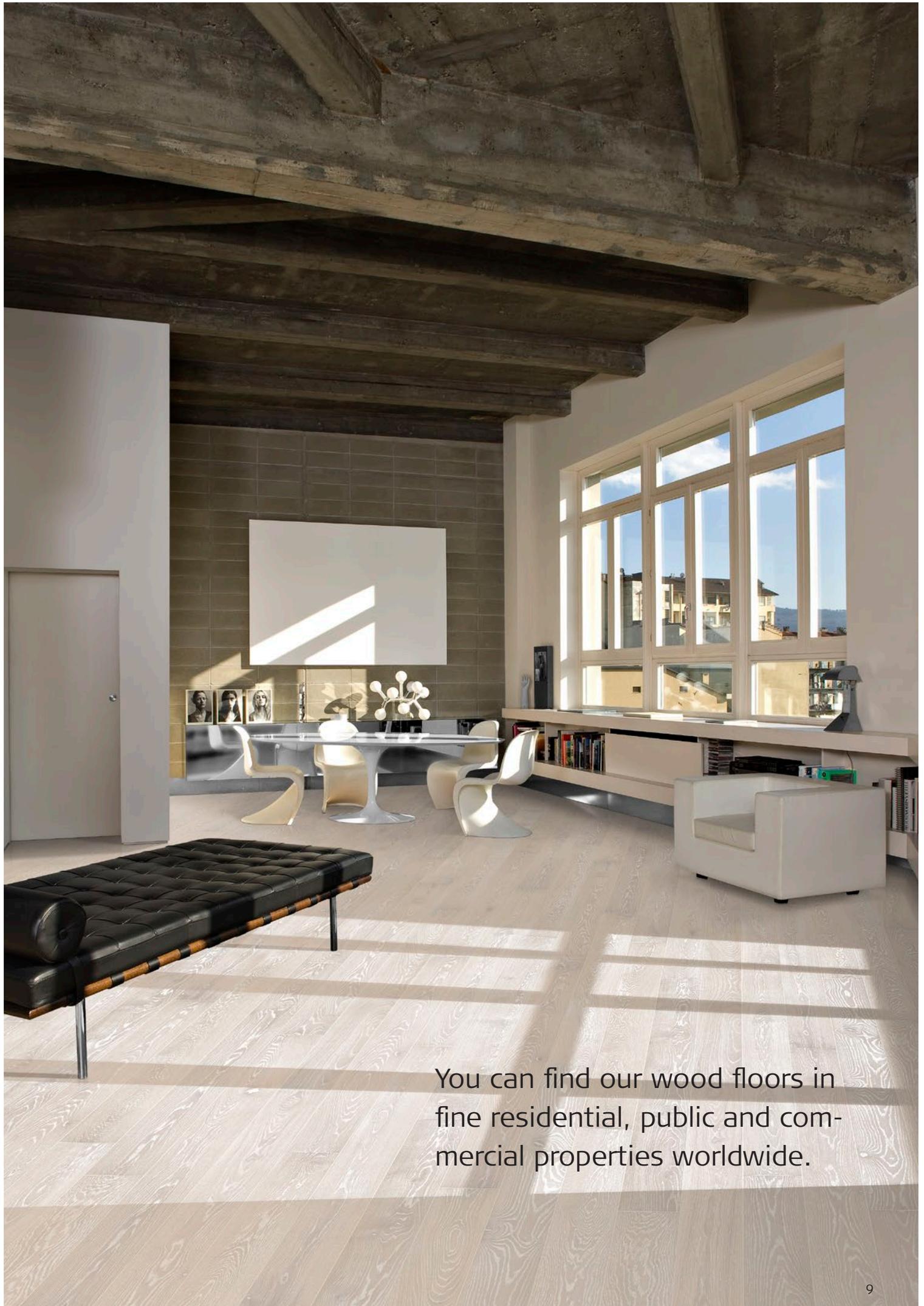
Lasting beauty

Our ambition is to offer the most beautiful, most innovative and most functional wood floors in the world. Our production operations are instilled with a passion for wood, craftsmanship translated into modern techniques and knowledge of the material that has been passed down through many generations, since the company was founded nearly 160 years ago. Our actions are to be governed by a high ethical standard, with respect and accountability regarding people and the environment.

Kährs Group is one of the world's leading wood flooring manufacturers. We invented the modern wood floor, multi-layer parquet, in 1941. We were the first to use a glueless joint on wood flooring, and we are continuing to drive development forward by combining tradition, craftsmanship and innovation with a sustainable approach to production.

We offer hundreds of different styles of wood flooring – from three strip to one strip, from light to dark and with various surface treatments, species and patterns. Read more at www.kahrsgroup.com





You can find our wood floors in fine residential, public and commercial properties worldwide.

Nordic Swan certification leads the way globally for environmentally sound products

“Save the world a little, every day”. The Swan, the official Nordic Ecolabel, has been working according to this motto for the past 25 years helping consumers make sound environmental product choices. A few years ago Kährs Group set the goal of adopting the Nordic Ecolabel criteria for a large collection of its wood floors. “The Swan label is possibly the world’s most comprehensive environmental product certifications, and we knew that if our floors could meet their stringent requirements, they would also meet most international environmental requirements,” says Bruce Uhler, Kährs Group’s environmental ambassador.



Preparations to apply for Nordic Ecolabelling of wood flooring started in early 2014. The Swan Nordic Ecolabel is one of the most comprehensive and rigorous product certifications in the world. The Swan criteria include requirements regarding the content and use of environmentally hazardous chemicals; emissions to air, water and land; use of energy and resources; and waste management. They also set requirements on quality and performance. The Swan is one of Sweden’s best known and respected eco labels with more than 96 percent brand recognition.

“It was a natural step for us because for a long time now we have felt that we could meet the Nordic Ecolabel’s requirements – and we have noticed an increasing demand for ecolabelled flooring for both public environments and private residential properties,” says Bruce Uhler.

“Even though we knew that we were doing things right, we lacked this third-party certification. The process therefore became a sizeable investment in both time and money for the company to analyse and document our products throughout their lifecycle – from raw materials to end of use,” he explains.

More than 150 Kährs floors carry the Swan Nordic Ecolabel

“The investment proved successful, and today more than 150 of the company’s wood floors, under the Kährs brand, are Nordic Ecolabelled. “We have noticed considerable interest in the Swan label from other countries, including the US and several other markets in the EU and the Middle East because the label encompasses so many environmental aspects,” says Bruce.

The Swan – the official Nordic Ecolabel

The Swan was “born” 25 years ago when the Nordic Council of Ministers started the Swan Ecolabel to help consumers make sound environmental choices. The government run Miljömärkning Sverige, an NPO, nonprofit organization, is responsible for the Swan.



At an event to mark the 25th anniversary of the Swan in May 2015, which was inaugurated and attended by HRH Crown Prince Haakon of Norway, Bruce Uhler and Sverre Severinsen were invited to talk to the large gathering about Kährs Group’s journey towards being awarded the Swan Nordic Ecolabel.

Product certifications and requirements that apply to many of our flooring products

CLASS E1
FORMALDEHYDE-EMISSION
(EN 717-1: 2004)

CARB 2
FORMALDEHYDE



Environmental management system



Our operations affect the environment. We work on continuous improvement and follow-up.

Our environmental management system helps us to work in a structured, efficient manner. The system includes the environmental impact created by our operations and the environmental impact of a product throughout its lifecycle.

- Organization and distribution of responsibilities
- Identified environmental aspects and legal requirements
- Kährs' environmental policy, environmental targets & plans of action
- Routines for controlling the environmental effect of the activity/product and preparation for emergencies
- Internal and external environmental communication
- Training, education and participation
- Monitoring through internal inspection audits and handling of deviations

- Auditing of the environmental management system
- Management reviews

Kährs' management meet four times a year to evaluate and improve the efficiency of the management system - in other words, to ensure that we attain environmental improvements.

THE DIFFERENCE BETWEEN ISO 14001 AND EMAS

EMAS is a complete environmental management system based on ISO 14001. EMS includes requirements not normally included in an environmental management system. According to EMAS, our annual environmental report must be made public and published on the Swedish Environmental Protection Agency's website. Another difference is the requirement that EMAS places on employees' involvement, that we manage through our intranet, MBL - the Employment (Co-determination in the Workplace) Act - and departmental meetings.

Kährs Group Environmental Policy

- Our commitment to the environment must be genuine and all issues handled with the utmost thought and respect.
- We will strengthen our environmental commitment further and create a business that is sustainable in the long term, 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, water, raw materials, transportation and energy efficiency while reducing our use of non-renewable energy.
- Our development and flooring manufacturing processes must reflect the natural lifecycle, 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

Christer Persson, President and CEO, 30 January 2015



“YOU COULD SAY I’M PASSIONATE ABOUT FORESTS”

Some things get more beautiful with age. According to Leif Fransson, and one of them is a forest – especially oak forests. He likes to spend his free time looking after his family’s forest outside Nybro in the province of Småland. “Spruce is something you plant with your head, but with oak it’s your heart,” he says and proudly shows us the 100–150 old oaks that form a translucent forest curtain in the beautiful landscape of Småland.



“A man doesn’t plant a tree for himself. He plants it for posterity,” wrote Scottish poet Alexander Smith. And this attitude is crucial for anyone wanting to cultivate oak trees. Cultivation of beautiful, strong oak trees is a patience-testing art. The tree thrives best in open, cultivated landscapes with good, soft terrain. The average growth period for an oak is 150 years – which means that a tree that is ready to be harvested has often been looked after by several generations of forest farmers.

“I have just thinned them out so that these oaks get more air around their trunks – they need to be able to spread out their canopies. A load of logs went to Kährs last week,” says Leif Fransson, whose forest has been in his family for many generations.

“Aesthetics rather than economics”

Leif Fransson has a lifelong passion for the forests. His father had a sawmill, and some of his earliest memories are of when he was six years old and helped his father sort oak parquet. When he was

“Spruce is something you plant with your head, but with oak it’s your heart.”

a little older he envisioned a career in the forestry sector and started studying at a forestry college outside Växjö. But his mother had

other ideas and ensured that her son ended up in a bank – a career that took him all the way to his job as bank manager in Kalmar and subsequently to his position as credit manager at Lantmännen. Despite demanding work and his wife and family, Leif has always found the time to look after his family’s forest covering more than 100 hectares. (250 acres).

“I spend as much time as possible in the forest. I get fresh air and exercise, as well as deep sense of satisfaction in looking after something that grows. I never lack something to do and always have new projects planned,” he says.

“I grow spruce, pine and oak. A fine spruce forest grows in the space of 60 years, which makes it a smart financial choice. Oaks take 150 years, so I plant them because they are beautiful, embellish the countryside and for future generations. I do it with my heart. With oak it’s more about aesthetics rather than economics.”

Long-term relationships

Leif Fransson is quite a typical supplier of oak to Kährs in Sweden, which works with more than 1,000 forest owners who supply oak to the company on average every 10 years. Most of their forests are relatively small, and many of them are in the vicinity of the Kährs site in Nybro. Oak only comprises about one percent of all Swedish forests – but a large proportion of this one percent grows in Småland, where the conditions are optimal for oak trees to grow to their full potential. Bearing in mind how long it takes for an oak to reach the 50 cm in diameter required in order to obtain good planks for floors, long-term relationships are an important prerequisite to having good cooperation with forest farmers.

Leif Fransson has supplied oak to Kährs since the end of the 1970s – a little each year. And a long-term approach is something that he talks a lot about. As living proof of this approach, his entire forest has been certified for the past 20 years, which means that he preserves some wood for nature conservation, for example, to the delight of woodpeckers and others in the area. Another example is seen by the 1.5 hectares of baby oaks slightly further away that Leif proudly shows us. Spruce used to grow there, but was totally destroyed by the bad storm called Gudrun that struck in 2005. When it was time to plant new trees a few years later, he decided to invest in oak. One reason being that the forest lies in front of the “forester’s cottage” that he is planning to build – and he’d like a picturesque view.

“I’ve planted the oaks in groups with seven trees in each and eight metres between each group. In this initial stage I’m letting beech and some birch trees grow between the groups to protect the vulnerable oaks from the cold,” explains Leif.

“It is important that the oaks are planted close to each other. It means that they influence each other and grow straight and beautifully without many branches on the bottom part of the trunk,” he continues.

Planting, clearing and thinning are tasks he performs himself with the help of his dear old reliable Rottne Blondin, forwarder (loader) from 1968, a machine that he looks after just as tenderly as his forest. However, he does subcontract final harvesting because modern forest machinery is much more efficient than people with chain saws.

“This is a lifestyle. I guess you could say I’m passionate about forests,” concludes Leif Fransson.

SUSTAINABLE FORESTRY – THE FOUNDATION OF OUR WOOD FLOORING

Kährs has many activities to support a growing, biodiverse forest and to further strengthen oak forestry in the south of Sweden, including:

- Special forest days with training for local forest owners on many sustainability topics including EU funding for replanting.
- Production and distribution of the Kährs educational magazine, EK (Oak), to 7,000 forest owners.
- Bonuses offered for certified timber in Sweden.

1,000+ 160 KM

forest owners that Kährs Group's Swedish hardwood buyers have contact with yearly

The oak logs bought directly from Swedish forest owners grow within an average radius of 160 kilometres of our sawmills.

90% 81%

of the floors we sell have a surface layer of oak. The Swedish oak tree is harvested and maintained according to the Swedish act on broad-leaved deciduous forest, *Ädellövsskogslagen (1984:119)*.

certified wood

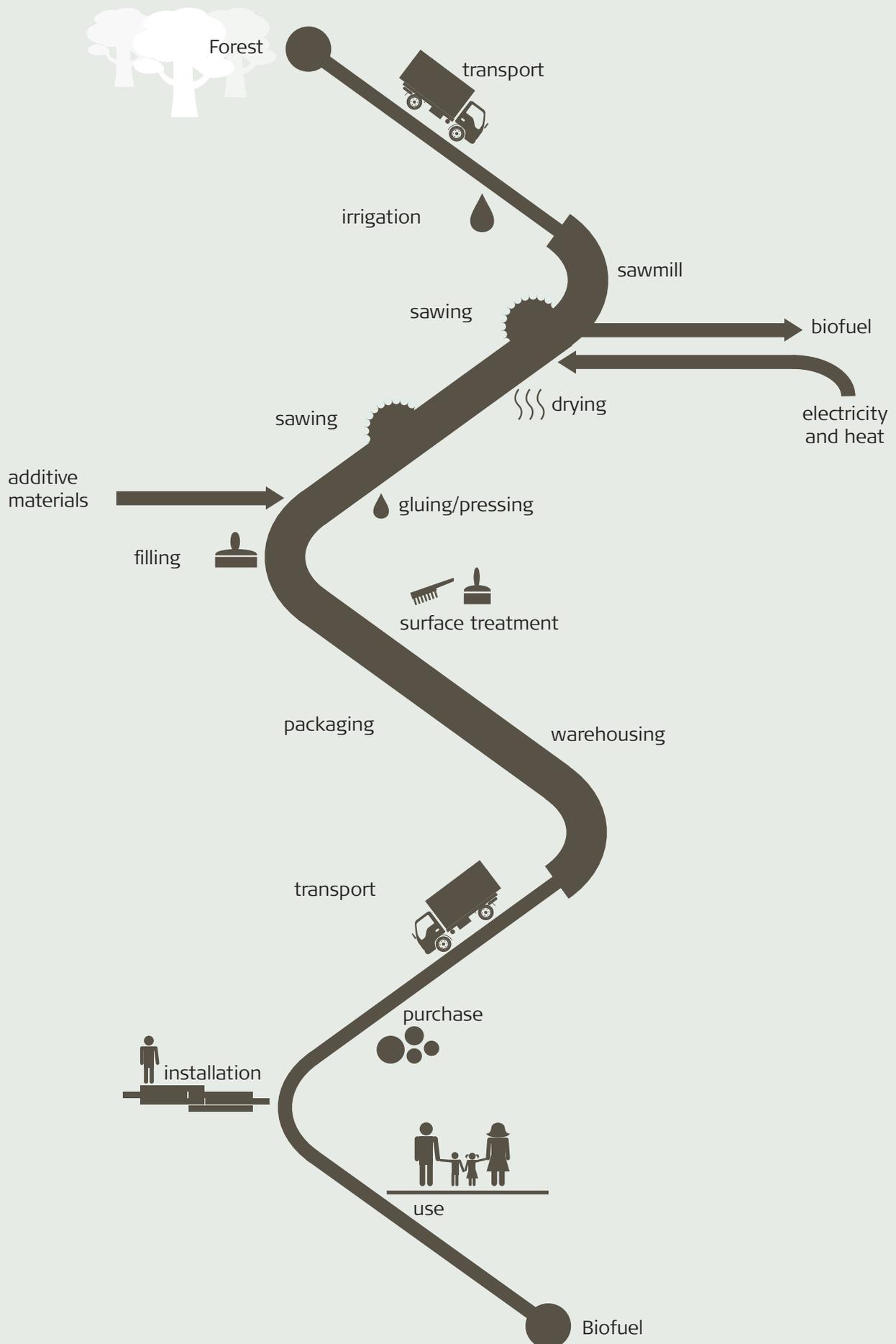
MORE THAN 75%

of all wood that is used in the production operations in Nybro and Blomstermåla come from Swedish forests, and less than 3 percent are from countries outside the EU.

90,000 TONNES

of stored carbon dioxide in flooring produced in 2015

Our operations – wood flooring lifecycle





IMPACT ON THE ENVIRONMENT – ECOLOGICAL BALANCE

An organisation's activities, products and services affect or could affect the environment. This impact is described through environmental aspects. Some aspects will have no impact on the environment during normal operation and a few only in connection with operational disruptions or accidents.

SIGNIFICANT ENVIRONMENTAL ASPECTS

An activity that causes or may cause significant environmental impact is called a significant environmental aspect. To determine which of our environmental aspects are the most significant from an environmental perspective, we perform an annual evaluation, in which we take into account factors such as extent, link to legislative requirements, the four system conditions (The Natural Step), the 16 national environmental objectives and risks of operational disruption or accidents.

The significant environmental aspects form the basis for the goals that we have set for reducing our impact on the environment.

ECOLOGY BALANCE

We report on the development of significant environmental aspects within Kährs Group's Swedish operations in what we call an Ecological Balance. This includes trends for outcomes of key environmental indicators and a description of negative and positive environmental impact for various environmental aspects. Results of work on our goals are also reported.

The trend for each significant environmental aspect is summarised with a colour code, where the colour indicates the development compared to the previous year.

-  = Positive development during the year
-  = The situation is stable
-  = Environmental impact is increasing, measures required

Biological diversity – Responsible forestry

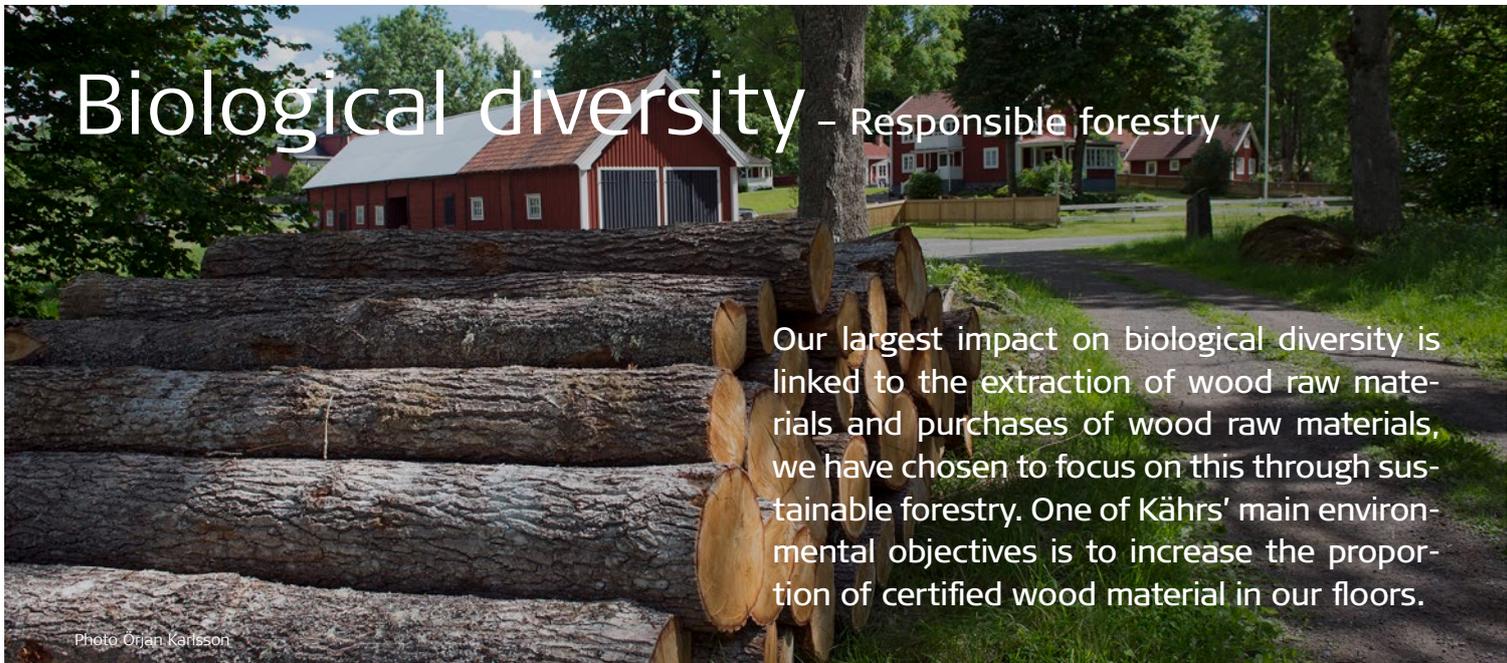


Photo: Örjan Karlsson

Our largest impact on biological diversity is linked to the extraction of wood raw materials and purchases of wood raw materials, we have chosen to focus on this through sustainable forestry. One of Kährs' main environmental objectives is to increase the proportion of certified wood material in our floors.

It is our belief that a future, sustainable supply of controlled wood is of utmost importance not only for Kährs Group, but also as a global concern.

The wood floors we manufacture are 98 percent made of wood material, and as a considerable user of wood as a raw material, we have a responsibility to support and encourage the development of sustainable forestry. Through continuously increasing demand for certified wood, we contribute to placing a value on lasting, long-term forestry.

Environmental Target: certification

ONE OF KÄHRS' ENVIRONMENTAL GOALS IS TO INCREASE THE PERCENTAGE OF CERTIFIED WOOD RAW MATERIAL

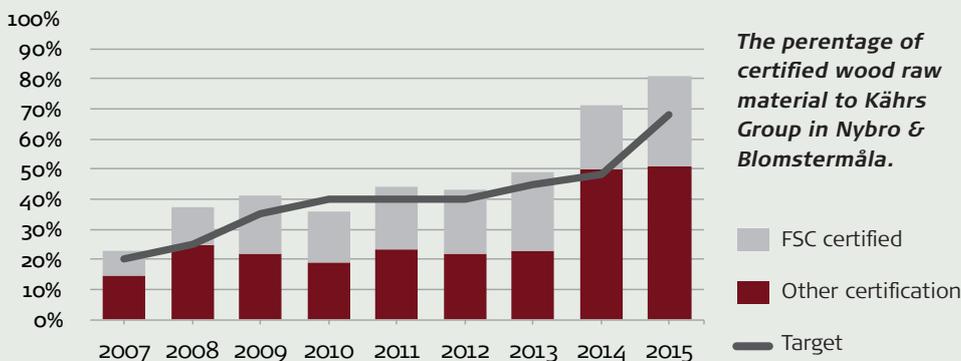
In 2015 our goal for certified wood raw material was 68 percent, calculated as a percentage of the total volume purchased for the Kährs Group's Swedish operations; the outcome was 81 percent.

The forest certifications Kährs Group uses are FSC, FSC-Fairtrade, FSC Controlled Wood, PEFC and trusted certifications that we have deemed acceptable in conjunction with leading environmental organisations.

All wood purchases, according to our specifications, must comply with the requirements of the Lacey Act and the European Timber Regulation.

Our ambition is to purchase according to Kährs Group's standard for controlled wood, as our minimum acceptable level, which is a good way to provide support to responsible forestry. The amount of sold FSC certified flooring is driven by customer demand.

The percentage of FSC-certified oak logs available in Sweden is dependent on the percentage of woodland that is certified. Today the percentage is over 50 percent, but despite this the actual hardwood supply available is limited. All the local Swedish raw material is classified as "from low-risk area" by the FSC but due to costs considerations many of the small landowners choose not to become FSC certified.



Targets for 2016

The target for Kährs Group Sweden is being increased to 75 percent. For all wood purchases within Kährs Group the target is that 70 percent be comprised of certified wood raw material.

One key measure in our action plan is to obtain FSC certification for our operation in Romania. This will give us traceability for further wood product purchases and thereby a higher proportion of certified items.

SIGNIFICANT ENVIRONMENTAL ASPECT:	USE OF RAW MATERIAL – PURCHASES OF WOOD RAW MATERIAL	
ENVIRONMENTAL IMPACT	RISK	TREND
Purchasing of wood raw material. Can cause a deterioration in biological diversity and a disrupts a carbon sink.	Wood from felling operations that do not meet requirements regarding sustainable forestry is delivered to Kährs.	Positive development

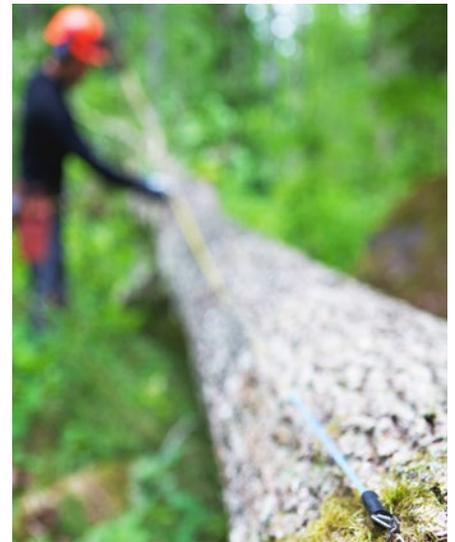
Swedish broad-leaved (hard-wood) deciduous forests

Demand from our customers is dominated by flooring with oak wear layers, which account for 90 percent of our sales. Swedish oak is harvested and maintained according to the Swedish act on broad-leaved deciduous forest, *Ädellövsskogslagen*, and Kährs Group hardwood buyers have direct and indirect contact with more than 1,000 forest owners each year for discussions and training with the aim of encouraging preservation of the high natural values in the forests.

It is very important that forest owners actively take care and protect their valuable

broad-leaved trees; otherwise they will be overtaken by spruce and other softwood species. Ancient oaks have no value for flooring production so we encourage forest owners to preserve them for their natural values.

More than 75 percent of all wood (including softwood) that is used in production operations in Nybro and Blomstermåla comes from Swedish forests, while less than 2 percent originates outside of the EU.



Seeing the magnificent stag beetle is a wonderful experience. The long, well-developed jaws, impressive length and dark-brown shiny body of Europe's largest beetle makes a memorable impression. Kährs Group has now built "oak hotels" or habitats where the stag beetles will hopefully "check in" and multiply – helping to save this gigantic protected insect.

Visitors to the Kährs site in Nybro probably wonder why there are old, rotting oak logs with holes of various sizes stacked around the site. But the logs are much more important than they look. Their task is to attract stag beetles, which need dead wood for their lifecycle. The beetles lay their eggs in the ground and inside old logs or stumps of dead trees so that their larvae can gnaw on the wood. The larvae, which thrive best of all in oak, spend up to seven years there while they slowly metamorphosis to adult.

In 2014 Kährs built nine such "hotels" for stag beetles on its factory site in Nybro as a part of the various projects that the company has been involved in to save the protected stag beetle. The aim is to help reintroduce

stag beetles into Denmark, where the beetle has been extinct until very recently when a re-establishment drive was launched. It is also designed to increase knowledge about stag beetles in Sweden. The company has also delivered oak logs to other locations, such as the Halltorps Hage Nature Reserve on the Swedish island of Öland, and Värnsnäs in Kalmar, southern Sweden, where they have been designed to look like play huts, known as Ekotoper.

The latest project is located in Klockarängen, a picturesque area outside Nybro, where a similar habitat has been built as a refuge for stag beetles and an attraction for adults and children who want to learn more about these insects.

FACTS ABOUT THE STAG BEETLE

Males can grow up to 8.5 cm (+3 inches) long, while females which have smaller jaws grow to half that size. With their long jaws the beetles look dangerous, but they are totally harmless. The males only live for a few weeks and die after mating. The females live until they have laid about 20 eggs at the end of the summer. After 4–7 years' development and a life in the soil, the larvae pupate and emerge during the following year.

The larvae does not eat living trees or bushes and are not therefore a pest. On the contrary, they are important to the decomposition of dead oak trees and help to restore minerals from dead vegetation back to the soil.

Water – Sources and usage

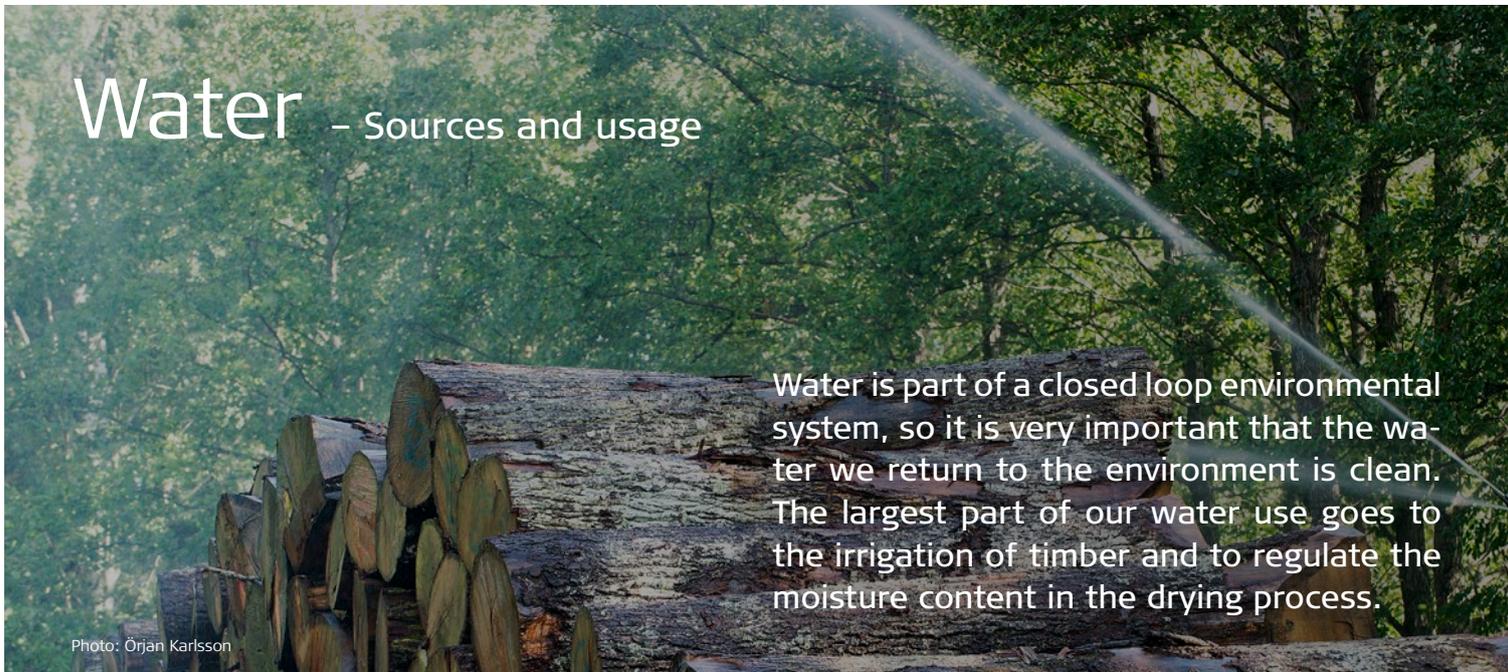


Photo: Örjan Karlsson

Water is part of a closed loop environmental system, so it is very important that the water we return to the environment is clean. The largest part of our water use goes to the irrigation of timber and to regulate the moisture content in the drying process.

USE

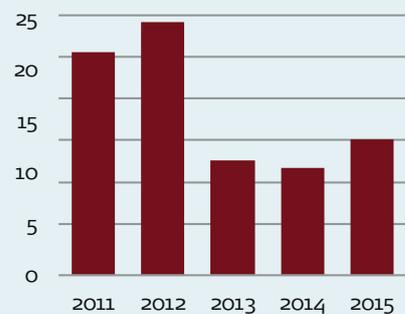
The **irrigation of timber** prevents the timber from drying too quickly and cracking before it is sawn. In Blomstermåla water is taken from the River Alsterån, while the process in Nybro is based on recirculation and storm water collection to reduce water use.

The drop in water use in recent years is mainly attributable to less irrigation of timber in Nybro.

To prevent the **drying** of sawn wood from proceeding too quickly, the moisture level in the drying facility is regulated, which also requires water. Water is also used to **clean** processing equipment.

Municipal drinking water	28,000 m ³	4.6 l/m ²
Groundwater for irrigation of logs	70 m ³	0.0 l/m ²
River water for irrigation of logs	53,000 m ³	8.7 l/m ²

Water use l/m²



EMISSIONS TO WATER

Surface runoff water/leachate from irrigation of timber and from biofuel stores has elevated levels of oxygen-demanding substances and tannins (a substance that arises from the decomposition of wood or other organic substances).

A vegetation-based sediment filter in Nybro to reduce the amounts of organic matter (total organic carbon – TOC) to the recipient. In Blomstermåla no recirculation of irrigation water takes place; instead it is filtered, mainly by ground soil, before it

reaches the River Alsterån. Outgoing water is regularly tested to check for emissions of potential pollutants.

Process wastewater is generated in manufacturing operations, mainly for the cleaning of machinery and equipment. Process wastewater is treated in a sedimentation/adsorption process to reduce the amount of persistent organic substances that are not easily degraded. Processed wastewater

from the treatment plant is then released into the wastewater network and the municipal treatment plant, amounting to about 150 m³ /year.

In 2015, improvements at the treatment plant for wastewater have reduced the amount of organic matter (TOC) to the municipal treatment plant. As industry's chemicals often do not degrade and are often not separated in municipal treatment plants, it is important to treat them at the source.

Diverted to	Treatment stage, Kährs	TOC content before treatm.	TOC content after treatm.
Municipal storm water network (for surface runoff water)	VSF (vertical subsurface flow)	150–200 mg/l	50 mg/l
Municipal wastewater network	Sedimentation/adsorption process	about 21,000 mg/l	4,300 mg/l

SIGNIFICANT ENVIRONMENTAL ASPECT:	WATER USE AND DISCHARGE OF PROCESS WASTEWATER	
ENVIRONMENTAL IMPACT	RISK	TREND
Water pollution and the dispersal of organic material which is not broken down in a municipal waste treatment plant (ARV).	Damage to treatment processes in a waste treatment plant or recipient.	Stable development



UNIQUE VEGETATION-BASED WATER TREATMENT PROJECT

Water projects on the Kährs Group site in Nybro have given rise to five recent doctoral students at Linnaeus University. But above all it provided valuable knowledge of how natural vegetation can cleanse water from the global wood industry in a natural, effective and inexpensive way. The project, in which both process wastewater from the flooring factory and leachate from irrigation and piles of oak logs have been studied and corrected, is a collaborative effort between Kährs Group and Linnaeus University.

The ground-breaking research started with a conversation between William Hogland, Professor in Environmental Engineering and Åke Erlandsson, environmental manager at Kährs. The result is a full-scale facility for water treatment that is shown nationally and internationally.

"We waste drinking water in industry, which is a form of luxury consumption of something that is vital to us. The goal of this project has been to clean process water so that it can be reused for industrial purposes," explains William Hogland.

He spent considerable time with Åke Erlandsson to analyse the results of the trials. They were initiated in 2007 when Linnaeus University set up containers at the Kährs Nybro site to find out how vegetation and sunlight can be used to treat the water from the irrigation of the timber and the leachate from the large piles of wood shavings. Studies of process wastewater from the various machines in the flooring factory were conducted in parallel.

The hypothesis was that it could be possible to remove up to 90 percent of the natural pollutants from the water – which could then be reused, for example to irrigate timber – by using special plants and aeration.

"When they have been felled, oak can emit substances that can cause problems if they get into the environment. Surface runoff water from the piles of oak contain 4–5 times more organic substances than other surface runoff water," says the professor.

The vegetation "eats" environmentally harmful substances

The trials showed that these environmentally harmful substances can be effectively

removed by allowing leachate and other water that is used to store timber pass through the ponds of vegetation/plants. The plants work together with microorganisms to break down the substances, which are absorbed into the tree root systems or leaves and then are bound in the sediment in the ponds. The trials were conducted in 36 containers of plants, which were subsequently placed into the sediment ponds. The aim is to have the facility up and running during the course of 2016.

During the trial projects, which took place between 2007 and 2014, and involved not only Kährs and Linnaeus University but also Swedish government agencies and suppliers of both chemicals and energy, Kährs built full-scale facilities for treatment of both surface runoff water and process wastewater.

"A major national and international conference on water treatment will take place in November 2016, at which time we hope to be able to demonstrate the facility," he explains.

Local treatment with natural, inexpensive, simple systems

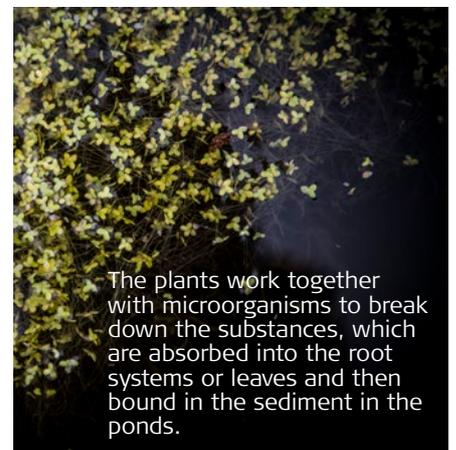
The intention is that the method will be possible to use in many more global industrial environments besides the wood industry in the future. The overall objective is to tackle environmentally harmful chemicals at the source and not wait until they appear in municipal treatment plants or drinking water.

"The basic idea is that you should treat the water locally and have inexpensive, simple systems that are easy to maintain. If each industry can perform such treatment work locally before they release the water, for in-

stance to the municipal treatment plant, we would be able to make major savings," says William Hogland.

"I am convinced that companies such as Kährs, which dare to go on ahead and treat their emissions, will gain a competitive advantage over their competitors – especially in the international market. In Dubai, for example, requirements for good process water management already apply to suppliers," he says.

Footnote: The project is what is known as a **triple helix collaboration** (university, state and industry) ran in 2007–2014 regarding the treatment of wastewater.



The plants work together with microorganisms to break down the substances, which are absorbed into the root systems or leaves and then bound in the sediment in the ponds.

Waste – Recycling



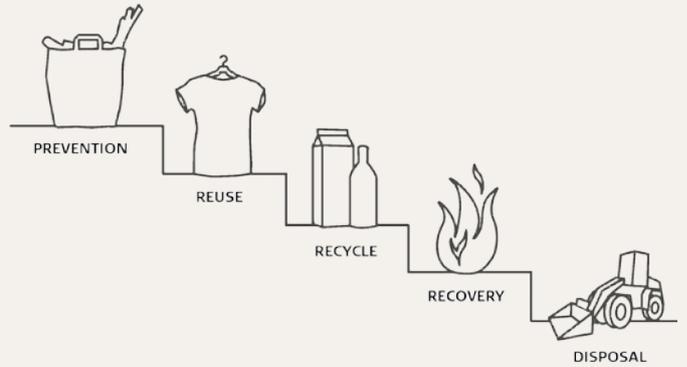
By reducing waste, material efficiency increases while resource needs decrease. We strive to reduce the amount of waste that arise from our operations.

WASTE

Our operations mainly give rise to waste that is recycled for its materials (such as plastics, corrugated cardboard, metals and office paper) and energy extraction (such as sand paper, adhesive residue, plastic straps and filter bags from our filtering systems). Everything that is unsuitable for recycling or energy extraction goes to a landfill, this can be waste such as concrete.

All waste is sorted according to Kährs' waste standard. The waste standard is based on the principles of the waste hierarchy, which is a priority list for how we should treat our waste when we dispose of it.

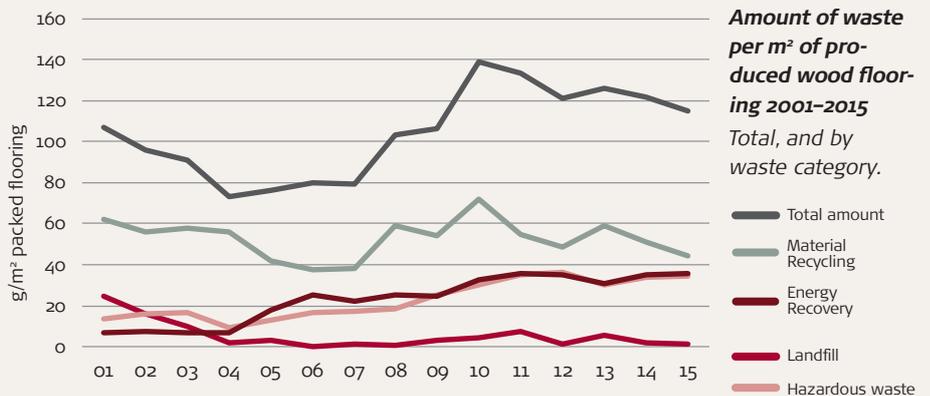
We are working to move our waste management as far up the waste hierarchy as possible.



HAZARDOUS WASTE

Hazardous waste constitutes one of our significant environmental aspects and largely arises from cleaning, in conjunction with changeovers in our production run processes. Further development of new products require many process changeovers for test runs creating waste that includes lacquer, glue and oils.

Even though waste is managed in an environmentally acceptable manner, it still interrupts the natural eco-cycle. The handling of hazardous waste also always involves a risk that these substances will harm the environment if they are not handled properly. Our waste is collected in approved containers by their particular use and are stored and managed in designated locations. Specialized contractors are used to handle the hazardous waste legally and in an environmentally correct way.



Waste Category	Amount (t)	Amount (g/m²)
To energy recovery	217 t	36 g/m²
To material recycling	271 t	44 g/m²
Disposed as hazardous waste	209 t	34 g/m²
To landfill	6 t	1 g/m²

SIGNIFICANT ENVIRONMENTAL ASPECT:	HAZARDOUS WASTE	
ENVIRONMENTAL IMPACT	RISK	TREND
The efficient use of materials does not produce waste. Hazardous waste presents a risk of violating System Condition 2.	The handling and storage of hazardous waste involves a risk of seepage into nearby soil and watercourses.	Stable development

Environmental Target: Waste

ONE OF OUR ENVIRONMENTAL TARGETS FOR 2015 - TO REDUCE THE AMOUNT OF WASTE.

In 2015 the target was to reduce the amount of waste by 10 g/m² and the cost of waste management by 10 percent compared to 2012.

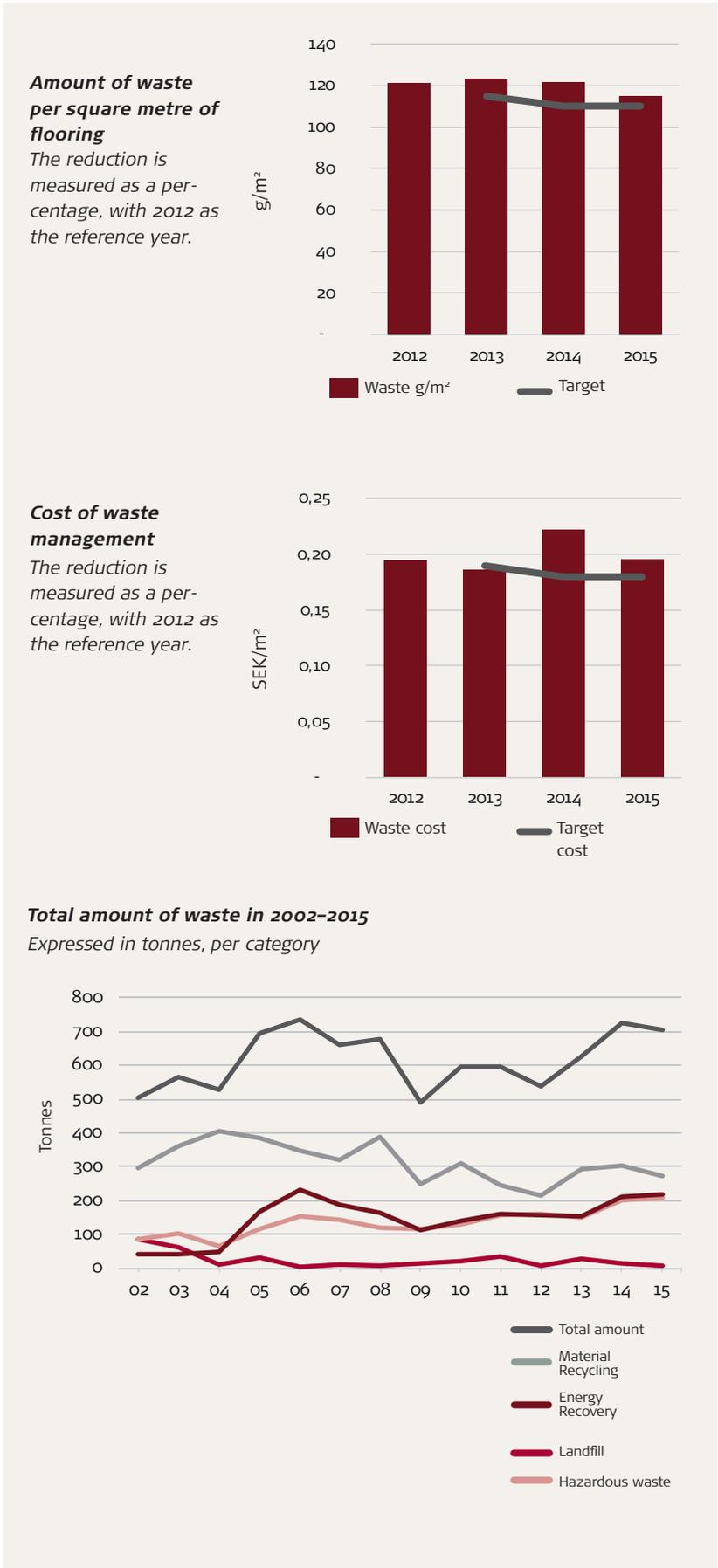
In 2015 the total amount of waste decreased, despite an increase in production. Measures implemented to reduce the amount of waste and the costs have slowed the increase, but we have not fully attained our target. The reduction since 2012 has been 6 g/m², calculated per manufactured square metre of flooring.

Targets for 2016

In 2016 we are focusing on reducing hazardous waste. Our target is to reduce the amount by 5 percent per square metre of flooring compared to the figure for 2015.

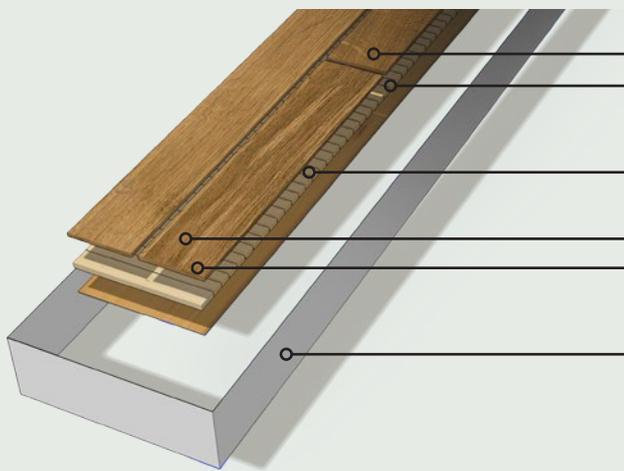
This goal applies in all Kährs Group production units.

This section does not cover by-products such as wood chips and sawdust (information is included under Energy efficiency and biofuel production" on pages 26-27).



Material efficiency

Our material flow consists primarily of wood materials and additive materials for the product, as well as production maintenance materials and fuels. An improved efficiency of materials reduces the demand for resources and the need for transport.



WOOD MATERIALS

Hardwood – oak, ash and beech – are sawn in Nybro & Blomstermåla
Softwood for cores and back veneers, purchased sawn materials

AUXILIARY MATERIALS

Water-based adhesive for joining wear surfaces and pressing the various layers of the floorboard together

Filler used to even out the surface and fill in any knot holes

Surface treatment for performance and appearance

- Water-based UV curing lacquer
- Stains & oils – contain small quantities of VOCs, emitted during curing

Packaging materials

- Corrugated cardboard – renewable, recyclable
- Plastic shrink wrap and metal banding – non-renewable, recyclable

MACHINERY FLUIDS

Machinery fluids such as lubricating oils and hydraulic oils are used in production processes.

Through a systematic review of our range of lubricating and hydraulic oils we have been able to reduce the number of different products significantly.

FUELS

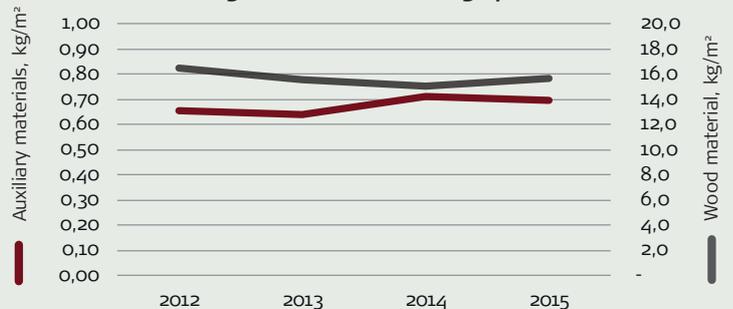
At Kährs we use almost exclusively diesel and some alkylate petrol. Alkylate petrol is a cleaner fuel and particularly important for smaller motorized tools. Diesel is used for some large forklifts (most are electric onsite) and loaders and alkylate petrol is mainly used in chain saws at our production facilities.

CHEMICALS MANAGEMENT

Before any new chemicals are introduced for use in any of our production processes they are assessed for environmental and safety criteria. Approved chemicals are listed in our chemical register, where information about each chemical can be found as material safety data sheets. Currently, about 500 approved chemicals are listed in the register.

Wood material	130,000 t	21 kg/m ²
Logs	69,000 t	
Sawn wood & semi manufactures	60,000 t	
Additive materials for products	4,250 t	700 g/m ²
Renewable	1,020 t	167 g/m ²
Nonrenewable	3,230 t	530 g/m ²
Maintenance chemicals	52 t	9 g/m ²
Renewable	30 t	5 g/m ²
Nonrenewable	22 t	4 g/m ²
Fuel	148 t	24 g/m ²

The amount of wood & additive materials to produce 1 m² of wood flooring in the manufacturing operation



SIGNIFICANT ENVIRONMENTAL ASPECT:

ENVIRONMENTAL IMPACT

Use of a nonrenewable resources and the risk that these substances may seep into the natural environment.

CONSUMPTION OF ADDITIVE MATERIALS

RISK

Hazardous chemical substances risk getting into the environment & being absorbed by plants, animals & humans.

TREND

Stable development

Emissions – Emissions from manufacturing



Emissions are gases and other particles released into the atmosphere as a result of burning fuels and other processes. Emissions from our operations mostly come from transport and manufacturing processes. Care and maintenance of our floors also gives rise to certain emissions.

Emissions to the atmosphere from production processes are primarily dispersed emissions of VOC and dust from our various filtration systems.

VOC

VOCs are volatile organic compounds in lacquer, oil, stain, filler and from various chemicals used in machine and building cleaning and maintenance.

The largest quantity of solvents are used for cleaning in production processes and are handled as hazardous waste. This waste is dealt with by licensed contractors that are approved to treat hazardous waste.

VOC emissions have decreased since 2006, which are partly due to reduced production and partly due to on-going product development in gluing technology. Changes in the product range has meant that the downward trend has changed in recent years.

DUST

Industrial air filtration systems transport large quantities of wood shavings and wood dust/flour through our large facility at Kährs Group's factory in Nybro. Preventive maintenance ensures that the filtration equipment operates well. By measuring, examining and listening to the equipment we can find problems early on to stop any emissions and avoid costly repairs to the filtration system.

OTHER EMISSIONS TO THE ATMOSPHERE

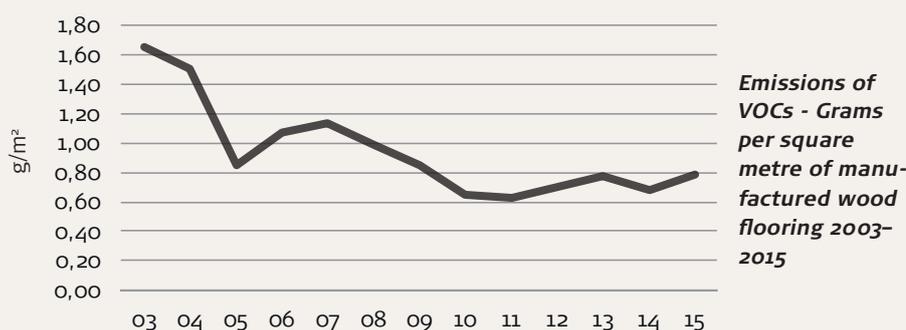
Heat energy is contracted from a local energy company using our own biofuel (wood waste) from Kährs. The burning process releases carbon dioxide, nitric oxide and dust. The carbon dioxide emissions contribute to the greenhouse effect, but biofuel does not cause a net increase of carbon dioxide in the atmosphere. However, nitrogen oxide and sulphur dioxide contribute to atmospheric acidification.

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

The location of Kährs' main factory in central Nybro is a challenge in terms of noise. Noise is caused primarily by our fans and filters in the manufacturing plants, but also in connection with transports (loading/unloading or road/motor noise). Noise may be harmful or least be perceived as a nuisance by people both inside and outside the company premises (employees, neighbours and local residents). Periodic noise samples are taken to ensure compliance to requirements.

RISKS FOR WATER AND SOIL

Risks of contaminating water or soil are mainly related to the loading and unloading of chemicals. These risks have been identified in Kährs risk analysis and procedures have been created to prevent incidents and to minimise any environmental impact in the event of an accident.



VOCs (Volatile Organic Compounds)	4.8 t	0.8 g/m ²
Dust (estimated quantity)	1.9 t	0.3 g/m ²

SIGNIFICANT ENVIRONMENTAL ASPECT:	EMISSIONS TO AIR	
ENVIRONMENTAL IMPACT	RISK	TREND
Emissions of substances that adversely affect air quality.	A disruption to equipment or a process can entail increased emissions.	Stable development

Emissions – climate impact from transportation

Kährs Group sells and delivers wood flooring all over the world, which involves many long-distance transport routes. The resulting fossil fuel carbon dioxide emissions contribute to an increased greenhouse effect and thus an increase in the risk of climate change.

Kährs Group's emissions of fossil carbon dioxide come from transport and amount to about 13,000 tonnes.

SHIPS & TRUCKS ARE THE DOMINATING MEANS OF TRANSPORTATION

All calculations of transportation emissions are based on material from our suppliers of transport services. Transportation by rail comprises the incoming delivery of logs to the Blomstermåla sawmill.

Cargo ships are used primarily to transport incoming wood material from Europe and other sources, and for transport of finished flooring to distant customers.

Truck transportation is used for short distance deliveries 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 over the road transports.

The environmental benefits of rail transport are difficult to be taken advantage of as trains do not meet customers' requirements for flexibility. In terms of cost, trains also have reduced benefit because it is often subject to transshipment costs.

Transportation to our warehouses, from all Kährs Group production facilities and externally produced flooring, is included in the report. (Europe and Asia)

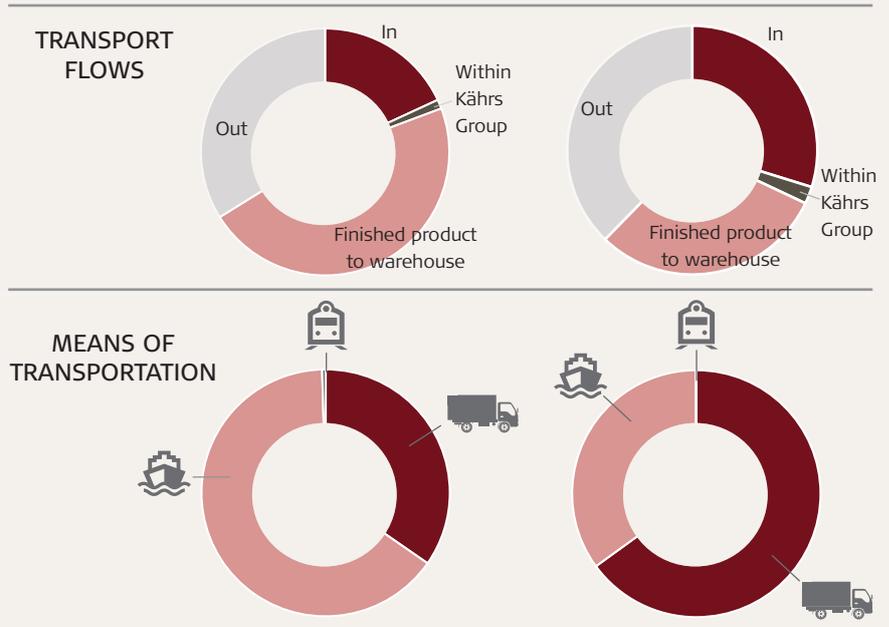
OUR CLIMATE IMPACT

Our main activities to reduce our carbon dioxide footprint are to increase efficiency when planning logistics and use transport methods that have lower carbon dioxide emissions.

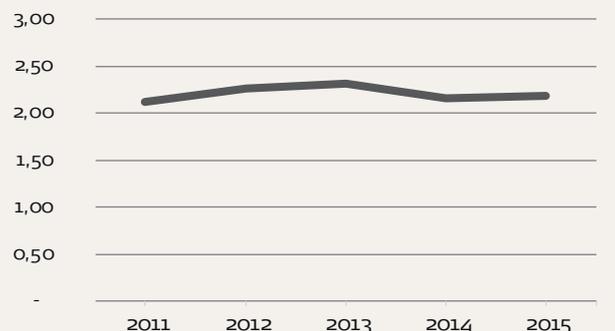
Our largest decrease of our carbon dioxide footprint is through the sale of wood flooring. The wood flooring that we sold in 2015 contained more than 90,000 tonnes of CO₂ and is held for up to for 50 years. A wood floor can have a lifecycle of 50 years, and it is then usable as biofuel as 98 percent is wood. Burning wood does not give a net increase of atmospheric carbon dioxide, provided that the forests are replanted. Alternatively flooring could be reused for another wood-based product and continue to store carbon dioxide.

TONNE-KM
Total transport work in 2015, about 480 million tonne-km

CO₂
Total carbon dioxide/CO₂-emissions 2015 about 13,000 tonnes



	Transport work (Mill. tonne-km)	Carbon dioxide CO ₂ (tonnes)	Nitrogen oxide NOx (tonnes)	Sulfur dioxide SO ₂ (tonnes)
All transport	480	13,344	111	28
Incoming transport	87	3,977	80	1
Transport within Kährs Group (SE)	6	297	2	0
Finished product to warehouse	225	4,035	38	19
Outgoing transport	162	5,036	41	8



Amount of carbon dioxide from transports, kg CO₂/m²

SIGNIFICANT ENVIRONMENTAL ASPECT:	CLIMATE IMPACT THROUGH TRANSPORTATION	
ENVIRONMENTAL IMPACT	RISK	TREND, see the graph on page 27
Emissions of carbon dioxide from fossil fuels into the atmosphere give rise to an increased carbon dioxide content and an enhanced greenhouse effect.	Procurement of less efficient transports.	Stable development

Emissions

- Emissions from use of the product

Millions of square metres of wood flooring from Kährs Group are installed in fine homes, and in quality commercial and public premises every year. Cleaning and maintenance lengthens the lifespan on the flooring, but also involves the use of cleaners and maintenance chemicals.

As a manufacturer we have no control over the cleaning and maintenance methods employed by customers, but we are clear in our recommendations.

Care and maintenance instructions accompany every delivery of wood flooring and detailed information is available in many different languages on our website and on our products.

Care and maintenance are important components of our "flooring schools", where

floor contractors, floor installers and store staff are trained.

Our own maintenance products have been formulated and tested to combine effectiveness with minimised environmental impact. Generally we advocate dry methods of cleaning for daily care and our (no VOC) Cleaner product when necessary.

Oiled floors require treatment immediately after installation, then periodically as necessary. This maintenance is carried out using Kährs Satin Oil.

EMISSIONS FROM WOOD FLOORS

All wood floors can generate emissions, e.g. formaldehyde and VOCs, both naturally through the wood and from additive materials. There are a number of guidelines and eco labels to help users select good products with low emissions.

Most wood floors from Kährs Group meet the requirements for some of the toughest ecolabels, such as Swan (the Nordic Ecolabel), E1, M1, BASTA, French VOC A+, FloorScore and CARB 2, to give some examples.



PRODUCTS AND PRODUCT MAINTENANCE

Excessive use of aggressive cleaning agents and chemicals benefits neither the indoor environment, the environment or the wood floor.

Choose a mild cleaner and use it sparingly. The best way to protect the floor is to prevent dirt/grit and debris from spreading into the room using effective dirt barrier systems (e.g. for wiping your shoes on) at the entrance and to be sure to wipe up spills quickly.

TRAINING - KÄHRS FLOORING SCHOOL

We train flooring professionals, building contractors and store staff on site at our premises in Nybro. This is an opportunity for us to provide information on suitable methods of care and maintenance. Moreover, care and maintenance advice is included in our presentations given during customer visits and at events all over the world.

SIGNIFICANT ENVIRONMENTAL ASPECT:	EMISSIONS FROM USING THE PRODUCT	
ENVIRONMENTAL IMPACT	RISK	TREND
<p>Recommended methods can reduce environmental pollution, e.g. less emission of chemicals and extend the life of the product.</p> <p>Emissions from the wood floor are monitored according to the requirements for different product certifications.</p>	<p>Poor care of wood flooring may result in unnecessary emission or use of chemicals.</p>	<p>Stable development</p>

Energy efficiency

- Use and biofuel production

Energy efficiency reduces environmental impact and we provide renewable energy to consumers who might use fossil fuels. All conversion of energy has a certain effect on the environment and climate due to the use of fossil fuels and the emission of acidic gases.

All energy used at Kährs' Swedish plants is renewable. The electricity used is registered as 100 percent renewable and all heat used in Nybro is generated from wood waste from our own sawmills. We also provide much more energy in the form of biofuel than we use in total.

The largest part of energy use in Kährs Group's Swedish operations is for drying wood, heat for pressing and transportation. (described on page 24).

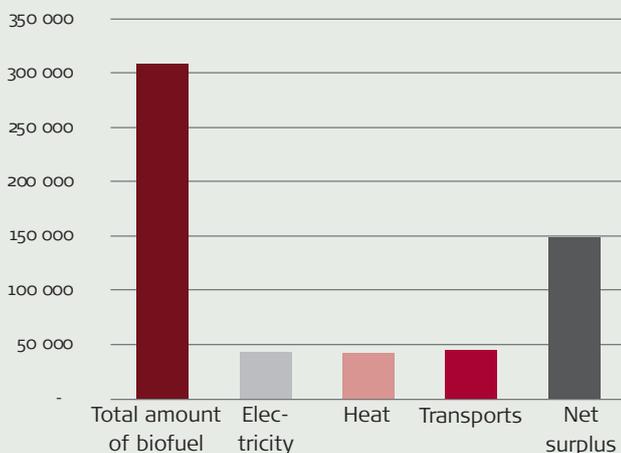
- Our dry residue (wood flour) is purchased by a local energy company to use the wood flour or make wood pellets for production of heat energy.

Wood waste from our sawmill consists of sawdust, bark and chips.

The ash from the combustion in their biomass boilers is collected and spread back in local forests as a nutrient.

- The total amount of produced biofuel shipped from our facilities would generate, in an efficient power plant (with 90% efficiency), approximately 97,000 MWh of electricity and about 180,000 MWh of heat.

- The total amount of fossil-based fuels which were used for Kährs' transportation in 2015 is equivalent to approximately 45,000 MWh.



POSITIVE ENERGY BALANCE

Kährs' activity in 2015 resulted in a surplus of carbon neutral fossil-free bioenergy.

Kährs produces more biofuel energy than we consume as electricity, heat and transportation.

When all internal consumption of energy is subtracted from the total amount of biofuel produced, we have a surplus of 148,000 MWh. This corresponds to the heating energy needs of 7,400 normal-sized Swedish houses yearly.

Biofuel is carbon dioxide neutral and over time has no climate impact as CO₂ is absorbed through the regrowth of new trees.

Electricity consumption	43,000 MWh	7.2 kWh/m ²
Heat consumption	42,000 MWh	7.0 kWh/m ²
Transportation energy (fossil fuel)	45,000 MWh	7.5 kWh/m ²
Production of biofuel	308,000 MWh	52 kWh/m ²
Net-Energy Produced (Carbon Neutral)	148,000 MWh	25 kWh/m ²

SIGNIFICANT ENVIRONMENTAL ASPECT:	USE OF ENERGY	
ENVIRONMENTAL IMPACT	RISK	TREND, see the graph on page 27
Acidification, emission of carbon dioxide and the consumption of resources in the conversion of energy.	Increased use of energy	Stable development

Environmental Target: Energy Use

TO CARRY OUT MEASURES THAT WILL DECREASE FUTURE ENERGY USE BY 2 GWH PER YEAR.

The target for 2015 was to implement measures that can reduce energy use (electricity and heat) by 2 GWh (gigawatt = one billion watts) within Kährs Group Sweden. Measures to reduce energy use by 1,4 GWh/year have been completed.

We perform continuous measurements of energy use in our buildings and production processes. Through these measurements we have identified savings potential with existing equipment that has subsequently been upgraded. This is ongoing work to identify future opportunities for reduced energy use.

EXAMPLES OF COMPLETED AND ONGOING ACTIVITIES:

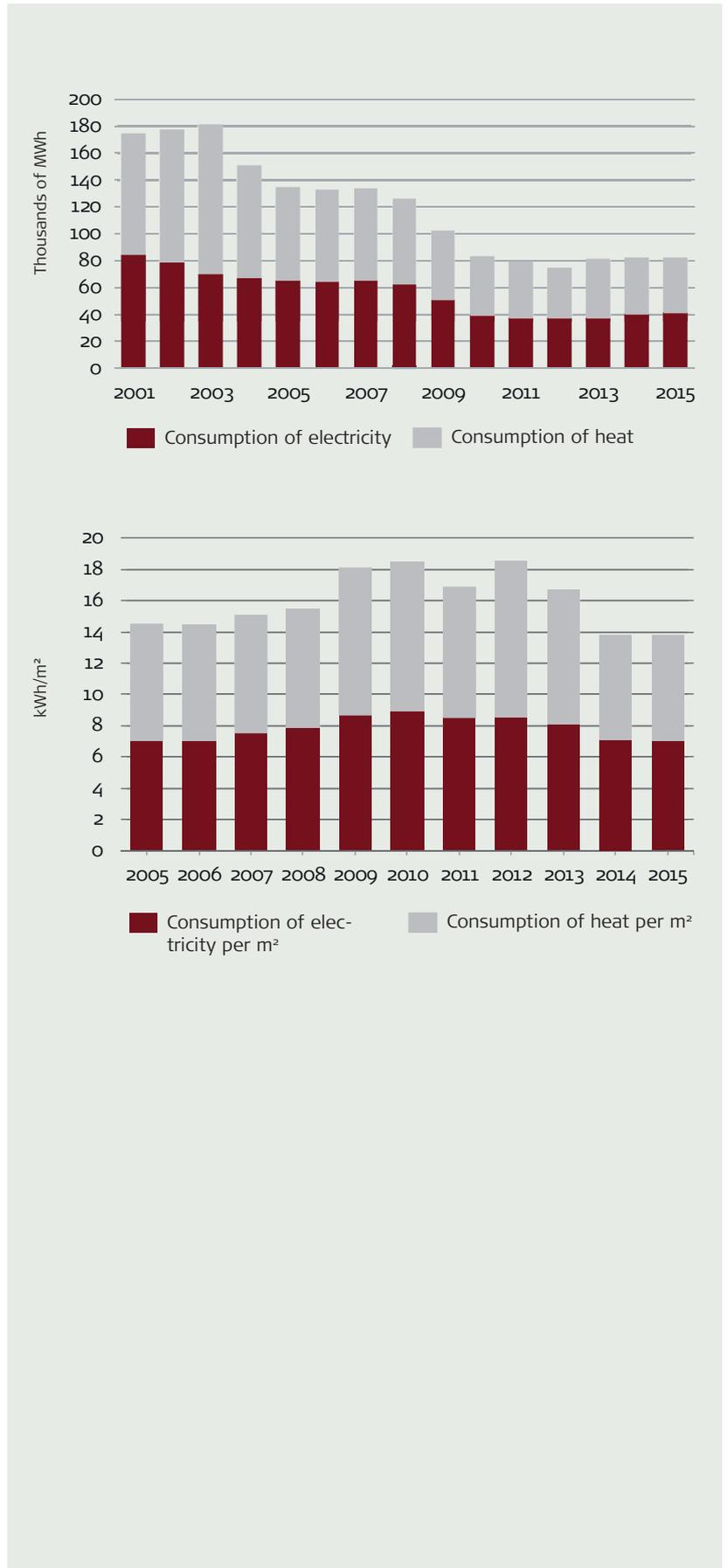
- Analyzing compressed air pneumatic pressure leaks.
- Continued replacement of light fixtures with LED lighting, Timer-controlled lighting
- Heat recovery from compressors is used to heat tap water, which reduces the need for hot water circulation in the summer.
- Studying the feasibility of recovering energy (heat) from the exhaust air from our large filtration systems

The potential for reducing energy use is influenced by many factors, including weather, mild or severe winters and increases or decreases in production volumes.

Targets for 2016

More efficient use of energy remains an environmental target for Kährs Group. A new target is to decrease the use of energy (kWh/m²) by 2 percent in 2016 compared to 2015.

In 2016 use of energy will be mapped throughout the company, which will generate several items in the action plan.



Risks

Laws have evolved towards greater demands on risk assessment and measures to reduce the risks. Probabilities and consequences of an event affect that risk.

OUR WORK ON RISKS

For several years at Kährs Group in Nybro we have been coordinating our risk assessment work in a group with representatives from the environment, fire protection, work environment, infrastructure and safety departments.

After an analysis of risks related to the environment has been performed, an action plan is drawn up of what needs to be corrected to reduce the risks.

OUR LARGEST RISKS

Implemented measures have been prepared and a new action plan has been developed, in which continued management of chemicals is one of the largest parts.

MEASURES

Expanded surface runoff water collection helps to also reduce our risk in the event of a chemical spill on the site. A review of chemical risks and training of personnel have been

made in connection with placement of new emergency response kits for chemical spills. According to the analysis, the major environmental risks are associated with fires, filter breakdowns and the loading and unloading of chemicals.

Incidents involving spills of chemicals have proven that Kährs' employees know how to act correctly. The handling of the incidents meant that we avoided spread and environmental impact.



Internal and external audits

Audits are tools to follow up our key processes progression. Audits check that our work methods guide us to meet the requirements and goals stipulated in Kährs' management system.

INTERNAL AUDITS

Management prioritises the processes to be 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 audits.

We conduct internal audits at planned intervals to determine whether the management system has been properly followed and maintained in an appropriate manner but also to identify areas to improve.

Internal auditors with different roles in the company comprise our competent group of auditors. Planning, implementation and reporting are designed to evaluate and support continuous improvements at Kährs according to the PDCA (which stands for: plan, do, check, act) wheel.

The audits are carried out according to Kährs' shared management systems for environment and quality. Effectiveness verification of the system at the different sites are included in the audits.

EXTERNAL AUDITS

Periodic audits of the management system for environment (ISO 14001) and quality (ISO 9001) were made during the year. For Kährs FSC/PEFC certifications, we have external third-part audits. Audits were also conducted to verify that we meet the demands of our many flooring products certifications.

Local conditions – Kährs Group Nybro



The Kährs plant in Nybro has a permit that enables the facility to produce up to 20 million m² of wood flooring per year. The permit also includes sawing up to 200,000 m³ of timber per year.

AUTHORITY-RELATED EVENTS DURING 2015:

- The final sealing of the old internal landfill facility took place in consultation with the supervisory authority. No elevated levels indicating any environmental impact from the landfill has been detected.
- Consultations were held with the supervisory community authority and the water and sewage department regarding management of process wastewater.
- Measures to improve the quality of surface runoff water and process water have been implemented.
- Efforts to develop the internal inspection programme continue.
- No complaints were reported during the year.

Permit conditions

Term (Date of issue)	Guideline	Status
3. Discharge of VOC (2005-02-04)	Max. 0.75 tonnes of VOCs per started million m ² . The applicable limit value is 15 tonnes of VOCs per year.	Met: 0.61 tonnes per started million m ² .
4. Noise (2005-02-04)	55 dB(A) weekdays, Monday–Friday 07:00–18:00 45 dB (A) at night 10:00 p.m. to 7:00 50 dB (A) at other times Maximum momentary noise level at night is 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.	The location in Nybro town centre is a challenge.
8. Decontamination and after-treatment	Examine the need for decontamination and after-treatment measures	MIFO-FAS2 was conducted in 2013. No further measures necessary.
9. Dust (2008-11-25)	2 mg/Nm ³ dry air, measured by random sampling.	Measurement performed in four filters during 2014. All results < 0,5 mg/ Nm ³ . No measurement was planned in 2015 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 processes before it is released to the municipal sewage/wastewater network.	This requirement is met through a treatment plant with a sedimentation stage and a provisional adsorption filter with wood chips.
11–14. Water (2010-09-09)	The residue arising from the sedimentation and adsorption shall be disposed of as waste. Outgoing water must not damage the municipal sewage/wastewater network, water treatment plant or the recipient. In its environmental report, Kährs shall annually present its work to reduce the amount of process wastewater and pollutants into the municipal sewage treatment plant.	Residue as glue and sawdust from the water treatment processes are disposed as waste for energy use. Low pH in outgoing water after treatment. Evaluation of adsorption method and other alternative methods was made by researchers at Linnaeus University. Suggested measure reported.

* The environmental report (submitted to the government committee, Myndighetsnämnden, in Nybro Municipality) comments on all the conditions.

Local conditions – Kährs Group Blomstermåla

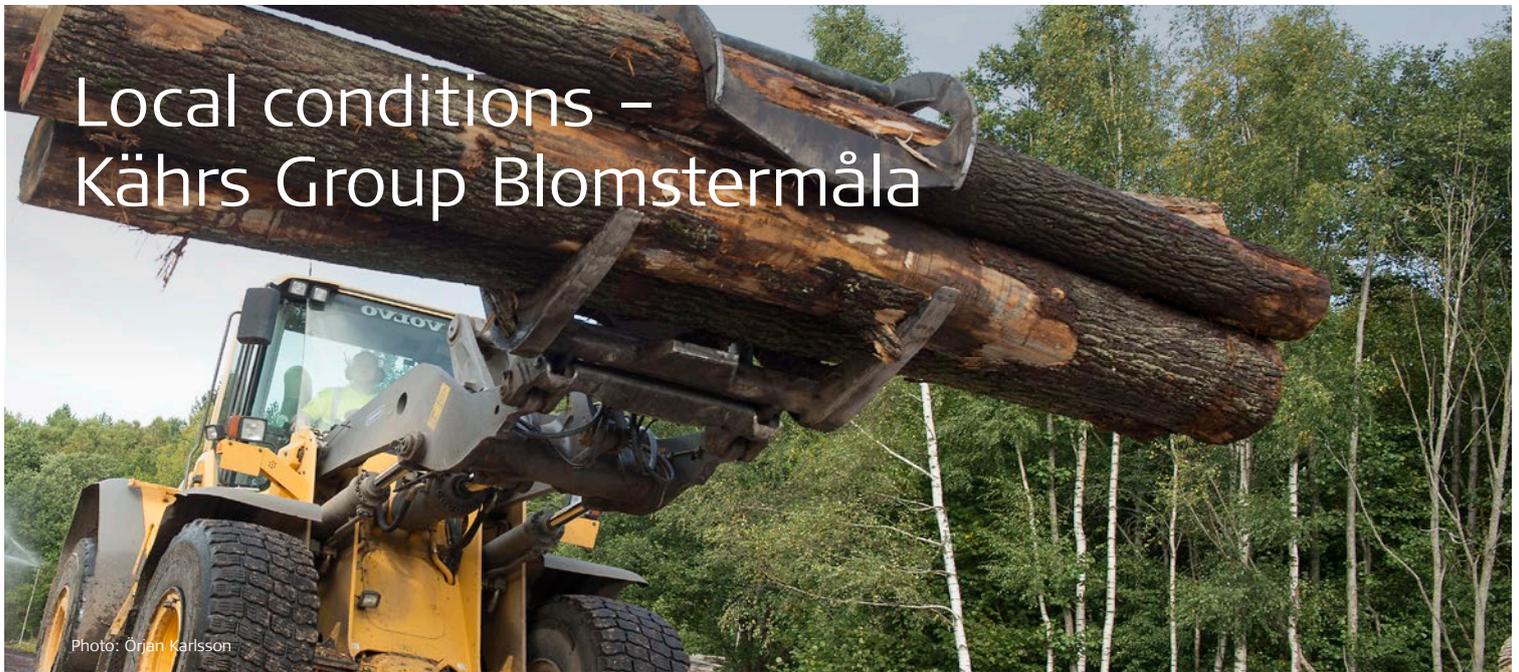


Photo: Örjan Karlsson

The operations in Blomstermåla do not require a separate permit, but are regulated by a number of precautionary and protective measures regarding issues such as irrigation, water and air emissions, management of chemicals, waste and noise. The sawmill in Blomstermåla sawed 18,167 m³ of timber in 2015.

IRRIGATION

The watering system operated during the entire season. Tests of the runoff from the irrigation conducted, and reported to the Environmental Office (Mönsterås). The diversion to the river Alsterån mainly takes place via infiltration in the ground, but a runoff from the drainage area leads out to the river bank area.

At the most, about 3,400 m³ of timber was stored in the water storage facility. Analyses of TOCs in water from the irrigation gives a result of about 30 mg TOC/l. Analysis of the water in upstream and downstream irrigation in Alsterån show no elevated values. 5,800 m³ of logs were irrigated with 53.000 m³ river water.

RISKS IN CHEMICALS MANAGEMENT

The risk of accidental discharge into the nearby River Alsterån that flows alongside

the sawmill is one of the most important environmental aspects connected with the Blomstermåla sawmill. Kährs is included in the Alsterån Water Council and follows the program for recipient monitoring. Emergency kit boxes in case of chemical spills have been placed around the sawmill. Protective equipment for storm drains (for surface runoff water) is positioned in selected locations to be available if any spillage occurs close to storm drains.

The holding tank of diesel fuel for the forklift trucks and loaders has been replaced and moved, which creates better accessibility and a lower risk of spillage.

TRANSPORT

Transport is also a significant environmental aspect for the operations in Blomstermåla. Over 65 % of the imported logs delivered to Blomstermåla were transported by train or

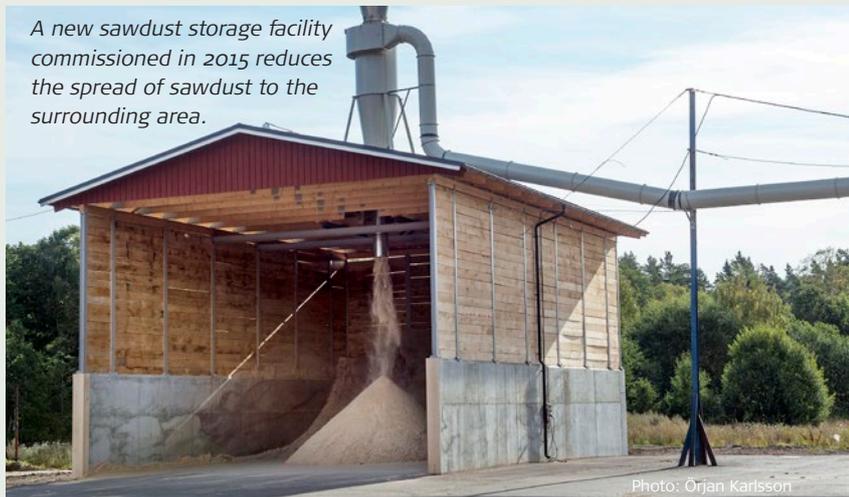
boat in 2015. The Swedish logs are primarily transported by truck and constitutes of two-thirds of the totally delivered amount.

EMISSIONS TO AIR AND NOISE

In 2015 a new sawdust storage facility was commissioned to reduce the dispersal of sawdust in the area around the River Alsterån. Installation of a shorter sawdust chute and a new cyclonic dust collector reduces the noise from two sources.

SUPERVISION

Blomstermåla operations are classified as a Class C facility, the Environment Committee in the Mönsterås Municipality is the supervisory authority. The last supervised visit was conducted in May 2015. All points have been responded to and addressed. Improvement of self-monitoring has begun to secure measures and monitoring of environmental aspects.



A new sawdust storage facility commissioned in 2015 reduces the spread of sawdust to the surrounding area.

Photo: Örjan Karlsson



New diesel holding tank with encapsulation function and new location.

Approved

Kährs' Group subsidiary company AB Gustaf Kähr and its Swedish units are included in our quality and environmental management system according to ISO 14001 and ISO 9001 as well as EMAS registration. Certificates are available for download at www.kahrs.com.

This environmental report according to EMAS is checked by DNV GL, which is a SWEDAC-accredited environmental auditor (accreditation number 053). DNV-GL has reviewed Kährs Group's Swedish production plants and has found that they have environmental management systems that meet the requirements stated in the EMAS regulation (No. 1221/2009). From 2006 and forward, Kährs' Swedish units are registered collectively as Kährs Nybro. S-000055.



APPROVED

DNV-GL has reviewed the environmental report for 2015 and has found it to be accurate, and sufficiently detailed to meet the requirements in EMAS.

The report includes the production units in Nybro as well as Blomstermåla and AB Gustaf Kähr's collective functions in Nybro and Malmö. The next audited environmental report for Kährs will be drawn up during the first half of 2016.

Solna 2016-05-17

Ann-Louise Pått
Management Representative

DNV GL - Business Assurance

Certificates



EMAS



FSC



ISO 9001



ISO 14001



PEFC

Year	1997	2005	1999 (ISO 9002: 1993) No. 2000-SKM-AQ-1481	1997 No. 2000-SKM-AE-228	2013
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EMAS has the purpose of promoting environmental improvements. It is a voluntary EU programme that requires public reporting of environmental conditions.

FSC® is an international organization working for global responsible forest management that takes into account both the environment and the people living in and from the forest. The Kährs "chain of custody" certification means that we may buy FSC material and manufacture and sell flooring products that are "FSC Mix certified".

ISO 9001 is the international quality management system.

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

PEFC (Programme for Endorsement of Forest Certification) is an international system for sustainable forest management. Kährs has a chain of custody certificate.

Kährs Group provides the global market with flooring solutions

Kährs Group develops, manufactures and sells wood and resilient flooring all over the world. The company has strong brands in its product portfolio, Kährs, Karelia and Upofloor. The supply chain for manufacturing units are in strategic locations in Europe and are close to the wood raw materials and important markets. Resilient flooring represents a smaller proportion of the sales, 7 percent, but is an important complement to wood flooring, making Kährs Group a comprehensive supplier of flooring with a focus on innovative solutions, environmental and health – in all its product segments.

The Group delivers products to more than 70 countries and is a market leader in Sweden, Finland, Norway and Russia, and also holds strong positions in other important markets, e.g. The UK and Germany. The Group employs about 1,550 people and has annual sales of approximately EUR 300 million.

THE GROUP'S PRODUCTION UNITS



Kährs Group's three global brands.



ISO 9001



ISO 14001



FSC



PEFC

Units

Wood flooring manufacturing

Units	ISO 9001	ISO 14001	FSC	PEFC
Tuupovaara, Finland	Yes	Yes	-	Yes
Maklino, Russia	Yes	Yes	-	-
Satulung, Romania	Planned in 2016	Planned in 2016	Planned in 2016	-
Bialosliwie, Poland	Planned in 2017	Planned in 2017	Yes	-
Veliki Bukovec & Kupres, Croatia partly owned as of 2015	Yes	Yes	Yes	-

Resilient flooring manufacturing

Ikaalinen, Finland	Yes	Yes	Not relevant	Not relevant
Nokia, Finland	Yes	Yes	Not relevant	Not relevant

Kährs Group – other production units



Satulung, Romania



Tuupovaara, Finland



Bialosliwie, Poland



Maklino, Russia

Wood Flooring

In 2015 Kährs Group had four wholly-owned production units for production of wood flooring and components for wood flooring outside Sweden.

In Tuupovaara, Finland the design product Saima is manufactured.

In Maklino, Russia the full-scale flooring factory mainly supplies the Russian market.

In Bialosliwie, Poland there is a factory for the manufacture of wood flooring, mainly veneer floors.

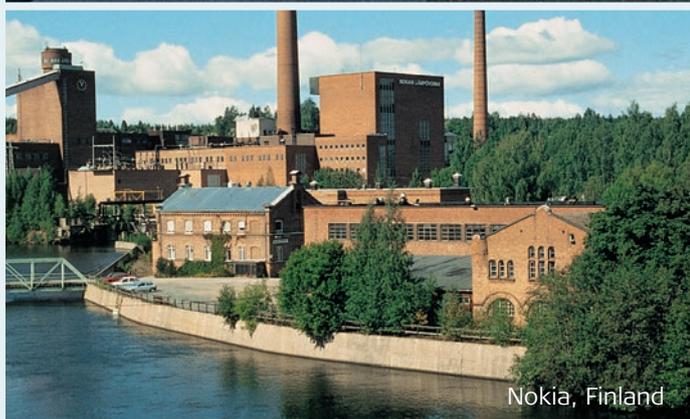
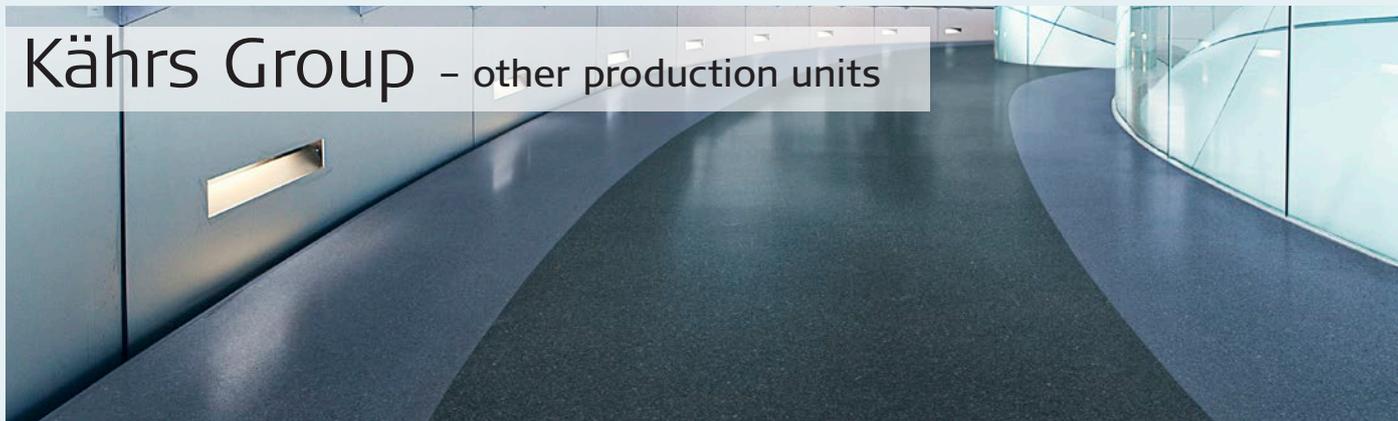
The factory in Satulung, Romania was expanded in the past year and inaugurated in December 2015. Previously the plant made semi-manufactured boards for the Group's other flooring factories, but today the plant is a full-scale wood flooring factory.

Kährs Group has a partly-owned production plant for wood flooring in Croatia, but this report does not present ecological balance data for this unit.

Ecological balance data, wood flooring, 2015

Use of energy				
Electricity	27,700	MWh	1.0	kWh/kg
Heat	15,900	MWh	0.6	kWh/kg
Other	0	MWh	0	kWh/kg
Material Use				
Wood material to products	44,300	tonnes	1.6	kg/kg
Chemicals for products, adhesives, hardeners, lacquers, stains, oil etc.	890	tonnes	0.03	kg/kg
Water	17,000	tonnes	0.6	kg/kg
Emissions				
Dust	1,550	kg	0.06	g/kg
VOC	56	kg	0.0	g/kg
TOC or COD in process water	no data	kg	no data	g/kg
Waste				
Recycling of paper	4,080	kg	0.15	g/kg
Recycling of plastic	22,300	kg	0.81	g/kg
Recycling of metal	76,800	kg	2.8	g/kg
Hazardous Waste	39,000	kg	1.4	g/kg
To energy recovery	2,550,000	kg	93	g/kg
Production				
Flooring Production	21,500	tonnes		
Semi-finished, wear layers	6,010	tonnes		
Biofuel				
	5,320	tonnes	0.2	kg/kg

Kährs Group - other production units



Upofloor resilient flooring

In Ikaalinen and Nokia in Finland, Kährs Group manufactures durable floors for commercial and public premises under the Upofloor brand.

The main products consist of PVC-free, plasticizer-free resilient flooring that have a growing market in the public project sector such as hospitals and schools having stringent requirements on environmental aspects, low VOC emissions, durability and low maintenance.

Ecology balance data, resilient flooring 2015

Use of energy				
Electricity	7,790	MWh	1.7	kWh/kg
Heat	6,210	MWh	1.3	kWh/kg
Other	0	MWh	0	kWh/kg
Material Use				
Polymers to Resilient Floors	5,750	tonnes	1.2	kg/kg
Chemicals for products	no data		no data	
Water	9,470	tonnes	2.0	kg/kg
Emissions				
VOC	0	kg	0	g/kg
Waste				
Recycling of paper	20,100	kg	4.3	g/kg
Recycling of plastic		kg		g/kg
Recycling of metal	11,900	kg	2.5	g/kg
Hazardous Waste	20,120	kg	4.3	g/kg
To energy recovery	14,420	kg	3.1	g/kg
Production Waste	549,000	kg	117	g/kg
Household Waste	11,380	kg	24	g/kg
Production				
Flooring Production	4,700	tonnes		



A history characterised by innovations & major progress in our environmental work

HISTORY

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 set up a shop crafting wooden utility goods. These simple beginnings became the foundation of the modern Kährs Group of today.

In 1919, Gustaf Kähr, grandson of founder 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 finding efficient ways of using the wood raw material and improving the stability of wood when used as 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 wood floors. After several years Kährs was awarded a patent, in 1941, for the invention of today's modern engineered hardwood floor, the multi-layer floor.

In 2012 AB Gustaf Kähr and Karelia-Upofloor Oy merged to form Kährs Group. The new company structure created even better conditions for continued sustainable development of products and operations.

KÄHRS GROUP TODAY

Today, Kährs Group is a group operating worldwide, with production in several locations in Europe. Our product portfolio has been complemented with resilient flooring for use in environments with high traffic, needing low environmental impact, with the main focus for PVC-free, plasticizer-free, low-VOC products.

Our objective is to provide the market with flooring that is beautiful, durable, easy to install and more sustainable. We're proud that people all over the world appreciate our products. Today, our floors can be found in fine homes, offices, shops, hotels, concert halls, theatres and sports arenas from Europe and Asia to the Americas.

ENVIRONMENTAL MILESTONES

Kährs has always been at the forefront when it comes to innovative development. Developments in the early years of the company often comprised utilising resources more efficiently, striving for what we today is considered sustainability:

- 1921** we began using waste wood as biofuel for steam energy
- 1937** we were awarded the first patent for the multi-layer wood door
- 1941** we received the first patent for multi-layer engineered wood flooring
- 1958** we introduced the first factory finished floor
- 1984** we introduced the first solvent-free lacquer system
- 1997** ISO 14001 certification & EMAS registration achieved
- 1999** first glueless joint, Woodloc® was introduced **to the world**
- 2004** we launched the new generation Activity Floor, pre-finished, no job site shutdown, and today is FSC® and DIN certified.
- 2005** FSC certification
- 2010** we opened the first LEED certified (green) warehouse on the continent.
- 2011** we are certified according to DIBt, French VOC A+
- 2011** we made the first wood floor made from dual labelled FSC®-Fairtrade certified wood
- 2013** Kährs' first Swan, Nordic Ecolabelled products were launched. The company's Swedish production units became PEFC certified.
- 2014** Investment in a new, industry leading production line for production of advanced flooring designs and better utilisation of oak raw material
- 2015** Final environmental sealing of the old landfill facility on Kährs' site in Nybro

Definitions

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.

BASTA

A database of construction and plant products that meet BASTA's stringent requirements for chemical content. BASTA is used by the construction industry for the selection of better products. bastaonline.se

CARB 2

California's environmental legislation, California Air Resources Board, phases 1 and 2, regulates requirements on formaldehyde in products.

DNV GL

DNV GL Group. The certification body for Kährs' environment and quality management system, as well as EMAS and FSC.

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 environmental management and environmental auditing regulation.

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 FUELS

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.

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.

GWH

Gigawatt hour - an energy unit corresponding to one 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 Fibreboard. Material used in the core of Linnea floors.

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.

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.

LNU

Linnaeus University

M1

A Finnish classification system aiming to promote the development of building materials with minimal environmental impact. The system shows which materials are recommended, for example in the construction of regular office and residential environments. M1 stands for a low degree of emissions and low odour.

MIFO

Methodology for the Inventory of Contaminated Areas. Phase 1 includes interviews and compilation of historical documents. Phase 2 includes sampling and analysis at critical locations.

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.

MWH

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

NATIONAL ENVIRONMENTAL OBJECTIVES

Sweden has 16 national environmental objectives. Read more on the Swedish Environmental Protection Agency's website:

PDCA

Is short for Plan, Do, Check, Act and is a scheme in quality management for systematic improvement.

PEFC

The Programme for the Endorsement of Forest Certification. An international nonprofit, non-governmental organization promoting sustainable forest management around the world and tracking of timber from certified forests as well as the processing and trading chain.

DUST

Particles that can cause contamination if discharged.

SUNDAHUS

In SundaHus Miljödata (literally, Healthy buildings, Environmental data) you can search for thousands of assessed products. The assessments are based on various characteristics and are divided into five classes. A, B, C+, C- and D. sundahus.se

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 - NATURAL STEP

Four system conditions - sustainable society:

- Substances from the crust of the Earth must not increase in the natural environment.
- The concentrations of substances produced by society must not be increased in the natural surroundings.
- Conservation of space for the natural cycle and diversity.
- no structural obstacles to people's health, influence, competence, impartiality and meaning. Read more: detnaturligasteget.se

ADDITIVE MATERIAL

Material other than wood that is included in finished wood flooring. e.g. glue, lacquers.

TANNINS

Also known as tannins and polyphenols which are found in oak wood, coffee, tea and red grapes.

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.

TONNE-KM

Tonne-kilometres Unit of transport work performed. It is calculated as the number of tonnes transported multiplied by the number of kilometres.

TRIPLE HELIX COOPERATION

Interactions between the academic, industrial and institutional systems as a means to foster technological innovation and economic growth.

UV-LACQUER

Lacquer that is quickly cured 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.

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