

THE FOREST SECTOR'S CONTRIBUTION TO THE EUROPEAN BIO-ECONOMY

A guide to the exhibition
6-9 September 2011, European Parliament



INTERNATIONAL YEAR
OF FORESTS - 2011



Forests and forest based products are all around us. From the moment we wake up to the moment we fall asleep we are constantly in contact with materials and products from the forest sector. Most of the time we don't even know it!

This exhibition guide provides additional information on the exhibition elements you will find during your forest based products' '24-hour journey'. We hope that this exhibition will be more than purely informative but rather evoke feeling, amazement and inspiration for what the forest sector can and will continue to deliver in terms of solutions to the EU bio-economy.

Discover the world
of forest sector products.
Your world!



Paper and ICT are complementary.
That is why we have provided QR codes for you to browse
sites, accessing more information about each product or
their creators. Here's how:

1. Download free QR software on www.mobiletag.com
2. Take a picture of the QR code with your mobile phone
3. You will be redirected to the website





Facts and Figures about Forests

Economic values

- Europe's forests are in the responsible hands of more than 16 million forest owners and producers, private and public.
- Forests cover 157 million ha, about 40% of the total land area in the EU.
- The total amount of wood is estimated at 24.1 billion m³, which has increased by 4.9 billion m³ over the past 20 years.
- In 2010, more than 405 million m³ of roundwood were produced in the EU-27.

Social values

- At least 92% of European forests are accessible to the public for recreational purposes.
- Around 3.5 million people work in the European forest sector, with the majority being in rural areas.
- Around 748 000 sites with cultural and spiritual values have been recorded within forests and other wooded land.

Environmental values

- Thanks to sustainable management, Europe's forests are growing and are in overall good health.
- Sustainably produced wood and non-wood products help to reduce considerably our environmental footprint.
- Responsible forest management mitigates possible harmful impact of climate change on Europe's forests such as forest fires, wind storms, pest and disease outbreaks.
- Forests fulfil protective functions for soil, water and other ecosystem services and forest areas have increased by about 3 million ha in the last 10 years.
- 37 million ha of forest area is under biodiversity protection.
- The area of protected forests has increased by around half a million ha annually over the last 10 years.
- Europe's forests remove annually 430 million tonnes of CO₂ from the atmosphere by photosynthesis.

Sources:

Eurostat
FAO
Forest Europe
UNECE



WAKING UP

Anti-Wi-Fi wallpaper

Wish to insulate your home or your company from GSM or Wi-Fi waves? The METAPAPER, a wallpaper printed with a conductive ink, now specifically filters certain frequencies such as 2.45 and 5.5 GHz (Wi-Fi).

This wallpaper, usable as an under-layer to cover up a wall surface, is the solution to attenuate undesired electromagnetic wavelengths but letting other waves pass through such as those of the FM radio or TV. It can be integrated into plaster-board, wood or into floor-covering. Generally used as wall covering it protects spaces such children's bedrooms, hospitals, cinemas or offices.





Tissue & new generation paper

With an ageing population tissue paper and hygiene products will play an increasingly important part in our lives.

We will see more product innovation breakthroughs particular using paper or wood-based bi-products as substitutes to other petroleum-based materials. Example: hospital mattress covers replaced with waterproof (hydrophobic) paper.



Cork wash basin

Europe is the world's largest cork producer. In the last 10 years the area of cork forest areas increased on average by 3.3%. In 2010 more than 169,000 tonnes of cork were produced, with a value of € 325 million.





JOGGING

Contrary to the commonly held belief that there's a direct casual link between using wood and the destruction of forests, increasing the use of wood makes a positive contribution to maintaining and increasing forests.

Europe is the only World region having a positive net change in forest area for the past 20 years. Europe gained 5.1 million ha of forest, and other forest land, since 2005 and 16.9 million ha, since 1990.

The volume of timber in the EU forests is at its highest level since records began. The net annual increment in 2010 was 620 million m³.

(Source: FAO State of Europe's Forests 2011).

We can reduce our environmental footprint by using sustainably produced wood and other forest derived products.



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GETTING READY



Vanillin products

Better fractionation of wood fibre in its three basic components (cellulose, lignin and hemi-cellulose) allows the production of very innovative and unexpected wood-based products such as... lipstick!

Clothing

Wood is fibre, like cotton and other textile materials are ... but requires much less energy and water to be grown and processed, in particular if all the component of wood are valorised.

T-shirts of the future will be viscose 'tree-shirts'.

Cork

Cork is a natural product originating from the renewable bark of the cork oak and is 100% recyclable. The first harvesting takes place when the tree reaches 25 years of age, with the subsequent harvestings occurring every 9 years. About 340 thousand tonnes of cork are debarked each year.



copa*cogeca
association of european
cattle raisers and
sheep breeders



BREAKFAST

Porridge & Muesli

The value of marketed non-wood goods amounts to € 2.7 billion, mainly from Christmas trees, fruit, berries and cork.





Beverage cartons

Beverage cartons are a widely used form of packaging to protect fresh drink and food products, enabling distribution either at ambient temperatures or under refrigerated conditions.

All the materials used in beverage cartons are recyclable. Recycling beverage cartons reduces carbon emissions and enables a better use of raw material resources.

On top of being recyclable, the beverage carton has two additional environmental benefits: its main raw material, wood fibre, is renewable, as it is sourced from responsibly managed forests and secondly, as a form of packaging, cartons have one of the lowest carbon footprints in their core markets of 'milk and juice'.



THE ALLIANCE FOR
BEVERAGE CARTONS
AND THE ENVIRONMENT



GETTING TO THE OFFICE

On public transport

Methanol, ethanol, and diesel fuel can be derived from wood. Gasification, fermentation or pyrolysis are known techniques to convert wood into liquid fuel for transport. Some of these products are still in the research phase.



Wood in construction

The increasing popularity of wood as a building material in Europe is based both on the requirements to reduce CO₂ emissions and on growing health consciousness. Renewable wood is a healthy and natural building material that offers optimal indoor air humidity, as recognised by many who suffer from respiratory problems. The more wood is used in the inner walls, the more optimal for health the humidity level is inside.

In Europe, buildings contribute to energy use and CO₂ emissions with a 40% share of total energy usage. The lifespan of a well-designed and correctly built wood building has proved to be as durable and even more diverse in use compared to buildings made of non-renewable materials.



Wide span and building solutions

Research in gluing and application technologies and advanced technical developments have opened up new and innovative applications for glued laminated timber, in particular in construction. Glulam, strong as steel, can be used in impressive lengths of up to 300m without needing a support beam or structure. This is particularly sought-after for constructions such as fair and exhibition halls to prevent the use of pillars.



© Zeiniger Architekten - Ing. Büro A. Pauser

Erdberger Steg

The Erdberger Steg crosses the Danube Canal near the centre of Vienna.

It was inaugurated in October 2003 and is the first wooden bridge to connect both sides of the canal in over 100 years. This great example of wooden architecture highlights the advantages of the glulam construction technique and spans more than 85m over the canal.



WIEHAG
WOOD CONSTRUCTION



IN THE OFFICE

Multi-storey buildings

Cross-laminated timber (CLT), a new generation board type construction material, which provides innovative building possibilities for single-and multi-family residential houses, multi-storey residential and commercial buildings, and for special applications in structural timber constructions.

CLT is commonly applied for external and internal walls, ceilings and roofs. The building system enables minimum assembly time at the building site because of its prefabricated boards. There is no break in the insulation layer and no need for a moisture barrier in walls.

Production of the boards with single layer lamellas provides many advantages: air tightness, fire and earthquake resistance, thermal and acoustic insulation, freedom in architecture and design and, of course, the sustainability effects of using wood in large constructions.



Paper in the office

Paper and paper products are essential in the office, taking many different forms and sizes. From post-it™ notes on reports, to needed photocopies for efficient and structured meetings, to invoices that need to be stored for several years for sound bookkeeping practices. Paper carries our communication to and from colleagues and clients alike.



Bridport House, London

An eight-storey residential building finished in December 2010, constructed entirely from CLT, replacing a 1950s block of flats as part of the regeneration of the Colville Estate in Hackney (London). Stora Enso's CLT panels have provided a solution to a very specific issue of weight: Bridport House has a storm relief sewer running directly under the site making it unsuitable for a heavy traditional concrete frame structure. The properties of CLT's engineered strength combined with its light weight have made it the ideal solution to overcome this problem. The structure has been designed in a way that the load bearing CLT panels are placed in a variety of positions on each floor, thus spreading the load. Because of this, it has also been possible to double the size of the replacement structure with only a 10% increase in overall weight.



© Stora Enso



DuraPulp

It is made from selected pulp combined with a starch biopolymer. The two components, in combination provide special properties that can be reinforced through hot pressing. DuraPulp is a material with high wet strength, high water resistance, high dimensional stability as well as high bending stiffness.

DuraPulp is made from 100% renewable fibres and is fully biodegradable.



UNICLIC systems for furniture applications

The UNICLIC connection technology allows the stable connection of furniture components at an angle of 180 degrees – without fittings, screws, or glue.

The furniture part is, in itself, a component of the connection so that there is no need for any additional connecting elements or materials. The system is self-explanatory. This means significant time saving during installation and a reduction of additional materials.

UNICLIC is an environmentally-friendly solution that can be used on chipboards and MDF panels.

The DIDIT furniture range, designed and produced by UNILIN, is the first furniture range using this brand new technology, will be launched in October 2011.



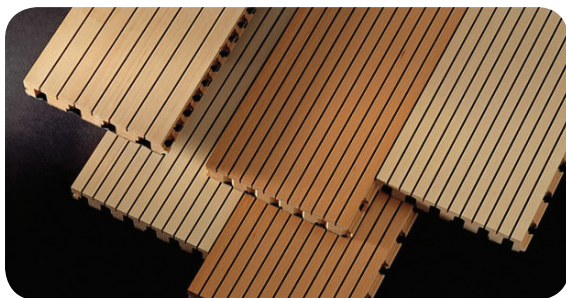
UNILIN

Cork flooring

The cork forests contribute to carbon fixation. Less than 1.5 ha of montado is necessary to mitigate the annual carbon dioxide emissions of an average vehicle. Montado is the name given to the typical cork oak forest, a multifunctional system of land use, which integrates cultural landscapes of high historic and social value.

The use of cork in flooring, wall coverings and insulation has expanded worldwide not only due to the development of new cork-derived materials and its characteristics, but also due to the growing importance of natural and sustainable materials.





Topakustic and Climacustic panels

Topakustic MDF is an innovative and effective sound-deadening product for cladding ceilings, walls and partition walls. Its innovative features are based on tried and tested technology, combined with total hygiene and non-toxicity of the MDF material. It is an ideal solution for public rooms, sports facilities, restaurants and hotels, work environments and the home.

The system of strips ensure precise joining and the choice of elegant finishes ensures a stylish appearance. Four types of perforation and milling exist, obtaining the best sound-deadening performance throughout the frequency range.

Climacustic is a single system for heating during the winter, cooling during the summer and improving the overall acoustics. The installation is easy due to the simplicity of the connection between the panel manifolds. The design is simplified since the modular arrangement enables systems of any size to be installed, which may be either wall or ceiling-mounted. The output is excellent, guaranteed by the uniform heat exchange over an extensive area, supplied by an external heat pump.



fantonigroup



COFFEE BREAK

Heat sensitive cups

Research and innovation explores ways to add functionalities to 'banal' products. Carton can react to temperature giving warning when its content is too hot ... or too cold.

Paper labels can change colour when the expiration date is reached and tell you even when your fruit is ripe!





© Borregaard

Food vanillin from wood

Vanillin, also known as 'methyl vanillin', is an organic compound and is the primary component of the extract of the vanilla bean. It is also found in roasted coffee and the Chinese red pine. Synthetic vanillin, instead of natural vanilla extract, is sometimes used as a flavouring agent in foods, beverages, and pharmaceuticals. Lignin-based artificial vanilla flavouring is alleged to have a richer flavour profile than oil-based flavouring.



 **Borregaard**
The Sustainable Bioeconomy



LUNCH & SHOPPING

Bringing the products you need

The space utilisation of corrugated packaging in transport, up to 33% more than other systems, means less road miles, less energy use and less CO₂ emissions.

70% of corrugated packaging in Europe gets recycled. 80% of the content of corrugated packaging is recycled paper.

Corrugated packaging protects more resources than it uses. In low income countries non-existent or inadequate packaging is part of the cause of up to 50% of food being wasted before it reaches the consumer. In Western Europe, where packaging systems are advanced, only around 3% of food fails to complete the journey.



FEFCO
Corrugated Packaging



Wood Packaging

Wood pallets move the world. Around 400 million pallets are produced each year in Europe, providing tailor-made logistic solutions for the movement of durable and consumer goods.

Wooden pallets and packaging can be reused, repaired and recycled. The use of wooden pallets and packaging not only helps to preserve our fragile climate, it adds to the social responsible reputation of the company as well.

Wood is naturally antibacterial and when (heat) treated it can be used for transport all over the world. In comparison with other materials it has a low fire hazard and is more hygienic than other materials.







AFTER WORK

Printed Media

Books and magazines have been with us for hundreds of years and are accessible (and affordable) to everybody.

They have and will continue to inform citizens and raise awareness about issues relevant for our society. Publishers offer a wide range of titles linked to economic, social, political, and environmental issues, and their diverse content educates, informs and entertains citizens.

The access to knowledge is an important factor in fighting illiteracy across Europe. That is why press, magazine and newspaper publishers have deployed a promotion of their media literacy programmes.

Paper plays a central role at universities and 'writing papers' is one of the key objectives for many researchers. The major paper uses in higher education include: in libraries, in producing and publishing academic papers, books and reports, in producing and publishing educational material, course books and compendiums, lecture handouts, articles to read, for student notes etc.





DINING OUT



Paper Battery

A short hop by electric car to a fab restaurant across town, where friends await for a birthday celebration. Both your invitation and car are powered by a paper battery!

As we move to cleaner and more fuel-efficient transport so to are ways to power these. This light-weight, paper-thin battery can now be inserted into an electric car to become a secondary power source.

New printable functional materials can be used in several application areas like displays, sensors, power sources and printed RFID tags.



Cork closures

The cork stopper is the cork industry's main product, representing around 70% of the total cork exploited worldwide. Only after the 3rd harvesting, when the cork oak is around 40 years of age, does cork obtain the indispensable quality needed for the production of cork stoppers.

Wine, bottle and cork; a traditional combination attentive to scientific progress and technological innovations.



Luxury Packaging

The versatility and printability on packaging means that designed-in ergonomic and communication features can bring sales increases and consumer benefits of a value many times greater than the cost of the packaging itself.



COMING HOME

Renewable energy

Coming home to a cosy, warm house to unwind and finish the day shouldn't be a luxury. Heating, however, can be impactful both on the environment and on your budget.

An efficient stove or boiler is not only a low carbon option for central heating and hot water boilers but it also saves pennies in the long run.

These are fuelled by wood pellets, chips or torrefied wood.

The carbon dioxide emitted when wood fuel is burned is the same amount that was absorbed over the previous months and years as the tree was growing.

As long as new trees continue to grow in place of those used for fuel, the process is sustainable. By using locally sourced materials emissions are much lower than the emissions from fossil fuels.





Building element solutions

Everyone wants to enjoy a uniform indoor climate. There is a great need for effective protection from the heat during the summer and low heating costs in the wintertime.

Due to the considerable temperature fluctuations that characterise our climate, the roof - the single most important element of your house - has to endure many variations. It protects you and your family from the wind, moisture, cold and heat. The roof also plays a crucial role in creating a pleasant, healthy indoor climate.

Individual sections made with AGEPAN building systems can be completely prebuilt in a carpentry shop with a suitable hall (so it can be done in any weather). It then takes only a few days to assemble the 'carcass' and make it wind and raintight. Then work on the interior surfaces can immediately start in a protected space.

This minimises the time required for construction and saves costs in the long run.

MORE INNOVATIONS FROM THE FOREST SECTOR

Waterproof paper

Chromatogeny is a new ultrafast green chemistry process that turns paper into waterproof material but that remains recyclable and biodegradable. This low-cost, environment-friendly and low-energy process was discovered by a CNRS researcher and is based on solvent-free grafting of reactive vegetal oil to create nanolayers.

This technology, highly competitive for the packaging sector, also opens new opportunities for cellulose applications in a wide range of green recyclable and biodegradable products for commodity such as: barrier films and webs for the building sector, filters and membranes, flexible large surface electronics support and protection and medical and health care products.



Pre-ceramic paper

Pre-ceramic paper represents a high potential as precursor material for the ceramic industry. Due to its flexibility it can also be moulded into 3D shapes and objects. Its special 'sintering' process enables it to acquire mechanical strength and high thermal resistance, making it a sought-after material for filtration, catalytic or heat-exchanging applications.



PTS THE PAPER
TECHNOLOGY
SPECIALISTS

Carbon Storage

Trees grow by absorbing CO₂ from the atmosphere through photosynthesis, turning the carbon into wood.

This carbon remains stored within the wood, and wood-products made from it, throughout their lifetime, rendering them ideal from a climate change aspect. Through re-use and recycling, this carbon storing capacity and benefit can be extended even further. Wood and wood-based products, also referred to as harvested wood products, thus extend the carbon sequestration that started in the forests.

In addition to storing carbon, forest-based products, in particular wood products, require only little energy for production and therefore are an excellent alternative to energy and carbon-intensive material i.e. materials required a lot of energy for production and, thus, provide a double carbon benefit to people and the planet.

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