

**MORE FROM WOOD.**



Environment & sustainability

**Sustainable construction  
and healthy living with  
Egger wood-based materials**





*“Wood is far too valuable to just throw it away!”*

Fritz Egger Senior (1922 – 1982)

# CONTENTS

04

Our milestones for a healthy environment

06

Circular economy in the corporate mission

08

Climate change and resource scarcity

10

Healthy living spaces

12

Making things clear

**JUST ASK! WE HAVE THE ANSWERS.**

16

Storing CO<sub>2</sub>

18

Conserving resources

20

Recycling

22

Controlling formaldehyde

24

Safe materials

26

Transparent environmental performance assessment

28

Certified buildings

30

Continual improvement

**OVERVIEW OF FACTS**

34

EGGER glossary

45

Imprint

EGGER integrates the first biomass power plant in Brilon (DE) to replace fossil fuels. Today, nine plants obtain their heat energy from renewable biomass. Four large locations also produce green electricity.

At the plant in Brilon (DE), EGGER first uses recycled wood for the production of chipboard. Today, all EGGER chipboard plants are able to make this important contribution to the conservation of resources. The corporate group now also includes its own recycling companies, among others in Germany, Romania and the UK.

EGGER is the first wood-based material manufacturer in Europe to prepare EPDs (environmental product declarations) for all of its main products.

1991

1995

2008

1961

1992

2006

2009

EGGER produces its first chipboard. It blazes the trail for technology that makes “More from wood”.

EGGER implements a new exhaust air purification process with the world’s first wet electrostatic precipitator in the industry.

To conserve resources, EGGER invests in lightweight boards with a honeycomb core made of recycled paper. The world’s first industrial plant commences operation in St. Johann (AT).

Environmental Management at the plant in Unterradlberg (AT) participates in the Eco-Management and Audit Scheme (EMAS). It gains ISO 14001 certification. Today, 3/4 of all plants have a certified environmental management system.

EGGER is the first European manufacturer to sign a contract on behalf of the entire Group for the external monitoring of its plants and products by the Fraunhofer Institute WKI.

EGGER obtains the PEFC/06-38-171- and FSC® C017963 certificate Group-wide.

Our milestones for a healthy environment



The plant in St. Johann (AT) feeds waste heat from the wood dryer into a new district heating network, which now provides 1,500 homes with environmentally friendly heating.

An energy management system in line with ISO 50001 is integrated in Brilon, Wismar and Bevern (all DE). Half of all plants now have a certified energy management system.

A central division for all product-related environmental matters is created.

EGGER publishes the first sustainability report according to recognised frameworks.

EGGER has its due diligence systems for the timber supply chain checked for the first time by a recognised monitoring company. Since then, the review has taken place annually.

EGGER is committed to the UN Global Compact and to supporting the Sustainable Development Goals.

2010

2012

2018

2020

2011

2015

2019

When constructing the office building in Radauti (RO), EGGER only uses its own wood-based materials and receives the DGNB (“Deutsche Gesellschaft für Nachhaltiges Bauen” – German Association for Sustainable Construction) certificate in gold for the new building.

Rainwater is collected and used in production for the first time on a larger scale in the plants of Brilon (DE) and Rion des Landes (FR).

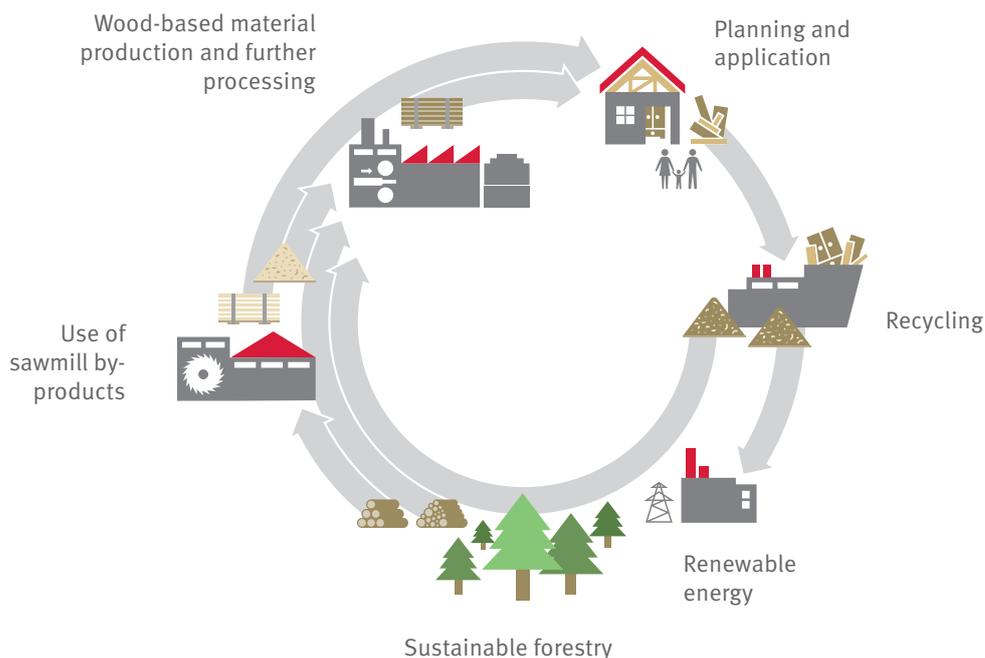
EGGER receives the ISO 38200 certificate for sustainable wood procurement.

A central coordination office for sustainability management is created in 2019.

With the construction method certified in Radauti, EGGER builds the TechCenter in Unterradlberg (AT) and the Forum in Brilon (DE).

St. Johann in Tirol is located at the foot of the Wilder Kaiser mountain – this is where the roots of our family company run deep.

# Circular economy in the corporate mission



From the tree to the product – a closed cycle. EGGER emphasises the sustainable use of raw materials in its core values. Our actions focus on the closed material cycle. In doing so, we count on fully integrated plants with short transport routes. Here wood is first used in materials: from timber production in the sawmill to the production of wood-based materials. Waste and recycled wood that are not suitable for production are used to generate energy in our own biomass power plants.

*EGGER takes climate change seriously. This is demonstrated by the following:*

**1** Most of the sawmill co-products processed into wood-based materials by EGGER at the fully integrated plant in Brilon (DE) come from the adjacent sawmill. This protects the environment by eliminating approximately 7,000 truck loads (nearly 660,000 kilometres or 410,000 miles) per year from sawmills in the region. We also run similar operations at the Wismar (DE) and Radauti (RO) plants.

**2** The use of recycled materials in EGGER products means that an additional 1.73 million tonnes of CO<sub>2</sub>

per year remain locked up in products over the entire utilisation phase, as compared to burning it.

**3** Wood residues and wood dust that cannot be used in products are transformed into heat and green electricity by EGGER in its own biomass power plants. In doing so, we avoid approximately 1,487,001 tonnes of CO<sub>2</sub> emissions from fossil energy sources per year. In total, approximately three-quarters of our CO<sub>2</sub> emissions for energy generation come from renewable, CO<sub>2</sub>-neutral fuels.



For details of the material cycle, visit [www.egger.com/environment](http://www.egger.com/environment)



→ Wood is the most important raw material for EGGER. If we were to allow the destructive exploitation of forests, we would endanger our own existence in the long term. Like nature, we organise our processes in cycles that conserve resources. Wood in our homeland stands for a tradition of healthy, comfortable living spaces. As a versatile, renewable raw material, it provides us with answers to the urgent global questions of our time.

EGGER Group Management

**Walter Schiegl**  
*(Production / Technical)*

**Ulrich Bühler**  
*(Marketing / Sales)*

**Thomas Leissing**  
*(Finance / Administration / Logistics)*

# Climate change and resource scarcity

*The situation:* Forests stabilise the earth's climate because wood locks in the greenhouse gas CO<sub>2</sub>. Renewable materials are the hope for a bio-economy that no longer relies on fossil fuels. Demand for wood as a construction material, as a raw material for paper, bioplastic and textiles, as well as a renewable energy source is growing steadily.

*The consequences:* There is a conflict between protecting the climate and conserving our natural resources. It is important to carefully weigh up how much wood we need, how to manage it efficiently in cycles and how to use it for a long time. In the interest of the climate, we need both energy and products from renewable and regenerative sources. To produce them, it must also be permitted to harvest wood within ecological limits.

For more on the topic of climate change, see the following pages:  
16 Storing CO<sub>2</sub>  
18 Conserving resources  
20 Recycling



→ EGGER supports the sustainability of wood as a resource. We follow the concept of cascading use: high-quality roundwood is used by us to produce sawn timber, while sawmill co-products, timber sourced from thinning forestry and recycled wood are turned into wood-based materials. We only burn wood for energy production if it cannot be used further in materials. Furthermore, EGGER develops technologies that permit the conservation of wood. For example, our EUROLIGHT lightweight board requires less material than a comparable solid wood board of the same thickness.

**The situation:** Health is one of the major issues of our time. On the one hand, medical advancements are leading to higher life expectancies. On the other hand, people are exposed to other influences as a result of modern lifestyles, new materials and construction methods. An average resident of Central Europe spends 90 percent of their time indoors.\*



**The consequences:** Lifestyle diseases such as allergies, sick building syndrome, and MCS (multiple chemical sensitivity), as well as the effects of stress are increasingly coming into focus. Thanks to reports and publications by various institutes, consumers are very much aware of issues such as formaldehyde and VOCs (volatile organic compounds).

For more on the topic of healthy living spaces, see the following pages:

- 22 Controlling formaldehyde
- 24 Safe materials
- 26 Transparent environmental performance assessment
- 28 Certified buildings

# Healthy *living spaces*

\*German Federal Environmental Agency, "Guidelines for indoor air quality"



→ EGGER recognises the special qualities of wood: the homely and natural warmth it brings. We are also aware of the growing importance of indoor air quality, as buildings are becoming more insulated and draught-free. This is why we intensively test the emissions of our products and also have them measured by independent institutes. Promoting better health and creating a pleasant atmosphere both play a major role in the further development of our materials and surfaces. This goes far beyond the chemical composition of the products. For example, our soft and quiet Comfort flooring supports a stress-reducing, comfortable atmosphere.

# Making things clear

**The situation:** What is the difference between HQE, LEED, BREEAM and DGNB?

Building certification is a complex topic, just like the corresponding market for products and services.

Different standards and rules can apply depending on the country or region. You need to ensure a structure obtains a recognised certificate for sustainability, health and energy efficiency.

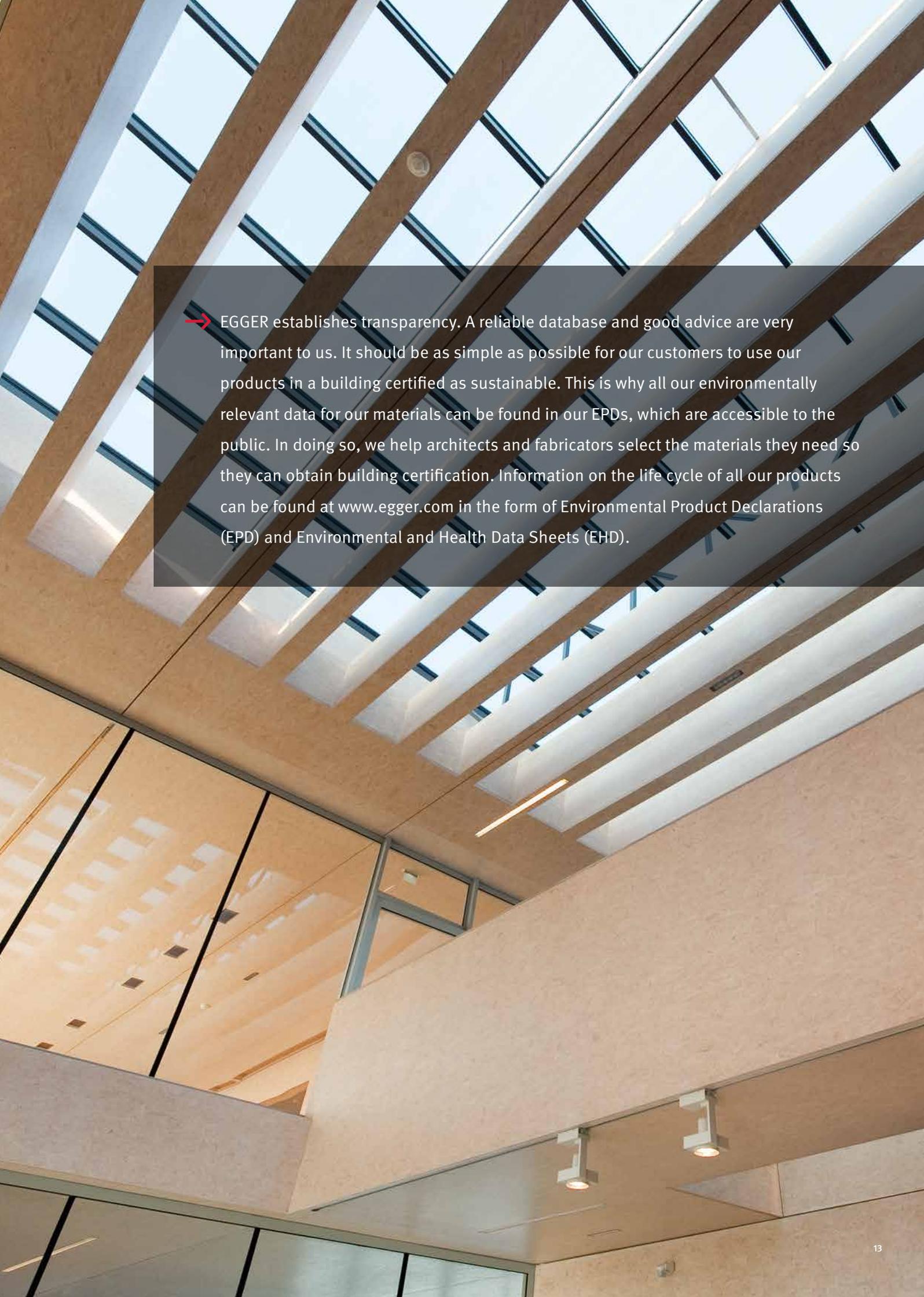
**The consequences:** Builders obtain a certificate as proof that a building meets the applicable quality requirements, including energy efficiency and sustainability. As such, when your property is evaluated, you receive, in addition to acquisition costs, important information regarding its sustainability – for example, the grey energy consumed during the manufacturing of the building materials and the environmental impact of the building during operation. Certification requires expert knowledge. Environmental Product Declarations (EPD) summarise this knowledge.



The EGGER office building in Radauti (RO) was awarded the DGNB certificate in gold for sustainability and energy efficiency. The TechCenter in Unterradlberg (AT), the Forum in Brilon (DE), and the new administrative building in St. Johann (AT) and in Wismar (DE) were built following this example.

For more on the topic of certification, see the following pages:

- 30 Continual improvement
- 34 EGGER glossary



→ EGGER establishes transparency. A reliable database and good advice are very important to us. It should be as simple as possible for our customers to use our products in a building certified as sustainable. This is why all our environmentally relevant data for our materials can be found in our EPDs, which are accessible to the public. In doing so, we help architects and fabricators select the materials they need so they can obtain building certification. Information on the life cycle of all our products can be found at [www.egger.com](http://www.egger.com) in the form of Environmental Product Declarations (EPD) and Environmental and Health Data Sheets (EHD).

Just ask!

We have  
the answers.



*Sustainability and health are central topics at EGGER. An interview with Manfred Riepertinger, who is responsible for environmental issues and sustainability in Product Management.*

**Mr Riepertinger, why is it so important for a company like EGGER to deal with environmental and health issues?**

General environmental awareness is on the rise. End users want to know which products they can buy with a good conscience. This is what our distribution partners and customers in the furniture industry, wood construction and retail are demanding from us. And it is in our own interest to implement sustainable production. Based on its awareness of the renewable raw material wood, EGGER has been dealing with the topic of sustainability since the company was founded.

**The forest is an air filter, an animal habitat and a recreational area for people. At the same time, it also supplies the renewable resource wood. How is EGGER contributing to ensure that our forests' productivity is not overburdened?**

EGGER operates in material cycles, beginning with sustainable forestry and extending through the production of timber and chipboard, all the way to recycling and utilising wood waste in biomass power plants. We use wood to its full extent in our products. We therefore make a significant contribution to the conservation of resources.

**How would you describe your job in Product Management, Basic Materials and Environment?**

It is primarily about bringing knowledge and expertise on environmental matters together. This includes the ingredients we use and emissions from our products, environmental certificates and sustainable construction. To do this, we network with our suppliers and technicians, and use expertise drawn from science. The relationship between sustainability and environmental compatibility plays a key role in the continuous improvement of our products as well.

# Storing CO<sub>2</sub>

” *Where are greenhouse gases released when wood is used?*



- 1m<sup>3</sup> spruce wood locks in **825 kg CO<sub>2</sub>**
- 1m<sup>3</sup> OSB boards locks in **931 kg CO<sub>2</sub>**
- 1m<sup>3</sup> raw chipboard locks in **812 kg CO<sub>2</sub>**
- 1m<sup>3</sup> MDF boards locks in **669 kg CO<sub>2</sub>**

Based on GWP 100 cradle-to-gate, source: current EGGER EPDs ([www.egger.com/environment](http://www.egger.com/environment))

\*Determined from the greenhouse potential of selected EGGER EPDs (GWP 100 in kg CO<sub>2</sub> equivalent, cradle-to-gate) 2015/2016

\*\*Source: EUROSTAT 2012, “Carbon dioxide emissions from final use of products”

\*\*\*Calculation: Recycling wood used across the Group x CO<sub>2</sub> factor chipboard (from EPD)

\*\*\*\*Calculated after EU emissions trading (EU ETS)

CO<sub>2</sub> is generated at several stages along the wood utilisation chain. The production of wood-based materials creates greenhouse gases, as does the natural decomposition and degradation of unused wood. When wood is burned, CO<sub>2</sub> is released, which would remain locked in if the wood was used to make materials and products.

EGGER optimises the use of wood. The wood in our products locks 5.3 million tonnes of CO<sub>2</sub>\* every year. This equates to the emissions of 3.2 million EU citizens\*\*. EGGER also uses recycled wood in the production of chipboard, thereby locking 1.73 million tonnes of CO<sub>2</sub> per year\*\*\*. Wood that is not suitable for upgrading is transformed into green electricity and heat for production in our biomass power plants, eliminating another 1,487,001 tonnes of CO<sub>2</sub>\*\*\*\* from the environment, as compared to energy generation using natural gas.

## ” *What does sustainability mean for chipboard production?*

SUSTAINABILITY REPORT



Go to the EGGER Sustainability Report  
[www.egger.com/sustainability](http://www.egger.com/sustainability)

Those who manage sustainably, satisfy present needs in such a way that all future generations can satisfy their needs forever.

For EGGER, it begins with the phase of raw material extraction, extends through the production, processing and use of the products and ends with the question of how successful the recycling is at the end of the life cycle. In each of these phases, there are different challenges – the so-called material sustainability topics. Information on the materiality analysis and annual progress concerning these topics is transparently presented in the Sustainability Report.

## ” *What is the timber industry doing to combat global warming?*



Manufacturing companies need energy to procure raw materials and manufacture products. The more fossil fuels are used, the more CO<sub>2</sub> is released.

Drying wood and generating process heat also requires a lot of energy. A large part of this is produced at EGGER in its own biomass plants using wood residues, where not much more CO<sub>2</sub> is released than was previously bound during the growth of the trees. When the products are used as furniture or building products, the wood-based materials then develop their strength: They have stored more CO<sub>2</sub> than was emitted during production. This carbon remains bound over the entire service life. With every chip that is recycled after use, this effect is extended.

# Conserving resources

*”How can sustainable wood procurement succeed?”*

## DUE DILIGENCE SYSTEM

Details of our due diligence system can be found in the EGGER Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

## WOOD ORIGIN

Details of our wood origin and the proportions that correspond to the various ISO 38200 categories can be found in our manufacturer's declaration on wood origin:

[www.egger.com/environment](http://www.egger.com/environment)

The amount of resources that are present in the environment is limited. Firstly, sustainable management means harvesting these resources with care, and secondly, using them wisely. For the supply of wood to be truly sustainable, it is not enough to procure wood responsibly only as a primary raw material. Recycling also counts as sustainable use.

EGGER pursues several approaches to reduce the ecological pressure that inevitably arises from the use of resources. These include regional wood procurement from the vicinity of the plants, establishing direct relationships with suppliers, cascading use by using recycled wood and following a due diligence system for tracing the origin of wood.

## ” What controls are applied to the delivered wood?

When it comes to putting into circulation of timber and timber products, the requirements of the EU Timber Regulation (EUTR) apply in the EU, the Lacey Act in the USA and the ForestCode in Russia. Their goal is to prevent illegally felled timber from entering the market.

### CERTIFICATION SYSTEMS FOR SUSTAINABLE FORESTRY



Das Zeichen für verantwortungsvolle Waldwirtschaft



Förderung nachhaltiger Waldwirtschaft  
www.pefc.at

The EGGER due diligence system for the procurement of wood and paper is checked by accredited third-party and in-house specialists, and guarantees full compliance with all legal requirements in the harvesting or production country. This assesses the risk of the wood coming from controversial sources (e.g. illegally felled wood or wood harvested under illegal employment). If such a risk is identified, we have the safety of the supply chain verified by independent third parties. 100% of the wood origin is from legal sources (“verified” according to ISO 38200). In addition, when buying we give priority to certified sources (“certified” according to ISO 38200).





# Recycling

*”What are the recycling options for wood-based materials?”*

Three material components are used for the production of wood-based materials: sawmill co-products, industrial roundwood and recycled material. Sawmill co-products include woodchips, cross-cuts, sawdust and wood shavings. Recycled material comes from waste wood recovered from discarded goods, such as furniture, pallets or packaging materials, as well as non-saleable products (rejects) from in-house production. Industrial roundwood is broken timber or timber sourced from thinning forestry that cannot be cut.

## RECYCLING WOOD PURCHASING

Details of the proportion of recycled material in total EGGER wood purchasing can be found in the Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

## RECYCLING PRODUCTS

Details of the proportion of recycled material separated by product group can be found in our manufacturer's declaration on the origin of wood:

[www.egger.com/environment](http://www.egger.com/environment)

EGGER ensures that recycled material is only purchased from qualified disposal specialists. Suitable recycled wood is processed there and used for chipboard production.

In addition, many of our own by-products and residues accumulate at the sites, which EGGER refines into materials or, if recycling is no longer possible, turns into energy to produce heat and green electricity.

Also, board cuts are taken back from customers and serve as raw material in the production cycle.

## ” Can contaminated recycled wood be processed into wood-based materials as well?



### RECYCLING QUALITY

Details of how we monitor the quality of recycled materials can be found in the Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

Due to impregnation and coatings, recycled wood may contain heavy metals or the organic chlorine compound PCP, which is prohibited today. Manufacturers have to implement careful sorting practices to ensure that only recycled wood which is not contaminated is used in materials.

EGGER processes recycled wood from furniture, pallets, wood packaging and suitable parts of construction and demolition timber. Recycling companies already separate contaminated wood during collection. The material is again visually inspected in the plant, freed from contaminants such as metal, sand and plastic, and is then processed into clean woodchips in several steps.

## ” How can 100 per cent of a tree be utilised?

### AS STURDY AS SOLID WOOD



EGGER invests in resource conservation technology and includes recycling in the process. For example, a honeycomb core made of recycled paper between thin layers of chipboard or MDF board stabilises the Eurolight lightweight board.

A closed raw material cycle maximises the use of wood in materials and as an energy source. In so-called cascades, the aim after each processing and utilisation step is to recycle the residues to the highest possible quality.

EGGER uses the potential of wood to its maximum advantage. Using wood in materials takes precedence: sawmill co-products, broken timber, timber sourced from thinning forestry and recycled wood can be upgraded into wood-based materials. Waste that cannot be materially recycled is used to produce drying power, process heat and green electricity.

# ”How much formaldehyde is there in wood-based materials?

Formaldehyde is naturally emitted by wood and is also contained in the usual binding agents of wood-based materials, e.g. in glues and resins based on urea, melamine or phenol.



EGGER works against trivialising the risks of formaldehyde, supporting and shaping both national and international processes that deal with the topic of formaldehyde and indoor air quality. All EGGER products fall below the limits for the European formaldehyde class E1. Some also meet the stricter requirements of national laws, such as those in the USA and Japan.

## Controlling formaldehyde

### OVERVIEW OF THE LIMIT VALUES FOR RAW CHIPBOARD

Emission classes	E1 (Europe)	E1 (Germany) "E05"	TSCA Title VI / CARB P2		JIS F****	
			American chamber test according to ASTM E 1333	Comparative value, European chamber test according to EN 717-1 (ppm)***	Desiccator according to JIS A 1460 (mg/l)	Comparative value, European chamber test according to EN 717-1 (ppm)***
Chipboard	0.1	0.05	0.09	0.065	0.3	0.03 – 0.04
Thin MDF	0.1	0.05	0.13	0.14	0.3	–
MDF	0.1	0.05	0.11	0.12	0.3	–
OSB	0.1	0.05	–	–	0.3	–

\*E05 is an industrial marking for products which, as rawboards, comply with the Chemicals Prohibition Ordinance in Germany

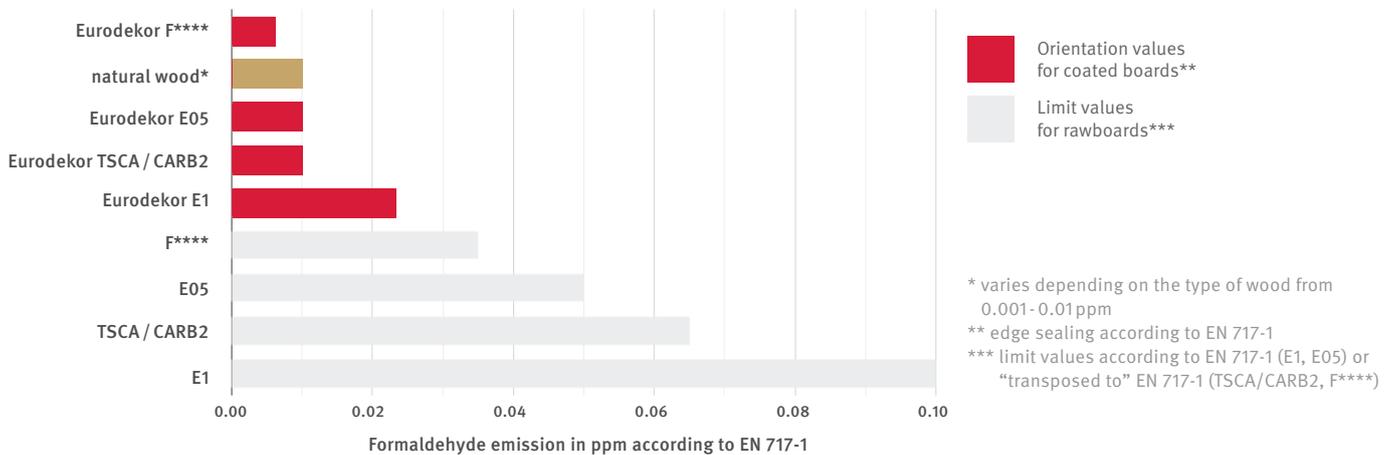
\*\*Derived method, reference method EN 16516 with limit value 0.1 ppm

\*\*\*Comparative tests performed by the WKI Braunschweig

## ”How much formaldehyde in wood-based materials is hazardous?”

Formaldehyde is a chemical compound that occurs in wood, smoked fish and fruit, among others. In a certain concentration in the air, it can be carcinogenic for humans. If the indoor air concentration remains under 0.08 ppm formaldehyde, it is considered by the World Health Organization to be harmless to health, even for vulnerable risk groups such as children, pregnant women, the elderly or sick people.

### INFLUENCE OF THE COATING ON FORMALDEHYDE EMISSION



More important than the content in the product is the question of how much is emitted from the product. EGGER offers rawboard in all the standards mentioned. How much formaldehyde is released by a product depends on its application area, for example

in furniture, coating or edging reduce emission (see graph above). However, the greatest influence on indoor air quality is a well calibrated ventilation system or regular manual ventilation.

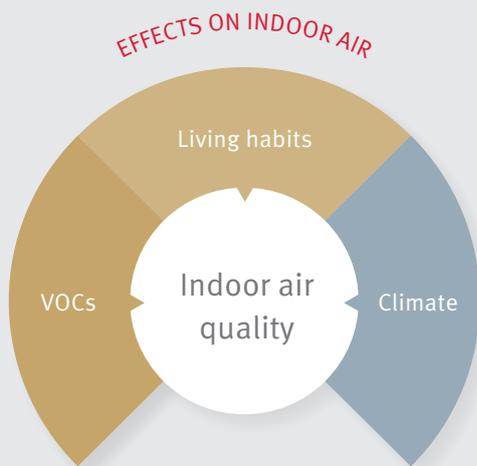
## ”Are there wood-based materials without formaldehyde?”



The majority of all chipboard uses glues containing formaldehyde. Manufacturers have been able to reduce emissions over the past 20 years. Formaldehyde-free glues such as polymer diphenylmethane diisocyanate (PMDI) are technically mature, but their availability is limited. In addition, they require a great deal of effort to ensure occupational safety during processing and thus lead to higher end prices.

EGGER also produces no-added formaldehyde rawboards which are usually placed under the E0 standard: EGGER OSB 4 Top as well as EGGER DHF board, which is also glued with polyurea. These are intended for areas of application where products with coatings that lower emissions are not suitable.

## ” What are VOCs?



In addition to VOCs from products and installed materials, indoor air quality is also affected by living habits and the climate.

\* "Evaluierung der gesundheitlichen Wirkung holz- bzw. holzwerkstoffspezifischer Emissionen" (Evaluation of the health effects of wood or wood-based material emissions); Mersch-Sundermann et. al.; 2009

\*\* "Bauen und Leben mit Holz" (Building and living with wood), publisher: Informationsdienst Holz

VOCs (volatile organic compounds) affect indoor air quality. They include natural substances in wood that are responsible for its characteristic odour. Various VOC sources affect indoor air quality in modern living spaces. Among them, wood and wood-based materials belong to positively perceived factors.\*\*

EGGER has the VOCs of its products regularly checked according to the latest standards. Studies show that wood-based materials do not damage lung tissue, even at high VOC concentrations. The naturally occurring aldehydes and carboxylic acids in wood are harmless as well.\*\*

## Safe materials

## ” How are VOCs in wood-based materials different from those in wood?

Since wood-based materials are compressed at up to 200 °C, the concentration of aldehydes and carboxylic acids may increase. In the case of treated wood, subsequent surface treatments may also be VOC sources.

As the bonding and pressing processes have been technically refined during the past 20 years, much lower volumes of glue are now used.

## ” Do wood-based material manufacturers have to test for VOCs in their products?



Test chambers in "TCLAB", the EGGER central laboratory Unterradlberg

The testing and evaluation methods vary according to the product group. In some countries, information on the release of VOCs is mandatory for flooring, building products and decorative interior design products. Various methods apply for the qualitative and quantitative evaluation of different VOCs.

EGGER also has its products that are not subject to mandatory testing evaluated by independent institutes. We also invested in modern test chambers, both for internal monitoring and for product development and optimisation. In doing so, EGGER improves its knowledge in this field. We can use the test chambers to measure VOCs as well as formaldehyde emissions.

## ” What is the effect of VOCs from wood-based materials on humans?

Scientists have collected reliable data proving that VOCs from wood-based materials do not represent a health hazard. In test chambers, test subjects showed no impairment of lung function or inflammatory reactions, nor did they experience any discomfort such as irritation of the eyes, mucous membranes, headaches, nausea, malaise or dizziness even at five to 50 times the concentration of terpenes in the air after two hours.\*

EGGER traditionally relies on wood to create comfortable living spaces. In the company's home of Tyrol, wood construction is part of a well-established lifestyle, slightly resinous components belonging to a natural living environment. The emissions from certain types of wood are considered revitalising, having a positive effect on health and general well-being.

\* "Evaluierung der gesundheitlichen Wirkung holz- bzw. holzwerkstoffspezifischer Emissionen" (Evaluation of the health effects of wood or wood-based material emissions.); Mersch-Sundermann et. al.; 2009

## ”What is a fully declared product?

A convincing price / performance ratio is indispensable, but not enough. Good products have nothing to hide these days. In order to provide major consumers and planners with the best possible information, manufacturers not only disclose technical and aesthetic properties, but also product descriptions, test reports and ingredients.

# Transparent Environmental performance assessment

Save time and effort on publicly tendered or sustainably certified projects when it comes to submitting the right documents. Information on environmental and health aspects is already available – thanks to “fully declared” EGGER products. We ensure that everything runs smoothly so that you can concentrate fully on improving your environmental performance. In order to live up to these expectations, EGGER offers two formats: the EPD and the EHD.

## ”What is the purpose of an EPD?



### ENVIRONMENTAL PRODUCT DECLARATION

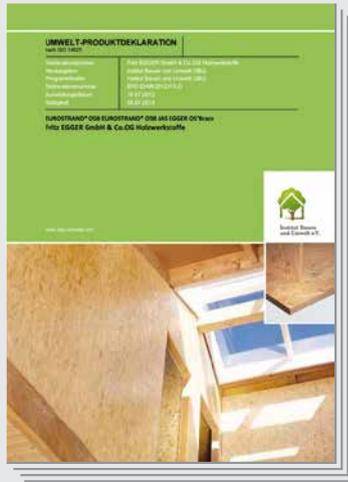
Download the EPDs here:

[egger.com/environment](http://egger.com/environment)

EPD stands for Environmental Product Declaration. In this document, the manufacturer presents all environmentally relevant information concerning a given material, including a verified environmental performance assessment. After all, not only is energy used and the environment affected when these building materials are used, but when they are manufactured, too.

EGGER was Europe’s first wood-based material manufacturer to disclose the environmental performance of its wood-based materials in independently verified EPDs. Today, EPDs are available for all key EGGER products.

## ”What performance figures are included in an EPD?



International standards and product category rules (PCR) define the framework conditions for building product EPDs. Modules are designated, from the raw material extraction and manufacturing to the disposal of a product. The core element of every EPD is the environmental performance assessment, which quantifies key environmental effects on climate, soils and waterbodies.

EGGER always keeps its EPDs up to date. The programme operator for our EPDs is the renowned German Institut für Bauen und Umwelt (Institute for Construction and the Environment) (IBU). With EGGER wood-based materials, we establish the good environmental performance of the raw material wood. As such, a single-family house built with wood can store up to 80 tonnes of CO<sub>2</sub>.

## ”What environmental impacts are included in the environmental performance assessment?

The environmental impact, that is the effect on climate, soil and waterbodies, can be compared with the help of so-called impact indicators. One indicator is the “Global Warming Potential” (GWP), which calculates the potential impact on climate change and places it in relation with carbon dioxide.

GLOBAL WARMING POTENTIAL IN KG CO<sub>2</sub> EQUIVALENT\*

	Wooden stud wall	Metal stud wall	Solid wall
Construction and maintenance	198	199	445
CO <sub>2</sub> locked in wood	-238	-9	-
Disposal (emitted)	250	7	43
Disposal (electricity & steam credit and / or recycling potential)	-114	-62	-
<b>Total potential</b>	<b>97</b>	<b>136</b>	<b>488</b>

\*Source: ÖkoPot-Projekt, UV Hamburg, 2008.

EGGER wood-based materials represent an environmentally friendly alternative to many materials. As shown in the example on the left, the carbon footprint of a wooden stud wall is five times better than the one of a solid interior wall.\* Thanks to the data in EPDs, the environmental performance of building projects or components can be precisely calculated over the entire life cycle of a building.

# Certified buildings

*”How do you measure the sustainability of buildings?”*

The recognised systems of sustainable building certification, such as LEED, WELL and DGNB, assess buildings according to social, ecological and economic criteria. Many factors are used for the evaluation, a few of which concern the building materials used in the building.

With public tenders, building certification projects and eco-labels, you can sometimes lose track. We have pre-filtered the criteria and make the evidence required for the product easily available in the EHD.



## ”What is a self-declared environmental claim?

The international standard ISO 14021 exists to enable manufacturers to make objective and verifiable environmental statements in their own data sheets. It contains requirements for “self-declared environmental claims” or “type II eco-labels”.

### ENVIRONMENTAL AND HEALTH DATASHEET

Download the EHDs here:

[egger.com/environment](https://www.egger.com/environment)

Any questions?

Write to us:

[environment@egger.com](mailto:environment@egger.com)

In addition to the EPDs, EGGER also publishes EHDs, “Environmental and Health Datasheets” for its products. They not only contain the information recommended for type II environmental declarations, but also all the necessary supporting documents for the main eco-labels and building certification systems.

# More from wood means more transparency

True to our mission “More from wood”, it is important for us to act sustainably, conserve resources and promote climate protection. Our sustainability indicators show what our products actually contribute to realising this promise. They make the environmental performance of each individual product transparent and easy to understand.

For more information, please visit [www.egger.com/ecofacts](https://www.egger.com/ecofacts)



## ” What does ISO 14001 mean?

### SUSTAINABILITY REPORT

The current overview of how many of our production sites are certified can be found in the Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

ISO 14001 is the global standard for corporate environmental management. The certified environmental management system monitors compliance with legislation and helps diminish or avoid negative corporate environmental effects. An environmental management system includes a corporate environmental policy, environmental objectives and an environmental programme.

The environment and sustainability are central elements of the EGGER philosophy. In 2009, the plant in Unterradlberg (AT) became the first EGGER plant to obtain an ISO 14001 certificate. In the meantime, a large majority of the plants are certified.

## Continual improvement

## ” How does an ISO 14001 certification work?

### SUSTAINABILITY REPORT

The annual development of our energy and material consumption can be found in the Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

The basis of the ISO 14001 is a PDCA cycle (“Plan-Do-Check-Act”). Measures are planned, executed, controlled and checked systematically. The basis of the inspection are environmental aspects, legal compliance, environmental risks and the entire system, which flow back into the new environmental objectives and the environmental programme. System inspections – the environmental audits – take place at regular intervals, performed by independent inspectors, who are the environmental auditors. The auditors provide valuable input for the further development of our environmental management.

EGGER has developed and achieved diverse environmental goals thanks to a systematic environmental management system.

## ” *What is ISO 50001?*



The wood dryer at the St. Johann EGGER plant serves as a clean, renewable heating source for neighbouring communities, thanks to sophisticated air purification. The connection to the district heat network makes sure that even the energy content of unusable wood and production waste is fully exploited.

ISO 50001 was introduced in 2011 and concerns the management of energy flows. Energy sources, energy consumption and energy consumers are systematically considered and assessed with regard to their efficiency. In addition to technical measures, organisational aspects are also relevant. As in the case of the ISO 14001, a continuous PDCA cycle continuously refines the results.

Within the framework of the certified energy management systems at EGGER, optimisation projects are continuously implemented.

## ” *How does EGGER improve environmental performance during production?*

### SUSTAINABILITY REPORT

Selected best practice examples of implemented environmental measures can be found in the Sustainability Report:

[www.egger.com/sustainability](http://www.egger.com/sustainability)

The ISO 14001 environmental policy defines goals for better environmental protection. These are implemented as part of the environmental programme.

Environmental and energy management aims to handle resources such as materials, energy and water responsibly. It is necessary to avoid waste, to use energy as efficiently as possible and from renewable sources, and to permanently restrict emissions to the environment, primarily in air and water, to a sustainable level.

# We accept responsibility

“ The EGGER Sustainability Report features transparent reporting on the subject of sustainability.

## Product responsibility



From the procurement of raw materials to the question of recycling after the utilisation phase.

## Responsible production



From the production phase to health safety.

## Responsibility for employees and society



From respectful and humane interaction within the company to dialogue with the public.

Read more about this in the EGGER Sustainability Report:

[egger.com/sustainability](https://egger.com/sustainability)





# EGGER *glossary*

A – C

## A

**ATCM** → For: Airborne Toxic Control Measure.  
See → **CARB-2**. ■

**AUSTRIAN ECOLOGICAL LABEL** → This eco-label has been awarded by the Austrian Ministry of Life since 1990. It is an ecological label for products, tourism businesses and educational facilities. There is a separate testing directive for the certification of each individual section and every type of product. Directives UZ 07 “Wood and Wood-based Materials” and UZ 56 “Floor Coverings” apply to wood-based materials. The objective of the quality seal is to publicise the environmental impact of consumer goods based on their manufacturing, utilisation and disposal. ■

Source and additional information: [www.umweltzeichen.at](http://www.umweltzeichen.at)

## B

**BIOMASS** → Mix of substances bound in living organisms and/or generated by them. Its scope is determined by its mass. Biomass is often only recorded for selected ecological systems that have been clearly defined spatially. Or it is only determined for certain, individual populations. There is no standardised biomass term in ecology. However, it is differentiated along two points of view: ecological biomass (estimated mass of living organisms per area) and energy-related biomass. The latter includes exclusively animal and plant products that can be used to produce energy. ■

**DER BLAUE ENGEL (THE BLUE ANGEL)** → The “Blue Angel” quality label in Germany has been designating environmentally friendly products and services since 1978. The label is owned by the German Federal Ministry of the Environment, Nature Protection and Nuclear Safety. Certain criteria must be fulfilled to be awarded the label. Directive RAL-UZ 76 applies to wood-based material boards, and RAL-UZ 38 for products made of wood-based materials. EGGER carries the Blue Angel quality label for *all EGGER flooring products*. ■

Source and additional information: [www.blauer-engel.de](http://www.blauer-engel.de)

**BREEAM** → “Building Research Establishment Environmental Assessment Method” is a British building certification system founded in 1990. ■

Source and additional information: [www.breeam.com](http://www.breeam.com)

## C

**CARB-2** → In 2007, the California Air Resources Board (CARB) issued a measure for the control of airborne toxic substances (Airborne Toxic Control Measure: ATCM), which includes guidelines for formaldehyde emissions from wood-based materials. The regulations are binding for all manufacturers, importers, fabricators, retailers and certification bodies that work with wood-based material products for the Californian market. ■

**CARCINOGENICITY** → Describes the property of chemical substances to cause cancer or to promote the development of cancer. ■

**CASCADING USE** → Use of a raw material through several stages, striving for the most sustainable and effective use while reducing the consumption of raw materials. Raw materials or the products made from them are used as long as possible. As a rule, a usage cascade permits the use of materials one or more times with decreasing added value, as well as a final energy use or composting of the raw material. Renewable raw materials are particularly well suited to multiple use thanks to their “hierarchical” structure, as they have the unique advantage that the stored carbon dioxide remains in circulation for a long time before it is returned to the environment. ■

**CHIPBOARD** → The most important product by volume among wood-based materials; chipboard is usually produced on continuous lines. It is made from wood chips and binding agents. Chipboard is usually composed of three layers. The core layer with somewhat larger chips

## C – E

provides strength while the surface layers with finer chips form a smooth and cohesive surface. ■

**CE CONFORMITY** → The CE mark documents the compliance (conformity) of a product with the requirements of standards or permits used in Europe. Wood-based materials intended for use in construction are regulated according to the harmonised European norm EN 13986 with regard to key properties, testing procedures for determining these properties and labelling. It also describes the procedure for assessing conformity, which shows that the wood-based materials fulfil the requirements that apply to them. ■

**CHAMBER TEST** → Method for determining formaldehyde or VOC emissions from wood-based materials. ■

**CHAIN OF CUSTODY** → The certification of the product chain makes sure that the raw material sources and the materials flow from acquisition of the raw materials to the sale of the end product is continuously documented and monitored. This verification management has been in place for a long time for particularly sensitive products (e.g. medicine). Companies in the timber industry with their independent inspection and certification guarantee the verification of the wood flow. It provides the end user with the necessary security that the wood used within the product comes from sustainable forestry. ■

**CO<sub>2</sub>** → Carbon dioxide is an acidic, non-flammable, colourless, odourless, chemically relatively inert gas that is produced when burning organic substances and is jointly responsible for the greenhouse effect in the atmosphere. ■

**CO<sub>2</sub> FOOTPRINT** → The CO<sub>2</sub> footprint (also known as CO<sub>2</sub> balance) is a measure for the total amount of greenhouse emissions caused directly or indirectly by a certain activity, or which is produced throughout the life stages of a product. All → **EMISSIONS** which contribute to the greenhouse effect are converted into carbon dioxide equivalents. It is also identifiable from the product's environmental performance assessment. ■

**CO<sub>2</sub> RESERVOIR** → Substances that are able to temporarily or permanently absorb and store carbon. It is generally assumed that any biomass is capable of storing CO<sub>2</sub>. Forests are large carbon sinks, as trees absorb carbon from the air and store it in the wood. However, oceans are the largest CO<sub>2</sub> reservoirs by far. ■

**CO-PRODUCT** → Secondary and by-products are designated as co-products. It is a material that is produced during the

initial processing of log wood along with another (primary) product from the same raw material (e.g. woodchips, sawdust, trimmings). In the sawmill industry, reference is also made to sawmill co-products. ■

**CRADLE-TO-GATE** → **LCA**. ■

## D

**DESICCATOR** → Also: Exsiccator. A testing device for determining the formaldehyde emissions from wood-based materials. Pre-conditioned test bodies are stored at a constant temperature in an exsiccator in which there is a dish with distilled water. The formaldehyde emitted by the test samples is absorbed into the water over a period of 24 hours and then analysed. The test is described in the Japanese standard JIS A 1460. ■

**DGNB** → For: Deutsche Gesellschaft für Nachhaltiges Bauen e.V., a certification system for sustainable and economically efficient construction in Germany. Approximately 50 criteria from the fields of ecology, economy, sociocultural and functional aspects, technology, processes and location apply to the assessment of construction projects. Depending on the degree of compliance with the requirements, the programme sponsor DGNB issues certificates in silver, gold or platinum. ■  
Source and additional information: [www.dgnb.de](http://www.dgnb.de)

## E

**E05** → Unofficial designation for wood-based materials classified according to the German Chemicals Prohibition Ordinance, which was revised in 2020 (rawboard). They correspond to approximately half of the formaldehyde emissions of the → **E1** class.

**E1** → The harmonised standard EN 13986 regulates requirements for the use of wood-based materials in construction and the emissions class E1. In Annex B of the standard, the formaldehyde emissions class E1 defines a formaldehyde emissions threshold of 0.124 mg/m<sup>3</sup> air (0.1 ppm) in a chamber test according to EN 717-1. ■

**EMAS** → For: Eco Management and Audit Scheme, the European environmental management system. All public and private sector organisations may participate in it on a voluntary basis. The goal is the continuous improvement of a company's environmental protection through the

respectful and efficient use of resources. With the help of EMAS, ecological and economic weak points in organisations can be eliminated and material, energy and costs saved. EMAS companies are obliged to publish an environmental statement on a regular basis. ■

**EMISSION** → Discharge or output of substances into the environment. In the case of wood-based materials, it is particularly → **FORMALDEHYDE** from binding agents, but also volatile organic compounds (→ **VOCS**), which originate in the wood itself (e.g. terpenes). ■

**ENVIRONMENTAL PERFORMANCE ASSESSMENT** → **LCA**. ■

**EPD** → An Environmental Product Declaration provides quantified environmental information about the life cycle of a product or service. Independently verified data of the respective product is represented in the form of a life cycle inventory analysis with input and output flows. An EPD represents a declaration according to Type III ISO 14025. In addition, this standard stipulates that a valid Environmental Product Declaration must be made available publicly via a programme operator. ■

**EU TIMBER REG** → The EU Timber Regulation (EUTR) regulates the marketing of wood and resulting products on the European market. It establishes the due diligence to be applied by market participants, the tasks of monitoring organisations, and the relevant national authorities in the Member States. The Regulation divides companies into “market participants” who put timber and timber products into circulation within the EU for the first time, and “dealers” who buy timber that has already been put into circulation by another party. ■

**EXSICCATOR** → **DESICCATOR**. ■

## F

**F\*\*\*\*** → A formaldehyde emissions class issued by the Japanese Ministry for Land, Infrastructure, Transport, and Tourism in 2003 as a new regulation for classifying building products according to their formaldehyde emissions. Products with formaldehyde emissions below 0.005 mg/m<sup>2</sup>h or 0.3 mg/l comply with F\*\*\*\* and their use in Japan is not limited in any way. ■

**FDES** → French term for → **EPD**, “Fiche de Déclaration Environnementale et Sanitaire”, or “Data Sheet for Environmental and Health Declaration”. ■

**FORMALDEHYDE** → Colourless, pungent gas which may be emitted, for example, during the hydrolyse of urea-formaldehyde resins. Formaldehyde may cause allergies, skin, airway or eye irritation in humans. In the case of long-term exposure, it can have carcinogenic effects in the air above a certain threshold value. ■

**FSC®** → The Forest Stewardship Council® was established in 1993 as an international organisation and is supported by environmental associations such as the WWF, forest owners, the timber industry, trade unions and indigenous peoples in its efforts to curb the depletion of forests. FSC® is independent and has no financial interests. Its goal is to label wood from socially and environmentally responsible forestry with a quality seal. To guarantee this, independent experts check wood on an annual basis as part of certification. ■

## G

**GREENHOUSE GASES** → The energy radiated by the sun is prevented from complete reflection by gaseous substances in the atmosphere (greenhouse gases), which creates a habitable climate on the earth’s surface. A disturbance of this natural greenhouse effect leads to global warming and is largely blamed on human activities. With the Kyoto Protocol, a binding accord under international law was concluded to reduce the man-made emission of major greenhouse gases. ■

**GREY ENERGY** → Energy quantity required for the manufacturing, transport, storage, sale and disposal of a product, including the upstream chain up to the provision of raw materials. Thus, grey energy is the actual, total energy need for creating a consumption good. The energy use that occurs through its utilisation is not included in the grey energy. ■

## H

**HONEYCOMB BOARD** → Three-layer composite boards made of one honeycomb core and two cover layers. In the wood-based materials industry, the middle layer generally consists of cardboard honeycomb, the cover layers are made of various wood-based materials. Honeycomb boards offer very high strength relative to their weight thanks to their sandwich structure and are used mainly in lightweight building. ■

## H – M

**HQE** → The French system for optimising the ecological quality of building projects. Haute Qualité Environnementale (HQE) was first tested in 1994 and has been in use since 1997. The HQE certification covers three phases: order, design and execution. Audits are performed at the end of the three phases. The focus is on two aspects: the ecological management of building projects and sustainable building design. In order to obtain the HQE certificate, at least 30 points out of 110 must be reached in 14 categories. Obligatory categories are harmful substances, energy management and water efficiency. At least 19 points out of 45 must be reached in these. The builders may then choose from among the remaining categories those that are best suited to the profile of the building and the requirements of the user. ■

**IBU** → The Institut Bauen und Umwelt (IBU) is an initiative of building products manufacturers, who have decided to jointly respond to the requests for more sustainability in construction. IBU is a recognised programme operator in Germany, which

→ drafts and publishes **EPDs** for the construction sector according to ISO 14025. Both the public and users can access this information first hand at [www.bau-umwelt.com](http://www.bau-umwelt.com). ■

**IMPREGNATE** → In the wood-based materials industry, impregnates are → **UF, MF** or **PF** resin impregnated and dried decorative, unicolour or white papers, which are subsequently used for the coating process or to manufacture laminates. ■

**INDOOR AIR QUALITY** → In the 1990s, national and international bodies raised questions about the precise evaluation of → **VOC** emissions from building products to improve the air quality in closed rooms. ■

**ISO 38200** → International standard regulating a controlled supply chain (chain of custody) for wood and wood products, cork and lignified materials, for the traceability of wood or wood-based products.

### **LCA/ENVIRONMENTAL PERFORMANCE ASSESSMENT** →

A systematic analysis of the environmental effects of products throughout their lifetime or up to a certain point during processing. All ecologically relevant elements

removed from the environment (e.g. ores and crude oil), as well as emissions into the environment (e.g. waste and carbon dioxide emissions) are recorded and converted into environmental impact potentials. The environmental performance assessment is a fixed element of EPDs. ■

**LEED** → Leadership in Energy and Environmental Design is a U.S. classification system. It was developed in 1998 by the U.S. Green Building Council and includes a series of standards for environmentally friendly, resource-efficient and sustainable building. LEED stipulates various regulations, for example in new constructions and comprehensive rehabilitation, structural work without interior fittings or commercial interior design. A certain number of points must be achieved per category in order to fulfil requirements. The sum obtained leads to the classification of silver, gold or platinum. ■

Source and additional information: [www.usgbc.org/leed](http://www.usgbc.org/leed)

**LIGNUM** → The “Lignum, Swiss Woodworking Industry” established in 1931 is the umbrella organisation of the Swiss forest and wood industry. It brings together several important associations and organisations along the wood utilisation chain, research and teaching organisations, public entities and companies, as well as a significant number of architects and engineers. Among other things, Lignum focusses on the topic of formaldehyde and champions wood-based materials with emissions that are below strict thresholds. The organisation offers comprehensive information on this topic, including a list of wood-based materials that are suitable for interiors. ■

Source and additional information: [www.lignum.ch](http://www.lignum.ch)

**LINDANE** → **PCP**. ■

## M

**MATERIAL CYCLE** → The objective of a closed-loop material cycle is, on the one hand, to reuse all waste and co-products as efficiently as possible, and on the other hand, to make substances used in the product available again for production at the end of the product life cycle, by implementing optimal recycling. The possibility of a closed material cycle should be taken into account even during the preliminary stage of product planning in conjunction with product design. ■

**MDF** → Medium Density Fibreboard: wood fibre materials manufactured with the dry procedure. The basic raw material are fibres from fresh wood and binding agents. ■

**MFC** → Melamine Faced Chipboard – manufactured in shortcycle coating facilities from wood-based materials as carriers and impregnates. ■

**MINERGIE ECO** → The Swiss Minergie association for building certification brings together the economy, the cantons and the federation. It has developed various quality standards for buildings: “Minergie”, “Minergie-P” and “Minergie-A”. The “Eco” supplement may be certified along with each standard. ■

Source and additional information: [www.minergie.ch](http://www.minergie.ch)

**MONITORING FIRM** → Institution to voluntary review a due diligence system. Here, this relates to the monitoring contract between EGGER and SGS. This is where EUTR-relevant “market participant” cases, in which EGGER or our external customers are first-time marketers of timber in the EU, are subject to review.

## N

**NORDIC SWAN** → The “Nordic Swan” eco-label was introduced in 1989 by the Nordic Council of Ministers. It is implemented by the governments of Sweden, Norway, Iceland, Denmark and Finland. The Nordic Swan is one of the most widespread ecological labels and is highly regarded, particularly in Scandinavia. The eco-label established requirements catalogues for both floor coverings and board materials in the field of construction and furniture. ■

Source and additional information: [www.svanen.nu](http://www.svanen.nu)

## O

**OSB** → Oriented Strand Board, wood-based materials made of aligned long, slender chips (strands). OSB boards are preferred in the field of construction. ■

## P

**P1 TO P7 BOARDS** → Classification of the field of application of chipboards based on mechanical properties and moisture resistance. P1: for general applications in dry conditions, P2: for interior fixtures in dry conditions, P3: for non-load-bearing applications in humid conditions, P4: for load-bearing applications in dry conditions, P5: for load-bearing applications in humid conditions, P6 for high load-bearing applications in dry conditions and P7: for high load-bearing applications in humid conditions. ■

**PCP/LINDANE** → Pentachlorophenole / hexachlorocyclohexane were, in the 1960s-1980s, the most widespread wood preservatives, and were also used as insect repellents (in particular lindane). Those who are exposed to PCP / lindane for a longer period of time display symptoms such as headaches, nausea, breathing difficulties, disturbed sleep, fatigue, irritation of the skin and mucous membranes, liver dysfunction and a weakened immune system. These symptoms have also been called “wood preservative syndrome”. ■

**PEFC** → The Programme For The Endorsement of Forest Certification Schemes is an international forest certification system. It is the world’s largest independent organisation active in ensuring and continuously improving sustainable forest management while guaranteeing ecological, social and economic standards. To ensure that small family forestry operations could obtain certification, PEFC chose an approach based on local work groups and forestry reports. The forestry operations of the respective region are audited on a sampling basis at regular intervals. New objectives are set for the continual improvement of sustainable forest management that ensure ecological, social and economic standards. ■

**PERFORATOR** → Testing device for establishing the → **FORMALDEHYDE CONTENT** of wood-based boards through extraction with toluene and subsequent photometric determination. The test is described in the European standard EN 12460-5. ■

**PMDI** → Polymeric diphenylmethane diisocyanate, synthetic binding agents for the manufacturing of wood-based materials that are free of formaldehyde, in particular → **OSB**. ■

**POST-CONSUMER RECYCLING** → Re-use of materials that were already used in products and have passed through a usage phase. The great challenge is to separate materials so that they can be used again as source materials for new products. However, this recycling often represents down-cycling, given that materials obtained this way can only be used to a limited extent. ■

**POTENTIAL IMPACT** → When drafting an environmental performance assessment, all product-relevant inputs and outputs are recorded in the form of substance and emission flows. In order to establish the relation to the environment, these flows are calculated with factors regarding their potential environmental impact (e.g. global warming potential, ozone creation potential, etc.). The potential

## P – V

environmental impact can be differentiated according to the local, regional and global impact. ■

**PRE-CONSUMER RECYCLING** → Pre-consumer recycling includes all materials and substances that are used during the production of a consumer good and which do not reach the required quality objectives. They are waste and thus do not reach the consumer. These substances are often handled as waste and stored or subjected to thermal treatment. With complete pre-consumer recycling, these products and substances are instead used directly in the production of a product. ■

## R

**RAL** → The RAL Deutsche Institut für Gütesicherung und Kennzeichnung e.V. (previously Reichs-Ausschuss für Lieferbedingungen) organises the expert hearings for the award of the → **BLUE ANGEL**. The Institute also awards the European Eco-label in Germany. The Blue Angel award criteria for the individual product classes are summarised in the RAL-UZ directives. The Blue Angel award criteria for wood-based materials are based on RAL-UZ 76 for wood-based boards and RAL-UZ 38 for products made of wood-based materials. ■

**REACH** → EU chemicals directive which entered into force on 1 June 2007. REACH stands for Registration, Evaluation, Authorisation And Restriction of Chemicals. ■

## S

**SCRAP WOOD DIRECTIVE** → Regulates the utilisation and disposal of recycled wood in Germany. Recycled wood means industrial roundwood and consumption wood. The directive classifies scrap wood into various categories (AI – IV and PCB scrap wood). This is important for the decision to recycle or dispose of the wood. ■

**STOCK ACQUISITION** → Acquiring standing timber. The timber buyer is responsible for the entire organisation, from harvesting to marketing. ■

**SUSTAINABILITY** → The use of a system is sustainable if its key properties are maintained throughout several generations. Utilisation is sustainable if the stock is able to regenerate naturally within a human lifetime. The term originates in forestry management, where the use of the forest must correspond to yearly growth.

Today, sustainability is no longer limited to material sustainability. Ecological, economic and social aspects are incorporated in the processes. ■

## T

**TVOC** → The sum of all volatile individual substances in an emission test. ■

## U

**UF, MF, PF, MUF, MUPF** → Abbreviations for adhesive systems most frequently used in the wood industry, where the main components urea (U), melamine (M) and phenol (P) react in a condensation reaction with → **FORMALDEHYDE** (F). In addition to being used in manufacturing, UF, MF, and PF are also used as resin systems for manufacturing → **IMPREGNATES**. ■

## V

**VOCS** → Volatile Organic (Carbonaceous) Compounds. ■





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