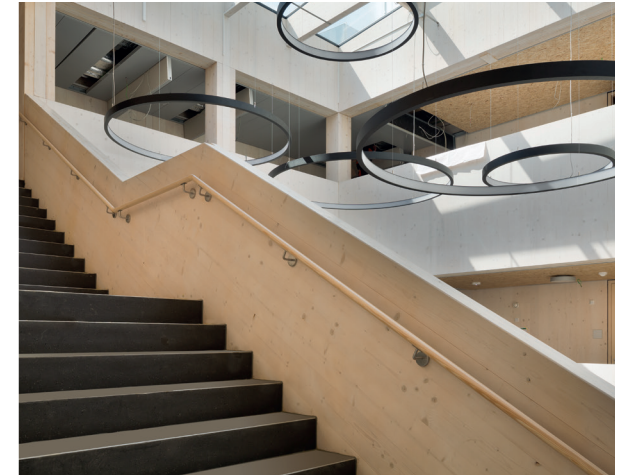


In collaboration with



Healthy living & sustainable

Sustainable in every manner

Sustainable and health focused is one of the central requirements of future-proof buildings. In these disciplines, first-class wood-based materials play a central role in construction. For the most part, wood-based materials are made from renewable raw materials and thus guarantee a **good CO2-neutral emissions footprint from the ground up**. The proportion of gray energy, i.e. of manufacturing energy that comes from non-renewable raw materials, is also low compared to other building materials. The use of coarse and fine wood chips in production allows the almost **complete utilization of a tree**. And wood-based materi-

als offer amazing solutions for architecturally prominent buildings that were not even conceivable a few years ago. Wood-based materials lower indoor air pollution in buildings and are the most important component for **permanent healthy living**, working and learning in varying degrees. Through technical innovations and driven by increasing regulatory requirements, significant progress has been made here in recent decades. A new stage in this positive development is the **BE.YOND particleboard** from the SWISS KRONO Group.

“Healthy living and ecological sustainability are two sides of the same coin. Without high-quality health properties, other sustainability criteria wane in significance. Ecological does not automatically mean healthy. For building expansions and interior projects with special demands in indoor air quality for future generations, wood-based boards, such as BE.YOND from SWISS KRONO, are the right choice.”

Sentinel Haus rating

As natural as possible

Wood-based panels have always benefited from the beneficial properties of wood as a natural ingredient. Until now, however, standard particleboard consisted of about 90% natural wood and around 10% fossil based binders. This balance is made much more **environmentally friendly** by new organic-based binders. **Binders made from biopolymers**, such as those used in the BE.YOND particleboard from SWISS KRONO, significantly increase the portion of natural raw materials in the product.

The ideal basis for healthy buildings

Parallel to the positive energy balance, the BE.YOND board reduces formaldehyde emissions to the level of natural wood. **Emissions** of maximum 0.01 parts per million (ppm) are equivalent to only 12 millionths of a gram per cubic meter ($\mu\text{g}/\text{m}^3$) and is **well below all legal requirements** worldwide (Fig. 1).

The emissions of BE.YOND boards are four times lower than required by “Blauer Engel”

The value of emission class E1 of 0.1 ppm (applicable in Germany until 2019) is therefore **underrated by a factor of ten**. The E1 D2020 limit, which will apply in Germany from 2020 according to the new test standard EN 16516, means a further **halving of the permitted formaldehyde emissions**.

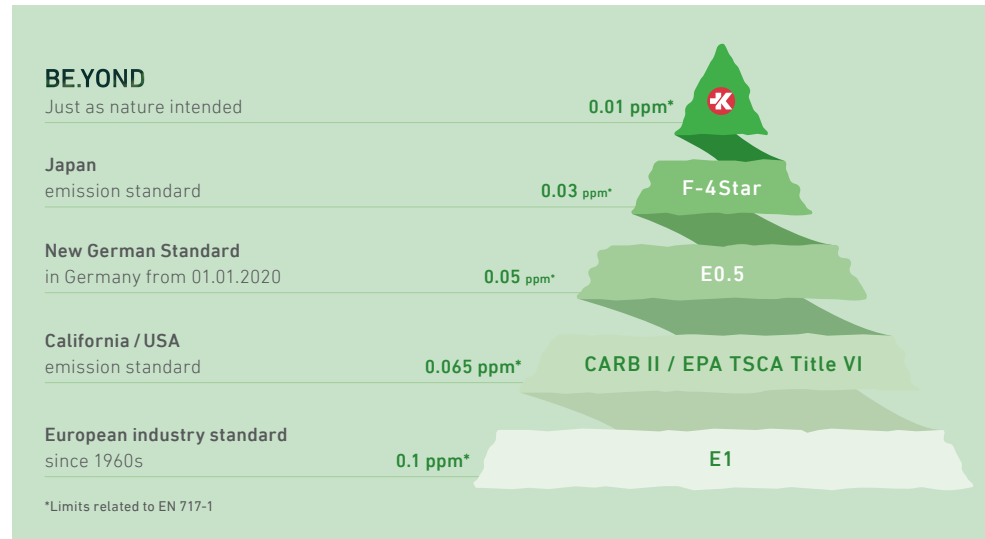


Fig. 1



Made from sustainable raw materials

Currently, BE.YOND chipboard from SWISS KRONO – **is one of a kind**, with a binder made from 97% **renewable bio-based** raw materials. This makes BE.YOND excellently suited to meet the requirements of conservation and **sustainable construction with health conscious indoor properties** for the buildings utilisation. In the life cycle of a building, this has the greatest influence on the **health and well-being** of the users – regardless of whether it is a private or commercial space.

What actually is Formaldehyde?

Formaldehyde, also known under the scientific name methanal, belongs to the group of volatile organic compounds (VOC) and here to the segment of more volatile substances (VVOC). In the air we breathe, **the substance irritates the mucous membranes** and eyes and causes **headaches** and allergic reactions. In high concentrations, formaldehyde is **carcinogenic**. Although the use of the substance has greatly decreased in the past decades, it is still strongly present in the public perception. The reasons for this are cases caused by previously used products, (with a high formaldehyde content) even decades after installation, for example in **schools, kindergartens and other public buildings**. And furthermore, the substance can be contained, in paints, varnishes, textiles or carpets. Formaldehyde is also found in disinfectants and preservatives.

I Sustainability - generationally and environmentally friendly

An important **goal of the United Nations Sustainable Development Goals (SDGs)** is to move away from fossil fuels towards sustainable production and sustainable products (SDG 12). Wood is Germany's **most important renewable resource**, which can replace energy-intensive, finite materials and petroleum-based fossil resources (Charter for WOOD 2.0 Federal Ministry of Food and Agriculture). Wood-based materials already have **very high material and energy efficiency**. By using renewable bio-based adhesives, wood-based materials can be even more **environmentally friendly** and thus meet the needs of future generations for sustainability.

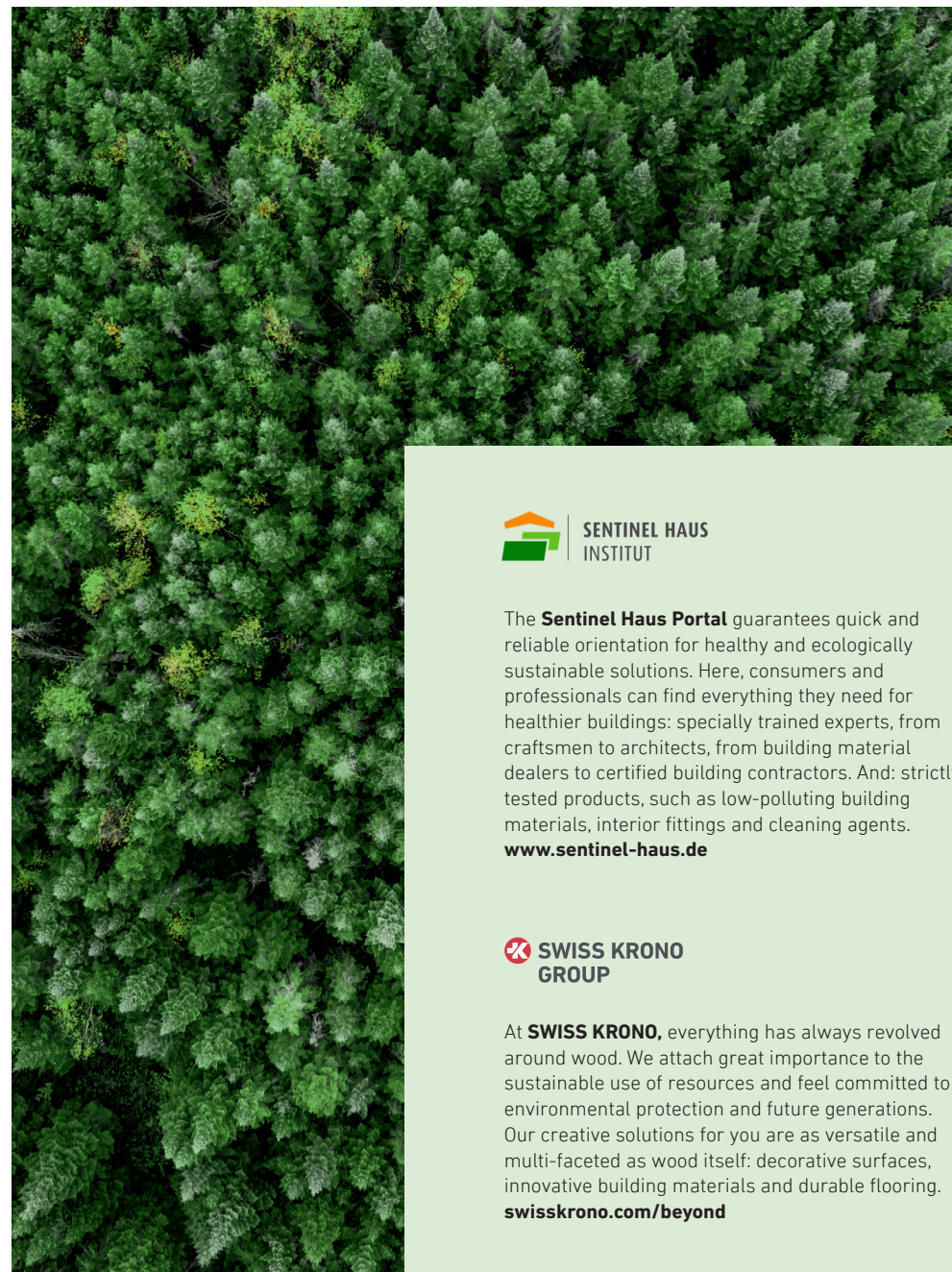
I Air is our most important nutrient

Wood-based materials often take up a large area in relation to the volume of the room. For example, as a wall material, flooring or in furniture. Their emissions therefore directly influence the **indoor air quality**. This is a key factor in determining our **well-being and health**. After all, we spend 90% of our time indoors. The guideline value for considering **indoor air hygiene** is organic compounds. This value can be measured and compared with official recommendations. The **Sentinel Haus** uses the recommendations of the **German Federal Environment Agency**. In Austria and Switzerland, there are similar recommended values. Independently tested products such as the BE.YOND board offer the security of **liv-**

ing, working or learning in a healthy building in the long term. Manufacturers such as the SWISS KRONO Group have proven the health properties of their products to the experts of the Sentinel Haus Institute. This is achieved through standardized test chamber measurements by accredited test institutes. The **VOC emissions** of the BE.YOND board have been proven to be **significantly lower** than the strict requirements of the Sentinel Haus Institute and also meet the conditions of the Blue Angel (UZ-76) in Germany, for example.

I The total package counts in building planning

For all-round healthy building, it is important to check all indoor air-relevant products **during the planning process**. Here, the Sentinel Haus Institute offers a multi-stage **concept for quality assurance**, training courses and a compact guide for planners, **providing diverse, tried and tested knowledge and assistance**. Equally important is correct processing, which protects the health of the building occupants, but also that of the fabricators. With easy-to-implement **construction site rules and training** for craftsmen (from a wide range of trades) by the Sentinel Haus Institute, high-quality products such as the BE.YOND board can also be used well and safely.



The **Sentinel Haus Portal** guarantees quick and reliable orientation for healthy and ecologically sustainable solutions. Here, consumers and professionals can find everything they need for healthier buildings: specially trained experts, from craftsmen to architects, from building material dealers to certified building contractors. And: strictly tested products, such as low-polluting building materials, interior fittings and cleaning agents.
www.sentinel-haus.de



At **SWISS KRONO**, everything has always revolved around wood. We attach great importance to the sustainable use of resources and feel committed to environmental protection and future generations. Our creative solutions for you are as versatile and multi-faceted as wood itself: decorative surfaces, innovative building materials and durable flooring.
swisskrono.com/beyond