

NOVOFIBRE®

Panels for healthy living



FAQ



ON HEALTH

1. Why are Novofibre panels a healthy and reliable alternative to traditional wooden panels?

Novofibre OSSB panels represent a revolutionary product concept combining unique materials and cutting-edge manufacturing techniques.

- Natural Raw material: Our OSSB is from quality natural wheat straw.
- Environmental recycling: Natural renewable and recycling, zero formaldehyde, OSSB can reduce deforestation, and avoid the pollution from traditional straw burning.
- Adhesive: we only use p-MDI, containing zero formaldehyde. MUF adhesives, which are prevalingly used in the manufacturing of wood panels, contain a certain degree of formaldehyde. While the emissions can be relatively low, they may still be a threat to certain sensitive groups, such as children or patients in hospitals.
- The formaldehyde emission of OSSB panels is below 0.2mg/100g, equivalent to: **1/50** of Chinese national standard for E1 panels, and, **1/25** European standard or E0 panels
- Production: we guarantee superior quality drawing on cutting-edge German technology and manufacturing processes.
- Reliable load bearing capacity which compares favorably to established wood materials such as P6 particle board and OSB4.
- Waterproofing: The OSSB surface is smooth, with a waterproof performance equal to most wooden boards.
- Variety: OSSB provides a wealth of surface decoration options, including natural wheat straw surface texture, special coatings or high-quality decorative panels, to meet the needs in different applications.

2. How do you guarantee all the raw materials you use are free of contamination?

- The straw selected for manufacturing goes through an extensive selection process beforehand.
- We adhere to highly professional standards throughout the handling process to guarantee the cleanness of all materials used.
- All the panels undergo strict quality tests before they leave our plant.

3. Are you suggesting that other panel manufacturers are not forthcoming about the safety of their products with regards to formaldehyde emissions?

- No, we appreciate our peers in the industry and respect their achievements with traditional wood-based fiberboards. We are aiming to create a new material for

replacement of wood. this is ideal for people and nature. Re-utilizing straw is much better than burning it, which means lower CO2 emissions. In addition, the raw material is available year-round, worldwide, in practically unlimited quantities; and it's energy-efficient throughout the entire production process; it features excellent biocompatibility before.

4. We can smell straws from OSSB panels. Is this a good or bad trait?

- This is an integral feature of nearly any panel made out of natural plantfibres. We can smell the tree used for a wood-based fiberboard or the bamboo in bamboo-based panels as well.
- We can positively assure you, there is no harmful content in the smell. We received the lowest VOC values as measured by some of the world's top testing agencies:
 - Eco-INSTITUT certificate 2014
 - CE certification (European Union, 2011 and updated 2014)
 - F 4-star certification (Japan, 2012)
 - China Environmental Labeling certification (China, 2013)

5. What different effects can your product have on my health compared to other name-brand floor and furniture products?

- We cannot speak for other producers, but we can assure you of one thing: after many years of R&D efforts, our panels are absolutely as good, as or even better than, wooden panels.
- Our OSSB panels are outstanding at:
 - Load-bearing (thanks to an excellent strength/weight performance)
 - Earthquake-resistance
 - Durability
 - Termite prevention
 - * Their nail-holding strength and machining performance are considered to be excellent, too
 - * They compare favorably well in terms of surface moisture resistance.
- Our p-MDI adhesive is completely free of formaldehyde.
- Environmental value: no single tree is cut for our products; and a lot of straw burning is avoided.
- Aesthetics: our products offer unique aesthetics due to a natural surface profile, touch and smell.

6. Do you take special precautions when you install OSSB panels in places such as kindergartens or hospitals?

- Normally, installation will follow the overall interior decoration plan, taking into account the special characteristics of the given venue. Due to the unique nonhazardous characteristics of OSSB panels there is no need to diverge from our common way of proceeding.
- It is of paramount importance to ensure that all areas of application – floors, walls, etc. – will have been thorough cleaned prior to being covered by OSSB panels. This done, we can assure that our customers will get a 100%-healthy interior environment.

ON ENVIRONMENTAL-FRIENDLINESS

7. How many trees does each Novofibre panel save?

- For every NOVOFIBRE panel we ship to our customers – let's assume are 18 mm thick –we save and protect a tree 2m tall and 25 cm in diameter.

8. Let's suppose the farmers would have to burn all the straw instead of selling to you. How much CO2 and other emissions are reduced each year, given your current volume of purchase?

- For each 18mm thick NOVOFIBRE panel we reduce 5 kg of CO2 emission. This is tantamount to the emissions by a car like a VW Passat running at 40 km per hour.

9. Does your manufacturing process generate any kind of hazardous waste, liquid, gas, etc.?

- At Novofibre, we use unique directional mat forming as well as a continuous hot pressing process to transform straw fibre into strong and sustainable panels.
- Drawing on pure natural materials, advanced technologies and professional manufacturing processes, we can guarantee a clean, eco-friendly production, without any harmful by-products generated. Novofibre has committed itself to rigorous sustainability in terms of both product substance and production process.
- Our recycling line allows us to minimize any losses during the production process, due to our highly efficient use of materials.

ON QUALITY & PRODUCT PROPERTIES

10. What kind of certifications/notifications/patents have you been awarded with in terms of design and products?

- Our products have received certification from the following organizations:
- CE certification (European Union, 2011 and updated 2014)
- F 4-star certification (Japan, 2012)
- China Environmental Labeling certification (China, 2013)
- Eco-label certification Germany (2014)
- French VOC Certificate (A+ Classification means Novofibre has reached the highest Emission-free classification for interior decoration applications)
- Our products are eligible for ISO 9001, GECA, CARB by end 2014.
- Further applications, especially regarding Japanese standards, are scheduled for submission in 2015

11. What about your current R&D, engineering and production team? How many employees do you have? What are their backgrounds and credentials?

- Currently, Novofibre has about 150 employees, with 80% of them working in Yangling.
- Our Yangling team consists of young, passionate professionals combining international perspective and local know-how.
- This team has turned a bold concept 30+ years ago into reality: in recent years, Novofibre has become a highly esteemed international premium brand, with an actual production capacity of 60,000 cubic meters per year.

12. How advanced is your manufacturing process?

- Our main automatic production line is tailored by German DIEFFENBACHER, and employs a number of patented technologies and processes. We run a fully automatic 24-hour operation, which is a great achievement in the industrial production of boards.
- Our manufacturing process is industry-leading. Standard wheat straws go through three processes: scattering and separation, drying and cyclone separation, and then formaldehyde-free isocyanate adhesive is added. After the advanced two-way (vertical and horizontal) directional pavement and continuous heat pressing and cooling, the finished wheat straw boards go through a number of rigorous testing and inspection procedures before entering the market.
- As a testimony to our high-quality production, Novofibre panels have received top certification in almost every major market in the world:
 - Eco-label certification (Germany 2014)
 - CE certification (European Union, 2011)
 - F 4-star certification (Japan, 2012)
 - China Environmental Labeling certification (China, 2013)
 - Novofibre panels have been voted “Innovative Product of the Year 2014” (MaterialPreis 2014) in Germany.
 - Novofibre has won the German Material Award 2014 for Ecological Materials.

13. What can Novofibre panels be used for?

- OSSB panels can be used in the same way that traditional wood OSB panels are used. As a crop, wheat straws has the cell structure and fiber properties close to that of a tree trunk. This is why oriented structural straw boards(OSSB) are a viable substitute for oriented strand board(OSB).
- Novofibre panels can be used as base or surface material for Interior decoration applications, such as furniture, flooring, and packaging.
- Novofibre panels can be used with wood overlay and paper overlay technology to meet different decoration needs

14. Compared to OSB panels, what are the advantages of OSSB panels?

- Oriented structural straw boards are natural, renewable and recyclable. They are also formaldehyde-free and bi-directionally structured.
- They can reduce deforestation and prevent pollution caused by burning straws.

15. Are OSSB panels water-proof? How's the performance in humid regions such as South China?

- As OSSB panels contain a low amount of moisture, they are sensitive to a specific climatic environment, simultaneously very humid and very hot. Under such extreme conditions they may deform, as most other wooden panels. This is a common feature of almost all wooden panels, not unique to OSSB. Moreover, facing a rough climatic environment, OSSB panels perform as good as or even better than common OSB panels and many other Particle Boards, Chipboards etc. (based on the standards EN 300 or EN 312).

16. How are the thermo properties of OSSB panels? For instance, is a room decorated with straw panels warmer in the summer?

- Because of the high insulative value of wheat straw, Novofibre OSSB panels actually help homes stay cool in summertime and retain heat in wintertime.

17. How do you guarantee quality of maintenance and service to your customers?

- Our panels are top-notch in terms of strength, stability, and load-bearing capacity.
- At Novofibre, every batch of panels goes through an inspection before they leave plant. We also test every new application before delivery to customers, in accordance with CE testing norms such as EN300 and EN312 or ISO 9001.
- A Team of experienced technicians has been set up to respond to customer complaints promptly and professionally.

ON SALES AND SERVICE

18. Where can I buy Novofibre floors or furniture made of Novofibre panels?

- Our customers are welcome to contact our local dealers in order to purchase panels. Please see our contact page on the website for information.
- If customers are looking for tailor-made OSSB furniture or flooring, we would recommend they contact Novofibre directly to ensure their individual needs are catered to efficiently and effectively.

19. Because Novofibre panels are made of non-traditional materials, is it necessary to plan for extra installation/application efforts and costs respectively?

- OSSB panels are easy to use and at least as user-friendly as other wooden panels, Therefore, there is no need to incur extra efforts or costs, when installing our panels.
- If there is a problem during installation and application, our experienced engineers can provide prompt and professional support.

20. Some practical cases for Novofibre panels?

- 2010 Shanghai World Expo Vanke pavilion

- China Academy of Building Research
- Panda Enclosure of Mount Qingcheng
- Olympic Forest Park
- Beijing Hanshi Bridge Wetland Park
- Ascott Hotel Shanghai
- YunNanLijiang Reign Vacation Inn
- Sichuan Yingxiu Cultural exchange center
- Xi 'an Newcastle International School
- Tianjin Coastal International Industrial Design Park
- Shanghai Manshi Design Firm

ON BUSINESS STRATEGY AND DEVELOPMENT

21. What's the story behind the founding of Novofibre? How did you come up with the idea of producing panels made of wheat straw?

- Novofibre is an innovative German company, and its wholly-owned shareholder is a German family business well-known for their concept of long-term investment.
- We produce revolutionary OSSB panels that allow for a healthy lifestyle and sustainable production. Our founder's original intention was to seek a reliable environmentally friendly alternative to wooden boards with a same strength, good stability and load bearing capacity as wooden boards.
- Novofibre China was founded in China in 2007, while preceding R&D work on OSSB can be traced back to the early eighties.
- We produce OSSB base panels (load-bearing and non-load bearing) and finished products like NovoFloor, NovoAcoustic, Novo Home and NovoDesign.
- We have a sales company in Beijing and a plant in Yangling, Shaanxi Province with an annual capacity of 60,000 cubic meters.
- We have a professional team of about 150 employees in China, combining international expertise and perspectives with local knowledge.
- Novofibre has established long-term working relationships with a host of partnering institutions and experts worldwide.
- The most famous institutions are: ARC, Dieffenbacher, Pallmann, EPH, WKI, Nanjing Forestry University, Northeastern China Forestry University, as well as Rosenheim University.

22. Are Novofibre panels priced high?

- We have a premium brand, and offer unique, innovative products with a strong value both to customers and the overall environment.
- We see a strong desire from customers to purchase next-generation green panels and experience a healthy, premium lifestyle. We believe these benefits are worth the value to our customers.

23. How is the plant development ? How many local farmers are supplying straws and benefit from Novofibre business?

- Ground-breaking of Novofibre Panel Board Yangling Co., Ltd began in Feb 2009.
- The world's first OSSB production line was installed in our Yangling plant in Oct 2009. Our annual production capacity is currently 60K cubic meters.
- At present, About 120 engineers are working at our plant.
- Currently, we are recycling 60,000 tons of wheat straw, garnered from 200,000mu of wheat land every year. More than 2,000 people are involved over all steps of the wheat baling process, collection, and transportation.
- We provide 100 balers for local farmers and purchase the baled straw from them. As a result, local farmers are able to significantly increase their income.
- In June 2009, then Chinese Premier Wen JiaBao visited the straw collection sites of Novofibre in Shaanxi during the harvest season.

24. How Novofibre think the innovation will change the landscape of the panel industry?

- Being arguably the first company offering a true formaldehyde-free solution in panel manufacturing, Novofibre is a trendsetter for the whole industry. We are literally pushing the boundaries when it comes to setting new standards for a healthy interior environment.
- Novofibre stands for real sustainability. No singletree will be cut for our production, and millions of tons of CO2 emission will be avoided as farmers supply us with straw bales instead of burning them.
- Novofibre offers a brand-new construction and design option to architects and designers for their customers.
- Novofibre transforms the industrialized thinking into industrial production, through waster recycling, energy conservation and reducing carbon dioxide emissions. Novofibre not only helps improve the atmosphere and increase farmers' income, but also helps increase people's environmental awareness by providing healthy and environment-friendly products, thus creating a new standard for a healthy indoor environment, and promoting substantial progress of the industry. In this sense, we have led the trend in the industry development.

25. What is Novofibre's vision?

- To be undisputed premium brand representing a healthy and sustainable lifestyle.
- To be promoter of environmental protection and a better tomorrow for our children.
- To remain the shaper of the industry with uncompromising devotion to technological development and innovation.