

Wood panels & formaldehyde

Europe's annual production of wood-based panels is about 60 million m³, for a total market value of around €15 billion. Since their invention in the middle of the 20th century, constant innovation has vastly extended the variety of composite panels such as particleboard or MDF fibreboard. Today, these satisfy widely differing design, strength and durability requirements.

The great majority of these boards rely on bonding by means of adhesives and glues which are water-soluble formaldehyde-based resins. Plywood, said to have originated in ancient Egypt, is today made of layers which are most commonly bonded by formaldehyde-based glues.

Indispensable

Because they are affordable, come in a great variety of types and are very reliable, modern life would be difficult to imagine without these panels. Of course, the solid wood in old furniture and buildings is beautiful. But it is relatively expensive and not a global solution. Composite panels are an economical alternative in applications such as fitted kitchens where price, design and finishes are the paramount consideration, as well as in floors, walls and ceilings.

Sustainable

Wood-based panels are environmentally beneficial too. Plywood and the composite panels (oriented strand board, and the range of fibreboards and particleboards) use renewable forest wood, but particularly in the case of particleboard the use of recycled wood alongside forest thinnings and sawmill products has grown dimensionally in recent years, thus making an important contribution to the rational use and enhancement of our forest resources. Without formaldehyde in their binders, a large proportion of these materials could not become useful everyday household and construction products: waste mountains, incineration and landfill would proliferate. Wood also locks up an important quantity of carbon that would otherwise have returned to the atmosphere through rotting or incineration of the waste. Wood-based panels with formaldehyde-based resins thus help mitigate the dangers of climate change.

Additional sustainability is increasingly guaranteed by the "chain of custody" certification systems operated by the Forest Stewardship Council or the Programme for the Endorsement of Forest Certification Schemes. Under modern management conditions, wood is a virtually infinite, renewable resource.

Product range and performance

As can be seen, the environmental benefits of wood-based panels are facilitated by their practical relationship with formaldehyde as an element in their manufacture. Without formaldehyde-based resins and glues, far fewer types of panels would be available, and these at significantly higher cost. Far more waste would have to be disposed of. Additionally, residual formaldehyde concentrations in wood panels are nowadays approaching the range of those in natural wood.

About a hundred European performance and safety standards enable the market to know whether the product is fit for its intended use. These controls have for example ensured that the amount of free formaldehyde present in finished panels is well below the limits set by the World Health Organisation.

About Formaldehyde

Formaldehyde is an essential metabolic intermediate in all living cells. It is produced during the normal metabolism of serine, glycine, methionine, and choline and also by the demethylation of N-, S-, and O-methyl compounds, and is a starting point for the metabolic pathway leading to purines, thymidine, and amino acids. Formaldehyde is also an important industrial chemical used in a wide range of applications, including building materials, furniture, paints and coatings, textiles and pharmaceuticals.

Formaldehyde is broken down within a few hours by sunlight and by bacteria, and it metabolizes quickly in the body. Formaldehyde, therefore, does not accumulate either in the body or in the environment.

About FormaCare

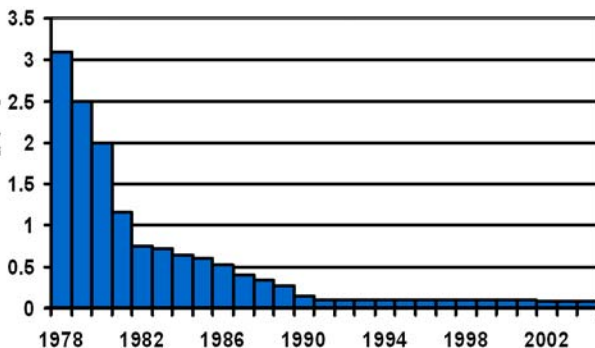
As a sector group of Cefic (the European Chemical Industry Council), FormaCare represents key European producers of formaldehyde, aminoplast glues and polyols. FormaCare aims to promote the sustainable use of formaldehyde and formaldehyde based products among its members and their customers, with due regard to health and environmental care.

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See above: Significant decrease of Formaldehyde emissions in wood panels demonstrate that the industry sector has taken on a responsible role in this.