

Medium Density Fibreboard a Safe Choice

MMMA Newsletter for PF Asia Jan/Feb 2018 By Peter Fitch

Medium-density fibreboard (MDF) is an engineered wood product made by breaking down hardwood or softwood residuals into wood fibres, often in a Defibrator, combining it with wax and a resin binder, and forming panels by applying high temperature and pressure. MDF is generally denser than plywood. It is made up of separated fibres, but can be used as a building material similar in application to plywood. It is stronger and much denser than particle board.

Medium density fibreboard, MDF, available in a variety of panel dimensions and thicknesses, can be cut easily and smoothly without any breakout or splintering. It can be profiled on edges and surfaces, in a variety of deeply-etched shapes. Its mirror-smooth surfaces are ideal for painting, veneering, laminating, grain printing and staining. A variety of versions of MDF are available, including standard, flame-retardant, moisture resistant, exterior and high density. None of its properties are affected by cutting or machining. With the attributes and advantages outlined above it has proven to be an ideal panel material for use in a variety of industries, primarily furniture, building, signage and shop fitting.

Benefits

- Is an excellent substrate for veneers.
- Some varieties are less expensive than many natural woods
- Isotropic (its properties are the same in all directions as a result of having no grain), so no tendency to split
- Consistent in strength and size
- Shapes well.
- Stable dimensions (won't expand or contract like wood)
- Easy to finish (i.e., paint)

So are there any disadvantages to using MDF for the manufacture of Furniture and Construction Materials?

Some literature may state that there are safety concerns around the amount of dust and the formaldehyde which could be emitted.

When MDF is cut, a large quantity of dust particles are released into the air. It's important a respirator is worn and that the material is cut in a controlled and ventilated environment. There is no evidence of any instances of cancer in humans related to exposure to dust from MDF, a product in use since the 1960s.

MDF contains a very low level of formaldehyde. The amount emitted from the board is not harmful and begins to reduce as soon as the board has been produced. Moreover, formaldehyde is a naturally occurring chemical. Used industrially for nearly a century, it is employed by at least 85 manufacturing sectors—for products such as paint, varnish, cosmetics, disinfectants, medicines, and adhesives. The amount of any formaldehyde emitted from MDF is tiny. It is certainly well below the World Health Organisation's guideline figure for the amount of formaldehyde that may be emitted from all product sources and that may be present in ambient air—inside homes or outside—of 0.1 mg/cubic metre (equivalent to 0.08 parts per million).

Most responsible manufacturers produce MDF under controlled conditions which comply with the most stringent requirements for formaldehyde content and comply to regulations specific to those regions, for example below is listed some of the International Standards that are applied to MDF material.

- European Standard EN13986 i.e. Class E1
- Japanese Standard JIS/JAS F* (one star) to F**** (four star)
- California State (California Air Resources Board) Phase 2 standard
- Soon to be introduced US EPA (Environmental Protection Agency) Standard TSCA (Toxic Substances Control Act) Title VI Compliant Material

Customers or end users of Malaysian manufactured MDF will find that most producers are already manufacturing to these high standards and able to provide the necessary data and certification to show compliance. Consumers should also note that when MDF is coated, painted, veneered or sealed the amount of formaldehyde leaching into the environment is very negligible. Prudent end users may even seal the edges which would also give additional protection against moisture intake.