



Recycling furniture waste into environmentally-friendly MDF

ACM Wood Chemicals Ltd, c/o Adhesives Research Institute Ltd, Thessaloniki, Greece.

ACM Wood Chemicals Ltd, the UK-based environmental Group, claim to have developed an innovative recycling process that will transform furniture waste into environmentally-friendly wood board with, say ACM, the same properties as board made from wood.

Operating through their subsidiaries, Adhesives Research Institute Ltd and Woodchem Europe SA, ACM's technology not only recycles fibreboard and the synthetic resin used in the manufacture of wood board, but it also said to result in significant cost savings. And, importantly, the development further allows the new wood boards to be recycled again in the future. *FM* investigates.

Not only does the process have far reaching implications, but the timing of its development is particularly appropriate. As many of *FM*'s readers will be aware, fibreboard was first introduced in the 1960s and, typically, has a useful life expectation of around 30 years.

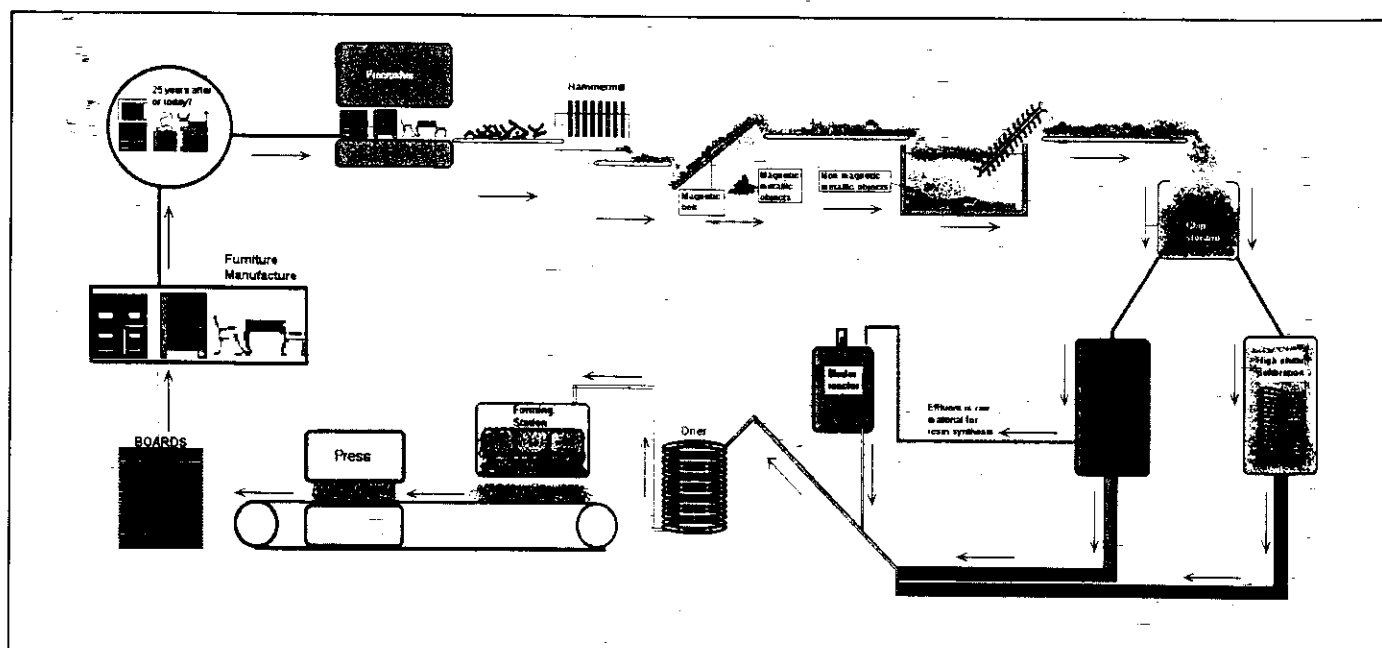
'Many items of furniture are now coming to the end of their lives at a time when the options for their disposal, such as incineration and landfill, are disappearing,' explains Mrs Effy Markessini, ACM's research and development director. 'Our new technology provides an ideal solution to this problem now that the production of new wood-based panels exceeds 50 million m² worldwide every year.

Burning old waste furniture is not considered environmentally-friendly because of the creation of dioxins, carbon dioxide and other harmful emissions. International sentiment is also growing against landfill. In Germany, for example, legislation has already been established to ban the dumping of materials containing more than 5 per cent of organic compounds by the year 2005, and this

law is expected to be introduced in other European countries. As a rule, MDF tends to be made up of at least 95 per cent organic material, explains Mrs Markessini. What's more, the landfill option is becoming increasingly expensive.

According to ACM, the process is a thoroughly environmentally-friendly method of recycling wood board. It not only utilises the fibres produced in the process to manufacture MDF as a partial or total replacement for wood, but it also makes use of the black liquor produced during the process as a substitute for synthetic resins. Equally, plain or laminated wood board can be recycled simultaneously. Of course, the two other important benefits of the technology are its cost effectiveness and the fact that further recycling of panels after this process is possible.

ACM have also won substantial EU funding to further develop their woodboard recycling capabilities. Under the European Commission's Agriculture and Fisheries (FAIR) Programme, ACM and their partners are taking the development of the project to the next phase.



Phase 1: Closed loop wood recycling technology - the new environmentally-friendly breakthrough from ACM Wood Chemicals Ltd



'ACM have brought together a formidable team of industry experts to assist with the development of this technique,' confirms Mrs Markessini.

The consortium includes two highly regarded institutions, namely the *Institute of Wood Biology and Technology at The Georg August University of Göttingen* and *The Wilhelm Klauditz Institut (Frauenhofer Gesellschaft)*. Part of the faculty of Forestry and Ecology, the former is one of Germany's leading institutions in the field of research and development of wood-based panels, while the latter concentrates on current and future research on the use of wood and the development of wood-based materials. The WKI is often entrusted with research work for the industry, local government and international organisations.

Two industrial companies are also very much involved - **Pfleiderer Industrie GmbH & Co KG** of Neumarkt, Germany, a familiar name with *FM* readers, and **Valbopan Fibras de Madeira SA** of Portugal.

Pfleiderer of course are major European suppliers of products and system solutions for the furniture industry and employ in excess of 7000 people. Valbopan are MDF manufacturers, which gives true industrial focus to the project. Pilot scale trials will be carried out at Valbopan's plant.

For those readers who are not familiar with **ACM Wood Chemicals**, the company is an environmental group which was established in 1978 in Thessaloniki, in Greece, by Mr and Mrs

Markessini. A manufacturer of certain binder systems used in the production of reconstituted wood board, ACM are also renowned worldwide for their extensive research and development into environmental innovations, regularly receiving strong support from the European Union across a number of R&D issues. A truly international company, its operations extend to 23 countries across the globe, including Canada, Belgium and Germany.

The **Adhesives Research Institute Ltd (ARI)**, a subsidiary of ACM Wood Chemicals Ltd, is based in Greece and is a R&D company specialising in the field of chemicals for the wood-based panels industry.

Finally, **Woodchem Europe SA** - another subsidiary of ACM - are Belgian producers of formaldehyde-based resins. Their important contribution to the project is centred on the development of the resins used in the process itself.

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