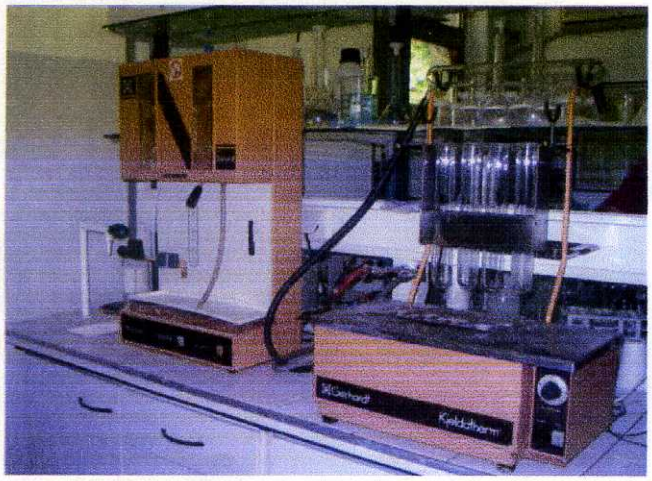
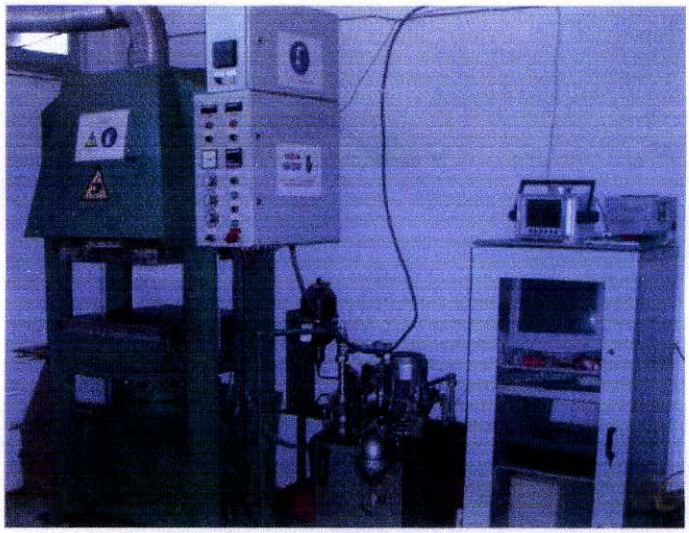
Making a comeback in resins

The Greek-headquartered company Chimar Hellas is the continuation of the research and development centre of the former ACM Wood Chemicals Group and has resulted from the merging of all the previous Greek companies of ACM, following its dissolution in November 2002





Above: Apparatus for the determination of resin molar ratio

Right: Chimar pilot press with heated platens of 600mm x 600mm

As the successor to ACM Wood Chemicals, Chimar Hellas has retained all the intellectual property, technology rights and R&D facilities belonging to the former ACM Group, maintaining and expanding a tradition in the provision of resin technologies and services which began in 1977.

Mrs Effy Markessini, one of the founders of ACM and president of Chimar Hellas, says that throughout its history, the company and its predecessors have invested in research and development (R&D) as the flagship of its business activities.

She is a polymer chemist and has headed up the companies' R&D for some years.

"We always maintained close contact with the customers, anticipating their needs, tracing solutions respecting the environment, protecting human health and supporting sustainability," she said. "Our story is about a company staying at the forefront of developments throughout the world."

Chimar Hellas SA concluded technology licensing contracts with the former ACM production plants, as well as the previous licensees of the ACM group, and has continued to focus on R&D in the field of resins and resin additives.

Mrs Markessini said the company is a provider of innovative industrial technology for the resin and wood based panel industries in all continents, offering manufacturing and research expertise in chemical products and processes for producing particleboard, fibreboard, plywood, oriented strand board (OSB) and laminating papers.

"Chimar develops, in house, and licenses know-how for the production of formaldehyde-based resins, laminating syrups and resin additives as well as for their application in the manufacturing of panels," said the president.

"We also develop processes which enhance the productivity and profitability of manufacturing resins and wood panels, as well as being active in the engineering works for the construction, start-up and operation of plants producing formaldehyde, urea formaldehyde pre-condensate (UFC), formaldehyde resins and resin additives.

"We also continuously focus on 'green' chemicals and technologies, fulfilling eco-efficiency principles."

In terms of R&D, Chimar claims to cover all phases, including lab scale testing, everyday problem solving and final stages of development and industrial implementation, thus creating value from research results.

"Our R&D results are properly protected, via patenting or other methods, disseminated and licensed worldwide," said Mrs Markessini. "Most of the technology we develop is patented and has been applied in plants located in more than 31 countries so far."

Chimar owns a well-equipped chemical laboratory for advanced synthesis and analysis of resins and chemicals and it is there where elaborate trials are performed by its scientists and where ideas take shape to form new products. The company also offers wood panel production and performance testing in an accompanying technical laboratory and has pilot scale installations for resin making.

However, Mrs Markessini said Chimar's

success lies mainly in its people. "It has a strong team of highly skilled researchers, technical and administrative support personnel. These include chemists, chemical engineers, forest and petroleum scientists and technologists, computer engineers, economic and legal advisors and multi-lingual personnel with managerial skills. These staff are on call at any moment and offer services to customers worldwide," she said.

The technical support personnel of Chimar are said to have a unique experience in resin and wood panel production, as well as in transferring new technology into the resin and panel industry, having given on-site technical assistance to numerous formaldehyde resin, particleboard, MDF, plywood, OSB and melamine impregnated board plants.

"The international experience of the engineering and technical support personnel in the construction and installation of formaldehyde, resin and resin additive plants is also important," said the company president.

Dimitris Alexandropoulos, a chemist and Chimar's managing director, leads the company's industrial support, customer contacts and plant installations.

In addition to the range of resins already mentioned, Chimar also carries out research on resins from renewable resources as well as on panels produced from agricultural residues.

Resins include: tannin, lignin from paper production, pulping spent liquor, pyrolysis oil (bio-oil) and extraction or liquefaction products of agricultural and forestry residues. These include cashew nut shell liquid, liquified wood, liquified olive stones and soy.

Agricultural wastes include mainly straw from wheat, rice, barley, or corn.

Apart from the range of resins for wood based panels, Chimar also offers technologies for resin additives such as hardeners, formaldehyde scavengers and special additives such as fire retardants and recycling agents.

Chimar says that the wood panels produced using its tailor-made resin technology conform to the most stringent European, American and Japanese standards and that even special grades such as the Super E0 grade (F****) according to *JIS A 1460 can be obtained – and that* such resin systems are currently being used commercially in Australia. It also claims to save its customers money.

The GNOSSI (General Non-destructive On-line SpectroScopic Interpretation) process offered by Chimar, which is based on near infra-red spectroscopy, was developed for the in-situ monitoring of formaldehyde-based resin synthesis as well as for raw material and final product evaluation. It is also applicable in paper impregnation processes (*WBPI* Feb/March 2002).

Resin synthesis at Chimar laboratory

Pilot resin reactor, capacity 50 litres

Modern computational fluid dynamics (CFD) software is applied by Chimar for the modelling and optimising of specific production units of formaldehyde and resin plants such as reactors, mixing vessels and heat exchangers; as well as areas of board producing plants such as chip blenders, dryers and blow lines.

Chimar Hellas is also involved in research projects – either internally funded or partly supported by the European Commission – and implemented in co-operation with established European research/industrial organisations in the sector.

Its aim, it says, is to develop and promote innovative products and technologies, while cooperating with the best partners. The project results are properly protected and disseminated worldwide through the international network of Chimar licensees. The company has experience from its participation in 22 European-funded projects and in three scientific networks.

Mrs Markessini outlined the future for the company: "After Chimar had concluded technology-licensing contracts with the former ACM production plants, as well as the previous licensees of the group, it strove to maintain its global presence and *strong R&D in the field of resins, resin* additives and wood panel production, with the aim of regaining growth by attracting new licensees through the provision of state-of-the-art products and services".

In 2005, Chimar concluded a licensing contract with the Mexican company Duraplay de Parral SA de CV, which produces particleboard and plywood (both exterior and interior grade). Board finishing lines and a formaldehyde and resin plant are also part of the Duraplay industrial complex.

The introduction of Chimar resin technology is expected to bring savings in production cost and at the same time improve the formaldehyde emission performance.

In 2006, Chimar also undertook a resin plant turnkey project for the Argentinian company Faplac SA, a member of the Arauco group.

Faplac produces resins and UFC and the introduction of Chimar's resin plant and reactor technology was designed to improve product quality while increasing productivity.

For the future, Chimar says it will continue to offer global services for plant installation for the production of formaldehyde, UFC, resins and resin additives.

It further plans to expand and diversify its activities by exploiting renewables and other routes and by opening up new markets, such as China.

There are also plans under way to enhance the company's infrastructure in terms of equipment, facilities and use of information technology tools.

"Chimar differs from its competitors in that it sells technology and does not produce products, in contrast to the larger manufacturers in this field," explained Mrs Markessini. "We provide a broad range of product technologies and support services as opposed to independent consulting on *specific topics. We also focus on green* technologies such as board recycling, strawboard and the introduction of natural resins, while we are among the first companies to have reached F**** board production, even for the most difficult thin MDF.

"We are a small, flexible company, able quickly to respond to customer needs." □