

# FORESCO, SOUTH KOREA RELIES ON NTL RESIN TECHNOLOGY

Foresco is a producer and wholesaler in South Korea of more than 50 types of MDF board specifications that are reliant on tailor-made resin formulations created by NTL Chemical Consulting. NTL is a European-based company run by scientists and engineers from a modern equipped R & D facility at EKETA technological Park of Research & Technology Centre of Thessaloniki, Greece. The team has extensive experience in the development, manufacture and application of Formaldehyde-based resins, which are used in the manufacture of: UF, UmF, MUF, MUPF, PF, etc for Particleboard (PB), MFD HDF LDF, PLY, OSB, Impregnation technology, plus additives such as Activators, Scavengers, Special Hardeners, etc.

The firm's customer base includes some 250 wood panel production mills in 24 countries. This involves a strong client core base in Southeast Asia and in South Korea, plus current activity in establishing new business licensees in Russia, China, India and Latin America.

NTL's resin technologies are environmentally friendly and capable of meeting the various performance criteria required by the most stringent European, British, American and Japanese Standards ensuring the performance of any combination of the two class groups of: Board Class: V20, V313, V100; Formaldehyde Class: E-2, E-1, E-0 (F\*\*\*\*) and Super E-O (F\*\*\*\*)

Mr. Nikos Pargianas, Technical Director and founder of NTL Chemical Consulting is a Polymer Chemist who has worked with some of the biggest wood panel plants world-wide. He says: "Our strength is our deep knowledge and extensive experiences in developing tailor made resins to best suit board production parameters in meeting our customers' specific requirements." Such capability arises from NTL's wide exposure to a variety board materials, plus various wood species and fibrous materials, including: soft wood, hard wood, tropical wood, mixed wood species, recycling wood, bagasse, etc...

NTL is actively engaged in technological collaboration with research bodies, such as the Aristotle University of Thessaloniki and the Chemical Polymerization & Process Engineering Research Institute. In addition, strategic

relationships are in place with other European Universities and Technical Institutes. These relationships help NTL to monitor new technology developments in the Wood Panel Industry.

Arriving at the correct approach to determine which resin formulation is best suited to a particular application is the secret of performance. Suitable resin development must take account of important board manufacturing parameters, i.e. hot or cold weather, dry or hot humidity, etc., so that the reactivity, viscosity, solids content, tackiness, dry-out rate, molecular weight distribution, formaldehyde emission, is



best suited to a particular board manufacturing process.

Mr. James Vlachos, NTL Sales & Marketing Mgr. says, "That apart from our wide range of resin technology that we offer to our clients, we also offer our International experience in the Engineering of Formaldehyde & Resin Plants as well.

We offer complete process technology, engineering design, procurement, technical assistance, supervision and the complete training services to our client's plant personnel for the construction of formaldehyde production and resin plants for local manufacturing as the most cost effective alternative".

The YEARBOOK asked Mr. Sang-Gil-Choi, Director of Foresco Co. Ltd about his company operation. The company began urea-formaldehyde resin production in July 2001 and by 2007 its annual resin usage for its MDF line was 22,740 tons, based on an MDF production of 177,860 cu m. The plant is equipped to produce environment-friendly products aimed at improving the quality of MDF materials.

"What specific requirements did you have when determining which resin formulation would be best suited for your board production? What did you have to take into account?" *Answer:* "We took many factors and requirements into consideration aimed to find highly efficient resins, which can improve board mechanical properties, provide more consistency during changing board production parameters, cheap raw material, easy to follow and control the cooking manufacturing procedure, short batch time, etc.

"We had heard from our Asian contact sources of NTL's good reputation and in order to validate NTL's performance we visited NTL's main clients MAC (Malayan Adhesives & Chemicals) of Malaysia and TDIC (Dovechem Chemical Industries) in Thailand. "A very positive feedback convinced us to proceed in working with NTL. In fact, with NTL's resin technology we managed to achieve significant cost-

Apart from seeking overall manufacturing and production cost improvements the emphasis on achieving 'product excellence' has involved elements of training, collaboration and technical development advice from NTL.

savings by reducing glue consumption and at the same time increased line speed." *Mr Sang Gil Choi told the Yearbook.*

Asked "How did NTL provide training to your personal at your R&D and resin plant?" Choi replied: "An NTL technical specialist provided training at our R&D and resin plant 2-3 times a year, for about two weeks each visit. This training included new resin formulations, modifications/upgrading, application, troubleshooting, etc. With their global connections and experiences they also provided us with information of market trends, important global technical data, new technical trends and regulations as it pertains to the MDF panel industry. In addition to NTL's visits to our factory we receive ongoing technical support by phone or e-mail when it is required."

"Has the technology you use reduced emissions, to



meet the growing demand for a "Greener" MDF product?" *Answer:* "Since there is a growing demand for greener MDF products, in our case, NTL's resin technology has certainly applied and achieved a greener low-emissions MDF boards in the most cost-effective manner. In fact, with NTL's technology we managed to get low emission boards from E1 down to even Super E0 with straight Amino based resins and without the addition of any additive i.e. scavenger as the most cost-effective manner. Actually, our E1 product is straight UF resin without any expensive additive i.e. melamine. And since we became certified with KS (Korea stand) and ISO, we maintain stricter controls than the standard requirement of environmental compliance issue."

"Glue consumption has decreased by up to 15-20%; production speed increased by 5-7% as well as improving board properties, particularly in I.B (Internal Bond) for ultra-light board (density around 500-580). Finally, we have achieved an amount of cost savings, so the results have been good."

Foresco has recently increased its investment in R&D to diversify its melamine resin, E1 resin and to develop new adhesives capable of providing improved production efficiency and a wider and improved product range."

Currently our market requires mainly E2 as well E1 resin grades which is what we are producing. However we have already produced and tested for the future market demand E0 and Super E0 resins, as well high moisture resistant boards."

Quality control is an essential, especially when making ultra light weight boards. This means the company needs to consistently produce high quality resin, which Foresco does by closely monitoring raw material quality and precisely following resin manufacturing procedures. The company's main fibre source is softwood, hardwood and waste wooden pallet, of which 80% comes from local supply, and the rest comes from Australia. Currently, the company's panels are not exported but some material has gone to Vietnam for test market purposes.

From the beginning, a decision had to be made about what type of resins and formulations to use. Based on Foresco's market needs it was decided to seek tailor-made formulations to suit its exacting production requirements. "We have more than 50 types of board specifications according to thickness, density, colour and applications, although so far we have produced only MDF. Asked about Foresco's highest quality resin-impregnated grade, Choi replied that it was a water resistant resin wall panel grade with direct clay coating.