

1990 TAPPI Nonwovens Conference: keynote on environment

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Nonwovens functional editor

The Nonwovens Division Conference was held at Marco Island, Fla., on May 6—10, 1990. The facilities at the Marriott Marco Island Hotel were superb. The weatherman must have been one of the 400 attendees, as we were blessed with continuous sunshine and pleasantly warm weather. The hotel offered 16 tennis courts; water sports including swimming, sailing, and fishing; and golf. For those not having the stamina to play 18 holes, there was a pitch-and-putt course right on the hotel premises. Those who wanted to see the sights could choose either a tour

of the island or a tour through the Everglades.

Over 50 papers were presented in 12 technical sessions. "Nonwovens and your environment" was the theme of the opening session. The keynote speaker was Kip Howlett, Georgia-Pacific's vice president of government affairs. Howlett indicated that there are two environmental groups who receive publicity: those who profess doomsday and those who say there are no environmental problems. Neither group is correct, but those views seem to receive coverage, he said.

Keynote address

The following are highlights from the keynote address by Kip Howlett, Georgia-Pacific's vice president of government affairs.

A particular area of concern for an industry that is dependent on wood-based fiber as a raw material is the controversy over logging. There is a feeling among many in the public that "it's good to plant a tree, but you had better not cut it down once it has been planted." This strikes at the heart of managing forest lands and could create problems for future generations.

In a recent poll, 70% of the respondents agreed that improving the environment is a primary issue for the future. However, how to achieve this improvement is not as clear. Many of the conclusions that the public has drawn from the discussions about the environment are incorrect or misleading. Many of the corrective measures that are being proposed by environmental activists and politicians are not based on common sense or good science.

As a nation, we have been worried about the greenhouse effect for years, but the ice caps have still not melted. Research and scientific observation still hold the key to determining what would be the best course in determining the extent and nature of the problem, yet science seems to have gotten lost in the shouting.

Acid rain has been accused of many things, including killing forests and destroying lakes in the northeastern United States and Canada. However, research has shown that the acid in the lakes comes from the natural soil conditions, many of the lakes have been acidified for over 100 years, and no direct link between acid deposition and tree death can be clearly established. None of these findings have helped stem the tide of a Congress which has pushed



Kip Howlett

through the legislation banning the use of high-sulfur coal from the Midwest.

As part of eliminating high-sulphur coal, miners must be retrained for other jobs. It will cost industry and taxpayers 80 billion dollars for this "improvement." Even dioxin, once called the "deadliest chemical ever made," has been reviewed. As indicated by a restudy of liver slides, risk of liver damage is now two to three orders of magnitude less than first thought.

What is important to remember is that the cost to society, and to industry, of overreaction to an environmental scare is substantial. There is presently no reasonable balance between environmental conservation and societal costs.

Putting it in perspective, in 1990 in the Western world, life expectancy is at its highest and infant mortality is at its lowest in the history of humanity. We must be doing something right.

Program overview

The papers presented indicated that nonwoven products must be developed that are friendly to the environment. Instead of producing nonwovens with permanent characteristics, many nonwovens must now be produced with either programmed degradability or recyclability in order to reduce the volume of material requiring waste disposal. Wastewater must be purified and recycled. One process for doing this is by using high-pressure needle showers in conjunction with flotation and sand filtration. We will continue to see more environmental protection legislation on air quality, solid-waste disposal, toxic chemical release reporting, and industrial wastewater treatment. Because of increasing costs for waste disposal, future emphasis will be directed towards waste reduction by recycling, establishing constructive uses for wastes, modifying manufacturing processes that reduce wastes at the source, and incorporating alternate disposal technologies such as composting and incineration.

Standardization plea

During the second session, there was a plea for standardization of definitions, classifications, specifications, testing, and import and export duties. Presenters sought the use, requirements, and testing of composites and laminates in the electrical, electronic, food packaging, drug, and chemical purification industries. The use of flexible airformed, multicomponent composites and increasing tensile strength of polyethylene/cellulose using isocyanate precoated fibers were also discussed.

The third session involved papers on highly fibrillated acrylic pulp that can be utilized as a binder media or to improve performance of papers, nonwovens, and pulp molded products. The demand for environmentally friendly products and processes are increasing, and industry is beginning to make some headway in fulfilling these demands.

Cotton fiber

In session four, it was learned that the importance of cotton fiber usage is growing, mainly due to certain technical and aesthetic advantages and availability of some innovative products. The methods of manufacture and uses of carbide were reviewed. Other topics covered were the equipment for dry and wet laying, bonding methods for three-dimensional composites, thermoformed composites, and waterjet and hydroabrasive cutting of composites.

Session five had one paper that described a simple experimental method to determine uncompressed thickness and solidity of a web. It permits the determination of root mean square fiber diameter from pressure drop or air permeability data. Also discussed were the parameters that most influenced fluid absorption in bonded pulp materials, and the market opportunities of superabsorbents.

Recycled PET

Several papers in session six proved the feasibility of using recycled PET, copolyester polymers, and other plastics in forming melt-blown nonwoven webs to produce a range of useful products. The hydroentanglement of different types of cellulose with polyester was reviewed, and the

Robert L. Almond chaired the development of the 1990 technical program.



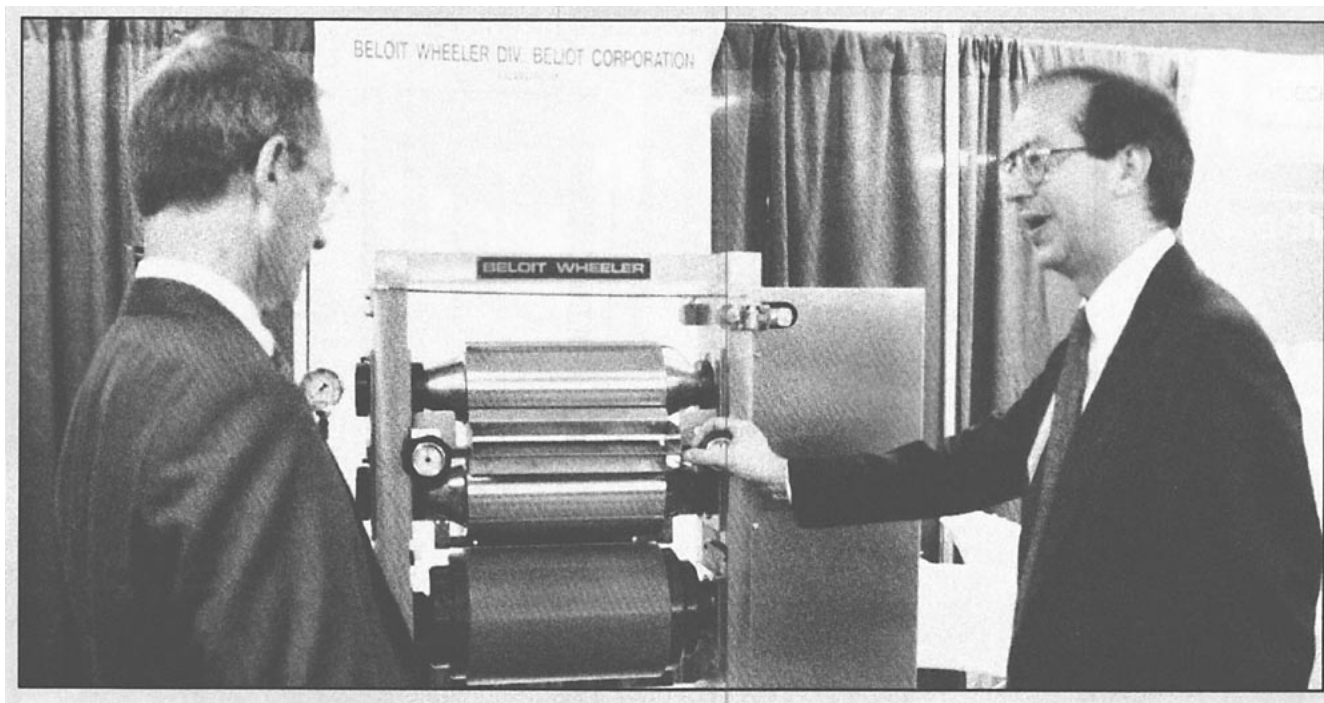
uniformity and barrier properties of nonwovens to pesticides and fluid penetration were presented. The paper on fluid penetration for medical personnel was of special interest. It described an accurate test method for showing the effectiveness of medical protective clothing in preventing transmission of infectious diseases carried in blood and other body fluids.

Session seven had papers that described the importance of heat transfer behavior on the prediction of hot calender bonding of cotton/polyester blends and the importance of testing geosynthetics for waste containment. Milkweed fiber was shown to have characteristics that would improve the performance of nonwoven products. The properties and end-use applications of high-performance polyethylene fibers were reviewed. Exceptional strength, low elongation, chemical resistance, and low density are among the properties that permit rather unique uses.

Model review

The first paper in session eight gave an excellent historical review of mathematical models for the prediction of modulus, strength, and composite properties. Another paper discussed the use of nonwovens and the theoretical aspects of noise reducing assemblies. The use of silane surface modifiers were shown to improve rheology and mechanical and electrical properties of finished materials. The unique properties of pitch-based carbon fibers and possible precursor products used in further assemble of composite products were discussed.

Session nine reviewed waterborne epoxy resins with exceptional fiber adhesion that are capable of producing high-strength nonwovens with chemical and thermal resistance. The operation of the Yankee tissue machine, function of dryer adhesive in the creping process, and advantages of several adhesive types was discussed. New copolymer compositions, odor control compositions, and a



method for detecting the release of formaldehyde during resin cure were also presented.

Session ten included presentations on the following: the philosophy and need for testing laboratory automation; a capacitive method for controlling web linear density; an infrared absorption spectroscopy method of determining synthetic polymer fraction; the effect of needle penetrations on nonwoven weight; air permeability; compressive and thermal transmission properties; and the correlation between handsheet pressure drop and William's freeness drain time.

Spreadsheets

Session eleven illustrated two applications of Lotus 1-2-3® spreadsheets in manufacturing. The effect of fiber geometry on the physical properties of chopped-fiber-reinforced thermoplastic sheet composites, and the effect of fiber diameter, length, and mat basis weight on polyester and glass/polyester wet laid mats were also discussed.

Session twelve had a paper that showed that the weighted average pore size as determined using the mercury intrusion porosimetry to be a sensitive measure of single-pass efficiency of filters. Other papers discussed the use and advantage of an automated liquid porosimeter and the use of spunbonded olefin in filtration and containment of wastewater.

Meeting activities

Committee meetings, the lifeblood of future successful conferences, were plentiful. Often individuals found that attending a discussion or a meeting could be a trying experience, as there were some overlapping meetings or papers of interest. Lunches provided at the meetings helped swell the attendance and assisted in making the

meetings a great success.

The Nonwovens Technical Exhibit provided an opportunity to socialize as well as to observe exhibits, obtain literature, and query exhibitor representatives on the latest items offered by their companies.

The banquet on the last night of the conference offered everyone a last chance to socialize and also to take part in the award ceremonies. The Mark Hollingsworth \$1000 prize and Division Award went to Martin K. Lindemann for his numerous contributions to the nonwovens industry. Bob Wagner received the Leadership and Service Award with the accompanying \$500 prize. Other awards included the best paper awards for the last year's sessions, and recognition for committee officers, outstanding golfers, and tennis players. □