Unique biocomposites plant in Drayton Valley turns wood waste into auto parts

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Dan Madlung, chief executive of BioComposites Group, at the firm's new plant in Drayton Valley which produces engineered fibre mats of wood fibre and polyester (white fluff) that is used by auto parts firms to make door panels and trim. The pilot plant will use a variety of materials, and also plans to make erosion control mats.

DRAYTON VALLEY — Entrepreneur Dan Madlung, a former manager at forest products company Canfor, hopes his legacy will stem from the business of turning wood waste into things like car door panels, erosion control mats and batt insulation.

And his timing couldn't be better, as auto makers are looking to replace plastic components in door panels and trim.

His BioComposites Group plant, which is just starting up, produces engineered biocomposite fibre mats that are impregnated with a thin layer of polyester to bind the wood fibres when heated in moulds used by auto parts makers.

"The process involves a needler, which has 5,000 needles that push the polyester into the mat, and that takes time," he said. "So this is a low-volume but high-margin product, and we will be trying several different materials, including hemp, and aim to develop several lines of products."

A diversity of feedstocks and applied research will determine which combinations work best and which markets are preferred for the business, he said.

TechStyles Inc., a manufacturers' representative for the North American automotive business, will market and provide customer support for the new biocomposite product.

But Madlung notes it would take one-quarter of his total production of mats to supply just the material for Audi's Q5 car, for example.

"They have asked, and so have others. There is no other source of wood fibre mats in North America, although in Europe, Mercedes and Audi and others are using this material in their cars to save weight and because it is a renewable product," he said.

Madlung, 57, met Tam Tekle, a forest products researcher with a lab in Edmonton, more than a decade ago. Tekle Technical Services (TTS) does research on a variety of products, such as BioFibre Cement. The concrete and hemp blocks made in his lab were used to build two walls in the Drayton Valley plant. And while Madlung is chief executive of BioComposites Group, a private company, it is a division of TTS, which obtained $4.5 million in support from the federal Forest Industry Transformation Program to help get the plant built.

The equipment, which includes vacuum systems to compress and flatten out beds of wood material plus a process where polyester fibre is wedded to the wood fibre and then impregnated with needles, comes from Canfor's shuttered operation in Vancouver. The Canfor plant was experimenting with cedar wood fibres to make mats for door panels. The process was uneconomic, perhaps because of the materials used and the fact the auto industry was not yet ready for the product.

So North America's only biocomposite fibre mat plant was moved to Drayton Valley.

In addition to producing automotive parts, Madlung plans to manufacture hillside erosion control mats and insulation batts that could replace popular pink fibreglass. The wood product would contain a corn starch material instead of petrochemical-based resin, eliminating off-gas.

"We want to make products that are not commodities, that are high value, using residue from forestry and agriculture," he said.

Madlung said he could not have started the plant without the equipment from Canfor and government assistance.

"That needle machine is worth a million dollars alone, it's from the textile industry and German-made," he said.

Once the plant is running, he plans to add to the seven-person shift with enough staff to operate 24 hours a day, seven days a week. He thinks this new industry will be able to run steadily and will not follow the ups and downs of other commodities such as oil and forestry.

"Biocomposites is not a cyclical industry, and it should employ a lot of people."