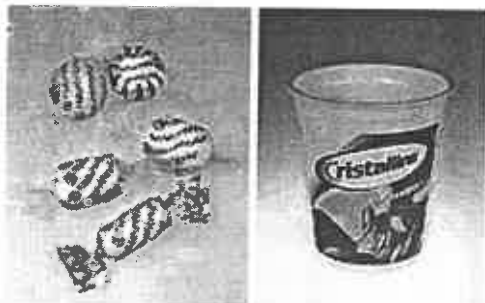


## Opportunity in maize-based plastic

Projects - March 2003



The SA plastics converting industry may feel it has fulfilled its environmental obligations after the much-delayed agreement with the government on thicker plastic bags. However, new fully-compostable plastics feedstock derived from non-oil sources - particularly maize - might present an opportunity for differentiation in plastic packaging offerings and marketing related to environmental friendliness.

Longer term, the maize base of the alternative plastic feedstock now being offered by Cargill Dow may offer an opportunity for conversion of local maize to feedstock. Cargill Dow, based in Minnesota, US, is producing polylactide (PLA) plastic pellets, which it has branded as NatureWorks™ PLA, via a fermentation and distillation process. The process taps into the carbon stored in plant starches at present derived from maize (in future other sources like straw might be developed).

For the moment NatureWorks™ PLA is manufactured entirely at Dow Cargill's plant in Blair, Nebraska. This is the first commercial scale PLA plant in the world, producing 140,000t/year.

The plastic produced from the feedstock is 100% compostable (unlike oil-based plastics). Dow Cargill says it performs as well as or better than oil-based plastics in various strength and other criteria.

Cargill Dow is now entering into partnership agreements with converters throughout the world for production of the final plastic products. These partner agreements allow Dow Cargill to supply raw material to local converters which in turn supply retailers and brand owner customers with end-use packaging products.

Cargill Dow says: "When transitioning between NatureWorks PLA and incumbent materials, converters experience a relatively easy shift and an expansion of film capabilities. NatureWorks runs within most application and/or machinery specifications, which means retooling is not required and minimal coaching is needed to adjust to using a polylactide polymer.

"The distinguishing factor about these (partnership) agreements from other packaging agreements is that NatureWorks PLA is a more sustainable material for the environment which offers marketers a point of difference on store shelves."

The downside is that NatureWorks PLA is more expensive to

manufacture than oil-based feedstock. However, Cargill Dow says, the cost gap is getting smaller due to commercial-scale production at the Blair plant and rising oil prices. Also, it says, the sometimes-superior qualities of the resultant plastics may allow it to be down-gauged into a thinner material, reducing costs.

However, for the moment Cargill Dow is relying on the fact that PLA would be recognised in the market as a premium product and command a premium price. It says that where it has been commercially introduced, retailers are seeing substantial increases in sales volumes.

The vital question is what the price premium over the oil products is. Cargill Dow was not specific about this premium when responding to this question from Packaging Reporter. However the premium is understood to be much less than that of a competing non-oil product, E\*Bio, produced by Eästman, another US company. E\*Bio's price is understood to currently be a multiple of that for oil-based feedstock.

- In SA, the leading exponent of a scheme to use biodegradable plastics and composting and gardening projects which would both create marketing opportunities and job creation, is Bob Boden of CoExtruded Film Technologies.

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