

Novomer

Innovation: Sustainable plastics made from carbon dioxide

Technology:

A cobalt-based catalyst developed by founding chemists from Cornell University facilitates the reaction of petroleum compounds with carbon dioxide or carbon monoxide to form common plastics used in packaging, electronics cases, and absorbent materials. The process sequesters the greenhouse gases and can be used to make biodegradable plastics.

Market:

The company hopes to compete with producers of conventional industrial polymers made entirely from petroleum. Novomer emphasizes the green aspect of its products to capitalize on consumer concerns about the environment, but the primary advantage of making polymers from carbon gases is that it's cheaper, which may help the company grab market share.

Strategy:

Earlier this year, Novomer partnered with Dutch chemical giant DSM to develop compounds called polyols for use in coatings for food packaging and in automobile and industrial finishes. Other polyols on the market are made with bisphenol A, a suspected carcinogen. The Novomer/DSM product, which will be marketed as BPA-free, will be made of 50 percent carbon dioxide.

Challenges and Next Steps:

No new polymers have been introduced into the coatings industry for more than a decade. The company's partnership with DSM will be key to breaking into this mature market for the coatings that line soda cans, floors, furniture, and electrical coils. Novomer's target is to have coatings to its customers in the fourth quarter of this year. The company is currently working with DSM to fine-tune its polymers' properties as

the production process is scaled up. Future products may take advantage of another property of the company's coatings: while most industrial polymer coatings compromise between hardness and flexibility, Novomer says its CO₂-based coatings are both scratch-resistant and flexible.

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