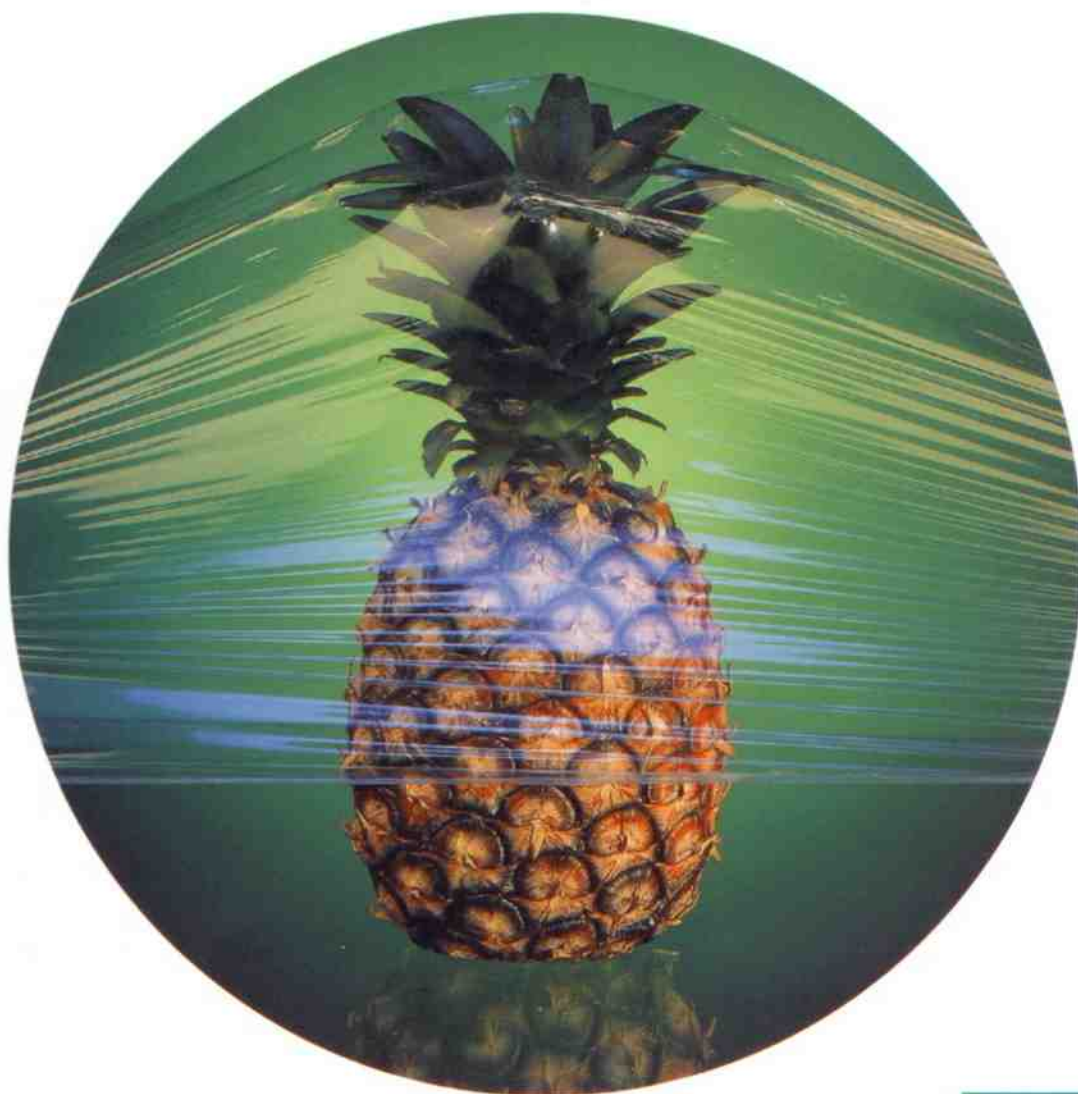


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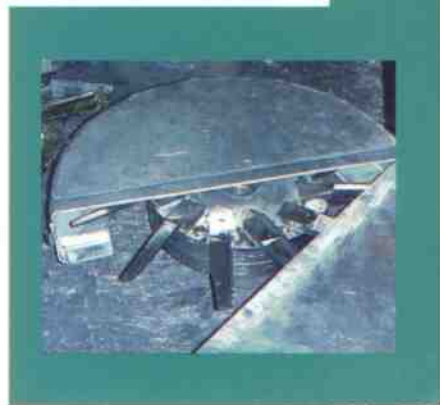


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# Encapsulated scents have smell of success for custom compounder

**Paddle blenders at the world's largest independent compounder of cellulose meet demand for encapsulated fragrances.**

Custom compounder Rotuba Extruders first came up with the idea of scented plastics 20 years ago. The company set out to compound fragrances in cellulose acetate resin that could be moulded or extruded into various products. However, although the concept looked promising, the market wasn't ready for such an innovation.

"Twenty years ago, nobody was interested in aroma therapy or using scents to help sell products," recalls Gil Carmichael, project manager at Rotuba.

Times change, however, along with consumer tastes and merchandising strategies. Demand is now growing for encapsulated fragrances, and Rotuba recently launched a new line of scented cellulose compounds called Auracell™. Key to the company's ability to grow this part

of its business and still meet other product commitments, are two paddle blenders from Munson Machinery Company, Utica, NY in the USA, which give Rotuba the flexibility to fulfill current production needs while capitalizing on this market opportunity. Rotuba compounds clear amber and coloured cellulosic grades in the blenders, and plans to make greater use of them for scented compounds as demand increases.

Rotuba is the only company compounding fragrances in cellulose acetate resin, notes Carmichael. The resin's efficiency in absorbing fragrances during blending combined with its natural breatheability contributes to a long shelf life for scented compounds of up to five years, he claims. Most scented plastics, by contrast, utilize coatings that quickly wear away, sometimes in days. Rotuba claims it

can duplicate 30,000 scents. Auracell™ grades are suitable for numerous markets, says Carmichael, like retail displays, where they attract customers by mimicking scents associated with products.

The Munson blenders have a working volumetric capacity of 6.37m<sup>3</sup>. Carmichael says paddles were specified because they can be easily cleaned, since their design yields less surface area than other mixing elements. Fast cleaning reduces downtime during product changeover. It also means workers usually have no need to enter the blenders when cleaning them, which reduces the regulatory liability of the company.

Rotuba compounds cellulose acetate, additives and other chemicals in each blender at 82-93°C. Throughput varies by a great margin due to the process requirements of different materials.

"Some cellulose grades rapidly absorb plasticizers and other chemicals, which increases the amount of material that can be compounded in an hour," he explains. "Others need longer mixing cycles."

After mixing, material is emptied through a valve at the bottom of the machine into drums, which are transported to extruders for pelletizing. Batches average 1,814 kg. Munson's paddle blenders come in capacities of 0.05 to 28.3m<sup>3</sup>. Each can be customized for user needs. Rotuba's mixers, for example, are modified to reduce their footprint. With space at a premium in the company's 6,038m<sup>2</sup> plant, Carmichael says the blenders were designed with the gearbox and drive under the machines rather than on the side where they would normally be. This saves 1.1m<sup>2</sup> of space. He says the two blenders take up a relatively compact 4.6m<sup>2</sup> of floor space.



*Rotuba employs two Munson paddle blenders to produce clear and amber grades of cellulose and scented compounds. Volumetric capacity of each is 6.3m<sup>3</sup>.*



Bottom-mounted gearboxes and drives (behind the front protective cover) consume 1.1 m<sup>3</sup> less floor space than side-mounted versions.



Bulk bags containing cellulose ride on a track that is angled to optimize the use of floor space.

Other options specified by Rotuba included heat jackets, carbon-steel tanks and stainless steel covers to prevent rusting from moisture build-up during processing. A special air-purge system was installed to assure contaminant-free seals. Because the cellulose particles that Rotuba compounds are fine, Carmichael says they can migrate into the seals on the mixing vessels and damage them. The air-purge system applies pressure within each blender to drive the powder and other contaminants away from the seals. Rotuba runs the machines 24 hours a day, five days a week, and has never had a major problem with them. "This attests to the durability of these machines," Carmichael says. With 50 years in the business, Rotuba is one of the oldest compounders of cellulose acetate resins and the largest independent compounder of cellulose in the world. It compounds clear and coloured cellulose acetate for consumer and industrial applications. Compounds are moulded and extruded into products like tool grips, electrical goods, face shields, packaging, toys and point-of-purchase displays. Customers include major brand holders like Sears' Craftsman tool line, Stanley Tools, Genlyte indoor/outdoor lighting, Cooper electrical products and Pratt-Read screwdrivers. Rotuba also extrudes light fixtures of polycarbonate, polystyrene and butyrate. The company plans to order a third Munson paddle blender, likely all-stainless to eliminate corrosion, once Carmichael determines capacity requirements. Rotuba also retrofit a ribbon blender of another maker with one of Munson's paddle elements to improve efficiency.

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