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High output of quality flavours demands efficient grinding – Givaudan Flavours Corp. has tripled processing throughput of its previous knife cutter by installing a rotary cutter

At Givaudan Flavors Corp., grinding large amounts of ginger root, cassia bark, cola nuts, vanilla beans – before extracting flavours – places high demands on size reduction equipment. A Munson rotary cutter, processing 2700 kg/hour with a 20 hp motor, triples the throughput rate of a former knife cutter, which only attained 860 kg/hour with a larger 60 hp motor.

Vanilla beans from Madagascar, cinnamon bark from Sri Lanka, ginger roots from Nigeria and many other natural flavours are supplied by the Givaudan Flavours Corp., which extracts flavour from natural products, concentrates it, packages and markets it to food and beverage manufacturers.

Headquartered in Geneva, Switzerland, Givaudan sells natural flavours to food companies, as well as creates flavours for customers in its laboratories. It is one of the oldest and largest flavours and fragrances houses in the world.

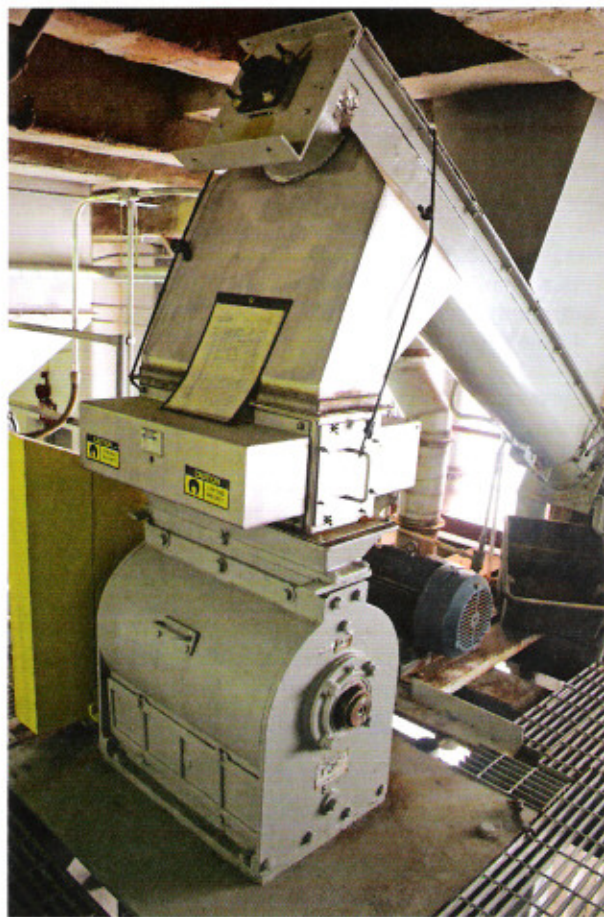
The company processes natural ingredients on a mass scale, plac-

ing high demands on its size reduction equipment, grinding upwards of 2700 kg/hour of ginger root, cassia bark, or cola nuts, and cutting about 1360 kg/hour of vanilla beans into uniform size chips within relatively tight tolerances required for efficient extraction of flavours.

OVERVIEW OF THE PROCESS

Organic raw materials are forklifted to the second floor of the plant and dumped in any of four dumping stations terminating at size reduction equipment located below, on a first floor mezzanine. A Munson rotary knife cutter, a Munson SCC 30 rotary cutter, a hammermill, and a roller mill reduce material to uniform size chips, presenting the best surface area for liquid extraction of flavours.

After a bulk bag is filled with ground material, a chain hoist lifts the bag for emptying into one of several box extractors or 20 ft high conical extractors. Liquid flavour is derived from vanilla beans, for example, at a 1:10 ratio, says Joe Bush, basic prod-



ABOVE: ginger root, cassia bark and cola nuts are conveyed by rigid auger through a magnet and into the Munson knife cutter.



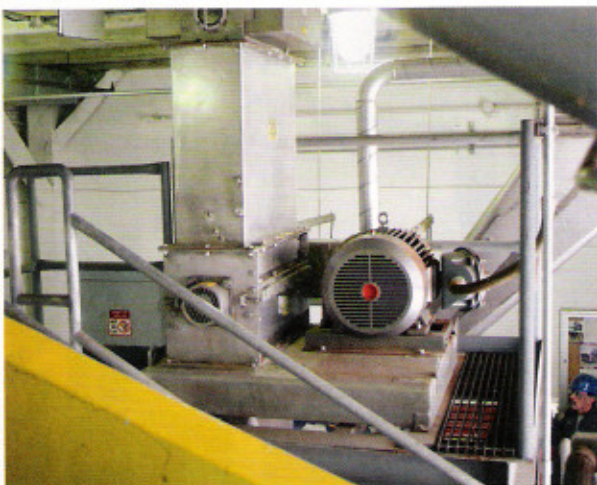
LEFT: (L-R) Munson SCC 30 rotary cutter, Munson #4 rotary knife cutter.

ucts maintenance supervisor. The spent fibre from the extractors is sold as animal feed.

KNIFE CUTTING OF GINGER ROOT, CASSIA BARK AND COLA NUTS

Throughput of 2700 kg/hour of tough, hard roots, beans and nuts places high demands on the cutting blades of a rotary knife cutter. Spices are roots and fibrous and hard materials, so the cutter needs to be very rugged to handle the impact yet give a precise cut with minimum fines and dust.

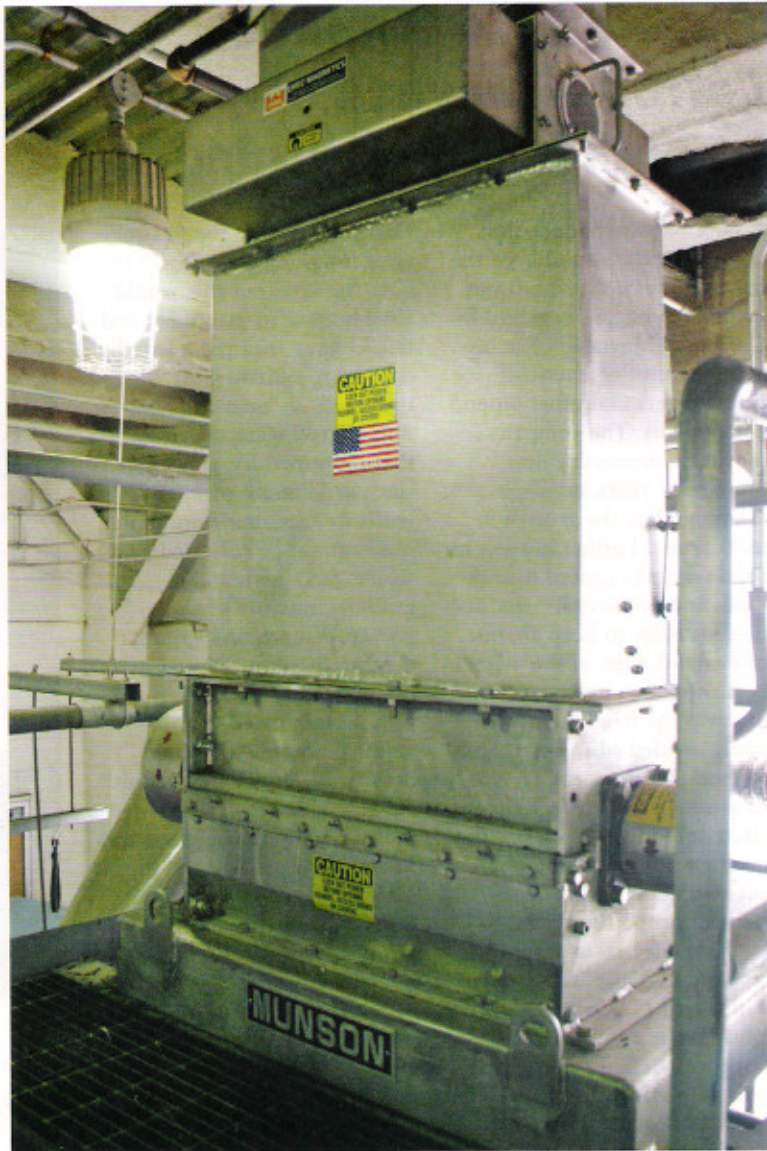
According to Bush, the Munson rotary knife cutter holds downtime



ABOVE and RIGHT: SCC 30 rotary cutter grinds vanilla beans at rate of 1360 kg per hour. LEFT: spent fibre is sold as animal feed.



ABOVE: a Munson rotary knife cutter reduces (top and other tough, hard, fibrous roots, nuts and barks such as (from top to bottom) cinnamon, ginger, cola nuts and vanilla beans.



a 20 hp variable speed drive at 550 rpm, triples that rate. Also, a wider 270° screen area permits higher throughput compared to the replaced cutter's 120° screen area.

CUTTING VANILLA BEANS AT 1360 KG/HOUR

With a second Munson machine, a stainless steel Screen Classifying Cutter (Model SCC 30) Givaudan chops vanilla beans at a rate of 1360 kg per hour. The rotary cutter attains high throughput with a helical rotor assembly of dozens of interconnected parallelogram shaped cutters, each holding two tungsten carbide cutter inserts. Cutting action occurs as the carbide tips pass within thousandths

of an inch of two stationary bed knives. The rotor configuration produces a spiral cutting and feeding effect.

The carbide inserts are replaceable, but Bush replaces the entire rotor assembly every three years, since the tungsten carbide teeth last long even in this abrasive application.

"Cleaning of the rotary and knife cutters between batches proceeds rapidly," says Bush. The operator flushes out their cutting chambers with nitrogen, and rinses with water. ●

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