

petfood pro

Technology & Marketing 1/24



Ingredients: Insect Proteins, Plant Extracts for Pets, Digestive Health, Science in Pet Food

Processing: Heat Pump Drying, Texture Analysis, Rotary Mixing, Butchery Perfection

Packaging: High Technology Packaging, Food Safety, Flexible and Recyclable Films

Marketing: Global Trends in Pet Care, Anuga FoodTec - Pet Food Zone, Interzoo

Dr. Harvey's Ups Output of Natural Pet Foods with Rotary Batch Mixer



Operators weigh and empty ingredients into bowls which are emptied into a 0.56 m³ (20 cu ft) hopper that feeds the Rotary Batch Mixer.



Proprietary mixing flights impart a tumble-turn-cut-fold mixing action that causes particles to recombine 288 times per minute, yielding uniform blends in about five minutes.



One receiving hopper containing a blended batch is rolled away from the mixer (foreground) as another fills a packaging machine surge hopper (rear left).

Dr. Harvey's produces all-natural food products for dogs and birds, each of which is a blend of 15 to 30 dry ingredients ranging from seeds, dried vegetables, fruits and organic grains, to protein powder and freeze-dried meat.

The company's previous 836 m² (9000 sq ft) plant and 57 liter (2 cu ft) ribbon blender limited growth, prompting Dr. Harvey's to move to a 2787 m² (30,000 sq ft) facility in Eatontown, New Jersey, and install a 566 liter (20 cu ft) Munson Rotary Batch Mixer, which is "the central and fastest part of the process," says General Manager Cesar Salazar.

Achieving uniform distribution of disparate ingredients

Each food product begins with a base mixture of grains and dry vegetables to which herbs, protein powders, and other ingredients are added. Canine products contain between 20 and 25 ingredients, versus about 30 for bird feed products containing seeds, nuts, dehydrated protein, and fruit. Ingredient particles are powder-sized up to a quarter inch—or about 6 millimeters.

Ingredients for batches of up to 363 kg (800 lb) are manually weighed and dumped into a plastic hopper, which is then forklifted above the mixer's inlet to be gravity discharged through a manual slide gate into the Rotary Batch Mixer.

The mixer's stationary inlet and outlet allow loading and discharging of the vessel as it rotates, reducing mixing cycle times, while preventing segregation of ingredients during discharge, regardless of the large variations in particle sizes and shapes.

The four-way action of the vessel's proprietary mixing flights lifts, folds, cuts and turns the materials with no shear, heat or degradation, yielding uniform blends in about five minutes. The flights also serve to elevate and direct the material toward

and through a plug gate valve which, when opened, discharges the batch with less residual than the plant's previous ribbon blender, despite having 10-times greater capacity.

The general manager says, "A number of fragile ingredients dust easily, but they remain in the same condition as when we loaded them into the mixer."

The portable hopper containing the blended batch is then forklifted above the surge hopper of the adjacent packaging machine and discharged through a manual knife gate valve.

Complying with sanitary standards

Following discharge, the previous ribbon blender left about 1.5 kg (3 lb) of residual material in the vessel trough requiring manual removal, while dried vegetable particles adhered between the ribbon agitator and the trough walls required manual scraping and/or removal of the agitator.

With no shaft seals, dead spots or recesses to trap contaminants, the Rotary Batch Mixer can be cleaned in 30 to 40 minutes. Operators blast the interior using compressed air nozzles, then vacuum and hand wipe with towels.

For batches containing certain dried meat products, a dry sanitising agent is applied in addition to the standard cleaning regimen. "We deep clean each surface to ensure no cross contamination," says Marie Limoges, PhD, RDN Director of Food Safety and Nutrition.

Clean-out doors on opposite sides of the vessel allow unrestricted access for cleaning and visual inspection of all material contact surfaces, contributing to the plant's compliance with National Animal Supplement Council guidelines, which incorporate FDA and state requirements.



Ingredients are emptied into a 0.56 m³ (20 cu ft) hopper that is forklifted into position above the mixer's inlet.



Batched ingredients gravity discharge from the 0.56 m³ (20 cu ft) hopper into the Rotary Batch Mixer of equal capacity.



Blended ingredients are transferred from a receiving hopper below the mixer's plug gate discharge valve, into the packaging machine inlet.

To prevent dust contamination of the plant environment, intake ducts of a central dust collection system are positioned at the Rotary Batch Mixer, packaging machine, hand batching stations and other production points.

Anticipating exponential growth

Dr. Harvey's is meeting increased demand by running a minimum of three batches per day on average. Considering five minute mixing cycles per batch, and typical cleaning times of under one hour

for non-meat products, the company has significant reserve capacity to handle future growth.

"We are nowhere near capacity," explains Salazar, adding "At our previous location, we had no extra inventory. All of our product went out the door soon after it was made. Now we have inventory on hand, increased production and can plan accordingly for growth. We will be adding a second shift and will accelerate marketing to increase demand and output."

By offering "Fine Health Foods for Companion Animals" per the company slogan, and outfitting the new plant with equipment having reserve capacity, Dr. Harvey's is prepared to meet burgeoning demand for its healthful products. 🐾

For more information
www.drharveys.com
www.munsonmachinery.com



The final blend of homogenous and undamaged ingredients.



Pouches of Dr. Harvey's product—a blend of 15 to 30 dry ingredients—are filled at the packaging machine.



Dr. Harvey's produces all-natural food products for dogs and birds with dry ingredients ranging from seeds, dried vegetables, fruits and organic grains, to protein powder, and freeze-dried meat.

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