

Powder Mixer And Pump Combo Solves Clumping Problem

Therapeutic products manufacturer realizes better quality and time savings

When global cosmetics maker Coats Aloe International sought a better way to mix its carbomer based body polish, their team found a solution that produced better product quality and substantial time savings.

Coats Aloe manufactures original, semi-private and private label skin, body, and hair care products for use in spas, salons and at home in their 163,000 square foot Dallas, TX plant. Their patented Coats Whole Leaf Aloe Vera® process incorporates rigorous quality control standards to produce therapeutic products which have earned the trust of athletic trainers, estheticians, dermatologists, plastic surgeons and physicians.

Clumping Poses A Major Challenge

Coats Aloe's private label body polish is made by mixing carbomer-based powder with water. Carbomer is a water soluble thickener/stabilizer gelling agent, commonly known by the brand name Carbopol®. A major challenge in introducing carbomers into water is to avoid clumping.

When wetted, carbomer powder expands into a gel.

The powder needs to be thoroughly mixed in order to expand properly or it will cake and result in wasted powder. When not mixed well, processors need to add powder until the final product has expanded to the desired consistency. Additionally, carbomer can expand so fast it can clog systems.

Previously, the operators at Coats Aloe mixed their powders and water in a batch tank with an in-tank high shear mixer. The tank was filled with water and the powders were poured into the tank one at a time.

Once the powders were wetted they would tend to clump and fall to the bottom of the tank or stick to the sides of the batch tank. While the mixer was trying to blend the powders in solution, not all the powders would pass through the mixing head. This would cause some of the powder to not be properly mixed and settle out of solution adversely affecting product consistency.

A shear pump was connected to the tank to assist in mixing and recirculating in an attempt to achieve the correct consistency. However the carbomer powder continued to stick to the sides of the tank and large lumps of powder would form and simply not circulate into the mixer.

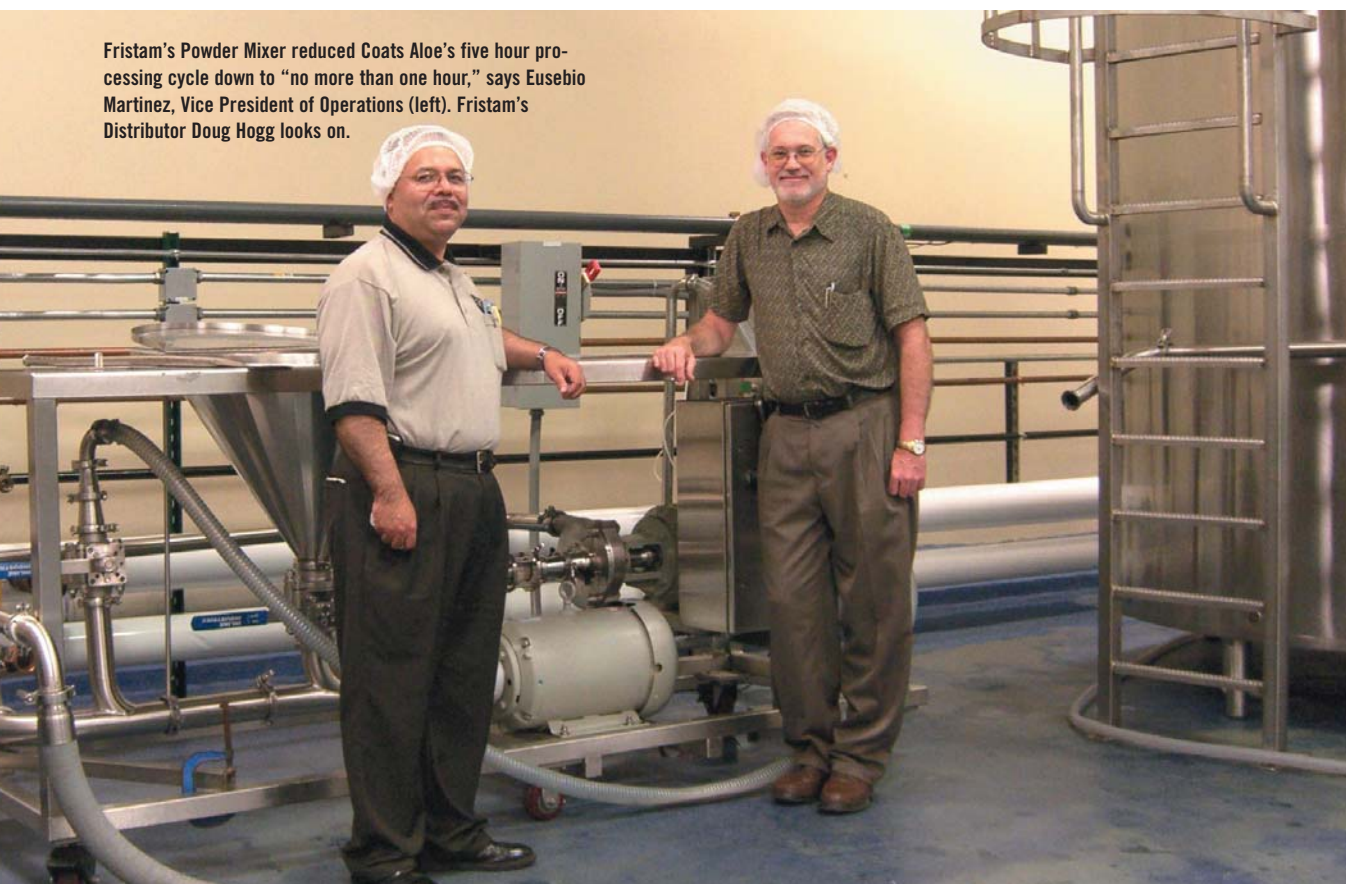
A Solution Is Needed – And Found

Eusebio Martinez, Vice President of Operations for Coats Aloe, needed a more consistent and reliable method. "We needed to be able to emulsify the product. With the old system, separation was the problem. Plus, it created so much foam that the tank would overflow."

Coats Aloe searched for a more efficient way to mix their product. Martinez contacted his Fristam Pumps representative about performing a trial using Fristam's Powder Mixer table unit.

The company had purchased a Fristam powder

Fristam's Powder Mixer reduced Coats Aloe's five hour processing cycle down to "no more than one hour," says Eusebio Martinez, Vice President of Operations (left). Fristam's Distributor Doug Hogg looks on.



Processing

mixer three years earlier for chamomile drink mix processing. In that application the waist-high table height of Fristam's unit allowed operators to pour powders more safely and with less effort. "Previously, it was dangerous. Forklifts would lift 50 lb bags of sucrose 10 feet high to be dumped into a 3,000 gallon tank, and they would need a person to climb up to dump it," Martinez recalls. "Also, we had sediment we had to filter." The Fristam unit eliminated the need for a filter. "We were able to achieve a better mix, better suspension. The design and quality of the new system saved us a step in the process and the cost of filters."

After contacting their supplier for their new body polish application, Coats Aloe received a Powder Mixer trial unit equipped with a Fristam FS 3532 Shear Blender and an FZX 2200 Liquid Ring Pump.

Within the Powder Mixer unit, the FZX generates suction, pulling the powder from the funnel directly into a stream of water, forcing it through the teeth of the shear blender before ever getting into the tank. This process ensures that every particle of powder is wetted and in solution on the first pass, meaning there are no particulates settling out in the tank and the minimum amount of carbomer is needed. Also, using the unit's funnel as a built in hopper appealed to Coats Aloe.

Impressive Results

Martinez was impressed. "We were able to achieve a much better suspension. The product is mixed with one pass through the new Fristam system and does not separate. We also have more control of foaming."

The previous method of introducing the powder at a very slow rate to avoid clumping was also time-consuming. It had once taken Coats Aloe up to five hours to complete a batch of product. With the new Fristam Powder Mixer, total production time was reduced to "no more than one hour," according to Martinez. This reduction in man hours and related costs directly benefits the bottom line.

Martinez was so pleased with the Powder Mixer that Coats Aloe purchased the trial unit on the spot. "It proved so successful, we kept it. The chemist and I wouldn't let it leave. We were able to achieve results that we weren't able to achieve with the old system, and in only 30 minutes mixing time." ■