Mix and ship viscous mixtures in the same container.

Ross Double Planetary Mixers designed to match standard 55-gallon drums enable manufacturers to produce viscous mixtures right in the shipping container. Advantages include minimal clean-up, waste generation, storage and handling.

Planetary mixing of viscous materials

The classic Double Planetary Mixer (DPM) is commonly used for preparing pastes, gels and other heavy, viscous mixtures anywhere from 50,000 to several million centipoise. It moves material by rotating two identical blades on their own axes as they orbit on a common axis. The blades continuously advance along the periphery of the mix vessel, removing product from the walls and transporting it towards the interior.

Blade movements in a DPM after 1, 3 and 36 revolutions. In just about a minute of mixing, the blades contact virtually every point in the vessel. Double planetary mixing is very efficient, thorough and predictable.
Efficient mixing, minimal waste

The DPM’s vertical orientation permits the use of interchangeable mix vessels unlike horizontal mixers such as kneader extruders and ribbon blenders. An air/oil hydraulic lift conveniently lowers/raises the planetary stirrers in/out of the mix vessel. There are no shaft seals, bearings, packing glands, stuffing boxes, etc. submerged in the product being mixed.

With multiple vessels, the Double Planetary Mixer operates in a semi-continuous mode: one vessel is being charged with raw materials while the other mix cans in the loop are under the mixer, being discharged or being cleaned. This efficient method of processing is further optimized in applications where the finished product may be mixed and shipped in the same container. For instance, Ross Double Planetary Mixers specially designed for use with standard 55-gallon drums minimize clean-up while reducing storage and handling. Hazardous formulations and expensive raw materials especially benefit from this mixing system since very minimal waste is generated in the process. Small or special orders can be economically prepared as well. A simple wipe-down of the planetary stirrers is all that is required between different mixes.

Sample Application: Silicone Sealant Production

Load silicone polymers and initial amount of filler.

Position 55-gallon drum under the mixer.

Start mixing.

After initial powders are wetted out, continue to add more filler.

Perform at least one scrape-down of the blades and exposed inner drum walls after all powders are in.

Add remaining fluids, additives, etc. Mix until complete.

Remove drum from under the mixer. Seal and label.

Finger Blades

Rectangular Blades

"HV" Blades

US Patent No. 6,652,137

For more information on Double Planetary Mixers, check out this video or visit www.planetarymixers.com.