

Live Bottom Bin and Screw Feeder Expedite Fertilizer Production

Customer

International Fertilizer Development Center (IFDC), Muscle Shoals, Alabama. A non-profit international organization in the state of Alabama, dedicated to developing new and improved fertilizers for tropical and subtropical agriculture.

Problem

In the developing world urea is the major source of solid nitrogen fertilizer. As a result, much of the work at this research center deals with methods for better utilization of urea.

The conventional beaded form of urea, called prilled urea, is 6-16 Tyler mesh. It is not corrosive, but it is hygroscopic and in moist conditions becomes sticky and messy to handle, with consequent buildup problems. A process at IFDC calls for a steady flow of urea to a steam-heated melter operating at a fixed level and temperature. After the urea is melted, the liquid urea is pumped and sprayed into a granulator, where dry materials such as potash and phosphates may be added along with other secondary and minor ingredients needed to make the complete fertilizer.

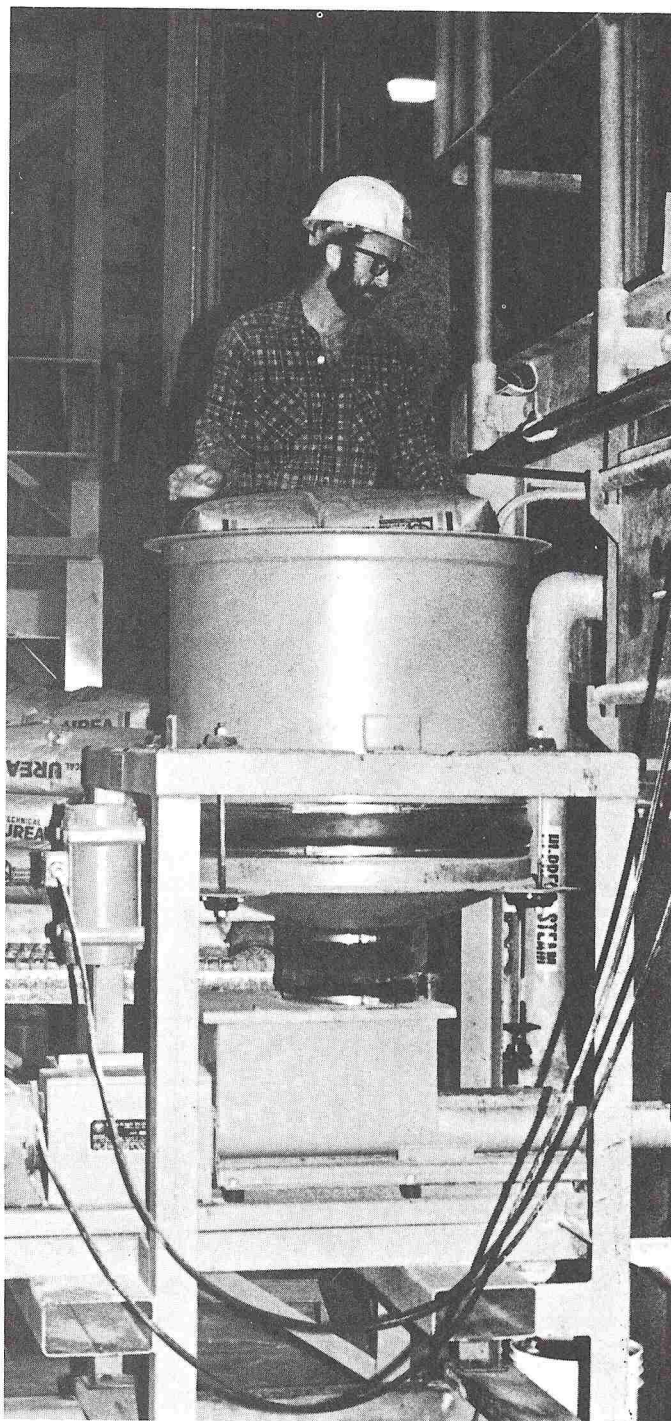
Solution

Vibra Screw Live Bottom Bin and HD-2 Heavy Duty Feeder.

The prilled urea has a dry bulk density of 40 lbs. per cu. ft. This material is loaded into the Live Bottom Bin, which consists of static cylindrical bin combined with a movable Bin Activator. When subjected to controlled vibration, it provides a steady, uniform flow of solid material to the Heavy Duty Feeder. The HD-2 Feeder employs controlled vibration of rotating screw to provide positive, continuous and controlled flow of urea in the desired range required by IFDC of ½ ton per hour to 2 tons per hour. The whole unit is mounted on a scale by means of a common frame which can be moved by forklift. A particular advantage of the screw feeder in this installation is that the system can be cleaned by washing.

Results

The combination of Live Bottom Bin and Heavy Duty Feeder makes possible uniform and accurate feeding of urea. The equipment provides minute-to-minute deviations from any given set rate of less than ± 1 or 2%. IFDC has achieved increased production and reduced downtime with their Vibra Screw equipment.



Because the combination of Live Bottom Bin and Heavy Duty Feeder provides uniform and accurate feeding of urea, IFDC has achieved increased production and reduced downtime.