STANDARD OPERATING PROCEDURE

Feeder, Screw

Manufacturer: AccuRate, Inc.
Location: Technology Transfer Pilot Plant, 1598 Food Sciences Building
Publication Date: 02/04/2014
Description and Uses

In order to automate accurate feeding of materials into the extruders and eliminate the manual handling of ingredients, the AccuRate dry material feeder is used. The feeder handles a wide variety of fine powders, flakes, granules, chips and pellets. Instead of using traditional internal stirring devices to keep materials moving, the AccuRate dry material feeder uses a Tuf-Flex vinyl hopper. This flexible hopper is agitated on the exterior by two alternating paddles. The paddle gently mixes the materials down into the metering screw creating a more uniform bulk density. The helical flights are filled uniformly, resulting in excellent volumetric accuracy. This feeder handles wide range of volumetric or gravimetric feeding applications that have been used in many major industries—chemicals, plastics, food, etc.

Power Specifications

Motor: AccuRate Feeder
Power: ¼ HP
Voltage/Amperage: 90V DC/115V Plug
Speed (motor): 1750 RPM, TENV, PM
Speed (feed rate): 0.0008-48 FT³/HR

Potential Hazards and Safety Precautions

**Electric Shock/Standard Voltage (90-115 V)**

- Make certain to use the correct outlet that is specifically designed to fit the electrical cord plug.
- Make sure the area around the outlet, floor and your hands are completely dry when plugging or unplugging the electrical cord to/from the outlet.

**Moving Parts/Entanglement of Extremities, Hair, Jewelry or Clothing**

- Make sure to secure long hair and any loose clothing or jewelry before operating the machine.
- Keep hands, arms, and extremities away from all moving parts at all times.

**Flying Debris/Potential Eye Damage**

- Always use proper personal protective equipment at all times while operating the feeder.
Required Personal Protective Equipment

Safety Glasses/Goggles
Protective Footwear (No Open-toed Shoes)
Lab Coat
Hair Net (Tie Back Long Hair)
Gloves
Long Pants & Sleeves
Dust Mask
No Loose Fitting Clothing

Training

Required Training
*Denotes courses offered online
Fire Safety & Extinguisher Training*
Laboratory Safety: Core Concepts*
Machine & Site Specific Training

Recommended Training for Frequent Users
*Denotes courses offered online
Electrical Safety & Lockout/Tagout
Laboratory Safety: Spill Procedures
Shop Safety Fundamentals: Basic Procedures & Policies*
Operation

1. Be sure the floor and surrounding area is dry, then plug the feeder into the outlet.

2. Turn on the feeder by pressing the I/O button from the control panel. This button toggles between the start or running and the stop mode of the motor. When power is being supplied to the motor, a decimal point lights up between the center and the right decimal position.

3. Set the feed rate by pressing the up and down arrow button. From left to right, the up and down arrow button will adjust according to hundred, ten and one values that correspond to the display. The button on the right raises and reduces the “ones” digit, the button in the center raises and reduces the “tens” digit, and the button on the left raises and reduces the “hundreds” digit. See Figure 1. The display shows the present setting of the potentiometer. The value shown in the display is the percentage of the feeder’s capacity. For example: it is currently set at 160, meaning that the potentiometer is set at 16% capacity.

4. Once the desired potentiometer setting is obtained, fill the hopper with the desired material and start the feeding.

5. After your experiment is complete, reduce the feed rate to zero or close to zero. Then, turn off the feeder by pressing the I/O button from the control panel.

6. Be sure the floor and surrounding area is dry, then unplug the feeder from the outlet.

Clean-up Procedures

1. If the feeder is used in a food or dairy application, the unit must be cleaned and sanitized regularly.

2. The use of water and/or cleaning solution increases the risk of electrical shock. Disconnect and lock out all power sources to unit prior to cleaning.

3. Remove any product residual.

4. Use a detergent solution to clean all surfaces of the unit.

5. Remove all detergent solution by rinsing with water.

6. Use a sanitizing solution to sanitize the unit. Sanitizing agents may be corrosive to the hopper and/or seals. Be sure to select a sanitizing agent that is compatible with these materials. Limit exposure of these items to reduce the effects that these agents may have.
Machine Care and Maintenance

• Lubrication is important in keeping your feeder running smoothly. To lubricate the chain, remove the rear panel and cover plate. Coat the entire chain with a light oil. Install the cover plate and rear panel. Always disconnect power to the feeder before lubricating feeder components.

• Inspect the machine after every use for any leakage or broken parts. Report any leak or broken parts to the pilot plant manager.

• All final inspections are performed by the pilot plant manager.

Accessories

None