STANDARD OPERATING PROCEDURE

Mill, Impact (Comminuting), “FitzMill”

Make/Model: Model D
Manufacturer: The Fitzpatrick Company
Location: Dry Processing Pilot Plant, 1851 Food Sciences Building
Publication Date: 03/04/2014
Description and Uses

The FitzMill Comminutor is a versatile size-reduction machine (grinder). The FitzMill allows the user to vary the size of the final product by using the same unit with different screens. The screens control the particle size by controlling the time in the grinding chamber, not the particle size that will go through the holes, per se. A few milling applications include: milling of particulates in slurries, smoothing of ointments, homogenization and emulsification of liquids, producing colloidal suspensions, and reduction of wet-massed materials prior to drying. Dry-size reduction applications include: controlled-size reduction to provide grain-size uniformity, pulverizing granular or crystalline materials to powder for a variety of applications, and deagglomeration of materials. The variables that can be adjusted or easily changed to provide various different end results are: the rotor or tip speed of the blade, the type of blade used, screen size and design, feed throat type and design, and the rate of feed into the mill.

Power Specifications

Motor: Supplied by Fitz Elm
Horsepower: Drive Motor – 15 HP; Screw (Feed) Motor – 0.25 HP
Voltage/Amperage: 460 Volts
Drive Motor Speed: Up to 3600 rpm @ 60 Hz.
Feed Screw Motor: Up to 83 rpm @ 60 Hz.

Potential Hazards and Safety Precautions

**Electric Shock/High Voltage (460V)**

- 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.

**Sharp, Rotating Cutting Blades/Abrasions, Cuts, or Severed Body Parts**

- Do not insert hands, fingers or other body parts beyond the safety grid bars, into the feed openings, or the product discharge shoot while the mill is in operation.
- **Never place hands, fingers or other body parts into the mill without the equipment being shut off and locked out!**

**Belt-driven Pinch Points/Possible Entanglement of Extremities, Hair, Jewelry or Clothing**

- Do not operate the mill if the guards and safety devices are not properly in place.
- Never remove the safety grid from the hopper while the feeder/mill is being operated.
- Do not use any tool to assist product flow, as serious injury may result.
- Make sure to secure long hair and any loose clothing or jewelry before operating the mill.
• Nothing, except the material for which the mill is intended to cut, should ever be placed into the hopper while the feeder is running.

**Flying Debris/Potential Eye Damage**

• Do not operate the mill without wearing all required personal protective equipment, including safety goggles.

### Required Personal Protective Equipment

- Lab Coat
- Rubber Gloves
- Safety Goggles
- Hair Net (Tie Back Long Hair)
- Ear Protection
- No Open-toed or Open-heeled Shoes
- Dust Mask
- No Loose Fitting Clothing

### Training

#### Required Training

*Denotes courses offered online

- Machine & Site-Specific Training
- Fire Safety & Extinguisher Training*
- Laboratory Safety: Core Concepts*

#### Recommended Training for Frequent Users

*Denotes courses offered online

- Electrical Safety & Lockout/Tagout
- Safeguarding Mechanical Hazards
- Shop Safety Fundamentals: Basic Procedures & Policies*
Operation

1. Be sure to acquire all required training from the pilot plant manager before operating the FitzMill. Operation requires site-specific training on this machine.

2. Thoroughly read “Operating Instruction and Parts Manual” (located in the pilot plant office, 1955 Food Sciences Building) before operating the FitzMill. Please refer to this manual during operation.

3. Be sure to wear all required personal protective equipment previously listed.

4. The oil level must be checked prior to start-up.

5. During operation, report any problems to the pilot plant manager. Listen for any abnormal sounds or vibration. Check the bearing housing for undesirable high surface temperatures. Stop the machine immediately if any of these abnormal conditions are present and take appropriate corrective action by notifying the pilot plant manager immediately.

Clean-up Procedures

1. Complete disassembly of all parts is required for thorough cleaning.

2. All parts which have contact with product are made of stainless steel and may be cleaned with hot water or steam. **Note:** High chloride cleaning solutions should be avoided.

3. When the rotor is being washed, the entire chamber should not be immersed in water as this might permit water to enter the bearing housings. **Note:** Care should be taken to insure that the rotor bearings are kept dry and lubricated.

4. When materials processed are not water soluble, solvents or steam may be used for cleaning purposes under proper safety conditions.

5. During cleaning, report any problems to the pilot plant manager.

Machine Care and Maintenance

- The FitzMill should be inspected at regular intervals for general machine condition by the pilot plant manager or a trained service technician.

- Follow normal procedures for the maintenance of electric motors (see “Operating Instruction and Parts Manual,” located in the pilot plant office, 1955 Food Sciences Building)

- Maintain correct motor oil levels at all times.

- Care should be taken to insure that the rotor bearings are kept dry and lubricated. Rotor bearing should be greased according to the lubrication schedule.

- Casters have sealed roller bearings which require occasional lubrication with a waterproof high-temperature lubricant. A lubrication schedule should be determined based upon how often the mill is used. Lubrication schedules will be kept by the pilot plant manager.
• The blade/rotor assembly should be checked for wear. Excessive wear may result in increased vibration due to imbalance.
• Safety items should be checked for proper operation including warning label condition.
• The overall condition of the FitzMill can typically be verified by the initial start-up procedure.