

# FRITSCH Pulverizer SOP

## Start-up

- Connect the device to power
- Press the main switch on the back side of the machine
- The POWER SUPPLY lamp on the control panel lights up
- Open the hood by pushing the clamp up (Note: The hood will not open if the machine is not on. This is a safety feature. In that case, use the key to open the hood- More details on pages 14-15 of the manual)

## Preparing the samples

- You can use either 2 bowls or 4 bowls to be placed **symmetrically and of similar size and sample weight** inside the machine
- Choose the appropriate size bowl (80 ml, 25 ml, 500 ml)
- Fill the appropriate number of grinding balls inside each bowl
  - ✓ Refer to the Table 6.1.2 on page 31 for the correct number of balls to use
  - ✓ The diameter of the balls we have is 20 mm
- Fill grinding stock onto the balls
  - ✓ Refer to table on page 33 for appropriate sample volume (in ml)
  - ✓ Measure the sample volume (ml) in a beaker
  - ✓ For our balls size of 20mm, please make sure at least half of the maximum sample quantity is inserted.
- Make sure the sealing surface of the bowl is clean and the white Teflon seal is clean and not damaged
- Place the lid on the grinding bowl properly

## Placing the bowls in the Pulverizer

- Place the bowl in the grinding bowl holder
- Position the lever of the Safe-Lock clamping device vertically (Page 37)
- Insert the longer side of the clamping device onto the cut out of the grinding bowl holder. Make sure the groove of the clamp is well seated.
- Insert the short side of the into the other side
- Tighten the black knob on the top of the clamping device by rotating clockwise
- Insert the torque tool into the black knob and slowly turn clockwise until it clicks. Repeat the torqueing for 2 to 3 clicks

- Press the clamping lever downwards
- Wait a few seconds. Release the Safe-Lock again by pulling up the lever and turn the torque tool again until it clicks one more time
- Press the clamping lever down. The Safe-Lock system is now properly tensioned.

*Note: For the 80 ml grinding bowls, we clamp two 80 ml bowls on top of one another. Please refer to Page 39 for guidance.*

## **Starting the Test**

- Setting the Speed
  - ✓ Press and hold the + or – button to change the speed
  - ✓ The speed can be selected in steps of 10 between 50 and 400 Rpm
  - ✓ The actual speed is displayed during operation
- Setting the Running Time
  - ✓ Press the “MILLING” button to set the grinding time. The “MILLING” button lights up
  - ✓ Press the + or – buttons to set the running time in hours (0-99) and minutes (0-59) or in minutes (0-59) and seconds (0-59)
  - ✓ To switch the time settings from hour/min to min/ seconds or vice versa, please refer to “Time setting change” section of this SOP.
- Setting the Pause Time (might be chosen to cool down samples)
  - ✓ Press the “PAUSE” button. The “PAUSE” button lights up
  - ✓ Press the + or – buttons to set the pause time in hours (0-99) and minutes (0-59) or in minutes (0-59) and seconds (0-59)
  - ✓ If no pause time is required, set the pause time to 0.
- Repetitions Control Panel
  - ✓ Press + or – in the panel, select the number of repetitions (0...99). The number of remaining cycles is displayed during operations (i.e. If 2 repetitions are selected, you will have 3 milling cycles which includes all chosen applications milling and/or pause & reverse)
- Reverse Mode
  - ✓ Press the REVERSE button. The button lights up. That means REVERSE mode is ON and the mill will change its direction of rotation.
  - ✓ If REVERSE mode is ON , REPETITIONS has to indicate at least 1
  - ✓ If REVERSE is not needed, Press the REVERSE button to turn it OFF ( there should be NO green light).
- Starting the test
  - ✓ After all the preparations above have been carried out, make sure the hood is closed.
  - ✓ Press START
  - ✓ If the load is too great (i.e. due to heavy grinding bowls), the speed is reduced and the “REDUCED SPEED” lamp is lit
  - ✓ If the mill does not start, refer to page 69 for troubleshooting.
  - ✓ Press “STOP” at any time to stop the test

- ✓ When the test is completed, the drive comes to a standstill, the hood is unlocked and can be opened.
- ✓ **WARNING:** *LONG RUN TIME: grinding bowls can be hot after long grinding durations. Wear protective gloves for removal or let them sit to cool down.*

## **Time setting change**

- Make sure machine is turned OFF
- Press and Hold the STOP button on the front of the control panel
- Switch on the device with the main switch on the back
- POWER SUPPLY starts flashing, the device is in set up mode. Release the STOP button
- If POWER SUPPLY is not flashing, repeat the procedure
- The display above the + button in the timer field is used to set up the time unit
  - ✓ Press the right “+” button
  - ✓ Display shows – → Time unit: hour and minutes
  - ✓ Display shows 1 → Time unit: minutes and seconds
- Press STOP to go back to RUN mode

## **Level of Sensitivity setting change (imbalance check)**

- Make sure machine is turned OFF
- Press and Hold the STOP button on the front of the control panel
- Switch on the device with the main switch on the back
- POWER SUPPLY starts flashing, the device is in set up mode. Release the STOP button
- If POWER SUPPLY is not flashing, repeat the procedure
- The display above the -- button in the timer field is used to set up the sensitivity level
  - ✓ Press the left “-” button
  - ✓ “1” indicates lowest sensitivity
  - ✓ “9” indicates highest sensitivity
- Press STOP to go back to RUN mode

## **Grinding in inert gas with gassing lid**

- Please refer to pages 49-51 and as well as the training video for step by step instructions