



PHARMA DEVILS

Formulation, Research and Development Department

STANDARD OPERATING PROCEDURE

Department: Formulation, Research and Development	SOP No.:
Title: Operation and Cleaning of Rapid Mixer Granulator (Saral)	Effective Date:
Supersedes: Nil	Review Date:
Issue Date:	Page No.:

1.0 OBJECTIVE:
To lay down the procedure for Operation and Cleaning of Rapid Mixer Granulator.

2.0 SCOPE:
This SOP is applicable to Formulations Research and Development.

3.0 RESPONSIBILITY:
3.1 Executive – FR&D for operation and cleaning.
3.2 Group Leader – FR&D will ensure the maintenance.
3.3 Head – FR&D for implementation and compliance.

4.0 DEFINITION(s):
Not Applicable

5.0 PROCEDURE:

5.1 PRECAUTIONS:

- 5.1.1 Three different mixer bowls of 3-, 5- and 10-liters capacity are available, which can be detached from the main frame.
- 5.1.2 While changing bowl, take care to see that the main impeller doesn't touch the bottom of the bowl. So rotate the blade manually. If the bowl fixing bolts are not tightened fully, then the blade may touch the bottom of the bowl.
- 5.1.3 Ensure chopper blade is fixed properly by a bolt on the chopper shaft.
- 5.1.4 Ensure that the main impeller is locked properly by tightening the conical cap above the main impeller.
- 5.1.5 Ensure by manually rotating the main impeller, that there is no contact between the blade and the face of discharge piston when in closed position.

5.2 Pre setup

- 5.2.1 Visually inspect the machine and the room for cleanliness.
- 5.2.2 Ensure that the previous product's remaining are completely removed.
- 5.2.3 Remove the clean equipment tag and tear it off after confirming the details of the label.
- 5.2.4 Put the equipment status label on the machine.

5.3 Set up

- 5.3.1 Select the bowl as per the batch size and fix it with the help of two wing nuts with the main frame.
- 5.3.2 Tighten the mixer bowl with the help of the wing nuts.
- 5.3.3 Now fix the impeller corresponding to the bowl. Place the conical cap and tighten it by turning it in clockwise direction.
- 5.3.4 Ensure that the compressed air connection is made to the main frame and the discharge outlet.
- 5.3.5 Ensure that compressed air should be between 4 to 8 kg/cm².



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5.3.6 Switch on the main power supply and ensure that the chopper motor and main motor indicators are working properly.

5.3.7 Ensure that the discharge flap is working properly. Now switch off the power supply till the equipment is used for operation

5.4 Operating Instructions

5.4.1 Switch on the main power supply.

5.4.2 Place a empty bowl below the discharge outlet and ensure that the discharge flap is in closed position. Then charge the materials into the mixer bowl.

5.4.3 Close the lid and tighten the clamp.

5.4.4 Start dry mixing by pressing ON button (The rpm of the main impeller is calculated by multiplying the reading shown on the display by 6. For eg. If the frequency reading for main impeller drive is showing 40 Hz. then the impeller speed is $6 \times 40 = 240$). The speed can be set by a black knob present above the impeller display.

5.4.5 Charge the granulating fluid or paste using special hopper while main impeller is running at slow speed.

5.4.6 Continue mixing and switch on the chopper (for chopper motor also there is a variable drive and the speed can be increased or decreased by a knob present above chopper display. The rpm of the chopper is calculated by multiplying the reading shown on chopper display by 60).

5.4.7 Stop the mixer and chopper.

5.4.8 Open the lid and observe the granules for consistency and press "Discharge" button to unload the material into the bowl if the granulation is completed.

5.4.9 Open the lid and scrap the material.

5.4.10 Close the lid and switch on the mixer.

5.4.11 Remove the scrapped material.

5.4.12 Switch off the mixer.

5.5 Shut down

5.5.1 Close the compressed air supply valve.

5.5.2 Switch off the main power supply.

5.5.3 Put 'To be cleaned' label on the mixer.

5.6 Cleaning Instructions

5.6.1 Remove the impeller by turning the conical cap in anticlockwise direction. Remove the chopper from the chopper shaft by loosening the bolt nut.

5.6.2 Remove the mixer bowl and take to wash area. Clean the inside of the bowl, impeller and chopper with tap water and finally with DM water.

5.6.3 Wipe all the parts of the machine including the main frame with a dry cloth.

5.6.4 Ensure that all the parts are cleaned properly and place 'Cleaned' label on the mixer.

6.0 REFERENCE(s):

Not Applicable



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7.0 ABBREVIATION(s):

Abbreviation	Full Description
SOP	Standard Operating Procedure
FR&D	Formulations Research and Development
DM	Demineralized
kg	Kilogram

8.0 FLOWCHART(s):

Not Applicable

9.0 ANNEXURE(s):

Annexure No.	Details/Title of Annexure	Format No. (Current version)
Annexure 01	Equipment log sheet	

