



STANDARD OPERATING PROCEDURE

Department: Production	SOP No.:
Title: Operation of Rapid Mixer Granulator 600 litre	Effective Date:
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1.0 OBJECTIVE:

To lay down a procedure for operation of Rapid Mixer Granulator 600 litre (Bectochem).

2.0 SCOPE:

This procedure is applicable to the operation of Rapid Mixer Granulator 600 litre (Bectochem) located in granulation area.

3.0 RESPONSIBILITY:

Production: Technical Associate/Officer /Executive/Assistant Manager

Head Production: To ensure execution & compliance.

Head QA: To ensure the compliance.

4.0 PROCEDURE:

4.1 Operation of RMG:

- 4.1.1 Ensure that the equipment is cleaned and ready for use.
- 4.1.2 Replace the 'CLEANED' status label with 'UNDER PROCESS' status label with date and signature of the Production Officer.
- 4.1.3 Switch "ON" the PLC.
- 4.1.4 Ensure that the vent filter of RMG is properly fitted.
- 4.1.5 Ensure that the discharge valve of RMG is closed.
- 4.1.6 Turn the Black Key of control panel to "PRODUCTION" position.
- 4.1.7 Operate the LPD for RMG as per SOP and bring the arm positioning the IPC with charging port of RMG.
- 4.1.8 Ensure that the discharge valve of IPC aligns with the charging port of RMG.
- 4.1.9 Open the butterfly valve of IPC to charge the material into the RMG.
- 4.1.10 Ensure that no material shall remain in the IPC.
- 4.1.11 Close the butterfly valve of IPC and bring it down by operating the LPD.
- 4.1.12 Close the lid of the RMG and clamp it firmly with the help of toggle clamps.
- 4.1.13 Place a cleaned FBD container bowl beneath the discharge chute of the RMG.
- 4.1.14 Ensure that the emergency switch is released before operation.



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4.2 To Run in “Manual Mode”:

4.2.1 Press LOGIN and screen will ask for password.

4.2.2 Enter the password for level ‘2’ and then press enter key.

4.2.3 Select the MANUAL mode on the PLC and the screen will show the following parameters.

MANUAL BATCH PARAMETER			
PRODUCT CODE	:		
BATCH NO	:		
OPERATOR CODE	:		
MAIN		DRY	WET
		MIXING	MIXING
			DISCH

4.2.4 On this screen feed required detail and dry mixing, display will show following screen.

MANUAL MODE ON/OFF			
DRY MIXING CYCLE ON/OFF			
		SET	ACT
IMPELLER SLOW ON/OFF	:	RPM	AMP
IMPELLER FAST ON/OFF	:	RPM	
CHOPPERSLOW ON/OFF	:	RPM	AMP
CHOPPER FAST ON/OFF	:	RPM	
PREV		MIMIC	EXIT

4.2.5 On this screen ON/OFF the Impeller and chopper at slow and fast speed, Press EXIT key and go to manual batch parameter screen.

4.2.6 After completion of dry mixing cycle add binder as per specifications given in BMR.

4.2.7 Press wet mixing batch parameter screen for wet mixing, display will show following screen.



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MANUAL MODE ON/OFF			
WET MIXING CYCLE ON/OFF			
	SET	ACT	IMPELLER
SLOW ON/OFF	: RPM	AMP	
IMPELLER FAST ON/OFF	: RPM		
CHOPPER SLOW ON/OFF	: RPM		AMP
CHOPPER FAST ON/OFF	: RPM		
PREV	MIMIC		EXIT

4.2.8 On this screen ON/OFF the Impeller and chopper at slow and fast speed, Press EXIT key and go to manual batch parameter screen.

4.2.9 Press DISCH on manual mode screen for discharge cycle, display will show following screen.

MANUAL MODE ON/OFF			
DISCHARGE CYCLE ON/OFF			
	SET	ACT	
IMPELLER CREEP ON/OFF	: RPM	AMP	
CHOPPER CREEP ON/OFF	: RPM	AMP	
COMIL ON/OFF	: RPM	RPM	
IMPELLER CONTINUOUS/INCH SELECTED			
PREV	MIMIC		NEXT

4.2.10 On this screen feed required detail and press NEXT key, display will show following screen



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MANUAL MODE ON/OFF

* DISCHARGE CYCLE ON/OFF*

DISCHARGE OPEN SOV ON/OFF

DISCHARGE CLOSE SOV ON/OFF

PREV

MIMIC

NEXT

- 4.2.11 After completion of wet mixing cycle discharge the material by operating the impeller, chopper and co-mill on this screen. Operate the DISCHARGE ON/OFF to open and close the discharge valve.

4.3 To create the Recipe:

- 4.3.1 Press LOGIN key on panel board and screen will ask for password

- 4.3.2 Enter the password for level '3' and then press RECIPE key and the screen will show the following.

AUTO BATCH PARAMETERS

PRODUCT NAME:

BATCH NO.:

OPERATOR CODE:

MAIN

RECIPE EDIT

RECIPE LOAD

- 4.3.3 Select the RECIPE EDIT key.

- 4.3.4 Enter the all parameters in recipe as per BMR as following.



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RECIPE EDIT - 1

DRY MIXING PROCESS

CURRENT RECIPE NAME :

1. IMPELLER SLOW TIME : ____ MIN
2. IMPELLER FAST TIME : ____ MIN
3. CHOPPER ON DELAY TIME : ____ SEC
4. CHOPPER SLOW TIME : ____ MIN
5. CHOPPER FAST TIME : ____ MIN

PREV

NEXT

RECIPE EDIT - 2

CURRENT RECIPE NAME :

6. IMPELLER SLOW SPEED : ____ MIN
7. IMPELLER FAST SPEED : ____ MIN
8. CHOPPER SLOW SPEED : ____ MIN
9. CHOPPER FAST SPEED : ____ MIN
10. DELAY TIME : ____ MIN

PREV

NEXT



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RECIPE EDIT - 3

WET MIXING PROCESS

CURRENT RECIPE NAME :

- 11. IMPELLER SLOW TIME : ___ MIN
- 12. IMPELLER FAST TIME : ___ MIN
- 13. CHOPPER ON DELAY TIME : ___ SEC
- 14. CHOPPER SLOW TIME : ___ MIN
- 15. CHOPPER FAST TIME : ___ MIN

PREV

NEXT

RECIPE EDIT - 4

CURRENT RECIPE NAME :

- 16. IMPELLER SLOW SPEED : ___ MIN
- 17. IMPELLER FAST SPEED : ___ MIN
- 18. CHOPPER SLOW SPEED : ___ MIN
- 19. CHOPPER FAST SPEED : ___ MIN

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RECIPE EDIT - 5

PRINT INTERVAL MIN

DISCHARGE CYCLE

20. IMPELLER CREEP SPEED : ___ RPM

21. CHOPPER CREEP SPEED : ___ RPM

22. CO-MILL SPEED : ___ RPM

IMPELLER INCH SELECTED

PREV

NEXT

- 4.3.5 After entering of all parameters press SAVE Key for save the recipe. The screen displays as:

SAVE RECIPE
REPLACE EXISTING
SAVE AS NEW
CANCEL

- 4.3.6 Select "SAVE AS NEW" option. After pressing "SAVE AS NEW" then type name and then press enter key.

NAME : _____

- 4.3.7 Enter the name of recipe and select the "OK" and press the enter key.
4.3.8 Press the exit Key for exit.

4.3.1 To load the Recipe

- 4.3.1.1 Press LOGIN.
4.3.1.2 Screen will ask for password
4.3.1.3 Enter the password for level '2' and then press RECIPE LOAD.
4.3.1.4 Press RECIPE LOAD key, screen will show list of recipe.
4.3.1.5 Select the required recipe and press load key on PLC.



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- 4.3.1.6 Screen will show load recipe, select the recipe as per BMR.
- 4.3.1.7 Screen will show load recipe YES NO
- 4.3.1.8 Press YES Key to load recipe.
- 4.3.1.9 Press exit key on PLC.
- 4.3.1.10 After loading of recipe go to Auto mode and run the RMG in auto mode.

4.4 To Run in “Auto Mode”:

4.4.1 To run the selected recipe:

- 4.4.1.1 Press LOGIN and screen will ask for password.
- 4.4.1.2 Enter the password for level ‘2’
- 4.4.1.4 Then run the RMG in auto mode by pressing AUTO key on PLC.

AUTO MODE ON/OFF			
AUTO CYCLE OVER			
CURRENT RECIPE NAME	:		
AUTO CYCLE ON	:	MIN	SEC
AUTO CYCLE PAUSED	:	MIN	SEC
ACT			
IMPELLER CURRENT	:	AMP	
CHOPPER CURRENT	:	AMP	
REPEAT YES		REPEAT NO	DISCHARGE
MAIN	START	STOP	RESET
			NEXT

- 4.4.1.5 Press START key to start the RMG in auto mode.
- 4.4.1.6 Press NEXT key, display will show following screen



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AUTO MODE ON/OFF

AUTO CYCLE OVER

	SET	ACT
DRY IMP SLOW TIME	MIN	MIN
DRY IMP FAST TIME	MIN	MIN
DRY CHOPPER DELAY TIME	SEC	SEC
DRY CHOPPER SLOW TIME	MIN	MIN
DRY CHOPPER FAST TIME	MIN	MIN
DRY IMP SLOW SPEED	RPM	
DRY IMP FAST SPEED	RPM	AMP
DRY CHOPPER SLOW SPEED	RPM	
DRY CHOPPER FAST SPEED	RPM	AMP
DELAY TIME	MIN	MIN
PREV	MIMIC	NEXT

4.4.1.7 Press NEXT key, display will show following screen

AUTO MODE ON/OFF

AUTO CYCLE OVER

	SET	ACT
WET IMP SLOW TIME	MIN	MIN
WET IMP FAST TIME	MIN	MIN
WET CHOPPER DELAY TIME	SEC	SEC
WET CHOPPER SLOW TIME	MIN	MIN
WET CHOPPER FAST TIME	MIN	MIN
WET IMP SLOW SPEED	RPM	
WET IMP FAST SPEED	RPM	AMP
WET CHOPPER SLOW SPEED	RPM	
WET CHOPPER FAST SPEED	RPM	AMP
PREV	MIMIC	NEXT



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4.4.1.8 Press the PREV key two times and then press the DISCHARGE key, display will show following screen

AUTO MODE ON/OFF				
AUTO CYCLE OVER				
	SET		ACT	
IMPELLER CREEP SPEED		RPM		AMP
CHOPPER CREEP SPEED		RPM		AMP
COMILL SPEED		RPM		AMP
IMPELLER INCH SELECTED				
IMPELLER CREEP ON/OFF				
CHOPPER CREEP ON/OFF				
PREV	DISCH	DISCH	DISCH	MAIN
	START	STOP	OVER	

4.4.1.9 On this screen actual RPM and current for impeller and chopper will display.

4.5 Record the operation time in equipment sequential log book as per SOP.

4.6 Replace the 'UNDER PROCESS' status label with 'TO BE CLEANED' status label with date and signature of the Production Officer.

4.7 Switch "OFF" the main.

5.0 ANNEXURE (S):

Nil

6.0 REFERENCE (S):

SOP: Preparation, approval, distribution control, revision and destruction of Standard Operating Procedure (SOP).

SOP: Procedure for area line clearance.

SOP: Operation of Lifting and Positioning Device (SAAN)



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7.0 ABBREVIATION (S) /DEFINITION (S):

BMR : Batch Manufacturing Record

IPC : In-Process Container

PLC : Programmable Logic Control

RMG : Rapid Mixer Granulator

SOP : Standard Operating Procedure

FBD : Fluidized Bed Dryer

REVISION CARD

S.No.	REVISION No.	REVISION DATE	DETAILS OF REVISION	REASON (S)FOR REVISION	REFERENCE CHANGE CONTROL No.
1.	00	----	----	New SOP	---