


# STANDARD OPERATING PROCEDURE OF

## BALL MILL

 B.L.D.E.A'S SSM COLLEGE OF PHARMACY AND RESEARCH CENTRE, VIJAYAPUR-586 103	DEPT: PHARMACEUTICS	SOP NO:
	AREA: PHARMACEUTICS LABORATORY	PAGE NO: 1 - 2
	SUBJECT: SOP OF BALL MILL	EFFECTIVE DATE: 25/02/2022
		REVIEW PERIOD: 25/02/2023

### **Purpose:**

To provide a procedure for the operating of Ball mill

### **Scope:**

Applicable to operation of Ball mill

### **References:**

Equipment Manual

### **Safety Issues and Precautions:**

- Were Head cap, Mask, Hand gloves and other safety requirements during the performance of stated activity
- Please make the entry of Usage with require details in the Equipment log book
- Handle the Instrument properly with care

### **Procedure:**

- 1) A ball mill consists of a hollow cylindrical shell rotating about its axis. The axis of the shell may be either horizontal
- 2) Balls, which may be made of steel (chrome steel), stainless steel, ceramic or rubber. The inner surface of the cylindrical shell is usually lined with an abrasion-resistant material such as manganese steel or rubber .less wear takes place in rubber lined mills. The length of the mill is approximately equal to its diameter.

- 3) In case of continuously operated ball mill, the material to be ground is fed from the left through a  $60^{\circ}$  cone and the product is discharged through a  $30^{\circ}$  cone to the right. As the shell rotates, the balls are lifted up on the rising side of the shell and then they cascade down (or drop down on to the feed), from near the top of shell. In doing so, the solid particles in between the balls and ground are reduced in size by impact
- 4) Size: The smaller the media particles, the smaller the particle size of the final product. At the same time, the grinding media particles should be substantially larger than the largest pieces of material to be ground
- 5) Density: The media should be denser than the material being ground. It becomes a problem if the grinding media floats on top of the material to be ground
- 6) Hardness : The grinding media needs to be durable enough to grind the material, but where possible should not be so tough that it also wears down the tumbler at a fast pace
- 7) Composition: Various grinding applications have special requirements. Some of these requirements are based on the fact some of the grinding media will be in the finished product. Others are based in how the media will react with the material being ground.

	<b>PREPARED BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>
<b>NAME</b>	Mr. A B. Walikar	Dr. Vinod. M	Dr. S C. Marapur
<b>DESIGNATION</b>	Asst. Professor	Asst. Professor	Professor & Head
<b>DEPARTMENT</b>	Pharmaceutics	Pharmaceutics	Pharmaceutics
<b>SIGNATURE &amp; DATE</b>			