 Discovery Labs	<b>STANDARD OPERATING PROCEDURE</b>			
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<b>TITLE: PROCEDURE FOR MEASURING OF REACTOR VOLUME</b>				

## 1.0 PURPOSE:

To describe the procedure for measuring of Reactor volume.

## 2.0 SCOPE:

This procedure applies to all Reactors used in the manufacturing area at Discovery Laboratories Pvt Ltd.

## 3.0 RESPONSIBILITY:

3.1 The responsibility of engineering department is to perform the calibration.

3.2 The responsibility of user department is to ensure calibration activity.

## 4.0 DEFINITION:

Nil

## 5.0 PROCEDURE:

5.1 Ensure that the bottom valve is closed and then open the Reactor manhole.

5.2 Ensure that the flow meter is calibrated by checking the calibration due date on the calibration tag.


5.3 Connect a hosepipe from Water point to flow meter inlet then connect another hosepipe from flow meter outlet to Reactor.

5.4 Open the Water valve and allow the Water to fill the hosepipe, close the Water valve and note down reading in flow meter as Flow Meter Initial Reading (FMIR).

5.5 Start Water flow again, record the Flow Meter Final Reading (FMFR), once the Water touch the bottom of the agitator then find the difference between initial and final reading and record the volume as “Minimum Stirrable Volume” (Indicated in Annexure-I).

5.6 Allow further Water flow till the agitator bottom bush is completely submerged when agitator ‘OFF’ mode and the volume as ‘Minimum working volume” (Indicated in Annexure-I). Similarly measure “Minimum Sensible volume” (Indicated in Annexure-I).

	<b>Prepared by</b>	<b>Reviewed by</b>	<b>Approved by</b>
Sign & Date			
Name	Ch. Shankar	M. Ramesh	N. Sreedhar
Department	Engineering	Engineering	Quality

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- 5.7 Allow the Water flow and measure the reading of flow meter for every 10-200 liters and multiples based on capacity of the Reactor. Insert the calibrated dip rod in a position into the Reactor which shown in Annexure-I, throughout the calibration. Record the dip rod length in centimeters with respect to flow meter readings in Reactor volume calibration Record.
- 5.8 Allow the Water to flow further till the level (vortex upper level) reaches to the lower neck of manhole and note down the volume as ‘Maximum working volume’ (Indicated in Annexure-I). Enter this data in Calibration Record.
- 5.9 Drain the Water completely from the Reactor after completion of calibration and dry the Reactor, keep the hosepipes in their respective places.
- 5.10 If any changes are done to the inner parts of the Reactor it shall be recalibrated.

**Note:** Do not use SS (Stainless Steel) dip rod for Glass lined reactor.

## 6.0 FORMATS / ANNEXURE(S):

6.1 Reactor Volume Calibration Record : ED021-FM061

6.2 Reactor diagram : Annexure-I

## 7.0 CHANGE HISTORY:

Revision No.	Effective Date	Details of Revision	Ref CCF No.
00		New SOP introduced	--

	Prepared by	Reviewed by	Approved by
Sign & Date			
Name	Ch. Shankar	M. Ramesh	N. Sreedhar
Department	Engineering	Engineering	Quality