



PHARMA DEVILS

QUALITY CONTROL DEPARTMENT

STANDARD OPERATING PROCEDURE

Department: Quality Control	SOP No.:
Title: Operation, Cleaning and Calibration of Viscometer	Effective Date:
Supersedes: Nil	Review Date:
Issue Date:	Page No.:

1.0 OBJECTIVE:

To lay down procedure for operation, cleaning and calibration of Viscometer.

2.0 SCOPE:

This SOP is applicable for operation, cleaning and calibration of Viscometer (Make :Brookfield , Model :DV I+).

3.0 RESPONSIBILITY – Execution- Executive QC

Checking - Assistant Manager QC

4.0 ACCOUNTABILITY - Manager Quality Control

5.0 PROCEDURE:

5.1 OPERATING PROCEDURE:

5.1.1 Ensure that spirit level of the instrument is under balance and the level indicator drop is in center of the circle.

Adjust the spirit level if necessary by adjusting the height of the legs of instrument stand.

5.1.2 Switch ON the power supply.

5.1.3 The instrument displays “BROOK FIELD DVI + LV VISCOMETER” followed by “REMOVE SPINDLE PRESS ANY KEY”. Remove spindle if attached with instrument, and press any key. The instrument displays “AUTOZEROING VISCOMETER”, wait till there is display “REPLACE SPINDLE PRESS ANY KEY” and place recommended spindle.

5.1.4 Select spindle and RPM depending upon the range in which the viscosity of the sample falls or as recommended in the test Procedure. The minimum range for selection of combination of spindle No and RPM (Factor x 10) and maximum range of selection of combination of spindle No and RPM (Factor x 100) given bellow in table.

Spindle	RPM	Factor	Min. Viscosity Cps	Max. Viscosity Cps
#1	30	(60/30) = 2	20	200
#2	12	(60/12) = 5	50	500
#3	12	(300/12) = 25	250	2500
#4	6	(1200/6) = 200	2000	20000

5.1.5 For placing spindle, hold the spindle adopter coupling with one hand and fix the spindle by screwing in to the adopter coupling clockwise. Press any key.

5.1.6 The instrument displays “% 0.0, S61, 0.0 RPM and temperature measured by probe in Deg. C.

5.1.7 Prepare the sample as recommended in STP and get the sample Stabilized at recommended temperature using TC 500 water bath. Observe the temperature of sample with



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Issue Date:	Page No.:

temperature probe attached with viscometer before placing under instrument.

- 5.1.8 Lift the main body of Viscometer with screw on stand. Bring down the instrument to dip the spindle into sample to level of the constriction at neck of the spindle.
- 5.1.9 Press “select display” key and select the unit of viscosity as “cp” by up and down arrow key, the instrument displays “0.0 cp”.
- 5.1.10 Press “select Spindle” key and select recommended spindle by up and down arrow key. For USP recommended Spindle No.1 choose ‘S61’, for Spindle No.2 choose ‘S62’ and choose ‘S63’ & ‘S64’ for spindle No. 3 and 4 respectively.
- 5.1.11 Press motor “ON / Off” switch. The spindle starts rotation. The Viscometer displays the varying viscosity reading initially, wait for some time till constant reading is observed. Note the observed viscosity. It is suggested that reading can be taken at five minutes of spindle rotation.

5.2 CALLIBRATION PROCEDURE

Frequency: Once in 3 months.

- 5.2.1 Operate the instrument as described in 5.1.1 to 5.1.5. Select the suitable Brook field viscosity standard eg. For use of viscometer to measure sample having viscosity from 10cps to 200cps, use Brook field standard of 100 cps, for use of viscometer to measure sample having viscosity above 200 cps to 2500 cps, use Brook field standard of 1250 cps and for use of viscometer to measure sample having viscosity above 2500 cps up to 20000 cps, use Brook field standard of 5000 cps.
- 5.2.2 Use a clean and dried 600 ml breaker to pour in the Brook field viscosity standard, cool it to 20 Deg. C +/- 0.1 Deg. C. Select appropriate spindle as given in the table in 5.1.4, set the recommended RPM as given for respective Spindle No. in specified range.
- 5.2.3 Place the Viscosity standard under the instrument and dip the spindle in to the Viscosity standard up to constriction at neck.
- 5.2.4 Measure the viscosity of the viscosity standard at 20 Deg. C +/- 0.2 Deg. C. and record the value.
- 5.2.5 Press the ‘ON/OFF’ key to stop the rotation of the motor wait for time till the spindle stops completely and select display as % in place of Cps and ensure display comes to zero. Select again the Cps in display and run the instrument. Record the second reading. Similarly take third reading also.



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9.0 REFERENCES:

Not Applicable

10.0 ABBREVIATIONS & ANNEXURES:

SOP : Standard Operating Procedure

No. : Number

QC : Quality Control

° : Degree Celsius

ANNEXURE I : Calibration Record of Viscometer



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ANNEXURE I

CALIBRATION RECORD OF VISCOMETER

Date of Calibration:

S.No.	Reference Solution	Nominal Viscosity	Observed value with spindle guard			Observed value without spindle guard			Acceptance Criterion
1.									
2.									
3.									

Remarks:

Calibration Done by:

Checked by:

Approved by :