



PHARMA DEVILS

QUALITY CONTROL DEPARTMENT

STANDARD OPERATING PROCEDURE

Department: Quality Control	SOP No.:
Title: Operation, cleaning and calibration of FTIR	Effective Date:
Supersedes: Nil	Review Date:
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1.0 OBJECTIVE:

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

2.0 SCOPE:

This SOP is applicable for operation, cleaning and calibration of FTIR (Make: Metrohms, Model: Nicolet 380).

3.0 RESPONSIBILITY – Execution- Executive QC
Checking -Assistant Manager QC

4.0 ACCOUNTABILITY - Manager Quality Control

5.0 PROCEDURE:

5.1 Switch “ON” the power supply for FTIR.

5.2 Turn “ON” the Computer & wait till the Instrument gets initialized.

5.3 Wait for 30 minutes for Instrument stabilization.

5.4 After stabilization double click the Omnic software icon.

5.5 Omnic software window will open and right sign ✓ will appear at the top right hand side of the window.

5.6 If the cross “X” appears check the interface cable between Computer and Instrument & restart the software.

5.7 From the tool bar click the collect background icon. Instrument will take the background & prompts whether to add the window or not. Click “Yes” to proceed further

5.8 Click the “COLLECT SAMPLE” after making the pallet using Hydraulic Press .

5.9 Enter the spectrum title when prompted; insert the pallet holder along with pallet to the sample compartment transmission accessory. Press “OK”. Now instrument will collect the spectra. Click “OK” to add the spectrum in window. From file menu save the spectra after entering the file name.

5.10 Make the file by material / product name & store the data by giving date of analysis & B.No.

5.11 For analysis using ATR open the sample compartment, remove the direct transmission base plate by pulling it up wards. Now insert the ATR accessory from top and press it desired position. Once the accessory is positioned, SW will show the message for accessory and test the accessory. As these accessory are small it will be automatically recognized by the instrument and parameter will change accordingly.

5.12 Collect the background with bare crystal (Diamond / ZnSe) then put the sample on crystal & adjust the pressure using pressure device. For liquid sample you need not to put the pressure



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device down. As the contact between crystal and liquid is always better.

- 5.13 For peak positioning after collection the sample click on find Peak tool from the tool bar and replace on that on the top right of the spectral window. All the peak positions will be numbered according to their wave numbers.

5.2 CALLIBRATION PROCEDURE:

Frequency: Once in a month.

- 5.2.1 Clean the instrument with dry and clean cotton cloth.
- 5.2.2 Switch 'ON' the computer.
- 5.2.3 Place sample holder in the chamber.
- 5.2.4 Choose spectra .
- 5.2.5 Click on 'measure'.
- 5.2.6 Message "Remove sample from holder" shall be appeared.
- 5.2.7 Click "OK".
- 5.2.8 "Background graph" shall be appeared.
- 5.2.9 Message "Set polystyrene film" shall be appeared.
- 5.2.10 Place poly styrene film in the holder.
- 5.2.11 Click 'OK'.
- 5.2.12 IR appears on the screen.
- 5.2.13 Results appear on the screen.
- 5.2.14 Check following parameters from the print out:
1. Resolution
 2. Wave number accuracy
 3. Repeatability of wave number
 4. Repeatability of Transmittance
- 5.2.15 Enter the results of the above parameters as per Annexure -I.
- 5.2.16 If the instrument is not giving satisfactory results, recalibrate the instrument.

5.3 CLEANING PROCEDURE:



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9.0 REFERENCES:

Not Applicable

10.0 ABBREVIATIONS & ANNEXURES:

SOP : Standard Operating Procedure

No. : Number

QC : Quality Control

° C : Degree Celsius

I.R : Infra red

FTIR : Fourier Transform Infra red

ATR : Attenuated transmitted reflectance

Annexure I : Calibration Record of FTIR



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ANNEXURE-I CALIBRATION RECORD OF FTIR

REF. No. _____ ISSUE DATE: _____ ISSUED BY : _____	Page 1 of 3
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PERFORMANCE DATE	DATE OF LAST PERFORMANCE DONE	NEXT DUE FOR PERFORMANCE

INSTRUMENT DETAILS		
INSTRUMENT NAME	INSTRUMENT MAKE	INSTRUMENT IDENTIFICATION NO.
OBSERVATION		

1.Resolution:

Wave number	Measured (T%)	Standard peak depth (%T)
2870, 2851		Not less than 18
1589.0 , 1588.3 1583.0 , 1582.5		Not less than 10

Remarks : Satisfactory/Not Satisfactory

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2.Wave number accuracy:

Wave number	Measured wave number	Error	Tolerance
3082.18			±0.5
3060.23			±0.5
1601.18			± 0.5
1583.07			± 0.5
1028.34			± 0.5

Remarks : Satisfactory / Not Satisfactory



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3. Repeatability of wave number :

Wave number	Measured- I wave number	Measured -II wave number	Error	Tolerance
2850.7				± 0.5
1601.4				±0.5
1181.4				± 0.5

Remarks : Satisfactory/Not Satisfactory

4. Repeatability of Transmittance :

Wave number	Observation -I %T	Observation-II %T	Error	Tolerance
2850.7				± 0.5
1601.4				± 0.5
1181.4				± 0.5

Remarks : Satisfactory/Not Satisfactory

Calibration done by :

Date :

Checked by :

Date :

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CONCLUSION

INSTRUMENT WORKING SATISFACTORY

INSTRUMENT NOT WORKING SATISFACTORY



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PERFORMED BY			CHECKED BY		
Name	Sign	Date	Name	Sign	Date