

Maliba Pharmacy College



Date: 16/05/2025

To,
The Head
SAIF, IIT Bombay.

Sub: 300kV Field Emission Gun Transmission Electron Microscope Analysis of Samples at SAIF IIT Bombay.

Dear Sir,

Ms. Mili Lad, M. Pharm (Pharmaceutics) studying at Maliba Pharmacy College under the guidance of Dr. Mitali H. Patel & Pharmaceutics Department would like to use the Instrument Facility at SAIF IIT Bombay.

We have 4 Sample for 300kV Field Emission Gun Transmission Electron Microscope Analysis. The Material Safety Data Sheet (MSDS) is attached herewith for the said analysis.

Further we state that if any of the analysis data / results received from the 300kV Field Emission Gun Transmission Electron Microscope facility is used in any Publication or Thesis, we agree to acknowledge the 300kV Field Emission Gun Transmission Electron Microscope Analysis SAIF, IIT Bombay in our Publication and Thesis. We shall submit a soft copy of the same to office.saif@iitb.ac.in for information.

The GSTIN Registration No. of our Institute is _____

Thanking You,

Signature of Guide / Professor / Head : 
Name : Dr. Mitali H. Patel
Designation : Assistant Professor
Department : Maliba Pharmacy College



Constituent College of
UKA TARSADIA
university

Inspiring Knowledge. Advancing Wisdom. Transforming Lives.
Established under Gujarat Private University
(Amendment) Act No. 25 - 2011 Government
of Gujarat and approved under section 22 of
UGC Act 1956.

Maliba Campus, Gopal Vidyanagar, Bardoli - Mahuva Road,
Dist. Surat. Pin - 394 350, Gujarat (India)
Contact No.: 6353030096, 6353033853 E-mail: director.maliba@utu.ac.in

Approved by All India Council for Technical Education
Pharmacy Council of India, Government of Gujarat

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Sophisticated Analytical Instrument Facility (SAIF)

300kV Field Emission Gun Transmission Electron Microscope (HRTEM)

Analysis Request Form

Applicant Details

User belongs to: ☒ University ☐ National Lab ☐ Industry

User name: Mili Hasmukhbhai Patel

Institute/University/Organization: Maliba pharmacy college, Uka Tarsadia University.

Email ID: militad7721@gmail.com Mobile No.: 9328293422

Name of Guide/PI: Dr. Mitali H. Patel

Guide/PI Email ID: mitali.patel@uka.ac.in Guide/PI Mobile No.: 9998435750

Address of Institute/Organization: Uka Tarsadia University, Anopal Vidyamagar,
Bardoli, 394350, Surat, Gujarat.

Sample information:

Number of samples	<u>2</u>
Sample code	<u>CP-1, CP-2</u>
Sample type	Biological/Polymer/Metal/Thin film/Ceramic or Composite material/ ☒ Nano particles or Nano materials/Other.....
Detailed description of all samples	<u>Both samples are Lipid Nanoparticles.</u> <u>(In Liquid form).</u>
Expected Morphology	<u>Spherical.</u>
Expected Particle Size	<u>50-100 nm</u>

- Powder sample will be dispersed in the solvent and after ultrasonication, it will be loaded/drop casted on the TEM grid. The grid will be dried under IR lamp. The representative TEM Images will be taken for that sample.
- In case of bulk sample, the sample dimension should be 3.0mm diameter circular disc with a thinned electron transparent central area and should be prepared at the user end (Ion Milling, polishing etc.)
- Biological and pharmaceutical sample preparation should be carried out at the user end (staining, ultra-microtomy, fixation etc.)

Medium of dispersion for powder sample

Ethanol ☐ Methanol ☐ Water ☐ Iso-propyl alcohol ☐
Acetone ☐ Toluene ☐ Non of the above ☐

IF none of the above, please mention the medium for dispersion and send it along with the samples.

Ultra-sonication time for Dispersion of powder sample in above mentioned solvent :

Do you want to follow the same procedure : Yes ☐

No ☐

If "No" please specify another procedure:

Do you want to be present at the time of analysis: Yes ☐ No ☒

(Kindle note that User is desirable to be present at the time of analysis)

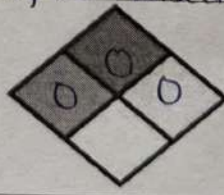
Type of analysis (Kindly tick):

TEM/HR Imaging & Diffraction	STEM-EDS analysis			EELS
	EDS analysis	EDS Mapping	EDS Line Scan	
☒			☒	

For EDS/ EELS analysis, kindly mention the elements to be analysed

Material safety data:

If you are submitting more than one sample which are different in nature/composition, submit separate MSDS

Sample Properties	Carcinogenic (level) ☐ Toxic ☐ Radioactive ☐ Corrosive ☐ Explosive ☐ Flammable ☐ Other (specify): <u>Not Applicable</u>
Moisture	Present ☐ Absent ☒ NA ☐
Volatile organic compound	Present ☐ Absent ☒ NA ☐
Stability of sample	Stable under RTP ☒ Hygroscopic ☐ Sublimes ☐ Reactive in: Air ☐ Light ☐ Heat ☐ Vacuum ☐ Moisture ☐ May decompose when exposed to accelerated electron beam ☐
Mention the storage and handling conditions if anything specific	<u>stable at 2 to 8° C</u>
Whether incompatible with any material-	Yes ☐ No ☒ (Specify the materials):
Health hazards	Yes ☐ No ☒ (irritant to skin/irritant to eyes/harmful to skin/ toxic if inhaled/toxic if ingested)
First aid measures	Eye/Skin/Inhalation/ Ingestion/Others (specify): <u>NA</u>
Disposal Method of sample	<u>usual sample discard.</u>
Please fill appropriate numbers in the NFPA diamond: (*reference image attached below)	
Additional information if any:	

*Along with this form MSDS should be submitted if available.

Note: All Samples will be discarded after 15 days of analysis. If you wish to collect the samples then you are required to make arrangement for the same. SAIF office will not dispatch the same to users under any circumstances

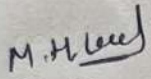
NOTE: All the information is applicable for Both samples.

Declaration

I confirm that the samples submitted for analysis are for research purpose only and the above furnished details are correct and true to the best of my knowledge. I understand that I will be held responsible for any damages arising from incorrect information provided by me against material safety data.

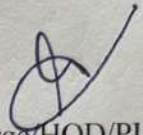
I agree to acknowledge SAIF, IIT Bombay for providing (Instrument name) analytical facility for my research work, in my publications. I also agree to send the publication reference (Journal name/volume number/names of the authors/date of issue of the publication etc) to office.saif@iitb.ac.in

I declare that the "Content of this report is meant for our information only and we will not use the content of this report for advertisement, evidence, litigation or quote as certificate to third party" I accept that all the issued reports/results (Soft/hard) will not carry any Signature or Seal and Stamp of SAIF, IIT Bombay.


Signature of the User

Date: 16/05/2025

Place: Bandoli


Signature of the In Charge/HOD/PI with College/P.I.
Guide seal / stamp



* Reference image for filling NFPA diamond:

Health Hazard Blue Diamond

4-Deadly
3-Extreme Danger
2-Hazardous
1-Slightly Hazardous
0-Normal Material

Fire Hazard Red Diamond

Flash Points
4-Below 73°F
3-Below 100°F
2-Above 100°F
not exceeding 200°F
1-Above 200°F
0-Will not burn



Specific Hazard White Diamond

ACID - Acid
ALK - Alkali
COR - Corrosive
OX - Oxidizer
☢ - Radioactive
☞ - Use No Water

Reactivity Yellow Diamond

4-May Detonate
3-Shock & Heat may detonate
2-Violent Chemical change
1-Unstable if heated
0-Stable

IMPORTANT NOTE:

- Potentially hazardous/toxic/radioactive samples may not be accepted for analysis.
- User must generate a registration request via online ISTEM portal.
- Your appointment will be as per the queue, once we receive the Requisition letter, duly filled form and advance payment. Partially filled form will not be registered.
- It is desirable that that you/ your representative will be present for the analysis.
- In case if the user will not able to be present for analysis, the representative data will be taken for the samples.
- Attach reference TEM images for the sample (if any) with the form.

After successful registration/payment process, you may send the samples in the sealed envelope mentioning 300kV FEG-TEM Instrument name and the ISTEM FBR number and send it to the following address or you can bring the samples in person on your scheduled appointment date

Head, SAIF

Indian Institute of Technology Bombay (IIT-Bombay),

Powai, Mumbai, Maharashtra, Pincode: 400076

For any further query, kindly contact : Email: fegtem300@iitb.ac.in, Phone: 022-2159-6864

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User belongs to: ☒ University ☐ National Lab ☐ Industry

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Email ID: milliad721@gmail.com Mobile No.: 9328293422

Name of Guide/PI: Dr. Mitali H. Patel

Guide/PI Email ID: mitali.patel@utu.ac.in Guide/PI Mobile No.: 9998435750

Address of Institute/Organization: UKA Tarsadia University, Chapal vidyanagar, Bardoli, 394350, surat, Gujarat.

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Sample code	<u>HB-1, HB-2</u>
Sample type	<u>Biological/Polymer/Metal/Thin film/Ceramic or Composite material/ Nano particles or Nano materials/Other.....!</u>
Detailed description of all samples	<u>Both samples are liposomes.. (In liquid form).</u>
Expected Morphology	<u>spherical.</u>
Expected Particle Size	<u>100-200 nm</u>
• Powder sample will be dispersed in the solvent and after ultarsonication, it will be loaded/drop casted on the TEM grid. The grid will be dried under IR lamp. The representative TEM Images will be taken for that sample. • In case of bulk sample, the sample dimension should be 3.0mm diameter circular disc with a thinned electron transparent central area and should be prepared at the user end (Ion Milling, polishing etc.) • Biological and pharmaceutical sample preparation should be carried out at the user end (staining, ultra-microtomy, fixation etc.)	
Medium of dispersion for powder sample	Ethanol ☐ Methanol ☐ Water ☐ Iso-propyl alcohol ☐ Acetone ☐ Toluene ☐ Non of the above ☐ IF none of the above, please mention the medium for dispersion and send it along with the samples.
Ultra-sonication time for Dispersion of powder sample in above mentioned solvent :	
Do you want to follow the same procedure : Yes ☐ No ☐ If "No" please specify another procedure:	

Do you want to be present at the time of analysis: Yes ☐ No ☒

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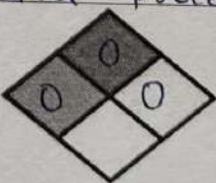
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Moisture	Present ☐ Absent ☒ NA ☐
Volatile organic compound	Present ☐ Absent ☒ NA ☐
Stability of sample	Stable under RTP ☒ Hygroscopic ☐ Sublimes ☐ Reactive in: Air ☐ Light ☐ Heat ☐ Vacuum ☐ Moisture ☐ May decompose when exposed to accelerated electron beam ☐ <u>Stable at 2 to 8 °C</u>
Mention the storage and handling conditions if anything specific	
Whether incompatible with any material-	Yes ☐ No ☒ (Specify the materials):
Health hazards	Yes ☐ No ☒ (irritant to skin/irritant to eyes/harmful to skin/ toxic if inhaled/toxic if ingested)
First aid measures	Eye/Skin/Inhalation/ Ingestion/Others (specify): <u>NA</u>
Disposal Method of sample	<u>Usual discard procedure</u>
Please fill appropriate numbers in the NFPA diamond: (*reference image attached below)	
Additional information if any:	

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M. H. [Signature]

Signature of the User

[Signature]

Signature of the In Charge/HOD/PI with College/P.I.
Guide seal / stamp

Date: 16/05/2025
Place: Bardoli



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Blue Diamond**
4-Deadly
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Red Diamond**
Flash Points
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**Specific Hazard
White Diamond**
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**Reactivity
Yellow Diamond**
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