

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Sophisticated Analytical Instrument Facility (SAIF)

Focused Ion Beam - Scanning Electron Microscope (FIB-SEM)

FIB Analysis Request Form

Details required for FIB Milling / TEM sample preparation / 3D Slice & View

Applicant Details

User belongs to: IIT Bombay University National Lab Industry

User Name:

Institute/University/Organisation:

Email ID: Mobile No.:

Name of Guide/PI:

Guide/PI Email ID: Guide/PI Mobile No.:

Address of Institute/Organization:

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Sample information:

Number of samples	
Sample code	
Sample Composition & Sample dimensions (The sample size should be less than 10 mm x 10 mm x 4mm and base of the sample should be flat for mounting on sample holder) ** Sample Height/ Thickness should not exceed 4mm)	
Analysis Required (Tick the relevant analysis required)	FIB Milling / TEM sample preparation / 3D Slice & View If FIB Milling / 3D Slice & View is ticked then, What feature size (estimated) are you looking to mill / image? _____ If TEM sample preparation is ticked then, What are the dimensions required for TEM lamella? _____ Any additional information_____

<p>Sample type (you can select multiple options)</p>	<p>Powder (Not for Milling) / Solid / Solid but porous / Magnetic (Highly magnetic samples not possible) / Thin film / Other (Please specify) _____</p>
<p>Detailed description of the sample. (Briefly describe the method used to prepare or fabricate your sample before bring it for FIB related preparation)</p>	
<p>Nature of the sample</p>	<p>Non-Conducting / Conducting / Semi-Conductor</p>
	<p>Magnetic /Non Magnetic</p>
	<p>Is it electron beam sensitive? Yes/No → (Explain if Yes) _____</p>
	<p>Is it volatile? Yes/No →</p>
	<p>Is it flammable? Yes/No →</p>
	<p>Is the material loosely bound under vacuum condition? (Yes/No) (Explain if Yes) _____ If YES 1. Has sticky tape test been done by the user in case of solid / thin film on substrate? (Yes/No) (Explain if No) _____ 2. Has compressed gas blow test been done by the user in case powder on carbon tape? (Yes/No) (Explain if No) _____</p>
<p>Please explain your reason behind preferring FIB (Milling / Cross section imaging / TEM lamella preparation) over other characterisation tools for sample preparation (Maximum 50 words)</p>	
<p>Have you prepared lamella using FIB earlier? If Yes, please provide details of preparation method and sample dimensions <i>If No, then</i> in case of TEM Lamella preparation, Request user to attach a ppt (please prepare a PPT describing your sample detail. Make a diagram describing the details requires for lamella preparation.)</p>	
<p>Is site specific sample preparation mandatory? If so, mention the specific area in the sample. (Publication related to this work would help):</p>	
<p>Note:</p> <ul style="list-style-type: none"> • Please share results that may be helpful for sample preparation and analysis • Samples for FIB related preparations should be well-polished / Uniform • The sample size should be less than 10 mm x 10 mm and base of the sample should be flat for mounting on sample holder 	

Material safety data:

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

Sample Properties	Carcinogenic (level) <input type="checkbox"/> Toxic <input type="checkbox"/> Radioactive <input type="checkbox"/> Corrosive <input type="checkbox"/> Explosive <input type="checkbox"/> Flammable <input type="checkbox"/> Other (specify): _____
Moisture	Present <input type="checkbox"/> Absent <input type="checkbox"/> NA <input type="checkbox"/>
Volatile organic compound	Present <input type="checkbox"/> Absent <input type="checkbox"/> NA <input type="checkbox"/>
Stability of sample	Stable under RTP <input type="checkbox"/> Hygroscopic <input type="checkbox"/> Sublimes <input type="checkbox"/> Reactive in: Air <input type="checkbox"/> Light <input type="checkbox"/> Heat <input type="checkbox"/> Vacuum <input type="checkbox"/> Moisture <input type="checkbox"/> May decompose when exposed to accelerated electron beam <input type="checkbox"/>
Mention the storage and handling conditions if anything specific	
Whether incompatible with any material-	Yes <input type="checkbox"/> No <input type="checkbox"/> (Specify the materials):
Health hazards	Yes <input type="checkbox"/> No <input type="checkbox"/> (irritant to skin/irritant to eyes/harmful to skin/ toxic if inhaled/toxic if ingested)
First aid measures	Eye/Skin/Inhalation/ Ingestion/Others (specify):
Disposal Method of sample	
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

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 DST and SAIF/CRNTS, 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/CRNTS IIT Bombay.

Signature of the User
College/P.I.

Signature of the In Charge/HOD/PI with

Guide seal / stamp

Date:

Place:

* Reference image for filling NFPA diamond:

**Annexure I, II is
reference (kindly**

Annexure I

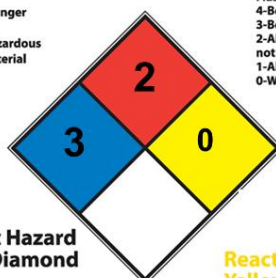
**For filling detailed description
kindly refer to the below sub
examples.**

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
OXY - 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

**for your
do not print)**

**of the sample:
categories and**

Sample preparation instructions for FIB related analysis

- Sample dimensions should be less than 10 mm x 10 mm x 4 mm (height) in case of bulk samples and base of the sample should be flat for mounting on sample holder.
- Please share results that may be helpful for sample preparation and analysis
- Samples for FIB related preparations should be well-polished / Uniform
- The samples should withstand high vacuum (~ 10⁻⁵ Pa). **Wet samples cannot be done.**
- For any further query, kindly contact on
Email: fibsem@iitb.ac.in, Contact: 022-2159-6928

COMMON IMPORTANT NOTE

1. Users would need to do online registration for their sample analysis. Before proceeding further, please review [How to Use Facility](#) and [Payment Procedure](#) for more information. **Before registering the samples for this facility, users are requested to contact the FIB-SEM lab (Phone No. : 022-21596928 ; Email Id : fibsem@iitb.ac.in)** and also provide the details pertaining to Points 2&3. You may decide the charges to be paid after mutually understanding the requirements pertaining to Points 2&3.
2. For **SEM Imaging / EDS Analysis**, please fill the attached sample request form in order to understand the sample analysis requirements **Click on the link to fill a separate form in the online registration portal**
3. For **TEM Lamella preparation / FIB Patterning / Slice & View**, please fill the attached sample request form in order to understand the sample analysis requirements **Click on the link to fill a separate form in the online registration portal.**
4. After the online registration is completed, the appointment will be scheduled as per the queue.
5. The users will be informed about their date and time of slot by e-mail.
6. We prefer that you or your representative, who knows / understands the sample / material, should be present on the day of appointment.
7. Potentially hazardous/toxic/radioactive samples may not be accepted for analysis.
8. After registration, samples can be sent by post or submitted in person to **SAIF/CRNTS office, IIT Bombay, Powai, Mumbai-400076.**