INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Centre for Sophisticated Instruments and Facilities (CSIF)

Cryo -Field Emission Gun Scanning Electron Microscope (Cryo-FEG SEM)@Chemical Engineering

Analysis Request Form (Internal Users)

Applicant Details

User name: .....

Roll No: ..... IITB Email: .....

Department: ..... Lab contact no: .....

Other Email ID: ..... Mobile No.: .....

Name of Guide/PI: .....

Guide/PI Email ID: .....

Sample information:

Number of samples	
Sample code	
Sample type	Biological / Polymer/ Thin Film / Metal/Nano Particles/ Hydrogel/Ceramic/Composite/ Other (Please specify): .....
Detailed description of the sample(Refer Annexure I before filling)	
Sample form	Hydrogel/Wax Emulsion /Suspension/On glass substrate/Film/Others.....
Nature of the sample	Non-Conducting/Conducting/Semi-Conductor
Sample is	Magnetic/Non Magnetic

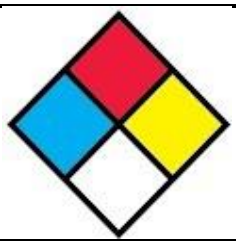
Type of analysis: SEM Image only

SEM Analysis requirement:

SEM Image	Secondary Electron Image/Back Scattered Electron Image
Analysis requirement	Surface Imaging/Cross Section Imaging/Surface + Cross Section imaging (*Cross-section analysis of suspension samples is not possible)
Sample to be mounted	Planar/Cross Section/ Drop cast for liquid or suspension samples
Expected Morphology	Brief description of shape.....
Expected Particle Size	

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):_____
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	
Whether incompatible with any material-	Yes ☐ rNo ☐ (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):.....
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.

IMPORTANT NOTE:

a. **Potentially hazardous/toxic/radioactive samples may not be accepted for analysis.**
b. **We prefer that you/ your representative, who know/understands the sample/material and what is expected to be seen, should be present on the day of appointment.**
c. **Internal samples (IITB) will be accepted 3 at a time.**

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 Cryo-Field Emission Gun Scanning Electron Microscope facility at Department of Chemical Engineering, IIT Bombay for providing 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 cryofegsem@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 Cryo-Field Emission Gun Scanning Electron Microscope facility at Department of Chemical Engineering, IIT Bombay.

Signature of the User

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

Date:

Place:

***Reference image for filling NFPA diamond:**

Annexure I, is for your reference (kindly do not print)

Annexure I

For filling detailed description of the sample: kindly refer to the below subcategories and examples**. If your sample details do not match with the below list, please give the correct sample type and sample description.**

Sample type	Description
Biological	Cells(Give type)**,**Tooth, Gels**,** Scaffolds, Bone**,** Bio film**,** Tissue**,** Leaf/plant extracts**,** Insect/Insect parts**,** Lipids/Liposome's**,** Proteins**,** Blood cells**,** Bacteria(Give type)**,**Sludge**,** Fibrin gel,
Polymer	Resin, Alginate, Polystyrene, Polypropylene, PDMS, PVC, Polymeric microspheres, Fibers**,** Thermoplastic polyurethanes**,** Polymeric scaffold
Geological	Soil**,** Fly ash **,**Sand**,** Activated carbon**,** Brick**,** Cement
Nano materials	CNT**,** Nano particles(Give type), Ferrite, Lamella
Thin film	Specify the material:**__,**Substrate: Glass/Copper/Conducting material/Silicon wafer
Ceramic or Composite material	Detailed description of the sample/composite material

EXAMPLES:

Sample type	Description
Biological	Shrimp waste extract
Biological and Nano materials	Au/Ag nano particles prepared from plant extract
Biological	Cells, blood cells or animal cells or E. coli/ Staph.aureus
Polymer	Polystyrene nano particles
Thin film	Material: ZnO /TiO2/CZTS substrate: glass
Nano materials	Gold nano particles or CNT
Composite material	CNT in polymer, CNT/ carbonand graphene