Indian Institute of Technology Bombay
GC-GC-TOF-MS Central Facility
CRNTS, IIT Bombay

Email: gcgctofms@iitb.ac.in
Tel.: 022-25764696 (Internal 4696)

External User Registration Process

Bonafide user of (a) academic institutions, (b) national R & D laboratories and (c) industries can avail this facilitiy. Registration form along with a letter from the Guide/ HoD/authorized person from any of the above institutions can be submitted in person or through registered post / courier along with the charges to Head, Centre for Research in Nanotechnology and Science (CRNTS), IIT Bombay, Powai, Mumbai 400076.

You are requested to mention in your request letter that *"We agree to acknowledge the GC-GC-TOF-MS Central Facility of IIT Bombay when the data analyzed from this lab are used in our papers/ reports/ thesis".*

Kindly include this note in your requesting letter exactly as it is :
"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"

The information on such acknowledgements with appropriate reference should be communicated to the GC-GC-TOF-MS lab vide email *gcgctofms@iitb.ac.in*. Kindly send the complete publication reference (Journal name/volume number/names of the authors/date of issue of the publication etc).

Basic Charges Applicable for External Users:

Analysis Type*	***Sample analysis charges per injection (Rs)#***		
	Academic	**R&D Lab**	**Industry**
Liquid injection/ Headspace	2000	4000	10000
Twister/TDU	2300	4300	10300
Pyrolysis/SPME	3500	5500	11500

#Total Charges: Basic Charges + GST* (as applicable)

GST* rate as on 1.8.2017:
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a) If the recipient of the report is from Maharashtra: 9%: SGST and 9%: CGST
b) If the recipient of the report is from outside Maharashtra: 18%: IGST

- One sample refers to one injection in any of these modes. Multiple injections of the same sample will be treated as multiple samples. Delays may be involved if injector change is required for sample analysis.

- Charge for 2-dimensional (D) analysis will be same as 1-D; However no samples will be directly analyzed in 2-D mode before a 1-D run has been conducted.

✓ **Payment** should be made in advance by a Demand Draft (DD) drawn in favor of "The Registrar, IIT Bombay, P and C Account**".** The same should be sent to: Head, CRNTS IIT Bombay, Mumbai 400076, along with the Request Letter and Completed Registration Form.

✓ **Appointment:** The users will be informed about their date and time-slot by email for submission of sample/s. If the day and time-slot is not suitable for you, an email request should be sent immediately for an alternate slot.

✓ **Sample Preparation:** Please see the details below

✓ **Sample Submission:** Samples are to be brought along on the date of your appointment for submission (Between 9:30 to 11 AM). The samples will be analyzed on the next day of submission.

✓ **Analysis results:** After the sample analysis is complete the results will be sent through email. For large data files user may provide a blank CD for the data files.

✓ **Getting Back the samples**: Users desiring to get back the samples need to mark on the form. Collect them from the lab between 9:30 AM to 11:00 AM after two-three days of completion of the work (intimated through mail) and uncollected samples will be disposed-off after ten days of intimation of the completion of the work and no reminders will be sent.

General Instructions to the Users

1. The experimental data provided is only for research / development purposes. These cannot be used as certificates in legal disputes.

2. A maximum 3 samples will be analyzed against a single Registration Form.

3. The analytes expected in the samples should be clearly indicated and MSDS (Material Safety Data Sheet) should be given both for the samples and the analytes to indicate the toxicity.

Address of the Lab (for Sample Submission):
Room 114 A
Centre for Research in Nanotechnology and Science (CRNTS)
IIT Bombay, Powai, Mumbai 400076

About the facility

Working Principle

It can perform all analysis that a typical GC-TOF-MS can perform. Its particular benefit is for analysis of organic compounds from complex mixtures and environmental samples where high end separation is involved. It involves two columns (that can achieve separation based on different attributes). A thermal modulator ensures cryo focusing of effluent from the first column before its release to the second column. The two-dimensional output helps in resolving the peak of target analytes even when matrix interferences are present. The enhanced spectral collection rate of the TOF-MS detector together with the software capabilities can help in de-convolution of co-eluting compounds.

Technical Specifications

Injection Mode
The GC-GC-TOF-MS coupled with Gerstel Sampler can be operated routinely in the following injection modes:

- Liquid injection mode-Back injector: Only liquid injection is possible
- Cooled injection system and thermal desorption unit (CIS-TDU)-Front injector: liquid injection; headspace injection, stir bar sorptive extraction (twister) and solid phase micro-extraction (SPME)
- Pyrolysis mode

Columns
The columns currently equipped are:
Primary Column: Rxi 5-MS (30 m)
Secondary Column: Rxi 17Sil MS (2 m)

Although column change is possible, column change will not be done frequently. Analysis may be delayed if column change is required.

Special Features

- When operated in 2-D mode, higher resolution can be achieved for complex samples
- Independent temperature programming for each of the columns can be done to enhance resolution.
- The MS is capable of collecting 20 full range spectra or more across a 50 ms chromatographic peak
- Higher dynamic range can be achieved due to software capabilities
- Higher sensitivity

Applications
The system is particularly suitable for application from following fields

- Environmental
- Geochemistry
- Biological
- Chemical/Chemistry

Notes on Sample Preparation for liquid injection

- The sample should be dissolved in volatile organic solvents, preferably hexane or isooctane.
- Other solvents like, methanol, ethanol, ethyl acetate etc. can also be used.
- Solvents such as DMSO, THF and water are not acceptable.
- The sample should be free of particulates of size > 0.45 μm