TOMCAT beamline orientation notes

The following beamline orientation notes for TOMCAT are intended as a quick reference. A personal beamline orientation administered by TOMCAT personnel is required for all user groups. Prior to conducting experiments at TOMCAT, each user group must complete and sign the facility's safety declaration form.

Facility Safety Information

Safety first!

The safety of users and staff has the highest priority for the Paul Scherrer Institut (PSI) in designing and conducting research and experiments. Therefore, no work we do is so important that it needs to be done without assuring the proper safety measures. PSI strictly requires that users and staff comply with all the institute's safety rules and regulations while working on the premises.

Emergency phone numbers

Dial **3333** from any PSI phone in case of any emergencies. From mobiles or external phones, dial **+41 56 310 3333** to reach the PSI emergency organization directly.

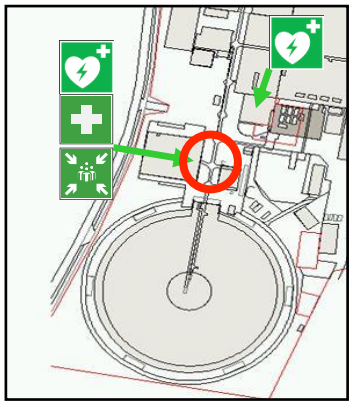
Alarms

Note the two types of alarm signals used at PSI: **Building evacuation alarms** and **emergency alarms**. Refer to the table below for the appropriate response. Non-compliance with any emergency procedures may result in the immediate suspension of the experiment.

Alarm Signals	Emergency Instructions
Evacuation Alarm for Buildings Signal: ● ● ● ● ● ● ● ● ● ● ● ● ● ● Acoustic signal lasting 90 seconds Blue lights flash in buildings where alarms are sounding **Sections of NFO staff in operation**	• Close the windows • Switch off PCs and small ventilators • Bring experiments to a safe state • Evacuate all buildings in which an alarm is sounding • Follow the "Emergency Exit" signs to the marked assembly point • At the assembly point, wait for instructions from the NFO staff, and comply with them
Emergency Alarm Signal: ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ Acoustic signal lasting 90 seconds **Complete NFO staff in operation**	• Stay where you are • Close all doors and windows • If possible, obtain information via the PSI Intranet • Wait for instructions from the NFO staff, and comply with them
End of Alarm Signal: ▬▬▬▬▬▬▬▬▬▬▬▬▬▬ Continuous tone lasting 60 seconds	• All emergency instructions lifted • Resume normal activity

Emergency egress routes and procedures

Upon arrival and during the beamline orientation, identify all the nearby emergency exits. Escape paths are posted on all hutch doors. Make sure to keep emergency egress routes clear at all times. The assembly area in case of a building evacuation is located in front of the Time-Out cafeteria (building WBGB, see map).



Location of safety equipment

Safety equipment near TOMCAT is found at the following locations:

- **Emergency exits:** On the outside wall of the SLS building next to the TOMCAT entrance in Section #32, and in short intervals along the ring.
- **Fire alarm button:** Next to all emergency and building exits. Call 3333 after activating the alarm.
- **Fire extinguisher:** Next to the emergency exit in Section #32.
- **Shower / Eyewash:** Immediately outside of the TOMCAT beamline next to column #31. Additional eye wash bottles are located in the sample preparation labs.
- **First aid kit:** The first aid kit is stored next to the emergency exit door in Section #32. (Notify your local contact if supplies run low.)

Safety documentation

The PSI safety rules and guidelines for facility users can be found through the user office webpage:
https://www.psi.ch/useroffice/safety-at-psi
A general safety course and instructions are available online:
https://www.psi.ch/bz/neu-am-psi-new-at-psi

Resources

Don't hesitate to contact any of the TOMCAT or SLS staff in case of questions or concerns. Contact details for all TOMCAT beamline staff members are posted in the controls hutch. In case of emergencies, always first contact the emergency organization by calling **3333** immediately.

Beamline Safety and Operation

Personal Safety System

The Personal Safety System (PSYS) is there to ensure that nobody is exposed to harmful radiation. The procedure and the search pattern for the experimental hutch will be demonstrated during the beamline orientation. The operation of the beamline shutters will be explained by your beamline contact.

Emergency Stop buttons

Familiarize yourself with the locations of the emergency stop buttons inside the hutch and next to the hutch door. They should be pushed immediately if anyone is locked inside the hutch.

Remote Motion Control

When moving motors and equipment remotely, ensure that the motion range is clear, and especially that nobody/nothing is within a possible collision range of the equipment. Some components may move very swiftly and quietly. Alert anyone in the vicinity of the moving equipment before starting a motion. Monitor the moving equipment closely during operation.

Chemical storage and waste disposal

TOMCAT is not a chemical stockroom and cannot store materials for the user's chemical needs beyond the duration of the experiments. Users should plan to have chemicals shipped in and out of PSI for their experiments. Transport of chemical materials must conform to the appropriate shipping and import/export regulations. Chemical waste that is generated must be disposed of properly in coordination with the TOMCAT beamline contact. All chemical containers must be correctly labeled at all times.

Biohazard materials

Additional restrictions and regulations exist for work with biohazard materials. Coordinate such activities with your local beamline contact.

Laser safety

When using lasers at the beamline, be sure to post the necessary warning signs and wear laser safety goggles at all times when working with the laser. Your beamline contact will provide further instructions.

Gas cylinder handling and usage

Gas cylinders must be safely secured at all times. Disconnect any regulators and secure the cylinder safety cap before transporting gas cylinders. Always use the proper gas regulators (they are different for different gases!).

Cranes / Hoists

Users and untrained personnel are strictly forbidden to operate any cranes or hoists at PSI. Cranes with a maximum rated capacity < 1000 kg may be operated by trained personnel, while higher loads require a professional crane operator license.

Electrical Safety

Users are not permitted to conduct any work on medium or high-voltage electrical installations (> 50V AC / > 120V DC). Only trained and authorized PSI personnel must perform such work. Also note that daisy chaining of extension cords is not allowed.

Equipment Protection System (EPS)

The equipment protection system is designed to protect beamline components from damage. Usually, the white beam shutter will be closed in case of any EPS faults. The fault will be displayed on the EPICS EPS status panel. If an EPS fault occurs, contact beamline personnel immediately. Users are not authorized to handle EPS faults in the absence of beamline personnel.

Computer usage

All PSI computers are to be used only for official use and in accordance with the cyber-security guidelines. No software is to be loaded without prior approval. Note that PSI IT (AIT) monitors all computing activities.

Good housekeeping

Please keep work areas neat and orderly, and safety egress routes and aisles free of obstructions. Users are requested to leave the beamline in a clean state upon their departure (clean dishes and lab ware, empty garbage cans, wipe down tables, etc.)

Samples and Chemicals

Samples and chemicals should be stored and prepared in the designated sample preparation lab. Always keep food and chemicals separated from each other. Observe the posted restrictions for food and chemical usage at the beamline:

- No food or drinks in the sample preparation lab
- No chemicals and samples in the beamline control room and the computation lab

Food and drinks at the beamline

Snacks and drinks can be consumed in the beamline's control and compute rooms. However, it is strongly recommended to use the SLS break room or the TimeOut facilities for the consumption of larger meals. According to SLS regulations, the consumption of alcoholic beverages at the beamlines is not permitted!

TOMCAT provides a small food fridge in the compute lab, where users can store snacks and drinks for the duration of their experiments. Please remove all of your food items from the food fridge and clean the fridge upon departure. Never store any food in the sample fridge!

Note that the experimental hutch is a radiation-controlled zone, and it is therefore absolutely forbidden to bring any food or drinks into the hutch!