

Safe operation procedures – HMS training@NAFUMA

Department of Chemistry (Kjemisk Institutt), UiO

Date: 27/10-2012, Helmer Fjellvåg

This training can only be carried out by NAFUMA permanent staff

Basic routines:

New students (master, PhD), post docs, researchers or other temporary personnel shall upon arrival in the group register at (i) the Department of Chemistry (secretariat) and (ii) NAFUMA (i.e. with the administrative responsible for NAFUMA – or alternatively, the administrative responsible for SMN).

The supervisor (i.e. the responsible staff member for the arriving personnel) shall in person or by direct contact with the NAFUMA administrative responsible, inform the arriving person on the administrative and technical routines to be followed at KI/SMN/NAFUMA. The arriving person should be added to relevant electronic lists, in particular the NAFUMA email list, and the web system for instrument authorization.

Responsibility: supervisor for arriving personnel; NAFUMA administrative personnel

HSE training:

1. All arriving personnel shall immediately be informed on

- (i) lab-book, which shall be used for all experiments and which upon departure will remain the property of KI/UiO; the lab-books should also be used for receiving signatures on complete training and thereby authorization to labs/equipment. Please reserve 1-2 pages in the content part of the lab-book for this; the book is provided by NAFUMA administration;
- (ii) safety rules for the Department of chemistry (web-pages) and are instructed to read and understand these prior to onset of any experimental work; and shall confirm his/her acceptance by signature whenever required;
- (iii) mandatory safety training arranged regularly by the senior KI safety officer for arriving personnel;
- (iv) that SOP (safe operation) rules shall exist for all equipment and procedures;
- (v) the necessity to become authorized for use of any equipment prior to access and the web-page where relevant information for authorization can be found;
- (vi) that chemicals can not be moved out of any lab (without updating the table of content for the given lab);
- (vii) that all labs have one responsible permanent staff in full charge who must give his/her acceptance prior to any changes (including lending out items). Any instrument responsible shall always report to, and receive authorization from, the permanent staff in charge of the given laboratory;
- (viii) that SJA (safe job analysis and risk assessment) must be conducted prior to any non-standard experiment (where no SJA already exists). The SJA should be glued into the lab-book and accepted by the supervisor via his/her signature prior to experiments;

- (ix) that if there are any doubts about any procedure, permanent staff must be consulted. Advice from other coworkers is under no circumstances sufficient in case of situations that potentially may cause harm on personnel, environment or equipment.

Responsibility for part 1: supervisor of arriving personnel

2. Follow-up meeting within 1 week

A follow-up meeting with the arriving person should be held within 1 week after arrival with the purpose to assure that the arriving person has read the safety rules for KI, has consulted the HSE web-pages for NAFUMA, has received a numbered lab-book, and has understood the rules for SOP and SJA connected with all experimental work, as well as any other point described under HSE above.

Responsibility for part 2: supervisor of arriving personnel

3. Confirmation of completed training

The supervisor and the arriving person should thereafter sign the form “confirmation of completed initial HSE training”, which can be found on the next page.

Responsibility for part 3: supervisor of arriving personnel

4. Additional training - public instrumentation

In this form the supervisor shall put in writing the SOPs that the arriving person should immediately read, and the detailed HSE training that the arriving person shall follow in order to be authorized for access to public key instrumentations. Note, the advice of the supervisor is not a sufficient guarantee that authorization will be granted. Access requires that SOP training is successfully completed and that the arriving person shows abilities required for access to the instrumentation in question. Authorization may be withdrawn at any time if SOP guidelines are not followed or obviously not sufficiently understood.

Accepted training, and level of authorization, shall be recorded in the web-based system for all NAFUMA-laboratories.

By requesting training for a specific public instrumentation, the supervisor automatically takes on responsibility to cover costs according to the cost scheme applied by NAFUMA for any subsequent use of the instruments in question.

5. Additional training - special instrumentation

The supervisor may arrange for special training on non-public instrumentations, including instruments in his/her own laboratories . These shall follow accepted SOP routines.

Accepted training, and level of authorization, shall be recorded in the web-based system for all NAFUMA-laboratories.

CONFIRMATION OF PASSED INITIAL HSE-TRAINING (NAFUMA RESEARCH GROUP)

It is hereby confirmed that has passed the required training according to the NAFUMA SOP on HSE for arriving personnel. This confirmation page should be scanned and sent electronically to the NAFUMA administration for archiving (this includes also the original).

Oslo

Signed by supervisor

Signed by arriving person

APPENDIX: Instrumentation existing at the NAFUMA research group

X-ray diffraction lab

- ☐ Single crystal
- ☐ Powder
- ☐ Thin films
- ☐ SAXS

Thermal analysis

- ☐ DTG
- ☐ DSC
- ☐ BET

Physical property characterization

- ☐ PPMS
- ☐ MPMS
- ☐ Faraday balance
- ☐ Ferroelectric characterization
- ☐ 4-point probe

Characterization tools

- ☐ Spectroscopy (IR, UV-Vis-NIR, ellipsometry)
- ☐ AFM
- ☐ Nanoscratch
- ☐ Metallography; polishing
- ☐ Optical microscopes
- ☐ XPS
- ☐ DLS
- ☐ Battery test lab

Synthesis laboratories

- ☐ Torch
- ☐ Press
- ☐ Ball milling
- ☐ Vacuum lines
- ☐ Glove boxes
- ☐ Autoclaves
- ☐ Centrifuge
- ☐ Box furnaces
- ☐ Tube furnaces
- ☐ Furnaces with atmosphere control
- ☐ Balances
- ☐ ALD reactors