



Aalto University  
School of Chemical  
Engineering

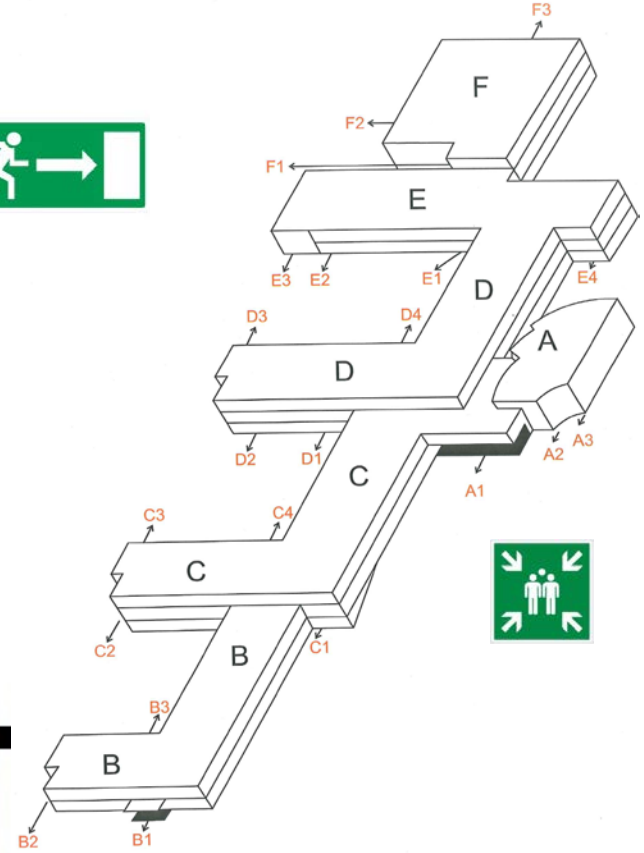
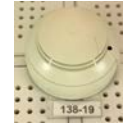
# Safety at Work

Orientation for new employees 2018  
Chemistry Building

# Before you start to work

## Study your workplace

- emergency exits, safety showers and eyewash stations, fire extinguishers
- fire alarms (when these go on, go out) and gas alarms (leave the area)
- rescue organization (yellow vest)/supervisors will give more detailed instructions in case of emergency



## HÄTÄTILANTEESSA

### SOITA 112

kun ihmishenki, terveys, omaisuus tai ympäristö on vaarassa.

#### Tee hätäilmoitus numeroon 112 näin:

SOITA	112
KERRO	kaupunki, tarkka osoite ja mitä on tapahtunut
VASTAA	sinulle esitettyihin kysymyksiin
TOIMI	annettujen ohjeiden mukaisesti
LOPETA	puhelu vasta saatua siihen luvan
OPASTA	auttajat paikalle
SOITA	uudestaan hätänumeroon, mikäli tilanne muuttuu olennaisesti

## IN CASE OF EMERGENCY

### CALL 112

when someone's life or health is in danger, or there is a threat to property or the environment.

#### What to do in an emergency

RING	112
EXPLAIN	exactly where you are and what has happened
ANSWER	the questions you are asked
FOLLOW	the instructions you are given
HANG UP	only when you are told to
HELP	the rescue services find where you are
RING	112 again if the situation changes significantly

#### Tämän tilan osoitetiedot/Address information:

**Espoo, Kemistintie 1, kerros 2, B202b**

Rakennuksen osoite/Address, kerros/floor, huoneen numero/room number

Pelasta ensin itsesi, jotta voit auttaa muita. Arvioi tilanne, estä lisäonnettomuudet, tee hätäilmoitus.

Muissa poikkeustilanteissa soita AaltoAPUA-palvelunumeroon 050 46 46 462. Numero on tarkoitettu kaikille Aalto-yliopistossa työskenteleville. Jos olet epävarma tilanteen vakavuudesta, soita 112.

Always ensure you are safe before attempting to help others. Assess the situation, prevent any further accidents occurring, ring 112.

AaltoAPUA 050 46 46 462 is intended for non-emergencies and can be used by anyone working at the university. Ring 112 if you are unsure whether the situation might be serious.

**Emergency Meeting Point: Main A-door, outside**

**A!** Aalto-yliopisto  
Aalto-universitetet  
Aalto University



Poistumistiet merkitty vihreillä merkeillä  
Emergency exits are marked in green

Unigrafia 2014

# Research plan and risk analysis



## Risk analysis: Hazards, worst thing to happen etc.

- flammable, oxidizing, toxic, corrosive, pressure, heat, cold, incompatible chemicals, glassware
  - <https://inside.aalto.fi/display/enchem/Guides+and+instructions>

## Get the MSDS and study them

- make also the plan for the chemical waste according to the MSDS – spill kits?

## What personal protective equipment is needed?

- laboratory jacket and safety spectacles or visor, also often suitable gloves, fume hood, respirator mask

## Consider and inform also co-workers in the same area

## Consult with your supervisor

## MSDS according to EC 1907/2006 and 1272/2008 (GHS/CLP)

e.g. Methanol, [67-56-1]

<http://www.sigmaaldrich.com>

The screenshot shows the Sigma-Aldrich website interface. At the top, there is a navigation bar with 'PRODUCTS', 'SERVICES', 'INDUSTRIES', 'ACCOUNT', 'SUPPORT', and 'ORDER'. Below this, a search bar contains '67-56-1'. The main content area features a 'Methanol' product page with the chemical formula  $\text{CH}_3\text{OH}$  and a list of product specifications and applications. A banner for the 'SOLVENT CENTER' is also visible.

# Getting started

## Ordering chemicals and waste handling

- Chemicals and materials must be ordered by an authorized person -> use order request system
  - <http://kepo.aalto.fi/tilaus/Tilauspyynto.php>
- Waste handling must be consulted with the local person responsible for waste

## Work guidelines

- Minimum personal protection is laboratory jacket and safety spectacles, also often suitable gloves (disposable or reusable)
- Store the chemicals and the waste according to the MSDS
- Mark all your samples properly
- Clean up spills immediately
- Do not work alone – permission needed for lab work if extended outside normal office hours (Mon-Fri; 8-18)

## Keep organized

- Tidiness equals also safety
- No coffee or food to laboratories



# You are responsible for your own work

## Ground rules for safe working:

- 1) **Understand** what you are doing and print out the **MSDS** for each hazardous chemical you start to use.
- 2) Make sure your neighbours know what you are doing and **share the info** of the hazardous chemicals with them.
- 3) Make sure that you know what your neighbours are doing and **find out the location of MSDS printouts in the lab**.



**Follow the MSDS printout procedure without exceptions**

# Support for safety at work

## **SUPERVISORS ARE IN CHARGE OF THE SAFETY**

Do not hesitate to ask your supervisor. Bring also all unsafe conditions and behavior to the attention of them so corrections can be made.



## **TECHNICAL SUPPORT GROUP**

➤ Research engineers and technicians are at your service

Incident report:

<https://inside.aalto.fi/display/encas/Incident+report>

## **RESCUE ORGANIZATION**

- see CHEM Inside for each building
- most of the rescue organization personnel are also trained for first aid

## **LOCAL CONTACT PERSONS FOR CHEMICALS OCCUPATIONAL SAFETY**

- see Aalto Inside for local labour protection delegates

## **OCCUPATIONAL HEALTH CARE (Terveystalo)**

## **IMPORTANT CONTACT INFORMATION**

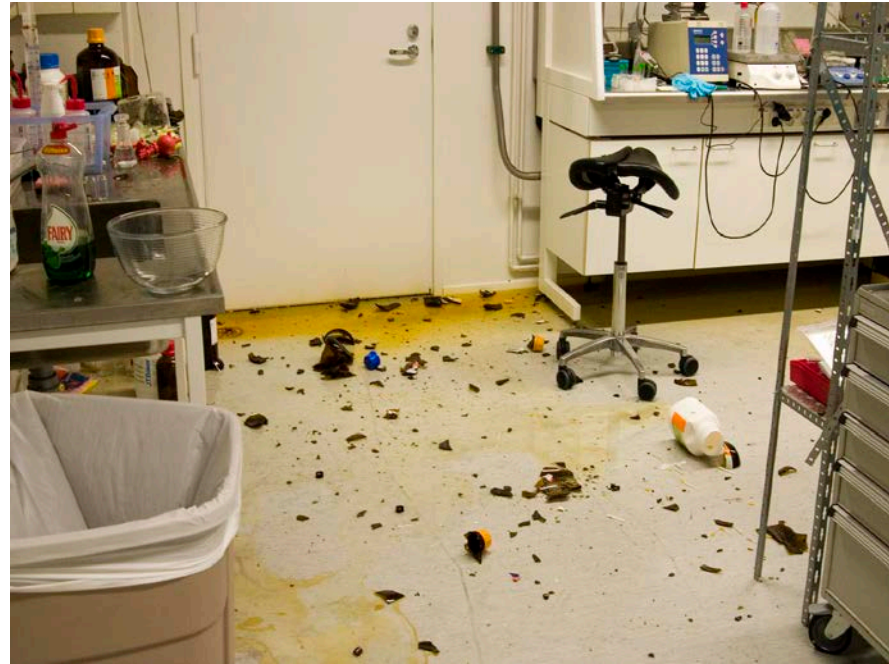
- The 24/7 emergency contact information is in the bulletin boards
- the janitors, also the internal alarm point
- rescue department, police etc. **112**
- poison information centre: **09 471 977**
- property maintenance: 010 636 121
- First-aid boxes are located in every lab corridor



# Handling of the chemical waste - pressure

Example: chemical waste in a glass bottle

Reactive components, pressure build-up -> explosion





# Handling of the chemical waste - reactivity

Example:  $\text{HClO}_4$ , [7601-90-3]

MSDS: H271, May cause fire or explosion (limit concentration?)



$\text{HClO}_4$  + organic solvent + time



concentration > 72 %  
-> unstable



Improper storing of the chemical waste has caused explosions in the University.

# Personal protective equipment in this lab

## Henkilökohtaiset suojavarusteet tässä laboratoriossa



✓ Safety glasses



Splashproof goggles



Face shield (visir)



Gloves: chemical/biological risk

- disposable
- reusable
- ✓ verify the material from MSDS



✓ Laboratory coat



Gloves: physical/mechanical risk

- cold or heat resistant
- cut/puncture resistant

✓ = mandatory  
✓ = pakollinen

# Self-learning material

*Self-learning material and links will be updated periodically*

## ❖ Guides and instructions, Aalto University Inside

- ❖ <https://inside.aalto.fi/display/enchem/Guides+and+instructions>
- ❖ <https://inside.aalto.fi/display/fichem/Oppaita+ja+ohjeita>

## ❖ U.S. CSB: Experimenting with Danger, three accident case-studies in academic labs

- ❖ <http://www.csb.gov/videos/experimenting-with-danger/>