

Laboratory Regulations

1 General Regulations

- When in the lab you are responsible for your own safety and those affected by your work!
- The safety instruction course should be attended by all group members on an annual basis.
- Eating or drinking (including chewing gum etc.) is strictly forbidden in all laboratories on health grounds.
- On safety grounds, shoes and not sandals should be worn in the lab.
- Floor space in the labs should be kept clear – bags and coats should be stored elsewhere (eg. coffee or student room).
- Whilst safety gloves should be used in the lab when handling chemicals, they should be removed before leaving the lab.
- Used needles should be disposed of in the yellow “sharps” bin and **not** in the normal waste.
- Used glassware, such as vials, should be disposed of in the white glass waste buckets and **not** in the normal waste. Before disposing of, any residual sample/solvent should be washed away and if necessary (for the case of volatile solvents) the vial should be left to stand in the fume cupboard until dry. Vials containing solvents should not be directly disposed of in the glass waste bins.
- All other non-disposable glassware (beakers, funnels etc) should be cleaned with a suitable solvent, rinsed repeatedly with deionised water, left to dry on the drying racks behind the sinks and put away when dry, at the latest on the following day.
- If you finish any of the disposable items in the lab, eg. tissues, gloves, pipette tips, pasteur pipettes, vials etc, replace them immediately from the stores in the printer room. If the stores are running low (do **not** wait until they run out), inform one of the “senior” group members, who will order replacements.
- **Always** label samples – no samples should be left on the benches in the lab without a clear label. Any samples which are left unlabelled must be disposed of, at considerable expense of both time and money. Ideally, all samples should be stored in the allocated shelf space of the sample owner.
- “Glassware” from the coffee room should not be used in the lab and vice versa.

- Sinks in the labs should **not** be used for disposing of solvent waste. See Chem Lab section.
- When working with any dangerous chemicals, safety glasses and lab coats should be worn. Anyone working with compressed air should also wear safety glasses due to the dangers of flying debris.
- There are first aid boxes located in the coffee room (O2.31) and the small kitchen (O2.07). The group First Aider (Frau Vobis) should be consulted in extreme cases.

2 Preparation Lab

- **Millipore Water Purifier** – the resistivity of the water should be above 16 M Ω cm when used. You may need to allow the water to run for some seconds before the resistivity rises to a high enough value. In the ideal case, the resistivity should be 18.2 M Ω cm.
- **Reverse Osmosis Water** – the lower outlet of the water purifier (the valve underneath the main body) releases clean but not ultrapure water, so-called “reverse osmosis” water. This RO water is suitable for cleaning glassware but should not be used in sample preparation.
- **Balances** – balances should be kept clean at all times. If you spill some chemical on the balance, clean it up – in these cases it is possible to remove certain parts of the balance to facilitate cleaning – consult Helen or Kevin if unsure. All care should be taken to ensure that the apparatus is also level (using the spirit levels located at the back), and if not the legs should be adjusted. The doors of the high precision balance (CP225D) should be closed before weighing and it should be kept covered with the plastic protective cover when not in use.
- **Eppendorf Pipettes** – for detailed instructions, consult the posters which hang in the lab. Specifically, the syringes should **always** be stored upright and **never** on their side. The syringes are only capable of measuring volumes within the limits printed on them. **Never** try to measure a volume of liquid outside this range.
- **Centrifuge** – when using, ensure the opposite sides of the centrifuge are carefully balanced and take care not to exceed the maximum speed printed on the rotor. It is also important to check that the sample container can withstand the centrifugation speed. Normal disposable vials should not be used for speeds above ~ 3500 rpm; for anything faster, specific centrifuge vials should be used.
- **Density meter** – after use, rinse the capillary with ethanol, acetone and/or deionised water. Before starting the pump, remove the outlet pipe from the solvent waste bottle - this ensures the solvent waste is not encouraged to evaporate. In any case, the solvent waste should be emptied after the measurement. The pump should be left running typically for no more than 10 minutes.
- **Solvent wash bottles** – the solvent wash bottles - ethanol, acetone and iso-propanol - should be refilled when empty. If the store of the particular solvent is empty then either directly order new solvent from the ZCL, or consult a senior member of the group, who will do so.

- **Glovebox** – if you need to use the glovebox in order to prepare samples under a controlled atmosphere, please consult the group member who is responsible (Jörg).

3 Chemistry Lab

- **Common Solvents** – if any of the commonly used solvents that are not available from the ZCL, eg. decalin, cycloheptylbromide etc, are almost empty, either immediately order new supplies or inform a “senior” member of the group, who will do so.
- **Newly Ordered Solvents** – if you buy any new solvents, please list this on the sheet which hangs on the fume cupboard. If you finish a solvent that does not need to be replaced, remove it from the list.
- **Solvent Waste** – solvent waste is disposed of in one of three bottles (if unsure, please ask!):
 1. **A** non-polar solvents, ie. non-water miscible, eg. decalin, toluene.
 2. **B** polar solvents, ie. water miscible, eg. ethanol, acetone.
 3. **CL** halogenated solvents, eg. CHB. Any acetone or ethanol which has been unavoidably mixed with halogenated solvents, should also be disposed of in bottle CL.

When any of these bottles is full, it should be taken to the ZCL along with the correct form, in order to be disposed of, and a clean, empty bottle with the correct labeling retrieved.

- **Sonicator** – the water in the sonicator should be kept clean at all times. This means never placing any dirty glassware in the bath and, if necessary, placing the item to be sonicated inside an intermediate beaker of water. If the level of water in the bath is too low, or if the water is dirty, it should be replaced only with RO water.
- **Vacuum oven** – the log book should always be filled in, to allow other users to keep track of its availability. As the pump is quite old, it is best not to use it for extended periods of time – avoid using overnight at the very least.
- **Fridge** – all samples stored in the fridge should adhere to the strict rules pasted on the door, namely that every sample should either be directly labelled, or stored in a box/tray which is labelled. Any samples not meeting these regulations will be disposed of.
- **Fume Cupboard** – the sliding front cover of the fume cupboard should be kept closed at all times when not in use. If it is clear that there is no ventilation, you should stop working in the fume cupboard and inform either Frau Vobis or another member of the group, who will contact building services. For safety reasons no work should be performed in the chemistry lab until ventilation is reinstated.

4 Other Labs

Any work which is to be conducted in one of the other labs (O2.25 – microscope and rheology lab, O2.42 – 3DDLS, O2.44 – SALS, O2.46 – confocal microscopy and O2.48 – light fields) should only be carried out after receiving proper instruction on the lab and the equipment therein, from the responsible group member.