

Short Tutorial for HYDRA and MEDUSA

7 steps to your first diagram

The following gives short instructions to help you get started with using the HYDRA and MEDUSA programs. For better help and full information, please, read the documentation that comes together with the programs upon loading!

1. Start the program HYDRA and choose the components you need for your system by clicking (one by one) the relevant elements in the periodic table and choosing the appropriate component from the menu. (Notes: Always use H^+ as a component as we work with aqueous solutions in which autoprotolysis of water will give both H^+ and OH^- . Organic components are found under carbon).
2. The program finds the appropriate complexes and solid phases in your system and the corresponding equilibrium (formation) constants. All you need to do is to click *search complexes in database* in the FILE-menu.
3. Save the file by clicking *save and exit* in the FILE-menu. Thereafter click the -icon to start MEDUSA.
4. In the RUN-menu in MEDUSA click *make a diagram*.
5. You can choose the type of diagram in the DIAGRAM-field. You can also choose maximum and minimum values on your axes and choose what to be plotted along the axes (which variable). For each component choose whether the concentration (or activity) should be held constant or varied in the CONCENTRATIONS-field (Note: This information must agree with the chosen diagram type!) and give desired concentration interval (or activity).
6. To create the diagram, click the DIAGRAM-icon.
7. You can print the diagram from the menu in the diagram window: *print diagram*. The diagram can also be pasted into a WORD document by first choosing *IMAGE - copy to clipboard* in the menu of the diagram window and then choosing *paste* in the EDIT-menu in WORD.



To modify the chemical system, click *modify chemical system* in the RUN-menu in MEDUSA. You can then change components or remove chemical species.

- **In HYDRA you choose the components for your system and search the relevant species and their formation constants.**
- **With MEDUSA you create diagrams for the equilibrium system you have defined using HYDRA.**

INSTALLING HYDRA AND MEDUSA.

The programs MEDUSA and HYDRA are available at: <http://www.inorg.kth.se/medusa>

Download the programs by clicking the icon . Save the installation file *Eq-Calcs.exe*. Run the file in order to install the programs (afterwards you can remove this file). After installation, the programs are available in the group *Chemical Diagrams* under PROGRAM when you click the -button.