

# Chemistry Simulation I: Qualitative Analysis

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## STUDENT INSTRUCTIONS

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This is a set of instructions for downloading and running the SpreadSims plugin and chemistry simulation on your home computer. Should you not have access to a PC which satisfies the requirements, you will have access to the software at the computer lab of your school (if that is the case, you may skip Part I of the instructions)

### Part I: Installing the client

**Step 1:** Download the SpreadSims client from the SymComm website (<http://test.spreadsims.net/datas/SpreadsimsNetSetup.msi>) onto a computer with Excel 2003/2007 and Windows XP/Vista. Make sure your PC satisfies the system requirements and install the pre-requisite .NET framework shown here ([http://www.spreadsims.net/?page\\_id=23](http://www.spreadsims.net/?page_id=23)).

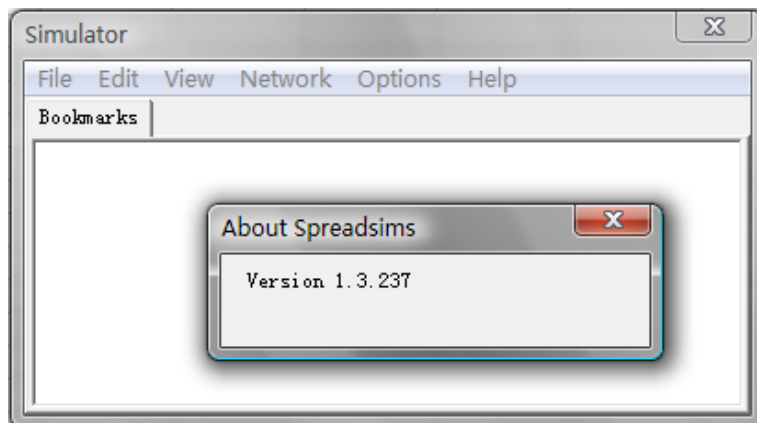
**Step 2:** To install, double click on the setup file you downloaded and wait for installation to complete. (this may take a few minutes) Install any update when prompted.

**Step 3:** Check that you have the client installed properly by opening excel; click on the add-in (plug-in) tab at the top of the screen. Click again on SpreadSims to gain access to the simulator.

**Step 4:** Check if the server connection are configured correctly by going to Options -> Server.

A dialogue box should pop up with the following server address (<http://server.spreadsims.net>); If it is not, change it to the above address.

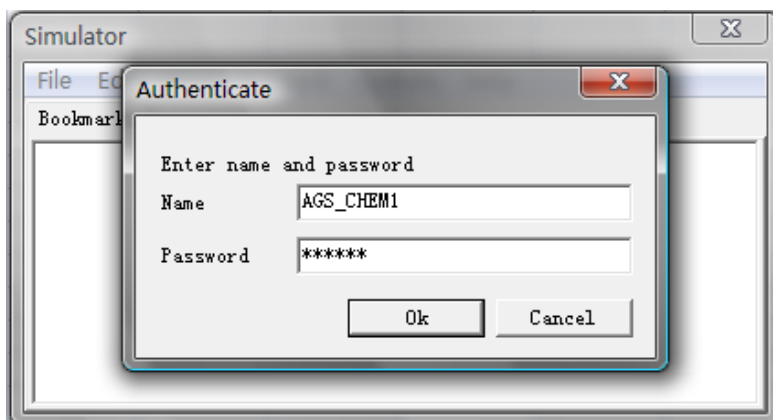
**Step 5:** If no errors come up after you have finished step 5 then the client should be successfully installed. Email SymComm support ([agspilotsupport@gmail.com](mailto:agspilotsupport@gmail.com)) should you not be able to install the client or if you have any other quires.



### Part II: Downloading and using the simulation

**Step 0:** Make sure to enable all macros when prompted by Excel. Otherwise the simulator will not function correctly.

**Step 1:** In the simulator panel, click on 'network' in the menu, then 'open'. Enter the simulation ID 'SOLO11', username 'AGS\_CHEM1' and password '111111'. A separate window should pop up showing you the progress of the sim download. Once the download has been completed, the



simulation should open itself.

**Step 2:** Carefully read the instructions provided on the front page of the simulation. Input the question number desired. Roll over once using the simulation panel to proceed. (The roll forward option can be found in the simulator panel under the simulation menu)

**Question IDs:**

8879a298

339f8a35

8fbaf076

8171e49a

d3773113

**Password:**

1dfb304b9

**Step 3:** Open the 'Questions' page by clicking on its tab at the bottom of the screen. Read all instructions on the page carefully before inputting your answers. When done, open the experiments page to continue with the simulation.

### Chemistry - Qualitative Analysis

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#### Questions and Answers

Question: FA6 and FA7 are solids each containing one cation and one anion from those listed on the reactive references page. Both solids are dissolved in dilute HNO<sub>3</sub> into aqueous solutions.

At each stage you are required to record the following: colour changes seen, the formation of any precipitate and the solubility of any precipitate in an excess of the reagent used

Part A. Use solution FA6 in reactions with aqueous NaOH and with NH<sub>3</sub>, added until in excess. Record any observations made.

Answer: .....

Part B. Use solution FA7 in reactions with aqueous NaOH and with NH<sub>3</sub>, added until in excess. Record any observations made.

Answer: .....

Part C. Identify both cations and anions in FA6 & FA7, write down the evidence below your answer.

Answer: The cation in FA6 is

The cation in FA7 is

**Step 4:** On the experiments page, conduct lab test as requested by the relevant questions on the questions page. Select the lab procedures to use on the specific chemical sample. Roll over once using the simulator panel to display the end results in the observations area on the same page. Record observations made in the questions & answers page if necessary. Repeat this step until all relevant data is collected.

### Chemistry - Qualitative Analysis

**Decisions & Reports**

**Part I: Testing in FA6**

- Option 1: Add dilute Na(OH) solution, then in excess
- Option 2: Add dilute NH<sub>3</sub> solution, then in excess
- Option 3: Add dilute H<sub>2</sub>SO<sub>4</sub> solution
- Option 4: Add 2 drops of KSCN solution
- Option 5: Add red litmus
- Option 6: Add Ba(NO<sub>3</sub>)<sub>2</sub> solution
- Option 7: Add AgNO<sub>3</sub> solution

**Part I: Testing in FA7**


- Option 1: Add dilute Na(OH) solution, then in excess
- Option 2: Add dilute NH<sub>3</sub> solution, then in excess
- Option 3: Add dilute H<sub>2</sub>SO<sub>4</sub> solution
- Option 4: Add 2 drops of KSCN solution
- Option 5: Add red litmus
- Option 6: Add Ba(NO<sub>3</sub>)<sub>2</sub> solution

**Observations**

Testing for:  
Decision:

Observations:

Pictures or Videos?



**Step 5:** Once all experiments have been completed, return to the question page again. Answer all qualitative questions in the space provided and select the correct ions with the drop down box.

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**Part B.** Use solution FA7 in reactions with aqueous NaOH and with NH<sub>3</sub>, added until in excess. Record any observations made.

**Answer:** .....

.....

**Part C.** Identify both cations and anions in FA6 & FA7, write down the evidence below your answer.

**Answer:** The cation in FA6 is  .....

.....

The cation in FA7 is  .....

.....

The anion in  is  .....

.....

**Check Answers (Password Required)**

When done, go to the simulator control panel and click Network > Upload Results or Save to upload your answers to the server. If this is an ungraded self exercise, click the check answer button and use password given by your teacher.

Status: Initialization

**Step 6:** Finally when you have completed all questions on the page, you may check your answers with the check answer button.

**Step 7:** To start a new set of questions, simply reset the entire simulation by clicking the reset button (under simulation menu in the control panel) and start from step 1 again.