# Ferrothiocyanate Fe(SCN)2

Posted by Anonymous on Tue, 2016-08-02 12:00

Ferrothiocyanate Fe(SCN)2: We are currently doing a prac called the *Effect of concentration changes on equilibrium yields*. I need to make up 0.0005M of Fe(SCN)2 solution, but I have no protocol to make it up. Can anyone help me?

**Voting:**

No votes yet

**Year Level:**
Senior Secondary
**Laboratory Technicians:**
Laboratory Technicians

Showing 1-1 of 1 Responses

# Ferrothiocyanate Fe(SCN)2

Submitted by sat on 03 August 2016

Answer reviewed 22 February 2023

Iron(III) ions and thiocyanate ions react in solution to produce the complex Iron(III) thiocyanate according to the equation shown below:

$Fe_3$+(aq) + SCN– (aq) **?** $Fe(SCN)_2$+(aq)

pale yellow colourless blood-red

Iron(III) thiocyanate, $Fe(SCN)_2+$ is a complex ion formed in situ and the concentration is dependent upon the state of equilibrium, which is mostly shown qualitatively rather than quantitatively. You will need a solution of KSCN, potassium thiocyanate, (as a source of SCN- ions) and a solution of $Fe(NO3)3$ or $FeCl3$ (as a source of $Fe_3+$ ions).

We suggest that you make up a 0.002M KSCN1 potassium thiocyanate as follows:

A 0.2M solution would contain 9.7g/500mL distilled water - dilute 1 in 100 to make 0.002M solution.

Should you require a 0.0005M solution, dilute the 0.002M solution 1 in 4.

Add a source of $Fe_3+$ ions to produce the iron(III) thiocyanate, $Fe(SCN)_2+$ complex.

The following links provide useful information:

University of Illinois Chemistry Department. (nd) *Stressing an Equilibrium System by Changing the Concentration of Ions in Solution*', Retrieved (22 February 2023) from the University of Illinois at Urbana-Champaign website: http://www.chem.uiuc.edu/chem103/equilibrium/iron.htm

- ?This activity uses 0.0020M KSCN which is diluted to produce 0.0010M KSCN, to which 5 drops of 0.02 M Fe(NO3)3 is added.

Colby college Chemistry Department, (2012) *'Experiment 1 Chemical Equilibria and Le Châtelier's Principle'* , Retrieved (22 February 2023) from the Colby College, Chemistry website: https://www.colby.edu/chemistry/CH142L/Expt1.pdf

- This is a more quantitative activity using 1.0/2.5 mL 0.0020M KSCN and 5.0 mL of 0.0020M Fe(NO3) 3 and diluted to 10mL.

Creative Chemistry. (2016) *'The effect of concentration changes on equilibria'*, Retrieved (22 February 2023) from the Creative Chemistry website, https://www.creative-chemistry.org.uk/documents/N-ch2-12.pdf

- This uses 1 drop of more concentrated solutions, using 0.5M KSCN and 0.5M FeCl3 and diluting to 5mL.

## References


Chem-Supply. (2019) *Potassium thiocyanate,* Safety Data Sheet. Search https://shop.chemsupply.com.au/ to source the latest Safety Data Sheet via the product information page.

Chem-Supply. (2020) *Iron(III) nitrate,* Safety Data Sheet. Search https://shop.chemsupply.com.au/ to source the latest Safety Data Sheet via the product information page.


---