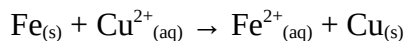


Exploration of the redox reaction between iron and copper sulfate in neutral aqueous medium.

The **purpose** of this IA is to explore to what extent and in approximately what time frame the reaction between iron (steel wool) and copper sulfate takes place.



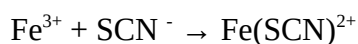
This reaction is simple and accessible and requires hardly any dangerous chemicals to be essayed in a chemistry lab. It is also exothermic, which also allows for use as example in chemical energy explanations, so it would be useful to know to what extent it usually takes place.

In my IA I intend to answer the following questions:

- To what extent does this reaction take place? Is all the iron used up in the reaction?
- How long does it take for the reaction to finish? (reach a nearly 100% conversion)?

In order to answer this, I intend to set the reaction, extract the steel wool (by then it will be copper wool) and determine how much iron is left in it.

The iron determination will be done by dissolving the iron/copper wool in concentrated nitric acid, adding KSCN and using the spectrophotometer to determine the amount of iron. Iron III forms an intensely coloured complex with SCN:



This complex can easily be detected with the spectrophotometer set at 447 nm.