

# The generation of akaganeite by ultra violet rays c irradiation to the iron cathode gold anode battery

\*Nobuo Komori<sup>1</sup>

1. Ota Ward Kamata Junior High School(Doctoral Course The United Graduate School of Education Tokyo Gakugei University)

I carried out the following experiment as a student research of the junior high school science club.

## 1 Purpose

I tried if the voltage of the iron electrode battery rises in result of the fact that a lot of iron ion occurred.

## 2 Method

I performed an experiment where ultra violet rays c was irradiate to the iron cathode gold anode battery . And I measured the voltage of the vattery. I compared the voltage between ultla uvc irradiation and non uvc iradiation. Furthermore, I checked the substance which occurre in this experiment.

## 3 Result

As a result, the uvc irradiation voltage increases from 0.2V to approximately 0.6V.The voltage was increased more than non irradiation.The water solution of uvc irradiation after the experiment seemed to be considerably different from the brown color of iron hydroxide in dark reddish-brown. By the XRD analysis indicated that most of iron rust was akaganeite. The water solution of non uvc iraradiation became slightly brown and the rust slightly occurred.

## 4 Consideration

I infer that because in the case of uvc iron absorbs the energy of ultraviolet rays more iron ions and electrons occurre than the case of non uvc. In the case of non uvc, generated iron rust was estimated iron hydroxide. I think that this experiment is appropriate for students to have interested more and feasible.

Keywords: akaganeite, ultra violet rays c, battery, gold anode, iron cathode, science club

