

Study of the ^{57}Fe hyperfine parameters in medicament containing ferrous fumarate

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The iron valence state is very important information because it may be related to the effect and toxicity of pharmaceutical products. Ferrous fumarate, is the iron(II) salt of fumaric acid, occurring as a reddish-orange powder, used to supplement iron intake. A tablet of Aronamic C⁺ is a famous iron supplement (dietary supplement) produced by Il-dong pharmaceutical company used to treat anemia or other iron deficiencies. It is used to be prescribed to pregnant and parturient women, occasionally in Korea (South). Antianemic medicament Aronamic C⁺ tablet with a basic iron bearing ingredient were studied using Mössbauer spectroscopy. The ferrous fumarate ($\text{FeC}_4\text{H}_2\text{O}_4$) gave us clear evidence of the presence of ferrous compound. An Aronamic C⁺ tablet consists on the ferrous fumarate, ferric compound, and ferrous phase. The magnetic hyperfine field about 235.7 kOe for ferrous fumarate is measured at 4.2 K. The absorption ratio for the ferrous fumarate in Aronamic C⁺ is about 53.1 %. The ferric and ferrous phases are 22.7 and 24.2 %, respectively. ^{57}Fe hyperfine parameters of the studied pharmaceuticals indicate the existence of major irons ferrous (high spin-HS) and ferric (low spin-LS) compounds.

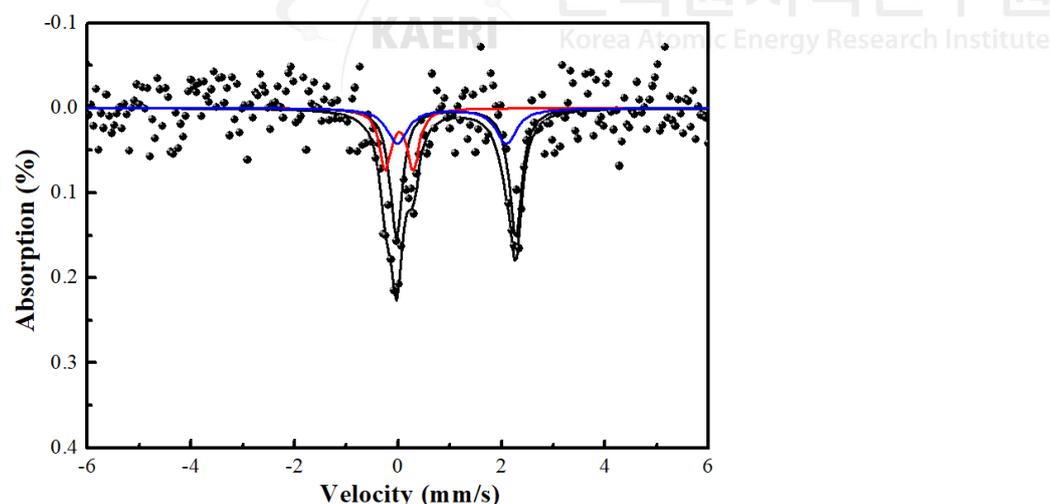


Fig. 1. Mössbauer spectrum measured at room temperature.

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