A novel electrolytic method of preparing Nano sized α-Ferric oxide from scrap iron

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Scrap iron pieces were collected from Burka Gibe workshop and cut into 6X3 cm pieces. Metal pieces were washedwith dil.HCl and absolute alcohol and dried. These metal pieces were polished with grade 4800 Emery paper and washed and used as electrode in an electrolytic cell. 250 ml of distilled water mixed with 10mg NaCl was used as electrolyte. Electrolysis was carried out with a current of 2amp and voltage was maintained about 20 volts for 3 hours. Dark precipitate was obtained. These precipitates were collected, air dried for a day and subjected to X-ray diffraction studies for identification of phases present. Next about 20 gm of the dark precipitate was taken in a silica crucible and heated for 3 hours at 900^0 C. A brilliant brick red material was obtained. It was subjected to x-ray diffractional studies and quantitative phase analysis, which shows that red substance is a mixture of α-ferric oxide (86.6%), Magnetite (12.3%) and maghemite (1,1%). Many of the XRD peaks due to α-ferric oxide were found to be in the nanometer range from size-strain analysis. Further studies are going on.

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