

STUDIES ON ILMENITE SANDS

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Studies on a modified direct reduction technology on ilmenite have been carried out. These involve oxidation of the FeO content, reduction and use of catalysts for removal of metallic iron. This is followed by

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a mild acid leach for solubilisation of more iron and production of synthetic rutile. The results of a detailed laboratory study of the effect of roasting on ilmenite grains indicate that an optimum roasting time of $1\frac{1}{2}$ hours is required. Sieve analysis indicated that expansion of mineral grains occurred on oxidation.

Another aspect of this work concerns heavy metal uptake by vegetation on tailings. The common sea shore plant (*Ipomea pes-capre* found abundantly on the ilmenite and zircon tailings of Pulmoddai showed high levels of Fe and Ti. Plant analysis showed that these metal contents were considerably higher than in a population collected from uncontaminated sites far away from the tailings. The heavy metal content was found to increase with the increase in Fe and Ti contents in the supporting sands. These results are shown to be of significance to plant physiology and biogeochemistry.