THE INTERGROWTH TETRATAENITE/ANTI-TAENITE IN MESOSIDERITES. R. B. Scorzelli and I. Souza Azevedo, Centro Brasileiro de Pesquisas Físicas, Rua Xavier Sigaud 150, CEP 22290-180 Rio de Janeiro, Brazil.

The intergrowth tetrataenite/antitaenite (TT/AT) proposed by Rancourt and Scorzelli [1] as a common state in slowly cooled meteorites, has been detected by Mössbauer spectroscopy in ataxites, octahedrites and metal particles of chondrites. However this intergrowth has never been seen by microscopic investigations. It was expected that in the most slowly cooled meteorites, the mesosiderites (having structures on the right composition), this intergrowth would be present.

Preliminary results obtained by Mössbauer spectroscopy on a few mesosiderites [2], showed that even in the metallic part of the untreated samples, in which kamacite is present in a significant relative proportion, TT/AT can be detected.

In order to accurately determine the relative proportion of TT/AT and better evaluate the degree of order of tetrataenite, a study of taenite fractions extracted after consecutive etching has been performed. The Mössbauer spectra have been recorded at room temperature with $^{57}$Co/Rh source in a conventional spectrometer.

The Mössbauer spectra of taenite fractions extracted from the metal of Estherville (8.57 wt% Ni) consist of a superposition of: a) an asymmetric six-line spectrum (H=29T) typical of tetrataenite and b) a singlet corresponding to the $\gamma_{LS}$ phase, antitaenite. In the case of Estherville a small proportion (~10%) of kamacite still remains.

The TT/AT enriched samples allowed us to evidence the formation of the intergrowth whose Mössbauer hyperfine parameters are consistent with the reported very slow cooling rates of this perplexing differentiated meteorite group.