A Study for Superconducting MgB_2 and FeTi Composites

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MgB_2 and FeTi composites was prepared to study the effect of FeTi particles on superconductivity of MgB_2. The sample, which had contained Magnesium, Boron and FeTi particles, was synthesized by the commercial stainless steel tube envaloping Technique(COSSET) at 920°C for 2 hours. The structure and properties of the sample investigated by XRD, SEM, and SQUID magnetometor. It was found that there was no change of Tc compared with pure MgB_2 superconductor in spite of high percentage of FeTi particles, and there was no proof of structure change of MgB_2 superconductor due to FeTi particles. But the high porosity which was appeared in the pure MgB_2 was disappeared in the composites. We conclude that FeTi particle does not influence the superconductivity of MgB_2 and it is expected that FeTi will be a good material for a tube in the PIT process with MgB_2

keywords : MgB_2 , FeTi, COSSET