

# Synthesis and characteristics of TiO<sub>2</sub>-coated Fe alloy powder

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In recent years, the soft magnetic composites (SMC) have attracted great interest because of its potential applications like power inductor. Among AC losses of hysteresis and eddy current, the eddy current loss can be reduced by coating magnetic powder with an insulating material. For this purpose, we tried to fabricate a coated powder composed of a Fe alloy core and shell layer of TiO<sub>2</sub> via the sol-gel method using titanium but oxide (TBOT) as the precursor. A uniform coating of the Fe alloy core with TiO<sub>2</sub> was successfully achievable by properly controlling the coating conditions such as reaction time and concentration of TBOT. Magnetic properties of TiO<sub>2</sub>-coated Fe alloy powder were also sensitive to the coating conditions of TiO<sub>2</sub>. Details will be presented for a discussion.

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