

제철 폐수의 고구배 자기분리HGMS(High Gradient Magnetic Separation) 처리에 관한 연구

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Study on the Purification of Wastewater by Superconducting HGMS for Steelmaking Industry

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Abstract : Steelmaking industry is widely known to use a lot of water and same amount of wastewater is generated. Although toxicity of wastewater from Steelmaking industry is low, it contains an amount of various organic materials and Fe-Oxides. It is important to recycle the wastewater because of water shortages and water pollution. In general, large-scale equipment is necessary to process the wastewater. On the other hand, superconducting high gradient magnetic separation (HGMS) system can process the wastewater in the small space. Superconducting HGMS system that had a purpose to purify the wastewater was assembled. Cryo-cooled Nb-Ti superconducting magnet was used for magnetic separator. This system can operate continuously because contaminated filters can keep on returning after cleaning. The various magnetic seeding reactions were investigated to increase the reactivity of coagulation. Filter cleaning system was developed to decrease the quantity of clean water.

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Key Words : HGMS, Magnetic seeding, Coagulation, superconducting magnet