Magnetic interactions in powders of Sm-Fe-Ti obtained by mechanical milling.

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Alloys of Sm-Fe-Ti were synthesized by mechanical milling for 5 hours. After 5 hours of milling the patterns x-ray diffraction showed that the Sm-Fe-Ti alloys are nearly amorphous with an average crystallite size <D> 8 nm. Studies of TEM show a microstructure with small precipitates and confirm that the alloys of Sm-Fe-Ti possess nanocrystalline charácter. The magnetic properties of remanence for alloys of Sm-Fe-Ti were measured to study the interactions between grains, charts of Henkel confirm the structural disorder, while plots of ΔM VS H show a negative value of ΔM showing that the dominant interactions are dipolar interactions.