

ABSTRACT OF THE DISCLOSURE

PROCESS OF PRODUCING MAGNETIC MATERIAL FROM SLAG

A process for producing magnetic material from a slag including a ferrous component, includes, adding an additive induce formation of a ferrite to the slag; and milling the mixture. This induces a reaction to form a magnetic ferrite having a chemical formula AFe_mO_n that contributes substantially to the magnetic properties of said magnetic material. In the chemical formula AFe_mO_n , A represents one or more elements. Exemplary additives include barium, cobalt, iron, manganese, nickel, strontium, titanium, and zinc, calcium oxide and silicon oxide. Exemplary formed ferrites include $CoFe_2O_4$, $NiFe_2O_4$, Ni_2FeO_4 , $NiMnFeO_4$, $MnFe_2O_4$, Mn_2FeO , $ZnFe_2O_4$, $BaFe_{12}O_{19}$, $SrFe_{12}O_{19}$, $XY_xFe_{12-x}O_{19}$, where X is barium or strontium, Y is cobalt or titanium, and x is 0 or an integer between 1 and 5; magnetite, barium hexaferrite, strontium hexaferrite, cobalt ferrite, nickel ferrite, manganese ferrite and spinel ferrites having a formula $Ni_{1-x}Zn_xFe_2O_4$ or $Mn_{1-x}Zn_xFe_2O_4$, where $0 < x = 1$.

Figure 1



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