Pengolahan limbah industri baja (mill scale) menjadi pigmen besi oksida sebagai aletrnatif bahan baku pada industri cat

Tito Prastyo Rahman, author

Abstrak

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Limbah Industri baja mill scale sudah berhasil diolah menjadi pigmen besi oksida warna kuning dan merah. Hasil pigmen besi oksida melalui variasi pH (4,7 dan 11) pengendapan menghasilkan fasa berupa goethit α-FeOOH, lepidokrosit γ-FeOOH dan magnetit Fe3O4. Pengaruh peningkatan pH saat pengendapan maka menurunkan terbentuknya fasa besi hidrat dan terbentuknya fasa besi oksida. Sedangkan pigmen merah hematit Fe2O3 diperoleh setelah proses kalsinasi 900oC selama 2 jam penahanan. Disimpulkan bahwa hasil sintesa mill scale menjadi pigmen kuning terbaik terjadi pada pH-4 dan pigmen merah terbentuk pada calsinasi CpH-11, kondisi ini yang paling mendekati produk pigmen komersil. Perlu penguasaan teknologi milling untuk mencapai standard ukuran partikel pigmen komersil.
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ABSTRACT
Industry Steel Waste (Mill Scale) have processed successfully into yellow and red iron oxide by precipitate method. Variation pH (4, 7, and 11) in the precipitate method resulted Goethite (α-FeOOH), Lepidocrosite (γ-FeOOH), and Magnetite (Fe3O4) phase. Increasing pH value in the precipitate method show decreasing fraction iron hydrate's phase and growing iron oxide's phase. Red oxide was processed by calcination temperature until 900oC for 2 hour. As conclution of this research is yellow oxide synthetic pigment occur in pH value 4 and red oxide synthetic pigment occur in pH value 11. This condition shown like identic with iron oxide commercial pigment. Fine milling will be needed to reach particle size commercial pigment standard.;Industry Steel Waste (Mill Scale) have processed successfully into yellow and red
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