Patent Search

Invention Title	Use of Magnetic spinel ferrite nanoparticles (SFNPs) in green chemistry to produce complex oxides
Publication Number	48/2022
Publication Date	02/12/2022
Publication Type	INA
Application Number	202241061754
Application Filing Date	30/10/2022
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	METALLURGY
Classification (IPC)	C03B0032020000, C03C0003085000, C03C0004020000, H01F0001110000, B01J0035000000

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Abstract:

The invention reveals magnetic spinel-structure ferrite nanoparticles and a preparation method thereof. This relates to the field of magnetic nanomaterials and aims problem that in the prior art, the defects of high production cost, low yield, environmental pollution, complicated operations, inadaptability to commercial production exist. The invention discloses magnetic spinel-structure ferrite nanoparticles and a preparation method thereof. The magnetic spinel-structure ferrite nanoparticles h molecular formula of CoxCuyZnzFe3-x-y-zO4, wherein x ranges from 0 to 1, y ranges from 0 to 1, and z ranges from 0 to 1. Additionally, the magnetic spinel-structure nanoparticles have a diameter of 20nm to 400nm and can take the shape of a ball, a regular t. The preparation method includes the following steps: a soluble salt sol has been plated with transition metal ions is mixed with an alkali metal-hydroxide solution in accordance with the volume ratio of 16:1-8 in order to carry out hydroth treatment, with the hydrothermal temperature ranging from 120 degrees Celsius to 180 degrees Celsius and the hydrothermal time ranging from 2 hours to 6 hours. advantages of the preparation technique include cheap costs, easy procedures, strong applicability, adaptation to industrialized production, and similar benefits.

Complete Specification

Description:The innovation is in the area of magnetic Nanomaterials and is particularly connected to a certain sort of magnetic spinel structure ferrite nanoparticle technique of producing it.

Background of the invention:

Spinel structure There are several applications for ferrite; for example, in the field of material technology, it may be used as a magnetic substance, an absorbing ma sensing material, or something similar. Its nanoparticles have a broad range of applications, including catalysis, medicine, analysis, and the biological area. People s Sun Shouheng reported 1 on " American Chemical Society's meeting will "and had passed through pyrolysis ferric acetyl acetonide (III) (Fe (ac)) at high temperature i Hexadecane; People such as Jongnam Park reported 1 on " nature " magazine and utilized metal-salt to prepare the oleate of metal in 2004, and pyrolytic decompos obtained the method (2004 years, Among the aforementioned methods of preparation, the system that is used the most is an organic solvent system. This method an organic salt of the metal and suffers from a number of drawbacks, including high production costs, a low production rate, an environment that is contaminated, operation that is overly complicated. Additionally, this method is not suitable for low-cost industrialized production.

Nanoparticles can be made through a variety of different synthesis methods, such as the thermal decomposition of an organometallic precursor, the decomposition precursor using an ultrasonic method, the reduction of metal ions at high temperatures, or the reduction of precursors using inverse micelles. The one that is used most frequently is the one in which a solution containing surfactants is heated to a high temperature, a precursor is added to it for a short time in order to form uni crystalline nuclei, and then the temperature is reduced in order to prevent the formation of additional nuclei and to make the growth of the particles uniform. This r has been found to be the most successful in producing uniform crystalline nuclei. In addition, several other technologies that are connected have been created

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Government of India

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Application Details	
APPLICATION NUMBER	202241061754
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	30/10/2022
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FIELD OF INVENTION	METALLURGY
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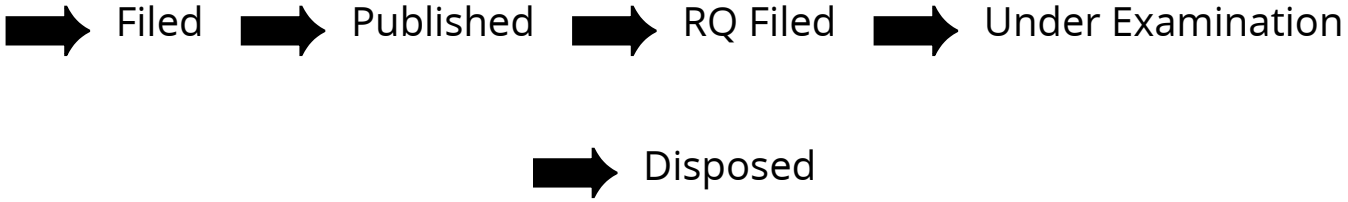
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	02/12/2022

Application Status

APPLICATION STATUS	Awaiting Request for Examination

			View Documents



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