

Title (en)
COMPOSITE MAGNETIC MATERIALS AND METHOD OF MANUFACTURING THE SAME

Title (de)
MAGNETISCHE VERBUNDMATERIALIEN UND VERFAHREN ZU IHRER HERSTELLUNG

Title (fr)
MATÉRIAUX MAGNÉTIQUE COMPOSITES ET LEUR PROCÉDÉ DE FABRICATION

Publication
EP 3862110 A1 20210811 (EN)

Application
EP 20156243 A 20200207

Priority
EP 20156243 A 20200207

Abstract (en)
Disclosed herein is a magnetic material comprising at least one metallic phase and at least one magnetic phase, each metallic phase comprising one of:- a transition metal or alloys thereof,- a post-transition metal or alloys thereof, and- an alkali earth metal or alloys thereof,each magnetic phase comprising one of:- a magnetic alloy having the formula $RE_{2-x}TM_{14-y}B$, - a magnetic alloy having the formula $Sm_{2-x}Fe_{17-x}N_xC_y$ with $0 \leq x \leq 3$ and $0 \leq y \leq 3$, preferably $x=3$ and $y=0$, - a magnetic alloy having the formula $SmFe_{7-x}N_xC_y$ with $0 \leq x \leq 1$ and $0 \leq y \leq 1$, preferably $x=1$ and $y=0$, - a magnetic alloy having the formula $RE'_2TM'_{1-7}$ - a magnetic alloy having the formula $RE'TM'_5$ wherein RE is a first rare earth element, RE' is a second rare earth element, TM is a first transition metal, TM' is a second transition metal, B is Boron, N is nitrogen, C is carbon, Sm is Samarium, Fe is Iron, wherein the total amount of the at least one metallic phase is comprised between 25% and 95% in volume of the magnetic material.

IPC 8 full level
B22F 1/052 (2022.01); **B22F 3/105** (2006.01); **C22C 1/04** (2006.01); **C22C 33/02** (2006.01); **C22C 38/00** (2006.01); **H01F 1/055** (2006.01); **H01F 1/057** (2006.01); **H01F 1/059** (2006.01); **C22C 5/02** (2006.01); **C22C 5/06** (2006.01); **C22C 9/00** (2006.01); **C22C 21/02** (2006.01)

CPC (source: EP US)
B22F 1/052 (2022.01 - EP US); **B22F 3/105** (2013.01 - EP US); **C22C 1/0416** (2013.01 - EP); **C22C 1/0425** (2013.01 - EP); **C22C 1/0433** (2013.01 - EP); **C22C 1/0466** (2013.01 - EP); **C22C 5/02** (2013.01 - EP); **C22C 5/08** (2013.01 - EP); **C22C 9/04** (2013.01 - EP); **C22C 19/005** (2013.01 - EP); **C22C 19/03** (2013.01 - EP); **C22C 19/05** (2013.01 - EP); **C22C 21/00** (2013.01 - EP); **C22C 21/02** (2013.01 - EP); **C22C 21/06** (2013.01 - EP); **C22C 21/08** (2013.01 - EP); **C22C 21/10** (2013.01 - EP); **C22C 21/16** (2013.01 - EP); **C22C 27/04** (2013.01 - EP); **C22C 33/0257** (2013.01 - EP); **H01F 1/0557** (2013.01 - EP); **H01F 1/0577** (2013.01 - EP); **H01F 1/059** (2013.01 - EP); **H01F 41/0273** (2013.01 - EP); **B22F 2003/1051** (2013.01 - EP); **B22F 2202/05** (2013.01 - EP); **B22F 2998/10** (2013.01 - EP); **B22F 2999/00** (2013.01 - EP); **C22C 2202/02** (2013.01 - EP)

Citation (applicant)
• US 4832891 A 19890523 - KASS ALLEN [US]
• US 6478890 B2 20021112 - PANCHANATHAN VISWANATHAN [US], et al
• KR 100446453 B1 20040901
• WO 2012063407 A1 20120518 - UNIV NIHON [JP], et al
• EP 2198993 B1 20120926 - EPOS S R L [IT]

Citation (search report)
• [XY] US 2016322136 A1 20161103 - KELHAR LUKA [SI], et al
• [X] US 2016314882 A1 20161027 - KIM JINBAE [KR], et al
• [XY] US 2019153565 A1 20190523 - KIM JINBAE [KR], et al
• [X] CN 108538530 A 20180914 - UNIV JIANGSU
• [X] CN 108723355 A 20181102 - UNIV JIANGSU
• [X] DE 102017131291 A1 20190627 - UNIV ROSTOCK [DE]
• [Y] EP 3093857 A1 20161116 - UNIV SEVILLA [ES], et al
• [A] EP 2606996 A1 20130626 - EPOS S R L [IT]

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3862110 A1 20210811

DOCDB simple family (application)
EP 20156243 A 20200207