

Title (en)  
METHOD FOR AUTONOMOUSLY PRODUCING ALUMINUM-BASED COMPOSITE MATERIAL IN SITU WITH MELT CONTROL UNDER ELECTROMAGNETIC STIRRING

Title (de)  
VERFAHREN ZUR AUTONOMEN HERSTELLUNG VON ALUMINIUMBASIERTEM VERBUNDMATERIAL IN SITU MIT SCHMELZSTEUERUNG UNTER ELEKTROMAGNETISCHEM RÜHREN

Title (fr)  
PROCÉDÉ POUR LA PRODUCTION AUTONOME DE MATÉRIAU COMPOSITE À BASE D'ALUMINIUM IN SITU AVEC GESTION DE MASSE FONDUE SOUS AGITATION ÉLECTROMAGNÉTIQUE

Publication  
**EP 4190927 A1 20230607 (EN)**

Application  
**EP 21908615 A 20210809**

Priority  
• CN 202011571152 A 20201227  
• CN 2021111633 W 20210809

Abstract (en)  
The invention provides a method of in-situ self-generating aluminum-based composite material by melt control with electromagnetic stirring, including the following steps: providing a vacuum tank having an immersion tube and an air extraction port, wherein the immersion tube is configured to be immersed in an aluminum melt in an aluminum melting furnace; a graphite rotator for argon rotary blowing; an electromagnetic stirring device disposed below the aluminum melting furnace; after melting the pure aluminum or aluminum alloy matrix in the aluminum melting furnace, adding reaction salt and reaction promoters to react; immersing the immersion tube of the vacuum tank into the aluminum melt and vacuuming the vacuum chamber; dropping down the graphite rotator and the rotating rod passing through the vacuum chamber of the vacuum tank via the sealing bearing at the top of the vacuum tank and inserting the spray head into the bottom of the aluminum melt for argon rotary blowing; starting the electromagnetic stirring device for electromagnetic stirring of the aluminum melt.

IPC 8 full level  
**C22C 1/06** (2006.01); **C22C 1/10** (2023.01); **C22C 21/00** (2006.01); **C22C 32/00** (2006.01)

CPC (source: CN EP)  
**B22D 1/002** (2013.01 - EP); **B22D 1/005** (2013.01 - EP); **C22B 9/003** (2013.01 - EP); **C22B 9/05** (2013.01 - EP); **C22B 9/10** (2013.01 - EP); **C22B 9/103** (2013.01 - EP); **C22B 9/106** (2013.01 - EP); **C22B 21/00** (2013.01 - EP); **C22B 21/062** (2013.01 - EP); **C22B 21/064** (2013.01 - EP); **C22B 21/066** (2013.01 - EP); **C22B 21/068** (2013.01 - EP); **C22C 1/06** (2013.01 - CN); **C22C 1/1036** (2013.01 - CN); **C22C 1/1052** (2023.01 - CN EP); **C22C 21/00** (2013.01 - CN EP); **C22C 32/0073** (2013.01 - CN); **F27D 27/00** (2013.01 - EP); **F27D 2027/002** (2013.01 - EP)

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

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4190927 A1 20230607**; **EP 4190927 A4 20240403**; CN 112779435 A 20210511; CN 112779435 B 20211214; WO 2022134610 A1 20220630

DOCDB simple family (application)  
**EP 21908615 A 20210809**; CN 202011571152 A 20201227; CN 2021111633 W 20210809