

Title (en)  
POWDER COMPOSITION FOR THE MANUFACTURE OF CASTING INSERTS, CASTING INSERT AND METHOD OF OBTAINING LOCAL COMPOSITE ZONES IN CASTINGS

Title (de)  
PULVERZUSAMMENSETZUNG ZUR HERSTELLUNG VON GIESSEINSÄTZEN, GIESSEINSATZ UND VERFAHREN ZUR HERSTELLUNG LOKALER VERBUNDZONEN IN GUSSTEILEN

Title (fr)  
COMPOSITION DE POUDRE POUR LA FABRICATION D'INSERTS DE PIÈCE COULÉE, INSERT DE PIÈCE COULÉE ET PROCÉDÉ D'OBTENTION DE ZONES COMPOSITES LOCALES DANS DES PIÈCES COULÉES

Publication  
**EP 3374107 B1 20221102 (EN)**

Application  
**EP 16820332 A 20161111**

Priority  
• PL 41475515 A 20151112  
• IB 2016056825 W 20161111

Abstract (en)  
[origin: EP4166258A2] The invention relates to a casting insert fabrication method using a composition of powders designed to produce local composite zones resistant to abrasive wear, wherein said composite zones are reinforced with carbides and borides or with mixtures thereof formed in situ in castings, and wherein said powder composition is characterized in that it comprises powder reactants of the formation of carbides and/or borides selected from the group of TiC, WC, , or mixtures thereof, said carbides and/or borides forming after crystallization particles reinforcing the composite zones in castings, and wherein said powder composition further comprises moderator powders in the form of a mixture of metal powders, which after crystallization form matrix of the composite zone in casting. Furthermore, the amount of powder reactants for the formation of TiC carbide is from 3 to 40wt% and the amount of moderator powders is from 60 to 97wt%, the amount of powder reactants for the formation of WC carbide is from 40 to 99wt% and the amount of moderator powders is from 1 to 60wt%, or the amount of the mixture of powders of the reactants of the coupled reaction of the synthesis of TiC and WC carbides is from 10 to 70wt% and the amount of moderator powders is from 30 to 90wt%. The invention also relates to a casting insert for the fabrication in casting of local composite zones resistant to abrasive wear, and to a method for the fabrication of local composite zones in castings, using for this purpose the reaction of the self-propagating high temperature synthesis (SHS).

IPC 8 full level  
**B22D 19/02** (2006.01); **B22F 1/12** (2022.01)

CPC (source: EP US)  
**B22D 19/02** (2013.01 - EP); **B22F 1/12** (2022.01 - EP US); **B22F 3/23** (2013.01 - EP); **C22C 1/053** (2013.01 - EP); **C22C 29/02** (2013.01 - EP); **C22C 29/08** (2013.01 - EP); **C22C 29/10** (2013.01 - EP); **C22C 29/067** (2013.01 - EP)

Citation (examination)  
ALI EMAMIAN ET AL: "In-Situ Formation of TiC Using Laser Cladding", 1 January 2011 (2011-01-01), XP055691587, Retrieved from the Internet <URL:https://cdn.intechopen.com/pdfs/16698/InTech-In\_situ\_deposition\_of\_metal\_matrix\_composite\_in\_fe\_ti\_c\_system\_using\_laser\_cladding\_process.pdf> [retrieved on 20200505]

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

DOCDB simple family (publication)  
**EP 4166258 A2 20230419**; CN 108348995 A 20180731; CN 108348995 B 20211116; DK 3374107 T3 20221121; EP 3374107 A1 20180919; EP 3374107 B1 20221102; ES 2932022 T3 20230109; FI 3374107 T3 20230131; PL 3374107 T3 20230306; PL 414755 A1 20170522

DOCDB simple family (application)  
**EP 22204377 A 20161111**; CN 201680065248 A 20161111; DK 16820332 T 20161111; EP 16820332 A 20161111; ES 16820332 T 20161111; FI 16820332 T 20161111; PL 16820332 T 20161111; PL 41475515 A 20151112