Title (en)

SELF GENERATED PROTECTIVE ATMOSPHERE FOR LIQUID METALS

Title (de)

AUTOMATISCH ERZEUGTE SCHUTZATMOSPHÄRE FÜR FLÜSSIGE METALLE

Title (fr)

ATMOSPHÈRE PROTECTRICE AUTO-GÉNÉRÉE POUR MÉTAUX LIQUIDES

Publication

EP 3525964 A1 20190821 (EN)

Application

EP 17768577 A 20170905

Priority

- US 201662409192 P 20161017
- US 201715693747 A 20170901
- US 2017050108 W 20170905

Abstract (en)

[origin: US2018104746A1] An improved method of manufacturing a cast part by sand casting, permanent mold casting, investment casting, lost foam casting, die casting, or centrifugal casting, or a powder metal material by water, gas, plasma, ultrasonic, or rotating disk atomization is provided. The method includes adding at least one additive to a melted metal material before or during the casting or atomization process. The at least one additive forms a protective gas atmosphere surrounding the melted metal material which is at least three times greater than the volume of melt to be treated. The protective atmosphere prevents introduction or re-introduction of contaminants, such as sulfur (S) and oxygen (O2), into the material. The cast parts or atomized particles produced include at least one of the following advantages: less internal pores, less internal oxides, median circularity of at least 0.60, median roundness of at least 0.60 and increased sphericity of microstructural phases and/or constituents.

IPC 8 full level

B22D 1/00 (2006.01); **B22F 9/08** (2006.01); **B22F 9/10** (2006.01); **C21C 7/00** (2006.01); **C22C 1/04** (2006.01); **C22C 33/02** (2006.01)

CPC (source: EP KR US)

B22D 1/00 (2013.01 - EP KR US); **B22D 27/00** (2013.01 - EP KR US); **B22F 9/08** (2013.01 - EP US); **B22F 9/082** (2013.01 - EP KR US); **B22F 9/10** (2013.01 - EP KR US); **C21C 7/005** (2013.01 - EP KR US); **C22C 1/0416** (2013.01 - EP); **C22C 1/0433** (2013.01 - EP); **C22C 1/045** (2013.01 - EP); **C22C 1/0458** (2013.01 - EP); **C22C 1/1042** (2013.01 - EP KR US); **C22C 33/02** (2013.01 - EP); B22F 2009/0844 (2013.01 - EP US); C22C 1/0416 (2013.01 - US); C22C 1/0433 (2013.01 - US); C22C 1/045 (2013.01 - US); C22C 1/0458 (2013.01 - US); C22C 33/02 (2013.01 - US); C22C 37/10 (2013.01 - EP US); Y02P 10/25 (2015.11 - EP)

Citation (search report)

See references of WO 2018075152A1

Designated contracting state (EPC)

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Designated extension state (EPC)

BA ME

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