

Title (en)

Method and installation of recycling used green foundry sands

Title (de)

Verfahren und Anlage zum Recyceln von in Gießereien benutztem Grüngussand

Title (fr)

Procédé et installation de recyclage des sables à vert usés de fonderie

Publication

EP 2191909 B1 20130109 (FR)

Application

EP 09175525 A 20091110

Priority

FR 0806394 A 20081114

Abstract (en)

[origin: EP2191909A1] The process comprises pulping (A) the purge sand for removing the silver parts and active black mineral around grains of the sand, sifting (B) the sand to remove coarse wastes, hydraulically classifying (C) the sifted sand into a fine fraction of diluted treated waste and a fraction of treated deslime sand, grinding (D) the treated deslime sand for disintegrating oolites around the sand grains, hydraulically classifying (E) a fraction of fine discharge and a fraction of sifted sand for recycling, drying and cooling the sifted sand, and magnetically separating the dried sifted sand. The process comprises pulping (A) the purge sand for removing the silver parts and active black mineral around grains of the sand, sifting (B) the sand to remove coarse wastes, hydraulically classifying (C) the sifted sand into a fine fraction of diluted treated waste and a fraction of treated deslime sand, grinding (D) the treated deslime sand for disintegrating oolites around the sand grains, hydraulically classifying (E) a fraction of fine discharge and a fraction of sifted sand for recycling, drying and cooling the sifted sand, magnetically separating the dried sifted sand for eliminating chamotte, chromite and other paramagnetic minerals and for obtaining recyclable sand for the foundry, hydraulically classifying the fine fraction of diluted sludge, and dehydrating the ultrafine fraction to recover the clay and other recyclable black minerals. The quantity of water added to the purge sand for pulping is 0.5-1 l/kg of sand. The sand has a granulometry of 850 mu m. The first, second and third hydraulic classification makes the sand to cut into a size of 40-80 mu m, 150-25 mu m and 5-20 mu m respectively. The grinding is carried out into two cells with a passage time of greater than 15 minutes. The magnetic separation is performed in two separate stages for separating particles from high-and low paramagnetism. The dehydration includes a centrifugal decantation. An independent claim is included for an installation for transformation of purge sand into sand recyclable foundry and clay recyclable foundry.

IPC 8 full level

B22C 5/18 (2006.01)

CPC (source: EP)

B22C 5/185 (2013.01)

Cited by

CN109641263A; FR3023194A1; EP2723517A4; EP3334546A4; US9138803B2; WO2018157060A3; WO2018038977A1; US10898947B2; US10493466B2; US11052405B2

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