

Title (en)
SYSTEMS AND METHODS FOR NANOFUNCTIONALIZATION OF POWDERS

Title (de)
SYSTEME UND VERFAHREN ZUR NANOFUNKTIONALISIERUNG VON PULVERN

Title (fr)
SYSTÈMES ET PROCÉDÉS DE NANOFONCTIONNALISATION DE POUDRES

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Application
EP 18840807 A 20180603

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Abstract (en)
[origin: WO2019027563A1] Some variations provide a system for producing a functionalized powder, comprising: an agitated pressure vessel; first particles and second particles contained within the agitated pressure vessel; a fluid contained within the agitated pressure vessel; an exhaust line for releasing the fluid from the agitated pressure vessel; and a means for recovering a functionalized powder containing the second particles disposed onto surfaces of the first particles. A preferred fluid is carbon dioxide in liquefied or supercritical form. The carbon dioxide may be initially loaded into the pressure vessel as solid carbon dioxide. The pressure vessel may be batch or continuous and is operated under reaction conditions to functionalize the first particles with the second particles, thereby producing a functionalized powder, such as nanofunctionalized metal particles in which nanoparticles act as grain refiners for a component ultimately produced from the nanofunctionalized metal particles. Methods for making the functionalized powder are also disclosed.

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