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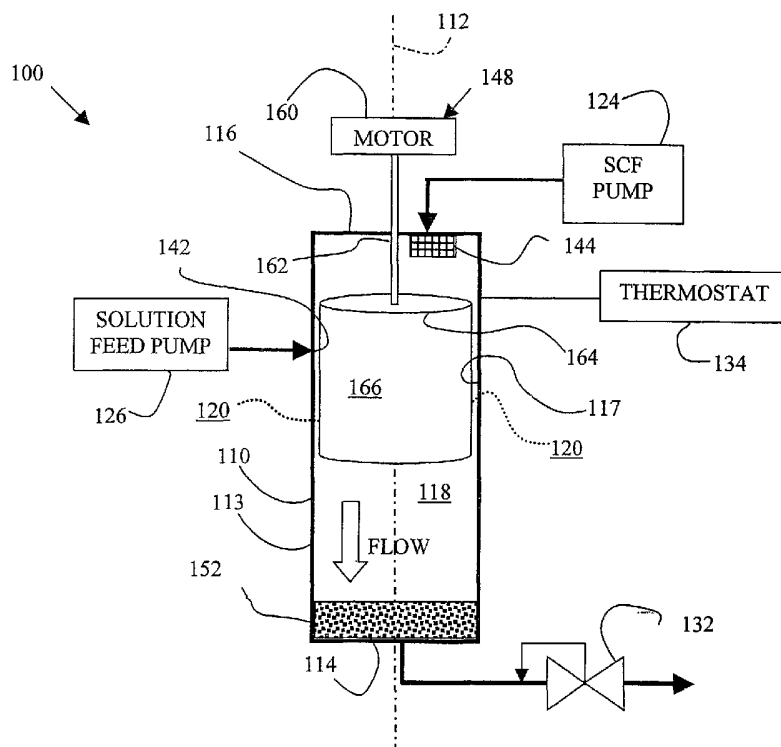
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(54) Title: METHOD AND APPARATUS FOR PRODUCING PARTICLES VIA SUPERCRITICAL FLUID PROCESSING



(57) Abstract: An apparatus and method for producing particles using supercritical fluid with enhanced mixing. The process includes a vessel having an inner surface defining a chamber. A high-speed shear or turbulent mixer is incorporated inside the vessel in order to create a region of enhanced mixing (mixing zone). A supercritical fluid pump communicates with the first inlet, and supplies supercritical fluid into the mixing zone through the first inlet. A solution pump communicates with the second inlet, and supplies solution into the mixing zone through the second inlet. A mixer assembly includes a motor drive and a rotor. The rotor is in the mixing zone and can mix the solution and the supercritical fluid. Particles are produced when the solution and the supercritical fluid are pumped into the mixing zone while the rotor is mixing. The design of the mixer and the direction of the flow of materials into the chamber creates a plug flow in the mixing zone. The plug flow allows the particles to be

removed from the mixing zone as soon as they are precipitated. Because of the high intensity homogeneous mixing and plug flow configuration, the particle uniformity is enhanced and production of composite particles facilitated.



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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 210/511, 634, 639; 366/279, 282, 348; 239/8-10; 264/5, 8, 11, 12; 424/489

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB: supercritical, particles, particulate, solvent, rotor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,471,392 B1 (HOLL et al.) 29 October 2002, see col. 13, lines 28-34; col. 3, line 27- col. 4, lines 20, 28-34; col. 7, lines 32-38 and 58-61, see precipitation; col. 11, lines 59-62; col. 8, lines 6-9.	1-20
X, E	US 2004/0115123 A1 (ZHOU et al.) 17 June 2004, see para. 39; pg 2, para. 27; pg. 3, para. 34; pg. 4, para. 41 and figs. 3-5b.	1-20
X, E	US 2004/0091546 A1 (JOHNSON et al.) 13 May 2004, see pg. 3, para. 21, 34-35; pg. 6, para. 58; pgs. 7-8, para. 66, 68; pg. 4, para. 37-38, 41 and 58; pg. 5, para. 41, 45.	1-20
Y, P	US 2003/0066800 A1 (SAIM et al.) 10 April 2003, see pg. 3, para. 25; pg. 8, para 89, 91; pg. 9, para. 75, 90, 100.	1-19
A, E	US 2004/0031754 A1 (PESIRI et al.) 19 February 2004, see entire document.	1-20



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