



US007105201B2

(12) **United States Patent**
Blatter et al.

(10) **Patent No.:** **US 7,105,201 B2**
(45) **Date of Patent:** **Sep. 12, 2006**

(54) **VERSATILE PROCESSES FOR PREPARING AND USING NOVEL COMPOSITE PARTICLES IN POWDER COATING COMPOSITIONS**

5,672,382 A *	9/1997	Lux	427/213
5,856,378 A	1/1999	Ring et al.	
5,919,530 A *	7/1999	Hurley et al.	427/557
6,197,369 B1 *	3/2001	Watano et al.	427/213
6,224,798 B1 *	5/2001	Gay	264/102
6,531,524 B1 *	3/2003	Ring et al.	523/205

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FOREIGN PATENT DOCUMENTS

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EP	0 250 183 A	12/1987
EP	0 372 958 A	6/1990
EP	0 389 080 A	9/1990
GB	2226824 A	7/1990
WO	WO 91/18951	12/1991
WO	WO 98/08614	3/1998
WO	WO 01/85360	11/2001

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 312 days.

(21) Appl. No.: **10/206,482**

OTHER PUBLICATIONS

(22) Filed: **Jul. 26, 2002**

R. Pfeffer et al., "Synthesis Of Engineered Particulates With Tailored Properties Using Dry Particle Coating", Powder Technology, 117 (2001) 40-67.

(65) **Prior Publication Data**

US 2004/0018109 A1 Jan. 29, 2004

Hersey, "Ordered Mixing: A New Concept in Powder Mixing Practice", Powder Technology, 11 (1975) 41-44.

(51) **Int. Cl.**
B05D 7/00 (2006.01)

"Magnetically Assisted Impaction Coating Process to Synthesize Engineered Particulates With Controlled Surface Characteristics", Mat. Res. Soc. Symp. vol. 501, 1998, Materials Research Society.

(52) **U.S. Cl.** **427/213; 419/35**

* cited by examiner

(58) **Field of Classification Search** **427/213; 419/35**

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See application file for complete search history.

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(56) **References Cited**

(57) **ABSTRACT**

U.S. PATENT DOCUMENTS

2,976,574 A	3/1961	Keutgen et al.	
3,263,980 A	8/1966	Feder et al.	
3,548,782 A	12/1970	Bergquist et al.	
4,154,871 A	5/1979	White et al.	
4,243,794 A	1/1981	White et al.	
4,260,066 A	4/1981	Hannon et al.	
4,788,080 A *	11/1988	Hojo et al.	427/204
5,006,368 A *	4/1991	Louks	427/189
5,319,001 A	6/1994	Morgan et al.	
5,470,893 A	11/1995	Sinclair-Day et al.	
5,585,426 A	12/1996	Williams et al.	

Methodology for constructing composite particles from ingredients comprising two or more particulate components. The resultant particles are usefully incorporated into powder coating compositions. The approach also finds utility in other applications, including but not limited to the food, drug, and cosmetics industry. Fluidized particles are subjected to an intense, but relatively brief heating event. This causes associated particles to fusingly assemble into fused composite clusters.

48 Claims, 11 Drawing Sheets

