



US006541544B1

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

(10) **Patent No.:** **US 6,541,544 B1**
(45) **Date of Patent:** **Apr. 1, 2003**

(54) **TEXTURED WEATHERABLE POWDER COATINGS**

(75) Inventors: **Stephen C. Hart**, Hudson, WI (US);
Jeffrey G. Schmierer, Oakdale, MN (US);
Brian W. Carlson, Woodbury, MN (US)

(73) Assignee: **H. B. Fuller Licensing & Financing, Inc.**, St. Paul, MN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/579,759**

(22) Filed: **May 26, 2000**

(51) **Int. Cl.**⁷ **C08L 33/02**

(52) **U.S. Cl.** **523/410; 523/409; 523/412; 525/107; 525/111; 525/119**

(58) **Field of Search** **523/409, 410, 523/412; 525/107, 111, 119**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,341,819 A	7/1982	Schreffler et al.	427/195
4,921,913 A *	5/1990	Pettit, Jr.	525/119
5,212,263 A	5/1993	Schreffler	525/533
5,229,458 A *	7/1993	Schimmel et al.	525/108
5,494,994 A	2/1996	Gras et al.	528/292

5,576,389 A *	11/1996	Ueno et al.	525/119
5,616,658 A	4/1997	Gras et al.	525/438
5,714,206 A	2/1998	Daly et al.	427/475
5,721,052 A	2/1998	Muthiah et al.	428/413

FOREIGN PATENT DOCUMENTS

EP	0503865	*	3/1992
EP	0 911 709 A2		9/1998
GB	2 312 897 A		5/1996

* cited by examiner

Primary Examiner—Ana Woodward
(74) *Attorney, Agent, or Firm*—Bin Su

(57) **ABSTRACT**

A thermosetting weatherable powder coating composition applicable to a temperature sensitive substrate by means of electrostatic spray or fluidized bed, and curable at low temperature to form a textured surface to hide irregularities on the surface of the underlying substrate. The powder coating composition includes a hardener with a functionality of 2 or greater capable of reacting with an acid or anhydride functional group, a polymeric coreactant with a functionality of 2 or greater capable of reacting with the hardener, a carboxylic acid functional polyester and optionally, a catalyst, but no texturing agent. The polymeric coreactant is made by polymerizing an ethylenically unsaturated monomer and at least one carboxyl acid functional ethylenically unsaturated monomer or anhydride functional ethylenically unsaturated monomer, and mixtures thereof.

18 Claims, No Drawings