



US006281298B1

(12) **United States Patent**
Papsin, Jr.

(10) **Patent No.:** **US 6,281,298 B1**
(45) **Date of Patent:** **Aug. 28, 2001**

- (54) **WATER-BASED PRESSURE SENSITIVE ADHESIVES HAVING ENHANCED CHARACTERISTICS**
- (75) Inventor: **George A. Papsin, Jr.**, Lino Lakes, 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.

4,726,982	2/1988	Traynor et al.	428/213
4,888,395	* 12/1989	Min	525/301
5,059,264	10/1991	Sheets	156/62.2
5,075,360	12/1991	Fitt et al.	524/48
5,187,210	2/1993	Fitt et al.	524/52
5,354,807	* 10/1994	Dochniak	524/591
5,692,937	* 12/1997	Zhang	442/149
5,962,571	* 10/1999	Overbeck et al.	524/460
5,965,646	* 10/1999	Norby	524/247
6,048,611	* 4/2000	Lu et al.	428/355 AC
6,066,688	* 5/2000	Samonides et al.	524/272
6,072,019	* 6/2000	Sengupta	528/59
6,084,024	* 7/2000	Mao et al.	524/556

- (21) Appl. No.: **09/378,581**
- (22) Filed: **Aug. 20, 1999**
- (51) **Int. Cl.**⁷ **C09J 133/08**; C09J 133/00
- (52) **U.S. Cl.** **525/419**; 525/221; 525/309; 525/412; 525/414; 525/421; 524/272; 524/314; 524/501; 524/507; 524/512
- (58) **Field of Search** 525/419, 421, 525/412, 414, 221, 309; 524/501, 507, 512, 272, 314

FOREIGN PATENT DOCUMENTS

1546144	5/1979	(GB)	.
WO 97/43325	11/1997	(WO)	.
WO 99/29746	6/1999	(WO)	.

* cited by examiner

Primary Examiner—P. Hampton-Hightower
(74) *Attorney, Agent, or Firm*—Nancy Quan; Bin Su

(57) **ABSTRACT**

The present invention relates to water-based pressure sensitive adhesives comprising at least one water-based polymer and at least one aminoplast resins such as melamine-formaldehyde resins, urea-formaldehyde resins, alkylated melamine-formaldehyde resins and combinations thereof. More particularly, the invention relates to water-based pressure sensitive adhesives comprising the reaction product of aqueous polymer dispersions and water dispersible melamine-formaldehyde resins. The pressure sensitive adhesives are characterized as having enhanced bonding characteristics including loop tack, peel strength, and shear strength making them particularly useful for the manufacture of dry-bonded laminates, tapes, labels, medical patches and devices, flexible packages, furnace ducts, exterior insulating finish system and the like.

(56) **References Cited**

U.S. PATENT DOCUMENTS

Re. 24,906	* 12/1960	Ulrich	206/59
2,884,126	* 4/1959	Ulrich	206/59
3,299,010	1/1967	Samour et al.	260/78
3,400,103	* 9/1968	Samour et al.	260/78
3,734,819	5/1973	Knutson	428/463
3,740,366	* 6/1973	Thomas et al.	260/29.6 M
4,049,847	9/1977	Eisentraeger et al.	427/207 B
4,077,926	3/1978	Sanderson et al.	526/312
4,128,518	* 12/1978	Oyamada et al.	260/29.6 E
4,185,050	* 1/1980	Lazear et al.	525/221
4,234,500	11/1980	Hoeschele et al.	424/287
4,322,516	* 3/1982	Wiest et al.	526/307.7
4,668,730	5/1987	Iovine et al.	524/460

20 Claims, No Drawings