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**Helmeke**

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(54) **HEAT RESISTANT HOT MELT MOISTURE CURE ADHESIVE COMPOSITION AND ARTICLES INCLUDING THE SAME**

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CPC ..... **C09J 175/06** (2013.01); **B32B 5/02** (2013.01); **B32B 7/12** (2013.01); **C08G 18/12** (2013.01); **C08G 18/425** (2013.01); **C08G 18/4277** (2013.01); **C08G 18/7671** (2013.01); **C08K 5/0066** (2013.01); **C09J 5/06** (2013.01); **C09J 9/00** (2013.01); **C08G 2170/20** (2013.01); **C09J 2400/263** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,367,036	A	11/1994	Saito et al.
6,280,561	B1	8/2001	McInnis et al.
9,982,173	B2	5/2018	Janke et al.
2008/0293872	A1	11/2008	Loth et al.
2011/0129647	A1*	6/2011	Duke, Jr. et al. .... C08G 18/02 428/156
2015/0140290	A1	5/2015	Johnson et al.
2015/0252231	A1	9/2015	Schulthess et al.
2016/0046846	A1	2/2016	Das et al.
2017/0002239	A1	1/2017	Janke et al.
2019/0127618	A1	5/2019	Kuramochi et al.

FOREIGN PATENT DOCUMENTS

EP	587942	*	3/1994	.....	C08G 18/38
EP	3315528		5/2019		
JP	2017222758	*	12/2017	.....	C09J 175/06
JP	2018016703		2/2018		

OTHER PUBLICATIONS

JP-2017222758\_12-2017\_English Translation.\*  
AsahiKasei, Polycarbonate DURANOL™ product literature, prior to Feb. 28, 2020, pp. 1-23 Asahi Kasei Corp., Tokyo, Japan.  
Takemoto Oil & Fat Co., Ltd, Flame Retardant product literature, prior to Feb. 28, 2020, pp. 1-11, Japan.

\* cited by examiner

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(57) **ABSTRACT**

A hot melt moisture cure adhesive composition that includes a polyurethane prepolymer that includes the reaction product of diisocyanate, a polyester triol first polyol, a crystalline polyester second polyol, and a third polyol different from the first and second polyols.

**20 Claims, No Drawings**