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(54) **METHOD FOR PRODUCING AGRICHEMICAL-CONTAINING RESIN COMPOSITION**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,897,121	A	7/1959	Wagner et al.	
2007/0224233	A1 *	9/2007	Maekawa et al.	424/409
2009/0093364	A1 *	4/2009	Endo et al.	504/100

FOREIGN PATENT DOCUMENTS

CN	1330695		1/2002
CN	1358433		7/2002
CN	1993044		7/2007
EP	1982590		10/2008
EP	2305029	A1	4/2011
JP	08-092007		4/1996
JP	11-269016		10/1999
JP	11-315004		11/1999
JP	2010/004730	A1	1/2010
WO	99/51091		10/1999
WO	2006/013972		2/2006
WO	2007/091494		8/2007

OTHER PUBLICATIONS

International Search Report issued for PCT/JP2009/006759, mailed on Feb. 2, 2010, 4 pages.

Office Action issued in corresponding CN Patent Application No. 200980149273.X dated Mar. 7, 2013 with English translation, 17 pages.

EP Communication with a Supplementary European Search Report issued in EP Appln. No. 09831715.9, dated Mar. 3, 2014, 7 pages.

"Multiple Regression With Two Predictor Variables", XP002720082, Aug. 13, 2007, pp. 423-464, retrieved from the Internet: URL: http://www.sagepub.com/upm-data/16828_Chapter_11.pdf [retrieved on Feb. 11, 2014].

* cited by examiner

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(57) **ABSTRACT**

Disclosed is a method which can readily design an agricultural chemical-containing resin composition having a desired release rate history and can produce the agricultural chemical-containing resin composition. Specifically disclosed is a method for producing an agricultural chemical-containing resin composition, including: respectively selecting an acetamiprid content Ac_{SA} and a hydrophilic white carbon content Ca_{SA} in the composition relative to the total mass of acetamiprid, a styrene-maleic anhydride copolymer or a styrene-maleic anhydride copolymer-mixed resin, and hydrophilic white carbon, so as to satisfy the inequations of: $0.524\times Ac_{SA}+1.422\times Ca_{SA}-6.009\leq 40\%$ by mass, 5% by mass$\leq Ac_{SA}\leq 35\%$ by mass, and $Ca_{SA}\geq 0.1\%$ by mass; and mixing the acetamiprid, the styrene-maleic anhydride copolymer or the styrene-maleic anhydride copolymer-mixed resin, and the hydrophilic white carbon, so that the thus selected contents Ac_{SA} and Ca_{SA} can be achieved.

9 Claims, No Drawings