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(54) Titre : COMPOSITIONS IGNIFUGES DE POLYMERE DE POLYVINYLARENE
(54) Title: FLAME RESISTANT POLYVINYLARENE POLYMER COMPOSITIONS

(57) Abrégé/Abstract:
Composition containing polyvinylarene polymer particles, which particles are bound to each other by a binder composition based on a silicate and an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured in accordance with gel permeation chromatography. The invention furthermore relates to a process for the preparation of such compositions, to the binder composition per se and to a kit of parts.

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(54) Title: FLAME RESISTANT POLYVINYLARENE POLYMER COMPOSITIONS

(57) Abstract

Composition containing polyvinylarene polymer particles, which particles are bound to each other by a binder composition based on a silicate and an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured in accordance with gel permeation chromatography. The invention furthermore relates to a process for the preparation of such compositions, to the binder composition per se and to a kit of parts.

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 711 431 A (VARGIU S ET AL) 16 January 1973 (1973-01-16) column 1, line 67 -column 2, line 23 example 1 -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

Interna l Application No
PCT/EP 00/01009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4425440 A	10-01-1984	GB 2105341 A	23-03-1983
US 4379857 A	12-04-1983	NONE	
GB 2117776 A	19-10-1983	NONE	
US 3711431 A	16-01-1973	CA 936648 A	06-11-1973
		CH 543460 A	14-12-1973
		DE 2163526 A	13-07-1972
		FR 2119633 A	04-08-1972
		GB 1333487 A	10-10-1973
		JP 50036853 B	28-11-1975
		NL 7117687 A,C	27-06-1972
		YU 321371 A,B	10-07-1979

C L A I M S

1. Composition containing polyvinylarene polymer particles, which particles are bound to each other by a binder composition based on a silicate and an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured in accordance with gel permeation chromatography.

2. Composition as claimed in claim 1, wherein the weight ratio of organic polymer having a weight molecular weight of at least 500,000 versus polyvinylarene polymer varies of from 1:5 to 1:20.

3. Composition as claimed in claim 1 or 2, wherein the organic polymer having a weight molecular weight of at least 500,000, is based on vinylacetate and a vinyl ester of one or more carboxylic acids in which the acid moiety contains 5 to 16 carbon atoms.

4. Composition as claimed in claim 3, wherein the vinylester is the vinyl ester of a saturated, monocarboxylic acid in which the carbon atom of the carboxylgroup is attached to a tertiary carbon atom having a methyl group as one of its side groups.

5. Composition as claimed in claims 1-4, wherein the silicate has the chemical formula $Na_2O.(x)SiO_2$, wherein x is in the range of from 0.5 to 5.0.

6. Process for the preparation of a composition as defined in any of claims 1-5, wherein polyvinylarene polymer particles are mixed with a silicate and an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured by gel permeation chromatography.

7. Process according to claim 6, wherein the polyvinylarene polymer particles are pre-expanded to lower densities and subsequently mixed with a silicate-containing liquid and a high molecular weight organic polymer latex.

8. Process according to claim 7, wherein the silicate-containing liquid and high molecular weight organic polymer latex are mixed with each other prior to being applied to the pre-expanded polyvinylarene polymer particles.

9. Binder composition based on a silicate and an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured in accordance with gel permeation chromatography.

10. Kit of parts containing

(a) polyvinylarene polymer particles;

(b) a silicate-containing liquid;

(c) a latex of an organic polymer having a weight average molecular weight of at least 500,000 g/mol, as measured in accordance with gel permeation chromatography.