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PREPARATION OF PIGMENTED COATINGS

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1 Claim. (Cl. 260—40)

The invention relates to improved pigmented coatings and to the method of preparing the same.

The conventional method for preparation of pigmented coatings consists in wetting and dispersing a pigment in an organic solvent solution of a film forming material, such as mixtures of drying oils and synthetic resins.

Among the objects of my invention are to obtain better wetting and dispersion of pigments, higher original gloss, superior gloss retention, better original color and better color retention, than is obtainable by conventional methods now in use. Another object is to shorten the time required for processing.

It is known that good gloss in coatings depends almost exclusively upon proper wetting and dispersion of pigments. This gloss is obtained by present methods by long grinding and mixing in pebble mills or by repeated passes through a roller mill or stone mill. The purpose of this long grinding time is to obtain satisfactory wetting and dispersion of the pigment agglomerates by mechanical means. The word "grinding" is used throughout the industries to designate wetting and dispersion of pigments in various vehicles and that word has been retained in this application to designate such and not to indicate a reduction of particle size of the pigments used. Pebble mills are considered to have advantages over roller mills and stone mills insofar as no volatile losses are incurred during the processing, but it usually requires long periods of processing in a pebble mill before satisfactory gloss is obtained. Hence, many in the industries have abandoned it in favor of the roller mill or stone mill.

My invention comprises pre-wetting and at least partially dispersing pigments in suitable organic solvents for the film forming agent to be subsequently added and then introducing film forming substances into said mixture and applying sufficient mechanical forces to complete the dispersion. The employment of my invention has decreased the "grinding" time of pigmented coatings from one-half to two-thirds the time normally used when processed by conventional method.

The process may be carried out without necessarily employing super atmospheric pressure, vacuum or increased temperature, though it will be understood that any of these factors may be present if desired, or if necessary in specific cases. The process may also be carried out without the loss of the volatiles used.

The invention will be more readily understood by reference to the following specific examples which are set forth by way of illustration and not by way of limitation:

Example I

	Parts by weight
Titanium dioxide	950
Zinc oxide	50
High solvency petroleum naphtha	270

The above was charged into a pebble mill and tumbled for 10–15 minutes and the following was added:

	Parts by weight
Vehicle (A)	450

The mill was then tumbled for 72 hours and the following added:

	Parts by weight
Vehicle (A)	1150
High solvency petroleum naphtha	302

The enamel prepared in this way was compared to one prepared by the following conventional method:

	Parts by weight
Titanium dioxide	950
Zinc oxide	50
High solvency petroleum naphtha	270
Vehicle (A)	450

The above was charged into the pebble mill in one operation and tumbled for 72 hours and the following was added:

	Parts by weight
Vehicle (A)	1150
High solvency petroleum naphtha	302

Baked films of the enamels prepared according to my invention had superior gloss and color when freshly prepared, and after aging for six months in the dark, the gloss and color were far superior.

Vehicle (A) used in the experiment is a glyc-

erol phthalate soya bean fatty acid modified resin, dissolved in equal parts by weight of xylol.

Example II

	Parts by weight
Titanium dioxide	1425
Zinc oxide	75
High solvency petroleum naphtha	420

The above was tumbled for 10–15 minutes in a pebble mill and the following was added:

	Parts by weight
Vehicle (A)	630

The above was tumbled for the hours shown in Table I, and the following was added at the end of the time shown in the table:

	Parts by weight
Vehicle (A)	1010
High solvency petroleum naphtha	350

The coatings prepared in the above manner were compared to coatings prepared as follows:

	Parts by weight
Titanium dioxide	1425
Zinc oxide	75
High solvency petroleum naphtha	420
Vehicle (A)	630

The above was tumbled for the hours shown in Table I, and the following was added at the end of the time shown in the table:

	Parts by weight
Vehicle (A)	1010
High solvency petroleum naphtha	350

Table I

Coating	Tumbled hours	Comparison of degree of gloss
Example II		
New way	24	Less.
	32	More.
	48	Do.
	56	Do.
	72	Do.
	80	Do.
	96	Do.
	104	Do.
	120	Do.
Example II		
Old way	24	Less.
	32	Do.
	48	Do.
	56	Do.
	72	Do.
	80	Do.
	96	Used as standard.
	104	Equal.
	120	Do.

It is to be noted that the pigments, solvents and vehicle were all from the same source. The films were applied in the same manner, and baked at the same schedule, the only difference being in the preparation of the coatings as described.

I claim:

A process for preparing a liquid coating composition which comprises pre-wetting and partially dispersing an initially dry pigment in a relatively minor quantity of a volatile petroleum hydrocarbon in the absence of any film-forming agent, then grinding the same with a vehicle comprising a fatty acid modified glycerol phthalate resin dissolved in xylol until dispersion is substantially complete, and subsequently adding an additional quantity of the vehicle together with a further quantity of the volatile petroleum hydrocarbon.

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