

ALIEN PROPERTY CUSTODIAN

PROCESS FOR THE MANUFACTURE OF COLOURS FOR PRINTING, PRODUCTS RESULTING THEREFROM AND THEIR INDUSTRIAL APPLICATIONS

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It is known that paints may be prepared by grinding emulsions of siccative glycerophthalic resins in water with pigments, but the colours thus obtained when they are used in the printing of textiles have the disadvantage of giving decorative effects of poor fastness to washing and rubbing.

The present invention relates to a process which allows new colours to be obtained for printing, not having these disadvantages; this process is characterised by the fact that a siccative glycerophthalic resin is ground with a pigment, if desired in the presence of solvents for the resin and that the pigmented enamel thus obtained is emulsified in water. While, according to the above-described known process, the pigment was ground with the emulsion, according to the present invention the grinding of the pigment is effected firstly with a solution of the siccative glycerophthalic resin and the preparation of the emulsion is effected subsequently; the pigment is thus perfectly surrounded by the resin thus giving decorative effects which are very fast to washing and rubbing.

The siccative glycerophthalic resins employed for carrying out the invention may be prepared according to any known process, they should contain at least the radicles of phthalic acid, glycerine and siccative fatty acid, but may likewise contain radicles of other polybasic acids, other polyalcohols, monoalcohols or monobasic acids other than the siccative fatty acids.

For example, it is possible to use mixed glyceromaleophthalic resins or glyco-glycerophthalic resins containing residues of soya fatty acids. The fatty acids or their mono, di, or triglycerides which may be used for the manufacture of these resins are in principle all those which in the paint, lacquer and varnish industries are known to act as dryers but preferably those will be employed which do not become yellow under the influence of air and light, such as the derivatives of soya oil or dehydrated castor oil.

The resins may be used alone or with one or several dryers, by which are meant the metallic dryers which are used in the varnish industry, as examples of which may be mentioned cobalt, lead and mangan dryers.

The pigments used may be of organic or inorganic nature. The solvent in the presence of which their grinding with the resin may be effected may be constituted by a single body or a mixture and will preferably be chosen from the light or medium solvents. It may be useful to add to the solvent a plasticiser or a small quantity

of heavy solvent so as to improve the properties of the resin or the conditions of evaporation of the solvent.

The emulsion in water of the pigmented enamel obtained as has been explained above, may be effected with one of the emulsifiers whose employment is known in the industry; as examples of such emulsifiers may be mentioned water-soluble cellulose derivatives, such as methyl cellulose, ethyl cellulose and hydroxyethyl cellulose, polyvinyl alcohol, partially saponified and water-soluble polyvinyl acetates, water soluble reaction products of ethylene oxide with organic substances insoluble in water and containing a reactive hydrogen atom, casein, salts of carboxylic and sulphonic acid or sulphuric esters of high molecular weight. To facilitate emulsion auxiliary products may be added such as water-soluble solvents, ammonia, volatile amines, triethanolamine.

The above described printing colours may be also obtained in form of concentrated pastes containing the resin, the pigments and the suitable emulsifying agent in water. These pastes may be warehoused in concentrated form, and transformed just before use in printing colours of the desired viscosity, by addition of suitable solvents for the emulsion, comprising an organic solvent on one hand and water on the other hand. It is understood that the addition of those suitable solvents to the emulsion renders possible the obtaining of printing pastes of any suitable viscosity. The viscosity can be thus adjusted on a very wide scale.

The colours thus obtained may be printed readily, have a viscosity which may be regulated according to the desires of the printer by suitable choice of the resin, solvent and emulsifier and of the proportions thereof. The printed fabrics are then dried at temperatures which may vary from ordinary temperature to 200° C. the drying being more rapidly effected the higher the temperature.

The decorative effects obtained are very fast to washing and rubbing and the printing cylinders may be easily cleaned after working by washing with hot water.

The following examples illustrate the invention:

Example 1

100 parts of siccative glycerophthalic resin with a basis of dehydrated castor oil are ground, after addition of xylene and driers if desired with 20 parts of the dye known in commerce under the

name "Lutetia Scarlet NRSF" so as to obtain a pigmented enamel of the constitution:

	Parts
Resin	100
Lutetia Scarlet NRSF	20
Xylene	200

On the other hand, 10 parts of methyl cellulose are dissolved in 390 parts of water containing one part of triethanolamine and then the pigmented enamel mentioned above is added in portions. There is thus obtained a printing-colour which may be printed easily and which, after drying for five minutes at 110°C. or at a higher temperature, has a good resistance to rubbing and to washing. The printing cylinders may easily be cleaned after working by washing with hot water.

Example 2

80 parts of siccative glycerophthalic resin with a basis of dehydrated castor oil are ground after addition of xylene and a dryer if desired, with 10 parts of the dye known in commerce under the name of "Fast Monastral Blue BS" in a cylinder grinder so as to obtain a pigmented enamel of the constitution:

	Parts
Resin	90
Fast Monastral Blue BS	10
Xylene	60

On the other hand, 10 parts of methyl cellulose are dissolved in 390 parts of water containing one part of triethanolamine and then in portions is added a solution of 10 parts of ethylcellulose in 140 parts of xylene, and the pigmented enamel is prepared in the conditions mentioned above. Thus there is obtained a printing colour which may be printed easily and which after drying for five minutes at a 110°C. or if desired at a higher temperature, shows a good resistance to rubbing and to washing. The printing cylinders may easily be cleaned after working by washing with hot water.

Example 3

60 parts of a glycerophthalic resin with a basis of dehydrated castor oil are ground, after addition of xylene and a dryer if desired with 10 parts of the dye known in commerce under the name "Fast Monastral Blue GS" in a cylinder

grinder so as to obtain a pigmented enamel having the constitution:

	Parts
Resin	60
Fast Monastral Blue GS	10
Xylene	60

On the other hand, 10 parts of methyl cellulose are dissolved in 390 parts of water containing 5 parts of triethanolamine and there is added in portions a solution of 40 parts of glycerophthalic resin which dries in the furnace with a basis of soya oil and the pigmented enamel prepared as described above. Thus there is obtained a colour which may be printed easily and which after drying for five minutes at 110°C. or a higher temperature has a good resistance to rubbing and washing. The cylinders may readily be cleaned after working by washing with hot water.

Example 4

A. 300 parts of a siccative glycerophthalic resin with a basis of dehydrated castor oil, and having a composition corresponding to 45% of glyptal and 55% of drying oil are diluted with 75 parts of xylene. The mass thus obtained is ground with 45 parts of the dye known in commerce under the name "Heliotrope brilliant Lamprolac NRL extra poudre" upon a roller mill until complete homogenisation has occurred (this being controlled upon a glassplate).

B. On the other hand, 45 parts of methylcellulose are dissolved in 405 parts of water, and 15 parts of triethanolamine are added.

The two parts A and B are coarsely mixed and passed through a finishing grinder. The paste thus obtained contains 44,8% of dry residue.

For the use this paste is diluted first with 60% of its weight with xylene (containing if desired a cobalt dryer in the proportion of a volume of 2% cobalt dryer for 100 parts of the final printing colour), and then with 85% in weight of water under stirring.

The printing colour finally obtained and ready for use contains 18,3% dry residue. This printing colour may be easily printed and shows after drying for a few minutes at 110° C. or if desired at a higher temperature a good resistance to rubbing and to washing. The printing cylinder may be easily cleaned with hot water.

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