

ALIEN PROPERTY CUSTODIAN

PROCESS FOR THE PRODUCTION OF CHROMIUM CONTAINING COLORING AGENTS FOR GLAZES, ENAMELS AND THE LIKE

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No Drawing. Application filed December 3, 1940

This invention relates to a method for preparing chromium containing pigments. More specifically, it relates to pigments containing soluble chromium compounds and other substances which by double conversion are able to form insoluble or lowly soluble chromium compounds. As additional substances I mean particularly carbonates, phosphates, sulfates, oxalates and other salts of the metals calcium, barium, zinc, lead, copper, silver.

In the hitherto known processes chromium compounds, for instance, chromium oxide, potassium bichromate, chromite and the like as well as other compounds, for instance, iron oxide, zinc oxide, silica, feldspar, calcium fluoride were used for the preparation of ceramic coloring agents for enamels, glazes, underglazes or the like. Now it was observed that the thus prepared colors contained substances which, when washed and dissolved were capable to exert a more or less harmful influence on the human skin. Furthermore, these coloring pigments have sometimes the disadvantage that the soluble constituents of the pigments tend to effluence on the base material whereby the formation of clear outlines after firing will be prevented.

These disadvantages are due to the fact that the chromium containing coloring agents, prepared according to the hitherto known processes generally contain small quantities of soluble chromium compounds, for instance, sodium chromate.

My invention has for an object the preparation of improved coloring agents in which the soluble chromium compounds are converted into insoluble or lowly soluble chromium compounds. Preferably, the insoluble or lowly soluble chromium compounds are produced by double conversion through addition of suitable substances, thereby resulting in, for example, insoluble chromates. Such suitable substances are, for instance, carbonates, phosphates, sulfates, oxalates and other salts of the metals calcium, barium, zinc, lead, copper, silver and the like.

In general, small quantities of the above mentioned metal salts, for instance, about 0.01 to 5%,

preferably about 0.1 to 1%, will be sufficient. In special cases the quantities may be increased.

The additional substances may be given to the mill. They may be added to calcined or uncalcined coloring agents or mixtures therefrom. If desired, the additional substances may also be added to the glazes or enamels before or during their mixing with the pigments or pigment mixtures.

The coloring agents according to my invention are entirely harmless for the human skin. In applying these coloring agents or their mixtures, for example, in the form of suspensions on the base material perfectly clear outlines and borders will be obtained after the firing process.

Examples

	Per cent
(1) To a mixture of—	
Fe ₂ O ₃ -----	20
Cr ₂ O ₃ -----	19
ZnO-----	49

after calcination at 1280° C., 0.5% of barium carbonate are added to the mill. A coloring agent is obtained which is entirely free from soluble chromates.

	Per cent
(2) To a mixture of—	
K ₂ Cr ₂ O ₇ -----	37,6
SiO ₂ -----	20,8
Feldspar-----	20,8
CaF ₂ -----	20,8

after calcinating at 950° C., 0.7% of lead carbonate is added. The mixture results in a Victoria Green which after washing gives perfectly clear aqueous wastes free from chromate.

	Per cent
(3) To a mixture of—	
Porcelain mass-----	75
Chrom iron ore-----	25

1% of calcium sulfate is added. This mixture may be used without calcination and contains no soluble alkali chromate.

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