

chromate of potassa is a very pale yellow, but gives orange chrome paints, and the acid bichromate of potassa is reddish orange, and gives very pale yellow chrome paints.

The practical way of making orange chrome economically is to take a basic solution of sugar of lead, and add to it a solution of neutral yellow chromate of potassa as long as a precipitate is formed. This precipitate becomes darker after settling, and more of an orange color in proportion as the lead solution was more basic. If a decided shade is required, it is better to precipitate with red bichromate of potassa, and then add alkali enough to bring the color to the desired tone. Basic chloride of lead, as obtained by mixing pulverized litharge with common salt, is very well adapted for this chrome-orange. When this compound is digested with an acid or with basic chromate of potassa, in every case a dark chrome-orange is formed.

Every one of the chrome-yellow and chrome-orange paints found in the trade is very much adulterated with white paint, of which they can bear an almost incredibly large amount without showing it in their appearance. These adulterations are plaster of Paris and heavy spar, in view of the fact that they are very cheap, while, at the same time, more expensive adulterations give no better results. Such adulterated chrome yellows and oranges receive at the hands of manufacturers a variety of names, such, for instance as new chrome-yellow, new yellow, Paris yellow, and the like. These are all adulterated paints, in which the amount of pure chromate of lead is often less than ten per cent of the whole amount, but which, notwithstanding this, have body, and cover very well. Of these, the light yellow varieties make, mixed with blue, very beautiful green paints. They differ, moreover, in proportion to the nature of the adulteration. Plaster gives a lighter paint than heavy spar, but is not so well adapted to work with oil.

In case of these paints it is more important than in any other, to determine the quantity of pure chromate of lead, since this is tolerably expensive, and gives the paint its value. The general appearance gives no clue thereto. There are two methods of determining the amount of chromate of lead: first, by testing the so-called body of the paint, or its covering qualities; and, secondly, by means of chemical methods. The last method is too circumstantial, and takes too much time for it to be expected that any one but a chemist would undertake it. The first method, namely, the testing of the covering quality, will be explained in a future number, and may be of service to the reader, as it involves only a practical course of procedure.

Chrome-Orange.

CHROME-ORANGE is the easiest of all the preparations that may be obtained from chromium and lead. It can be made of chrome-yellow by treating the latter, before drying, with caustic potassa or soda, or even with quicklime. The alkali takes away a part of the chromic acid from the oxide of lead, and leaves a reddish sub-chromate of lead, of which there is more formed in proportion as there is more of the alkali used.

If it is desired to make the chrome-orange direct from the lead solution, all that need be observed is, to have the solution more alkaline in proportion as a darker or more reddish orange color is desired. Instead of making the lead solution alkaline, that of the bichromate of potassa may be so made by means of an addition of caustic potassa, when it becomes pale yellow. It is a remarkable fact that the alkaline