

Preparation of Paint Pigment

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Abstract: *Paint pigments find important applications in industries including art, building, and manufacturing. They are the cause of color in paints, coatings, and other materials. The project has revolved around the synthesis of various paint pigments through basic chemical reactions. In this research, four major pigments, Prussian Blue, Chrome Yellow, White, and Malachite, have been synthesized and examined using available chemical reagents.*

The process is through precipitation reactions, where insoluble pigment compounds are created through controlled chemical mixing. Prussian Blue is prepared from ferric chloride and potassium ferrocyanide to give a deep blue pigment. Chrome Yellow is prepared by reacting potassium chromate with lead nitrate to give a bright yellow color. The White pigment is synthesized from sodium chloride and lead nitrate, whereas Malachite, a green pigment, is produced by the reaction between copper sulfate and sodium carbonate. Each pigment is filtered, dried, and tested for its yield and efficiency.

This study brings to light the chemistry involved in pigment development, such as precipitation, solubility, and theory of color. It also offers an understanding of industrial pigment manufacturing and its effects on the environment. With industries moving towards green and non-toxic pigments, this study opens the door for investigating safer and greener options.

From this project, we develop a greater appreciation for organic and inorganic pigment chemistry, setting the stage for new developments in modern coatings and dyes.

Keywords: Paint pigments, Prussian Blue, Chrome Yellow, White, Malachite, pigment chemistry

