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Abstract

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TITANIUM DIOXIDE PIGMENT

Titanium dioxide pigment can be produced by either a sulfate or a chloride process. The sulfate process is older, is better developed, and conventionally has used a low cost raw material, ilmenite. It does, however, require more labor and capital and it produces large volumes of waste sulfuric acid. The chloride process uses a sophisticated technology with lower labor and capital requirements and a lower volume of chloride wastes but with a more expensive, rutile or upgraded ilmenite feed.

In the industrial countries, where waste disposal is becoming increasingly difficult, the chloride process appears economically preferable for a new plant. Choosing the raw material--rutile, titaniferous slag, or enriched ilmenite--is a matter of balancing its price against the resultant operating and waste disposal costs.

In some countries with low labor costs and little or no pollution control, the sulfate process may still be preferred for new plant construction. Here again, the choice of raw material--ilmenite or titaniferous slag--depends on attaining an economic balance between the material costs and the operating and waste disposal costs. Barring extremely difficult sulfuric acid disposal problems, an existing sulfate plant is economically preferable to a new chloride plant.

Regeneration of chlorine from chloride wastes is not practical for the present size of individual chloride plants. Recovery or reuse of waste sulfuric acid is also not practical without the availability of waste or low cost ammonia.

Report No. 117

TITANIUM DIOXIDE PIGMENT

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For detailed marketing data and information, the reader is referred to one of the SRI programs specializing in marketing research. The CHEMICAL ECONOMICS HANDBOOK Program covers most major chemicals and chemical products produced in the United States and the WORLD HYDROCARBONS Program covers major hydrocarbons and their derivatives on a worldwide basis. In addition, the SRI DIRECTORY OF CHEMICAL PRODUCERS services provide detailed lists of chemical producers by company, product, and plant for the United States and Western Europe.

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