

CLAYS.

Clay, in nearly all cases, consists principally of silicate of alumina, and contains water and many lesser constituents, such as iron oxide, lime, magnesia, and alkalis in greatly varying percentages. It often contains sandy matter made up of quartz, feldspar, and other minerals.

In general, clay is a plastic material, the result of weathering or breaking down of rocks. The clay particles exist in a finely divided state, making it, when wet, unctuous to the touch.

The uses to which clay may be put depend upon its physical properties, such as its plasticity, the effect of drying, its behaviour at various temperatures, tensile strength, and its colour, both raw and after firing.

Regarding the testing of clays, Dr. Merrill¹ says: "The most complete test of a clay now known would be obtained by use of analysis, coupled with a fire test made especially to develop such points as the analysis indicates to be weak ones. Fire tests are of two kinds—one consists in subjecting the clay to absolute heat without the action of any accompaniments, and the other in putting the clay through the course of treatment for which it is designed to be used. The former develops the absolute quality of the clay as good or bad, the latter proves or disproves the fitness of the clay for the work. The latter is better, of course, as a business test wherever it is practicable to use it."

Clays and their uses.

Very complete data on the requirements as to composition and physical properties of clays for special purposes may be found in "Clays: Their Occurrence, Properties and Uses" by Professor Heinrich Ries.² The description in detail of the various clays of commerce would require more space than is available for the subject, and is outside the intended scope of this report.

¹ Page 236, "The Non-Metallic Minerals, Their Occurrence and Uses," by George P. Merrill, John Wiley and Sons, New York.

² Published by John Wiley and Sons, New York.