

**THE TESTING AND VALUATION
OF RAW MATERIALS USED IN
PAINT AND COLOUR
MANUFACTURE**

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The Testing and Valuation of Raw Materials Used in Paint and Colour Manufacture by M. W. Jones

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The Testing and Valuation of Raw Materials

USED IN

Paint and Colour Manufacture

*• Testing Paint and Colour
Materials •*

BY

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GENERAL

PREFACE.

THIS little text-book is intended merely to supplement the larger and more comprehensive works upon the subject. The demands made upon the laboratory of a large Colour Works are frequently heavy, and the operator is compelled to resort to analytical processes, which, whilst yielding results of fair comparative accuracy, do not take up the time occupied by others that carry the same to its extreme limits, and which may be more interesting from a purely scientific point of view.

The various processes given have been selected from numbers of others, after many years of experience, and it is hoped that the arrangement under separate headings, of the principal ingredients and impurities found in the various Raw Materials, will render this small work handy for reference, when it is desired to ascertain what is valuable or detrimental in the sample under examination.

M. W. J.

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THE
TESTING AND VALUATION OF RAW MATERIALS
USED IN
PAINT AND COLOUR MANUFACTURE.

THIS important branch of work embraces the most tedious, but at the same time most valuable results which the chemist is called upon to produce; and as he has frequently to decide with rapidity and accuracy upon the respective merits of several samples tendered by competing firms, the following analytical processes are offered as a guide. By means of them the manipulator is enabled to produce the maximum of accuracy in minimum time, two essentials always to be considered in a busy laboratory, and which are not always attained by following the more classical processes given in some of the standard manuals.

Under the somewhat comprehensive heading of Raw Materials are placed the numerous articles which enter into the composition of paints and colours; but as the organic colouring matters form practically a class by themselves, and are usually tested comparatively, they will not be considered in this article; for although they can be fairly classified under the heading of Manufactured Chemicals, their numbers

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are so great that it is proposed to deal exclusively with inorganic colouring matters and chemicals. Consequently it will be set forth how the more important ingredients of these substances can be detected and estimated, and how the value of the sample under examination may be judged from the results so obtained.

It must of course follow that no unskilled observer can hope to produce reliable results even by close attention to the manipulations described. A certain familiarity with chemical analysis and methods is absolutely necessary, and these processes are offered in the hope that they will be found superior to many now in constant use.

ALUMINIUM COMPOUNDS.

Under this heading the most important substances that fall under our consideration are: aluminium sulphate or cake alum, the chemical composition of which is represented by the formula $\text{Al}_2(\text{SO}_4)_3 + 18 \text{H}_2\text{O}$; the alums, which are double salts formed by combinations between aluminium sulphate and alkaline sulphates, and which are: aluminium potassium sulphate or potash alum, $\text{Al}_2(\text{SO}_4)_3 + \text{K}_2\text{SO}_4 + 24 \text{H}_2\text{O}$; and aluminium ammonium sulphate or ammonia alum, $\text{Al}_2(\text{SO}_4)_3 + (\text{NH}_4)_2 \text{SO}_4 + 24 \text{H}_2\text{O}$. The value of these articles depends upon the amount of alumina (Al_2O_3) which they contain, and as a general rule a pure sample of aluminium sulphate is the most economical, as it should yield 15 per cent. of alumina, whereas potash alum yields only 10·8 per cent., and ammonia alum 11·9 per cent. But, on the other hand, the alums are generally preferred, as they come upon the market with a regular composition and of almost theoretical purity, and are consequently free from traces of iron salts and free acid, two defects from which aluminium sulphate has suffered in the past, but which have now been largely overcome by many manufacturers, although it is a rare occurrence to find a sample of cake alum which does not contain an appreciable quantity of iron salts. The chief inducement, however, for the use of aluminium sulphate instead of either of the alums, is the lower price at which it can be purchased, which usually shows an advantage to the user of from thirty-five to forty shillings per ton.