



Whitepaper

Sampling Procedures for Bulk Solids

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Judging the state of bulk materials from observations, necessitates the use of statistical sampling procedures. In this paper we employ a certain stochastic model to determine the portion of material which must be included in a sample. A numerical example is calculated in detail.

1. Introduction

The content of a particular characteristic in raw material, e. g., the content of metal in iron ore, the content of sulphur in lime, or the content of ashes in coal, cannot be assumed to be constant but exhibits naturally some kind of variability. Therefore the amount of the characteristic of interest (with respect to a fixed unit of measurement) is usually interpreted as a random variable, which can be characterized sufficiently precisely for practical purposes by its expected value μ and variance s^2 .

These, usually unknown values must be estimated by observations. In the case of bulk solids one sees that only a very small proportion of the material can be examined with respect to the characteristic. Therefore it is inevitable to employ sampling procedures to conclude the state of all of the material from the observations.