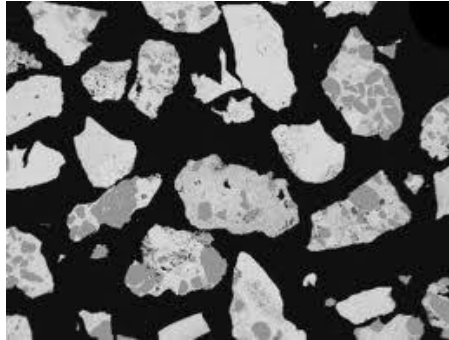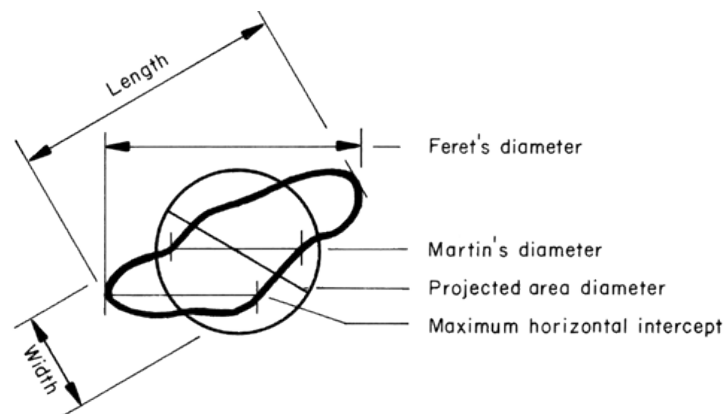# IMAGE ANALYSIS

1. Introduction

With the increasing demand for minerals, the development of efficient techniques for mineral recovery becomes more important. Therefore, having knowledge of mineral structure and characteristics will provide benefits in both mining and mineralogy areas. In addition, these features are also important in design of ore processing plant, processing of industrial minerals and determining the origin of rocks. Today, image analysis method produces successful results for all of these necessities.

Simply, image analysis method based on measurements and 2D observations on photos of sections taken from rock samples or minerals. The size distribution obtained from an unbroken rock is used for estimating the mineralogical composition (by that way, liberation size) of potential units after breaking randomly. With this knowledge, the possible cost of liberation process can be easily estimated. Furthermore, the natural size distribution of minerals can only be obtained by image analysis.

1.1 Particle Size definitions in Image Analysis

Image analysis method can be used to define regular geometric particles (diameter for spherical shapes, edge length for prismatic shapes). However, most of the particles have irregular shapes in nature. For this reason, the definition of particles is determined by the concept of nominal diameter. Accordingly, any irregular shaped particle can be defined in many size definitions through size and physical properties. Basically, three types of size groups are present; these are; equivalent sphere diameters, equivalent circle diameter and statistical diameters (Feret).

2. The aim of this study

Measurement of area and statistical diameters (feret) of particles with various sizes by using microscope

3. Method

Image Analysis is carried out by Leica Image Analysis Equipment. For processing the images, QWin software is used. The statistical diameters (feret) and areas of sections of these images are determined by using this software.
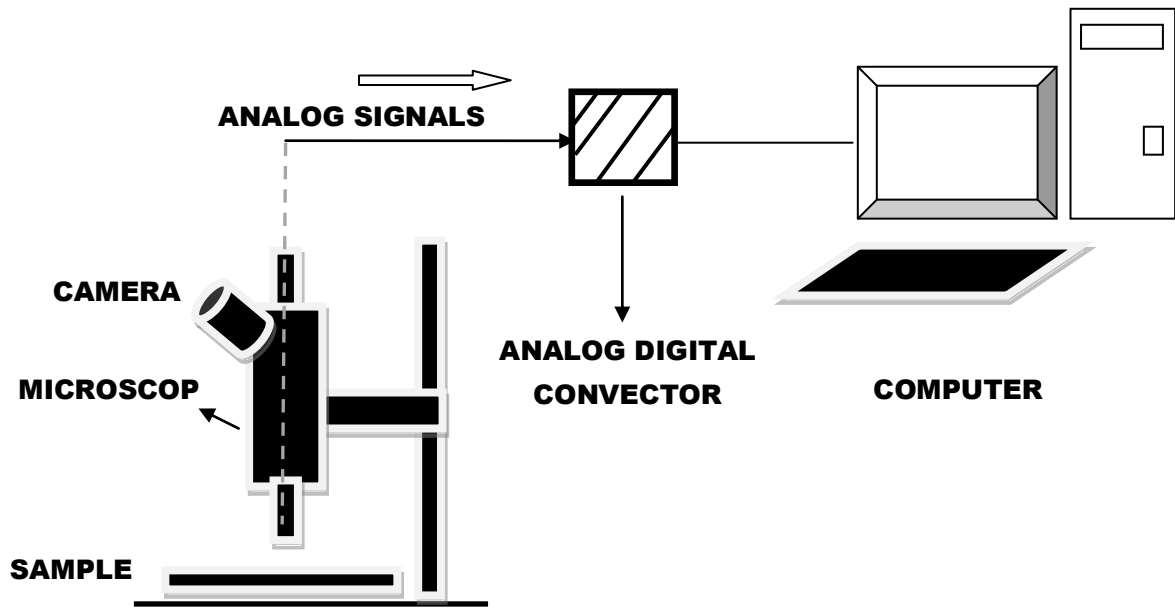

Figure 1. The schematic presentation of Image Analysis

4. Questions for Further Investigation

1. Give detailed information about image analysis.
2. Explain the main reasons for image analysis.
3. Calculate the arithmetic average of values obtained from experimental studies.
4. Make comments on Feret diameters at different angles.