The properties of fresh and hardened concrete depend on the shape of the aggregates as well as other characteristics. The shape of three dimensional bodies is difficult to describe, it can be simplified by describing certain geometric characteristics such as the flakiness and elongation index. These are defined as follows;

Flakiness Index is the percentage by weight of particles in it, whose least dimension (thickness) is less than three-fifths of its mean dimension. The test is not applicable to particles smaller than 6.3 mm in size.

Elongation Index is the percentage by weight of particles in it, whose largest dimension (length) is greater than one and four-fifths times its mean dimension. The test is not applicable to particles smaller than 6.3 mm in size.

Procedure for using Gauge for Flakiness Index

A balance of suitable capacity, gauge for Flakiness Index and a set of Sieves of relevant sizes as per the specified Standard will be required.

Sample size will be such that at least 200 pieces of any fraction to be tested will become available. The aggregates will be dried to a constant weight in an oven at a temperature of 110º ± 5ºC and weighed to the nearest 0.1g. The aggregates will then be sieved through the set of prescribed sieves.

Each fraction is then gauged for thickness through the slots of the gauge. All the pieces passing through the gauge are collected and weighed to an accuracy of 0.1 percent of the weight of the sample.

The Flakiness Index is the total weight of the material passing various gauges and sieves expressed as a percentage of the total weight of the sample gauged.

Elongation Index

Similar procedure is used for the determination of Elongation Index. Sample is first dried and then sieved through the set of Standard Sieves. Each fraction is then gauged through the slots of the Elongation Gauge. The Elongation Index is the total weight of the material retained on the various length gauges expressed as a percentage of the total weight of the sample gauged.

I hope this helps.