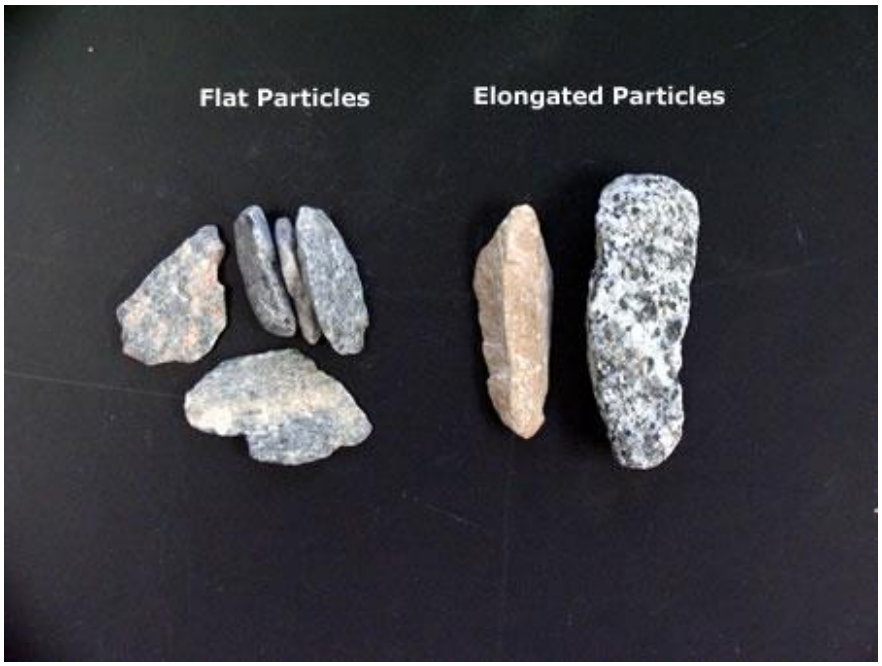
EXPERIMENT NO: 05

DETERMINATION OF ELONGATION INDEX

(BS: 812: 1975 (PART 1, 2, 3))





5.1 GENERAL

This method is based on the classification of aggregate particles as elongated when they have a length (greatest dimension) of more than 1.8 of their nominal size, this size being taken as the mean of the limiting sieve apertures used for determining the size fraction in which the particle occurs.

The elongation index of an aggregate sample is found by separating the elongated particles and expressing their mass as a percentage, of the mass of the sample tested. The test is not applicable to material passing a 6.30 mm BS test sieve or retained on a 50 mm BS test sieve.

5.2 APPARATUS

The following apparatus is required.

5.2.1 A metal length gauge of the pattern shown in figure 5.1. The gauge lengths shall be those specified in the length gauge column of table 5.1.

5.2.2 BS test sieves as shown in Table 5.1 as appropriate (see also 7.1.3.1 of BS Part 1:1975).

5.2.3 A balance accurate to 0.5% of the mass of the test sample.

5.3 SAMPLE FOR TEST

The sample for this test shall be taken in accordance with clause 5 of this Part of this standard. It shall comply with the appropriate minimum mass given in Table 5 of BS 812 Part 1:1975, for sieve analysis, with due allowance for later rejection of particles retained on a 50.0 mm BS test sieve and passing a 6.30 mm BS test sieve. The sample shall be taken from the laboratory sample by quartering or by means of a sample divider as described in 5.2.4 of BS 812 Part 1:1975. Before testing it shall be brought to a dry condition in accordance with 7.1.4 of BS 812 Part 1:1975.

Table 5.1 Dimensions of length gauges

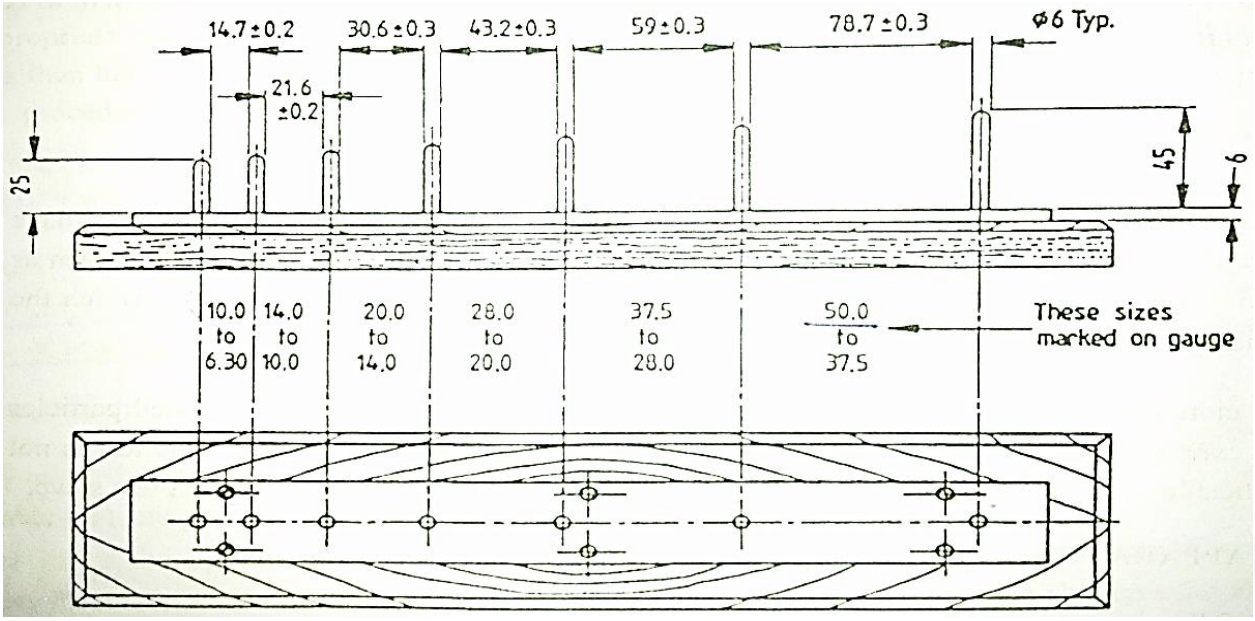
Aggregate size fraction BS test sieve nominal aperture size		Length gauge Gap between pins (Average x 1.8)	Minimum mass for subdivision
100% passing	100% retained		
mm	mm	mm	Kg
63.0	50.0	-	50
50.0	37.5	78.0 ± 0.3	35
37.5	28.0	59.0 ± 0.3	15
28.0	20.0	43.2 ± 0.3	5
20.0	14.0	30.6 ± 0.3	2
14.0	10.0	21.6 ± 0.2	1
10.0	6.30	14.7 ± 0.2	0.5

5.4 PROCEDURE

Carry out a sieve analysis in accordance with BS 812: section 105.2using the sieves shown in Table 5.1.

Discard all aggregate retained on the 50.0 mm BS test sieve and all aggregate passing the 6.30 mm BS test sieve.

Weigh and store each of the individual size-fractions retained on the other sieves in separate trays with their size marked on the tray.



Dimensions are in mm
(Tolerances are given on essential dimensions as shown)

Figure 5.1 Metal length gauge

NOTE: Where the mass of any size fraction is considered to be excessive, i.e. more than the appropriate mass given in Table 5.1, the fraction may be subdivided by the methods described in 5.2.4 of BS 812 Part 1:1975 provided that the mass of the subdivided fraction is not less than half the appropriate mass given in Table 5.1. Under such circumstances the rest of the procedure should be suitably modified and the appropriate correction factor applied to determine the mass of elongated particles that would have been obtained had the whole of the original size-fraction been gauged.

From the sum of the masses of the fractions in the trays (M_1), calculate the individual percentages retained on each of the various sieves. Discard any fraction whose mass is 5% or less of mass M_1. Record the mass remaining (M_2).

Select the length gauge appropriate to the size-fraction under test (see Table 5.1) and gauge each particle separately by hand. Elongated particles are those whose greatest dimension prevents them from passing through the gauge. Combine and weigh all elongated particles (M_3).

5.5CALCULATIONS AND REPORTING

Elongation index = M_3/M_2 X 100

The elongation index shall be reported to the nearest whole number. The sieve analysis obtained in this test shall also be reported.

Experiment No: 05
Determination of the Elongation Index

Name : **Student No**:

Type of material : Brick Chips/ Stone Chips/ Gravels/ Boulder/ Rock
Test Method : Bs 812 (part 1) Clause 7.3 & 7.4

Sieve size (mm)	Gauge size used, (mm)	Wt. of the material retained (gm)	Percent of the material retained	Check if greater than 5% (ok/ not ok)	Elongated Particles (amount retained) gm
50.0	-	x	x		
37.5	78.0				
28.0	59.0				
20.0	43.2				
14.0	30.6				
10.0	21.6				
6.3	14.7				
		M_1 =	M_2 =		M_3 =

Calculation:

Elongation index (E.I) = M_3/M_2 X 100% = % (to the nearest whole number)

Signature of the Course Teacher