Engineering Information

Fineness Modulus

FINENESS MODULUS

The Fineness Modulus of an aggregate is obtained by adding the Percentage by weight of material retained on a range of nine selected sieves and dividing the result by 100, as illustrated in the Table below.

	Sieve		Total percentage retained by Weight	
Serial	B.S. Sieve No.	Tyler, Sieve No.	Sand	Coarse Aggregate
1	100	100	100	100
2	52	48	80	100
3	25	28	60	100
4	14	14	40	100
5	7	8	20	100
6	3/16"	4	0	100
7	3/8"	3/8"	0	80
8	3/4"	3/4"	0	50
9	1 1/2"	1 1/2"	0	0

$$\text{Fineness Modulus} = \frac{\text{Sum of percentages}}{100} = \frac{300}{100} = 3{,}0 \qquad \frac{730}{104} = 7.3$$

The Practical limits of the Fineness Modulus for the aggregate are for fine aggregates from 2 to 3-5 : for coarse aggregates from 5-5 to 8; and for mixed aggregates from 4 to 7.

The maximum permissible values of fineness modulus of combined aggregates for mixes of various proportions are given in the Table below :-

Cubic feet of combined aggregate to one cwt. Cement	Fineness Modulus	
	Maximum size of aggregate 3/4"	Maximum size of aggregate 1 1/2"
4.0	5.1	5.8
5.0	4.9	5.6
6.0	4 8	5.5
7.0	4.7	5.4
8.0	4.6	5.3
9.0	4.5	5.2

If P = Percentage of fine material by weight in the combined aggregate.

A = The Fineness Modulus of coarse aggregate.

B = The maximum Permissible F.M. for the combined aggregate from Table above.

C = The Fineness Modulus of fine aggregate.

$$\text{Then } P = \frac{(A-B)}{(A-C)}$$