



Figure 9: Relation between Flexural Strength and %age of fibres

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5. Conclusions

- 1) The use of basalt chopped fibers advantageously improves the compressive as well as flexural strength irrespective of affecting the workability of concrete mixes.
- 2) The inclusion of basalt fibres does not affect the slump value significantly. The slump value ranges between 95 to 110 mm respectively.
- 3) The increase in the content of percentage of fibres increases the compressive strength marginally. Addition of 1% basalt fibres increases the strength to 46% for 7 & 28 days. Similarly for every increase in fibre content the strength shows an increasing trend.
- 4) The flexural strength also shows similar variation compared to compressive strength of concrete. The graph shows an increasing trend in strength as the content of basalt fibres increases in the concrete mix. Maximum increase in flexural strength is also reported at 1%. 64 % increase is obtained at the age of 28 days.
- 5) An empirical equation has been formulated for calculating 28 days compressive and flexural strength which is as follows:

$$\sigma_{ck} = 28.764P + 31.44 \quad (ii)$$

$$f_{ckt} = 6.672P + 3.988 \quad (iii)$$

where σ_{ck} = 28 Days compressive strength in Mpa.

f_{ckt} = 28 Days flexural strength in Mpa.

P = Percentage of basalt fibres

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