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EXPERIMENTAL STUDY AND PERFORMANCE OF STRENGTH PROPERTIES OF CALCINED KAOLIN AND SILICA FUME PARENTAGE ADDITION

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ABSTRACT

The article is presenting the various type of strength like as compressive and tensile strength during the time of 7 and 28 days. The specimen ore making as 15cm X 15cm X 15cm size for the testing purpose which is depending on the aggregate size. The results are show that strength performances of concrete with durability aspect are improved using Silica fume parentage addition.

1. INTRODUCTION

We are study about the property of test specimen which are having size of 15cm X 15cm X 15cm. The property of composition is generally used such as compressive strength and tensile strength. We are tested Mix (M1, M2, M3, M4, M5, M6, M7 and M8) to observe the suitable mix for construction propose, which is making with the help of Calcined Kaolin, Sand, Aggregate and composition.

2. COMPRESSIVE STRENGTH FORMULA

Compressive Strength = Load / Cross-sectional Area

3. PROCEDURE

First of all, we are constructed the cube with size of 15cm X 15cm X 15cm for testing propose and observing using concrete is completely poured and mould with temperature for the propose of removing the voids after one day cubical mould are removed and the specimen are placed in water tank for the propose of curing. All specimens after time of 7 and 28 days curing, we are tested with testing machine. The load id applied on the specimen 200 Kg/ cm^2 per minutes gradually upto fails.

4. PREPARATIONS

Figure 1: First Specimen

Figure 2: Second Specimen

Figure 3: Third Specimen

Figure 4: Fourth Specimen

Figure 5: Fifth Specimen

Figure 6: Sixth Specimen

Figure 7: Seventh Specimen

Figure 8: Eight Specimen

Figure 9: First to Eight Specimens

5. RESULTS AND DISCUSSION

Table 1: Properties of Cement

Sr. No.	Property	Magnitudes
1	Normal Consistency	40%
2	Initial Setting time	60 minutes
3	Specific Gravity	3.15
4	Fineness of cement	5%

Table 2: Properties of Fine Aggregate

Sr. No.	Property	Magnitudes
1	Specific Gravity	2.66
2	Fineness modulus	2.56

Table 3: Properties of Silica Fume

Sr. No.	Property	Magnitudes
1	Specific Gravity	2.2
2	Bulk Density	576, (Kg/m^3)
3	Size, (Micron)	0.1
4	Surface Area, (m^2/kg)	20,000
5	Si02	90%-96%
6	Al2O3	0.5% -0.8%

Table 4: Mix

Sr. No.	Material	Quantity in Kg/m^3
1	Cement (OPC)	520
2	Fine Aggregate	460.722
3	Coarse Aggregate	1421.699
4	Water	190.6

Table 5: Results of Compressive Strength during 7 days

Mix	% of Silica Silica Fume added	Compressive Strength (Kg/ cm^2)
M1	0	28.22
M2	5	32.66
M3	10	34.85

M4	15	36.58
M5	20	38.55
M6	25	41.66
M7	30	43.82
M8	35	42.91

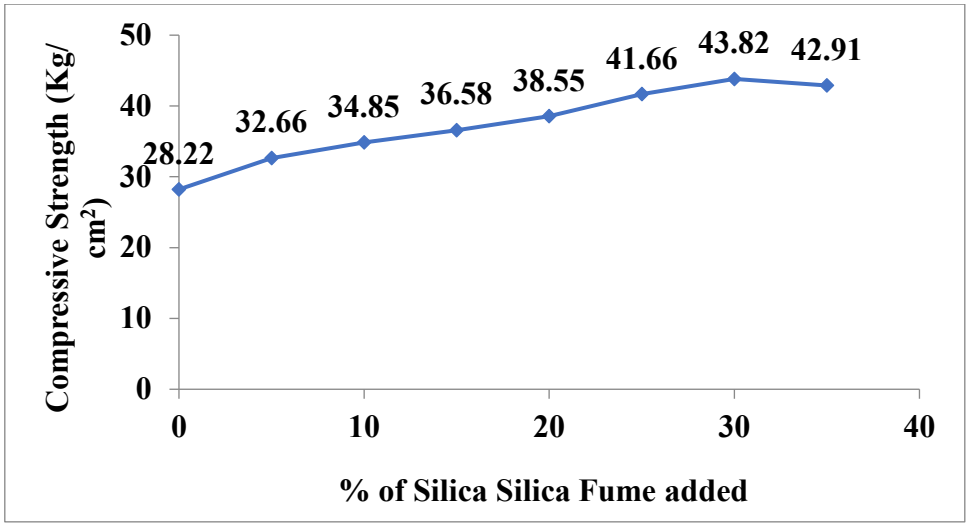

Figure 10: Results of Compressive Strength during 7 days

Table 6: Results of Compressive Strength during 28 days

Mix	% of Silica Silica Fume added	Compressive Strength (Kg/ cm²)
M1	0	29.55
M2	5	33.94
M3	10	35.88
M4	15	40.95
M5	20	44.98
M6	25	48.99
M7	30	50.22
M8	35	49.68

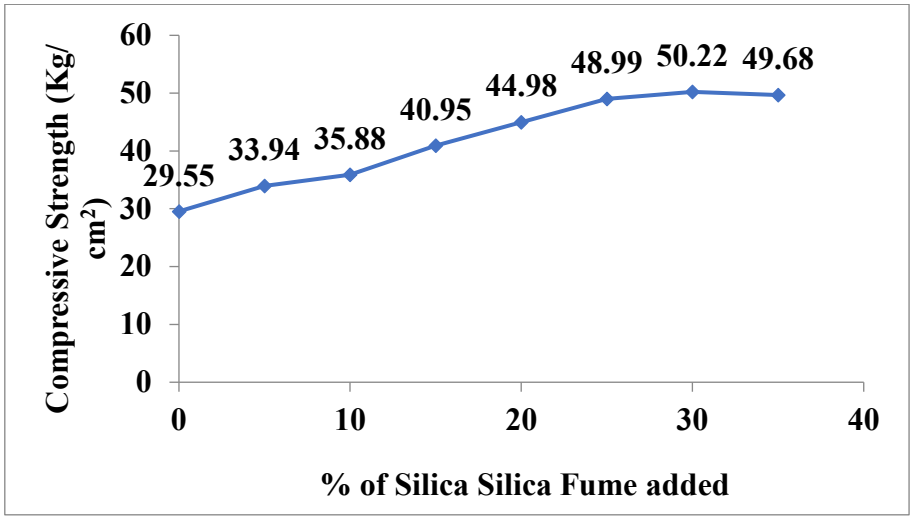

Figure 11: Results of Compressive Strength during 28 days

Table 7: Results of Split tensile Strength during 7 days

Mix	% of Silica Silica Fume added	Split tensile Strength (Kg/ cm2)
M1	0	4.22
M2	5	5.84
M3	10	6.21
M4	15	7.81
M5	20	8.94
M6	25	9.63
M7	30	10.21
M8	35	9.86

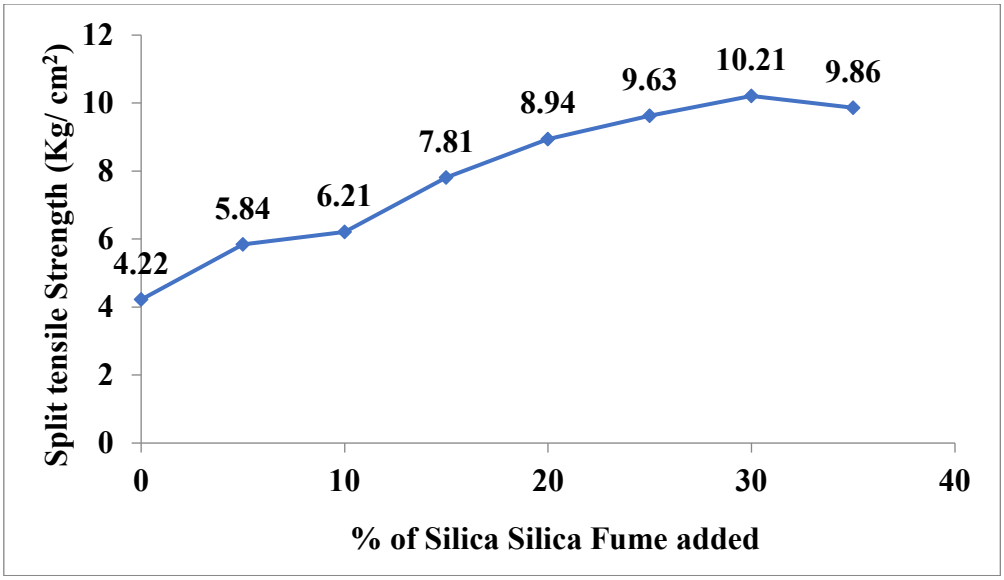

Figure 12: Results of Split tensile Strength during 7 days

Table 8: Results of Split tensile Strength during 28 days

Mix	% of Silica Silica Fume added	Split tensile Strength (Kg/ cm^2)
M1	0	5.98
M2	5	6.88
M3	10	7.84
M4	15	8.94
M5	20	9.41
M6	25	10.64
M7	30	12.66
M8	35	11.56

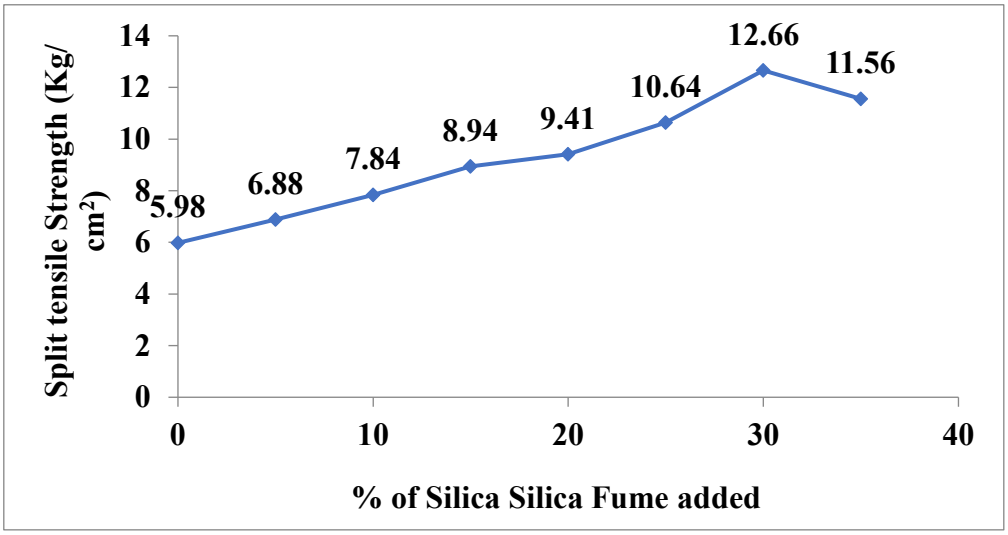

Figure 13: Results of Split tensile Strength during 28 days

6. CONCLUSIONS

We are tested the specimen size of 15cm X 15cm X 15cm to observe the compressive strength (Kg/ cm^2) and split tensile strength (Kg/ cm^2). The various results are achieved with the help of % of silica fume addition. These specimens are tested using compression testing machine after 7 days curing, after this optimum result are finding out using Mix (M7) which is shown Table 5, and Figure 10. Using of compression testing machine after 28 days curing, after this optimum result are finding out using of Mix (M7) which is shown Table 6 and Figure 11. These specimens are tested using compression testing machine after 7 days curing, after this optimum result are finding out using of Mix (M7) which is shown Table 7, and Figure 12. Using compression testing machine after 28 days curing, after this optimum result are finding out using of Mix (M7) which is shown Table 8, and Figure 13.

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CONFLICT OF INTEREST

The author have declared that no competing interests exist.

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