

OPPORTUNITIES FOR SINICON AS ECO- FRIENDLY USE IN ADAPTABLE FINE AGGREGATES

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ABSTRACT: *In this project, we are making the concrete with using sinicon in partial replacement of the fine mixture. Sinicon is a light substance. Compared to the larger general set, the specific gravity of Sinicon can be very low. Good aggregate will improve within that time so that we can use that material. We are using the concrete M25 grade. We are partially adding sinicon with a high quality combination of 0%, 5%, 10%, 15%, 20%, 25% and 30%.*

INTRODUCTION

Concrete is a structural material that is a heterogeneous mixture of aggregate with sand, cement and or water and allowing combination to harden to form a stable mass. Cement is the chemically energetic detail, or matrix; sand and stone are the inert factors, or added. Concrete has many structural desires, will pose almost everywhere, and resists fire more than that, the substances are concrete to increase their power and stiffness.

I. OBJECTIVE OF THE PRESENT INVESTIGATION

The scope of the investigation can be summarized as follows:-

To take a look at the effect on energy with various percent of Sinicon adding in concrete.

To take a look at the mechanical properties of concrete which includes compressive, break up tensile electricity and flexural strength.

To discover the most suitable percent of Sinicon by means of including in concrete.

Sinicon

While weather adjustments are obviously personal, people contribute heavily to environmental pollutants. Emissions of carbon dioxide, the main greenhouse gas causing the trade in weather, most likely come from us. More people are thinking about how they can do their part to help reduce greenhouse gas emissions in the area. Sinicon would like to offer produced for many multipurpose initiatives experience, Ambuja cement (PPC) had been used. In Portland Pozzolana (PPC) fashionable cement, 80% of clinker, 15% of pozzolan and 5% and 18% of the total consumption of cement represent gypsum. is manufactured because it mainly used fly ash / burnt clay / coal.

Material used

- a) Cement (OPC 53).
- b) Coarse Aggregate.
- c) Fine Aggregate (M-sand)
- d) Sinicon
- e) Water

1. Cement.

OPC 53Grade conforming IS 12269:1987, Min. content of cement content is: 320 kg/3 (IS456:2000), S.G of Cement: 3.09

2. Coarse aggregate

According to IS 383:1970 the size of course aggregate is 20mm used. We took the angular types of aggregate, water absorption is 0.5%. S.G of coarse aggregate is 2.73.

3. Fine aggregate (sand)

According to IS 383:1970 fine aggregate properties were tested. Water absorption is 2.5%, SG of fine aggregate is 2.74

4. Water

Normal water for use for blending the concrete.
Value of W/C 45.

Physical properties of Sinicon

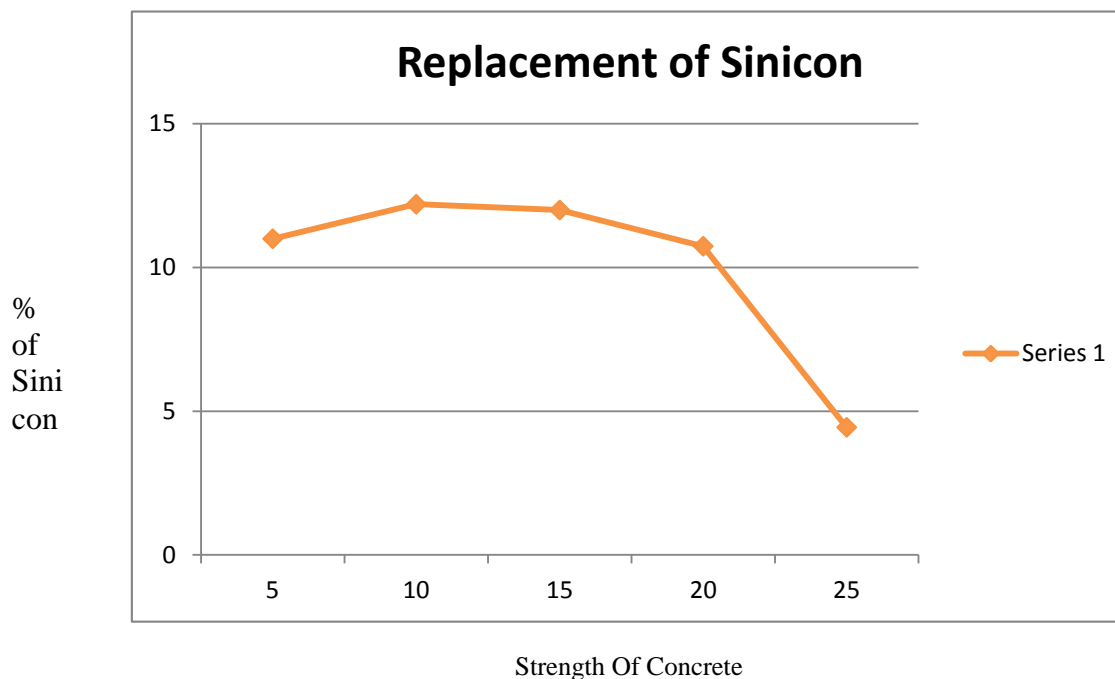
- Not combustible. It is secure to handle like sand.
- Not explosive. It is secure to deal with like sand.
- Not unsafe to skin. Could be wiped clean with water.
- Not hazardous to eyes except abrasion. Washable with water.
- Not hazardous to Ingestion but keep away from ingestion. If consumed, drink 2 x 250 ml of water to dilute.
- A Substitute for sand in plastering and other packages.

5. Sinicon

It is a unique, of which volcanic large-scale glass is located at only one place of land, South Africa. Splitting Sinicon is produced to feed from these mines and used to patented process to transform this volcanic glass into granules of glass hard well seals, perfectly suited for use with cementitious binders and others. Under the microscope, each solid granule receives a closed wall closed climate controlled foam of glass, each enclosing a space close to the void. Sinicon is therefore first class noted as including tiny "thermos" sealed sets, making it a unique and incomparable flame retardant insulator and fabric. To verify the stability of batches, the following. A lot of concrete of track is prepared within the laboratory and modified to give the preferred perron, the absence of segregation, the unit, the content weight and the air Electricity. Tests were conducted on the concrete:

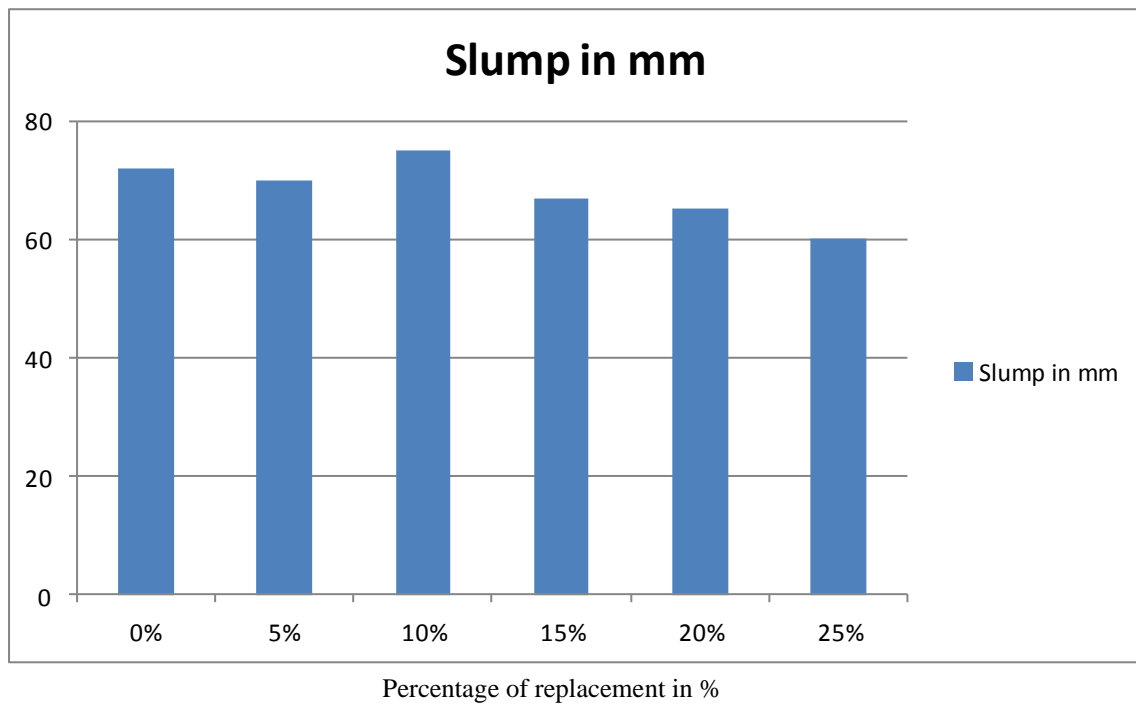
1. Compressive Strength Test
2. Slump Test
3. Compacting Factor
4. Soundness Test.
5. Fire resistance

OBSERVATIONS AND INTERPRETATION OF RESULT

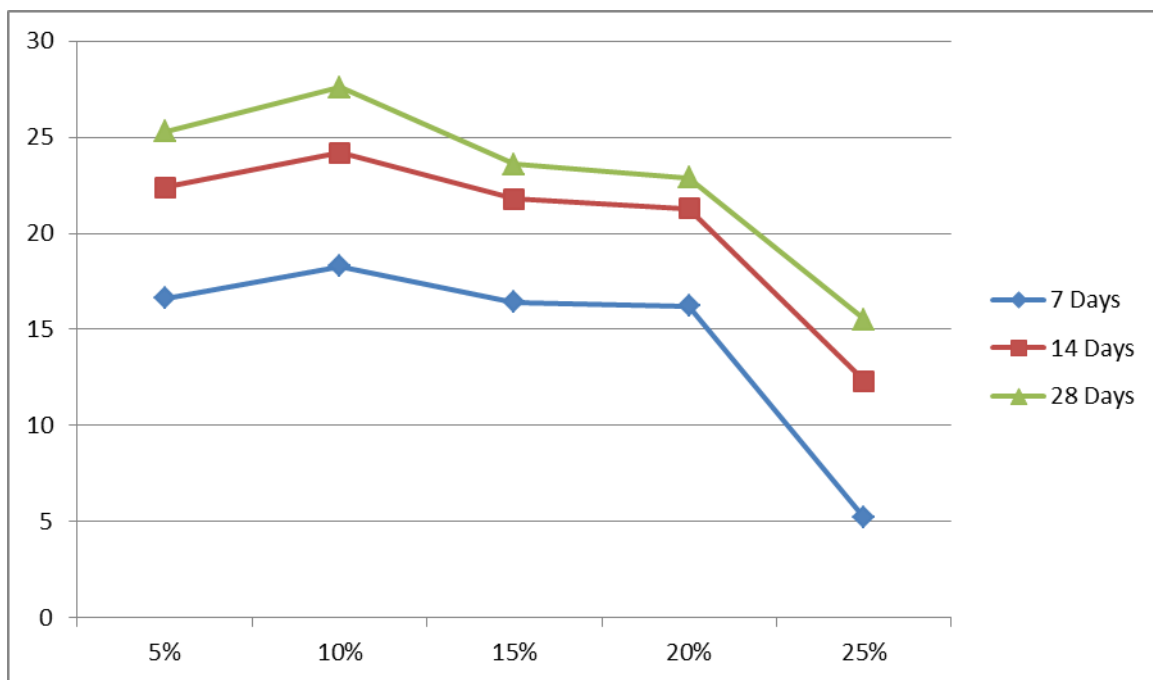


Test Results for Slump of concrete

S.No	% Of Replacement	Slump in mm
1.	0%	72mm
2.	5%	70mm
3.	10%	75mm
4.	15%	67mm
5.	20%	65mm
6.	25%	60mm



Variation of compressive Strength of Concrete at 7,14 & 28 days



Dead load of tradition RC concrete M25 and Sinicon Added RC M25 Concrete.

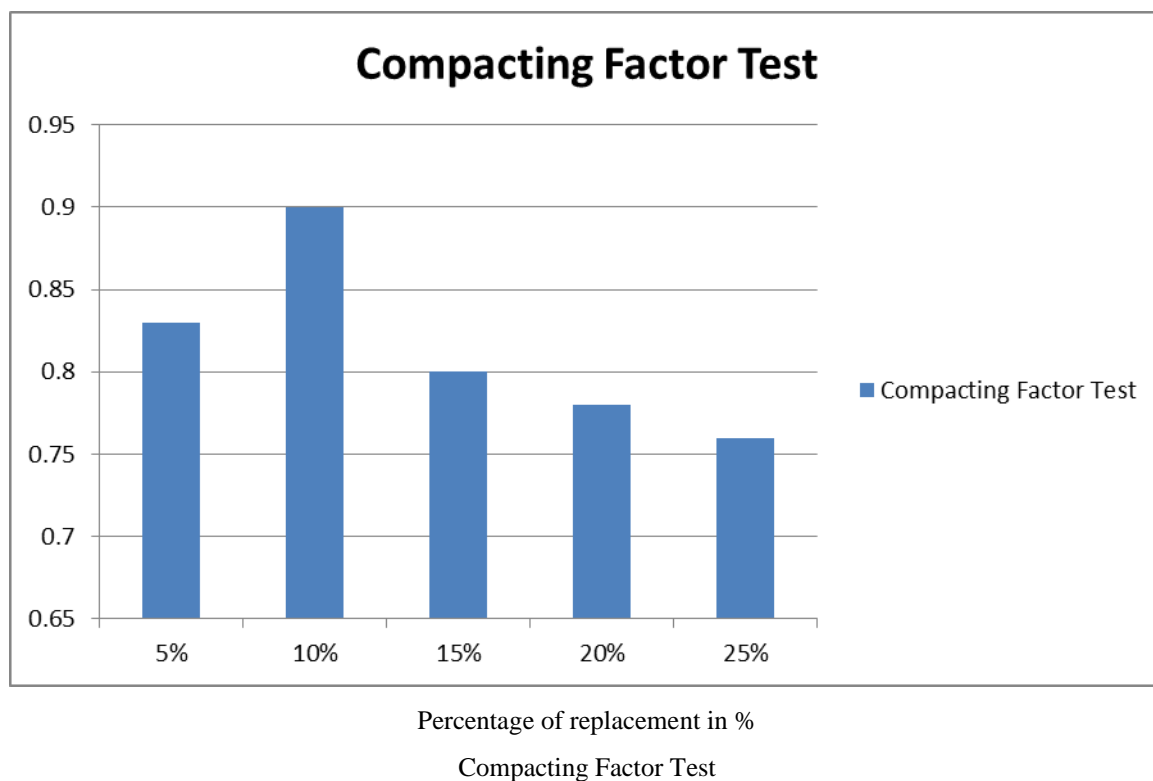
RCC	Sinicon 10% Added RC Concrete
8.1Kg	7.8Kg

By the above result we observed the difference of 5 %

Compacting Factor Test

Test Results for compacting factor of concrete

S.No	% of Replacement	Compacting Factor
1	0%	0.81
2	5%	0.83
3	10%	0.90
4	15%	0.80
5	20%	0.78
6	25%	0.76



IV.CONCLUSION

As we all know, today we are facing many problems related to sand; here we have tried to test the possibility of changing synthetic materials such as composites with solid materials. By Sinicon, we are improving the thermal insulation, workability, soundness. During this research, we reduce the load structure of up to 5%.

Once instead of sack, plaster is done using the sinicon, it gives a quiet interior in the warm and warm interior of the winter. Since sand can not give any property of the scientist.

REFERENCES

- [1].G.Prabhakaran, July 10, 2010, The Hindu Article731697, “A plaster with green sense”.
- [2]. D.Gowsika, S.Sarankokila ,K.Sargunan (IJETT) – Volume 14 Number 2 – Aug 2014
- [3]. Nirosha, Raja, Ashokkumar,Dineshkumar,Anu Anand (IJOSER) March– 2017 (p)-1118-126
- [4]. G.Prabhakaran, July 18, 2010, The Hindu Article 520959, “An alternative to sand in focus”.
- [5]. G.Prabhakaran, September 20, 2010, The Hindu Article731697, “Construction sector seeks cheaper alternatives to river sand”.
- [6].Shetty M.S, Concrete Technology Theory and Practice 2008, S.Chand& company Ltd
- [7]. IS: 10262-1982, Indian Guidelines for concrete Mix Design, Fifth edition March 1998.

[8]. IS: 383 - 1996 code for testing the material properties.

[9]. IS: 456 - 2000 code for plain and reinforced cement concrete.

[10]. IS: 2386 - 1963 (Part III) code for grading of aggregate.

[11]. Shetty M.S, Concrete Technology Theory and Practice 2008, S.Chand& company Ltd.