

EXPERIMENTAL INVESTIGATION ON STRENGTH PROPERTIES OF HIGH STRENGTH SELF COMPACTING CONCRETE BY USING MINERAL ADMIXTURES

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ABSTRACT: *To build high rise building by reducing column sizes and increasing available space, to build the super structure of long span bridges and to the durability of bridge decks a high strength is needed. High strength concrete was used in South Wacker in Chicago of 80 Mpa, Baynunah Tower in Abu Dhabi of 80 MPa and Frankfurt Trianon in Germany of 125 MPa. If high strength concrete is self compacting, the production of densely reinforced building element from high strength concrete with high homogeneity would be an easy work. In the present investigation a rational mix design is established and self compactability testing methods have been carried out from the view point of making it a standard concrete by using mineral admixtures like micro silica and fly ash for imparting High Strength Self Compacting Concrete. The flow properties of resulting concrete is characterized in the fresh state by methods used for Self compacting concrete, such as Slump-flow, V-funnel and L- box tests respectively. Further the durability properties are examined for High Strength Self Compacting Concrete mix of grade M100. The durability factors are also studied. From these studies we observe that 15% Micro silica and 25% Fly ash will give optimum strength for M100 grade at water powder ratio of 0.22. The effect of Na₂So₄ on these mixes is nil where as HCL and H₂So₄ had substantial impact.*

Keywords: *Self Compacting Concrete, Segregation Resistance, Filling ability, Passing Ability, Mineral Admixtures, durability properties.*

I. INTRODUCTION

Concrete can attack by liquids with pH scale worth below vi.5, however the attacks area unit severe exclusively at a pH scale below 5.5, below 4.5 the attack is unbelievably severe. as a result of the attack takings, all the cement compounds area unit equally lessened and leached away, alongside any carbonate mixture material. With the oil of vitriol attack, calcium sulphate formed could also be proceed to react with element alumininate introduce cement to form metallic element sulpho compound, that on crystallization can cause growth and disruption of concrete. If acids or salt solutions area unit able to reach the reinforcing steel through cracks or consistence of concrete, corrosion can occur which may cause cracking? The salt attack denotes an increase among the degree of cement paste in concrete or mortar thanks to the action between the merchandise of association of cement and determination containing sulphates. Once hardened concrete is exposed to soil or water containing salt compounds, the

sulphates in resolution area unit potential to react with hydrated Tricalciumcompound among the hardened cement paste to form a brand new chemical called Ettringite. This new compound causes growth and disruption of the concrete. Therefore, it's necessary to limit the porosity of the concrete to reduce the penetration of sulphates in resolution. Solid salts do not attack the concrete severely but once the chemicals sqMeasure in answer; they notice their entry into porous concrete and react with the hydrated cement merchandise. Of All the sulphates, sulfate causes most damage to concrete. A characteristic whitish look is that the indication of salt attack. The term salt attack denotes an increase among the degree of cement paste in concrete or mortar thanks to the chemical change between the merchandise of association of cement and determination containing sulphates. Among the hardened concrete, metallic element compound hydrate (C-A-H) can react with salt from outside. The merchandise of reaction is element sulpho compound, forming within the framework of hydrated cement paste. due to the increase in volume of the solid part which will go up to 227 p.c, gradual disintegration of concrete takes place. The deteriorating impact generally starts at the surface and corners and progressively enters into the concrete by inflicting scaling and spalling and ultimately reduces the concrete a friable mass. The aim of this project is to review or gain understanding regarding SCC in terms of its ingredients, mixture needs and mechanism for achieving self-compatibility looking on previous researches. It conjointly evaluates the results of mistreatment this sort of concrete in some fashionable implementations. Finally, it demonstrates the advantages and potential disadvantages of mistreatment SCC in terms of safety, economy, and construction quality. Cement concrete is simply next to water in terms of the quantity of fabric used on our planet. Over many years, concrete has become the fabric of alternative for constructing residential and business buildings, infrastructural facilities like highways, dams and bridges, canals, ports and alternative necessary facilities. The recognition of concrete owes to its economy, ability to be solid into any form, ability to be fictional much anyplace and last however not the smallest amount, its inherent sturdiness. Multitudinous historical landmarks in concrete speak volumes regarding its sturdiness and flexibility. The principal part that creates concrete potential is cement that has developed into a well-engineered and processed material from its comparatively humble beginnings early in history. The word 'cement' suggests that to affix one thing.

Cementing materials have a motivating history. The oldest structures relied on the sheer mass of the stone blocks for stability – associate degree example is that the set of pyramids in Egypt. With the progress of your time, Egyptians move to smaller blocks and bricks that required some cementing material. there's proof of the employment of hydrocarbon as a cementing material by the Babylonians and Assyrians, furthermore as of burnt mineral in Egypt. The primary uses of lime mortar for binding area unit attributed to Egyptians, Greeks and Cretans, and a few of the structures designed by them area unit still standing these days. The employment of pozzolanic additives is additionally associate degree age recent apply – this can be evident by the employment of burnt powdery brick (Surkhi) in Bengal and Santorin Earth (volcanic tuff) in Balkan country. In fact, the employment of volcanic ash that spewed from Mt. volcano close to Pozzuoli in Italian Republic, by the Romans, diode to the coining of the word 'pozzolana'. It was in 1756 that John Smeaton, a British engineer, whereas designing the building of Eddy stone pharos tower, discovered that the most effective limes for mortar contained a high degree of clayey matter. Ultimately, such a lime was used beside pozzolana in equal quantities. This was one in every of the primary documented samples of application of a binding material that was similar in composition to fashionable Portland cement. within the early nineteenth century, Vicat ready artificial hydraulic lime by calcining associate degree intimate mixture of stone (chalk) and clay – this can be the principal forerunner to Portland cement. The event of 'Portland' cement is really attributed to Joseph Aspdin. In 1824, Aspdin, whereas getting a patent for his cement, termed it as Portland cement, upon Portland stone (limestone from Dorset, UK), that had a prime quality and sturdiness and the same look. The patent has long ago run out, however the name 'Portland' has stayed on ever since. In the last fifty years, there has been important progress in concrete technology, primarily thanks to the revival of the interest in supplementary cementing materials, furthermore as thanks to the appearance of recent generation chemical additives for concrete. With the choice of materials offered these days, it's potential to style bespoke concretes for any kind of construction. The progress in concrete technology conjointly owes partially to the amendment in analysis outlook – fashionable researchers {try to attemptto tryassociating degreed} study concrete from an knowledge base viewpoint, combining chemistry and materials science with technology. The stress on fundamentals has paved the manner for several a very important breakthrough. These advances have ensured that concrete are going to be a cloth of alternative for several decades into the longer term. Than typical concrete. SCC was conceptualized in 1986 by professor. Okamura at Ouchy University, Japan. The first generation of SCC employed in North America was characterized by the employment of comparatively high content of binder furthermore as high dosages of chemicals admixtures, typically super softener to reinforce flow ability and stability. Such superior concrete had been used largely in repair applications and for casting concrete in restricted areas. The primary generation of SCC was so characterised and specific for specialised applications.

During casting and thenceforth till the onset of hardeningit's been incontestable that a complete sand content of regarding five hundredth of total mixture is favorable in coming up with for SCC. Self-compacting concrete (SCC) may be a comparatively new product that sees the addition of super softener and a stabilizer to the concrete combine to considerably increase the convenience and rate of flow. By its terribly nature, SCC doesn't need vibration. It achieves compaction into each a part of themould or formwork just by suggests that of its own weight with none segregation of the coarse mixture. Developed in Japan and Continental Europe, SCC is currently being progressively employed in the United Kingdom wherever, aside from health and safety advantages, it offers quicker construction times, exaggerated workability and simple flow around serious reinforcement. Having no want for vibratory instrumentality spares employees from exposure to vibration. No vibration instrumentality conjointly suggests that quieter constructions sites. The fluidness of SCC ensures a high level of workability and sturdiness while the speedy rate of placement provides associate degree increased surface end. SCC's long strengths usually reach 30-40N/mm² and two-day strengths will break the 100N/mm² barrier that modifies easier and additional reliable remodeling. SCC is actually the manner forward for each inset and formed concrete construction. The health and safety advantages and also the improved construction and performance results build it a really engaging answer.

II. LITERATURE SURVEY

Anne-Mieke et.al studied the deformations in further detail, the relevance of ancient creep and shrinkage models take a glance at series as represented, the following conclusions area unit typically developed with increasing c/p magnitude relation, and consequently increasing cement content and decreasing w/c magnitude relation, a decrease of the creep deformations is found. The fineness of the tested fillers has nearly no influence on the deformations. Audenaert K created associate degree extended experimental programmed on chloride penetration of sixteen self compacting concrete mixtures and 4 ancient concrete mixtures were determined. supported these tests, the conclusion is that the penetration depth in real conditions is powerfully influenced by water/cement and water/(cement +filler) ratios. Decreasing one in every of these ratios or every is leading to as decreasing penetration depth. Another necessary conclusion is that the chloride penetration depth in SCC by cyclic immersion is under the penetration depth in TC. Gamesman N et.al studied the impact of steel fibers on the sturdiness parameters of self-compacting concrete (SCC) like consistency, water absorption, abrasion resistance , resistance to marine still as salt attack and every one over that addition of steel fibres improved the durability aspects of self compacting concrete. C. Selvamony et.al involved evaluating the Effectiveness of assorted percentages of mineral admixtures in producing SCC. Okamura's techniqueology, supported EFNARC specifications, was adopted for mixed vogue. Dr.R.Sriravidrarajahet. Investigated into the event of self-compacting concrete with reduced segregation potential. The fine particle content is

inflated by replacement partially the fine and coarse aggregates by low metallic element ash. S. Venkateshwara Rao et.al aims at developing commonplace and high strength Self Compacting Concrete with altogether completely different sizes of mixture. Self-consolidating concrete or self-compacting concrete (SCC) is characterised by a coffee yield stress, high deformability, and moderate body necessary to confirm uniform suspension of solid particles throughout transportation, placement (without external compaction), and thenceforth till the concrete sets. Self Compacting Concrete is characterised by a coffee yield stress, high deformability, and moderate body necessary to confirm uniform suspension of solid particles throughout transportation, placement (without external compaction), and thenceforth till the concrete sets. The comparatively high price of fabric employed in such concrete continues to hinder its widespread use in numerous segments of the development trade, as well as business construction, but the productivity social science take over in achieving favorable performance advantages and works resolute be economical in pre-cast trade. The incorporation of powder, as well as supplementary cementations materials and filler, will increase the degree of the paste, thus enhancing deformability, and might conjointly increase the cohesiveness of the paste and stability of the concrete. The reduction in cement content and increase in packing density of materials finer than eighty μm , like ash etc. will cut back the water-cement quantitative relation, and also the high-range water reducer (HRWR) demand. The reduction in free water will cut back the concentration of viscosity-enhancing admixture (VEA) necessary to confirm correct stability. Such concrete are often used for casting heavily strengthened sections, places wherever there are often no access to vibrators for compaction and in advanced shapes of formwork which can rather be not possible to solid, giving away superior surface. Concrete is taken into account a brittle material, primarily thanks to its low tensile strain capability and poor fracture toughness. For an extended time concrete was thought of to be terribly sturdy material requiring a little or no maintenance. The belief is basically true, except once it's subjected to extremely aggressive environments. The build concrete structures in extremely impure urban and industrial areas, aggressive marine environments, harmful sub-soil water in coastal space and lots of alternative hostile conditions wherever alternative materials of construction area unit found to be non-durable. one in every of the most reasons for deterioration of concrete within the past is that an excessive amount of stress is placed on concrete compressive strength. As a matter of truth, advancement in concrete technology has been usually on the strength of concrete. it's currently recognized that strength of concrete alone isn't adequate, the degree of harshness of the condition to that concrete is exposed over its entire life is equally necessary. Therefore, each strength and sturdiness got to be thought of expressly at the planning stage. High-strength and superior concrete area unit being wide used throughout the globe and to provide them it's necessary to cut back the water/binder quantitative relation and increase the binder content. High-strength concrete suggests that sensible abrasion, impact and cavitation resistance. Mistreatment

High-strength concrete in structures these days would end in economical benefits. Most applications of high strength concrete thus far are in high-rise buildings, long span bridges and a few special structures. Major application of high strength concrete in tall structures are in columns and shear walls, that resulted in weakened dead weight of the structures and increase within the quantity of the rental floor area within the lower stories. Self Compacting Concrete is outlined as a class of high performance concrete that has wonderful deformability within the recent state and high resistance to segregation, and might be placed and compacted underneath its self weight while not applying vibration. The elimination of vibration for the compaction of recent concrete makes the employment of the self – compacting concrete helpful in terms of price reduction and improvement of the work surroundings. because of intrinsic low consistence, SCC typically has high performance properties in terms of mechanical behavior and sturdiness. Self-compacting concrete (SCC) may be a pioneering concrete that doesn't involve unsteady for insertion and compaction. It's able to gush underneath its own load, utterly filling type work and come through the complete compaction, even within the incidence of full support. The hardened concrete is dense, uniform and has constant property and sturdiness as customary vibrated concrete. Creating concrete structure while not compaction has been tired the past. Like placement of concrete underwater by the employment of termie while not compaction. Inaccessible areas were concreted mistreatment such techniques. The assembly of such mixes typically used costly admixtures and really lots of abundance of cement. However such concrete was usually of lower strength and troublesome to get. This cause the event of Self Compacting Concrete (SCC) whose conception was initial initiated by Japan within the middle of Nineteen Eighties. SCC may be a high performance concrete that consolidates underneath its self-weight, and adequately fills all the voids while not segregation, excessive hemorrhage or the other separation of materials, while not the requirement of mechanical consolidation. The key properties of SCC area unit filling ability, passing ability and resistance to segregation. Filling ability helps SCC to flow through the formwork and utterly fill all the areas among it. Passing ability is that the property by that it flows with none obstruction. The good thing about resistance to segregation imparts the advantage to the concrete in maintaining an even composition thus the paste and also the mixture bind along. The applying of SCC aims at getting a concrete of high performance, higher and additional reliable, improved sturdiness, high strength and quicker construction. For SCC it's usually necessary to use super plasticizers so as to get high quality. Some volume of powdery materials like oxide fume, fly ash, glass filler, stone powder, etc. is additionally concerned. Self-compacting concrete has been with success employed in Japan, Denmark, France, U.K., etc. it's wide been accepted thanks to its increased properties conjointly it reduces sound pollution, saves time, labour and energy.

III. MATERIALS & NEEDS

Cement

Ordinary cement of 53 grades having density was three.02 and fineness was 3200cm²/gm was utilized within the investigation. The Cement used has been tested for diverse proportions as per IS 4031-1988 and placed to be confirming to numerous specifications of area unit 12269-1987.

Coarse mixture

Crushed angular granite metal typically mm size having the particular gravity of 2.65 and fineness modulus half-dozen.05 was utilized within the investigation.

Fine mixture

River sand having the actual gravity of 2.55 and fineness modulus a pair of.77 was utilized within the investigation.

Viscosity Modifying Agent

A consistency modified admixture for Hemodynamic Concrete that is colorless free flowing liquid and having Specific of gravity one.01+0.01 @ 250C and proton concentration worth as 8+1 and Chloride Content cipher was used as consistency Modifying Agent.

Admixture

The modified Poly carboxylated Ether based super softener that is yellow color and free flowing liquid and having density one.10+0.01 at 25oC, pH scale >6 and Chloride particle content zero.2% was used as super softener.

Fly Ash

Type-II ash confirming to I.S. 3812 – 1981of Indian customary Specification was used as Pozzolana Admixture.

Micro silicon oxide

The small silicon oxide having the precise gravity a combine of.2 was utilized within the gift investigation

3.1 standards Portland cement

Table: 3.1.1 Physical Properties of standard Portland cement

S.No.	PROPERTY	Test Results
1	Normal Consistency	29%
2	Specific Gravity	3.12
3	Setting time	
	A) Initial Setting time	110Min
	B) Final Setting time	180Min
4	Fineness of Cement(IS Sieve no. 9)	2.76%
5	Compressive Strength	
	At 7 days	37Mpa
	At 28 days	54Mpa

Physical properties of coarse aggregate

Table: 3.1.2 Coarse Aggregate

S.No	Property	Result
1	Fineness Modulus	7.176
2	Specific Gravity	2.645
3	Bulk Density	
	Loose State	1.181gm/cc
	Compacted State	1.498 gm/cc

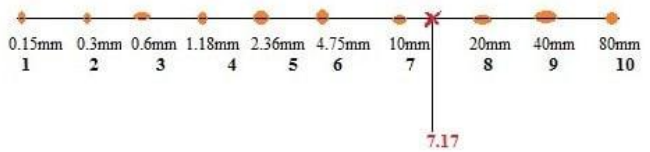
Table: 3.1.3 Sieve Analysis Results for Coarse Aggregate
 Weight of Coarse aggregate sample taken is 5000gms

S.No	IS Sieve size	Weight retained in gms	% weight retained	Cumulative % weight retained	% passing
1	40mm	0	0	0	0
2	20mm	0	0	0	0
3	10mm	880	17.6	17.6	82.4
4	4.75mm	4120	82.4	100	17.6
5	2.36mm	0	0	100	0
6	1.18mm	0	0	100	0
7	600μ	0	0	100	0
8	300μ	0	0	100	0
9	150μ	0	0	100	0

Fineness Modulus of Coarse Aggregate = 717.6 /100 =7.176

Note:-

(Fineness modulus of 7.176 means, the average size of particle of given coarse aggregate sample is in between 7th and 8th sieves, that is between 10mm to 20mm.)



3.2 Fine Aggregate

Table: 3.2.1 Physical Properties of fine aggregate

S.No	Property	Result
1	Fineness Modulus	2.696
2	Specific Gravity	2.615
3	Bulk Density	
	Loose State	1.660 gm/cc
	Compacted State	1.702 gm/cc

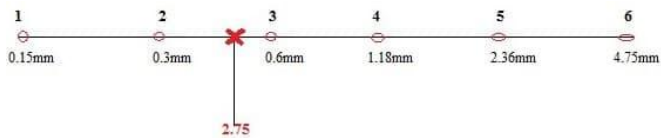
Table: 3.2.2 Sieve Analysis Results for Fine Aggregate
 Weight of fine aggregate sample taken 1000gms

S.No	IS Sieve size	Weight retained in gms	% weight retained	Cumulative weight retained	% passing
1	10mm	0	0	0	100
2	4.75mm	0	0	0	100
3	2.36mm	23	2.3	2.3	97.7
4	1.18mm	131	13.1	15.4	86.9
5	600μ	433	4.33	58.7	56.7
6	300μ	345	3.45	93.2	65.5
7	150μ	68	6.8	100	93.2

Fineness Modulus of Fine Aggregate = 269.6 /100 =2.696
 Fine aggregate conforming to Grading Zone- II of IS 383-1970.

Note:-

(Fineness modulus of fine aggregate is 2.696. It means the average value of aggregate is in between the 2nd sieve and 3rd sieve. It means the average aggregate size is in between 0.3mm to 0.6mm as shown in below figure.)



3.3 Properties of Fly ash

Table: 3.3.1 Physical properties of fly ash
(As per National Cement and Building Materials Test Report, Hyderabad)

S.No	Characteristics	Experimental Results
1	Fineness, m ² /kg (Blain's permeability)	577
2	Lime reactivity N/mm ²	4.5
3	Compressive strength 21 days	>80% of the corresponding plain cement mortar cubes
4	Drying shrinkage, %	0.08
5	Autoclave expansion, %	0.68

Table: 3.3.2 Chemical Composition of fly ash
(As per National Cement and Building Materials Test Report, Hyderabad)

S.No	Characteristics	Experimental Results
1	SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃	86.7
2	SiO ₂	54.0
3	MgO	0.10
4	Total sulphur as SO ₃	0.11
5	Available alkali as sodium oxide (Na ₂ O)	2.16
6	Loss of Ignition	4.0

3.4 Properties of Micro silica

Table: 3.4.1 Typical Oxide composition of microsilica
(Oriental Trexim Pvt. Ltd.)

S.No	Constituents	Percentages
1.	Silica, SiO ₂	92.00
2.	Alumina, Al ₂ O ₃	0.46
3.	Iron Oxide, Fe ₂ O ₃	1.60
4.	Lime, CaO	0.36
5.	Magnesia, MgO	0.74
6.	Sulphur Trioxide, SO ₃	0.35
7.	Loss on Ignition	2.50
8.	Na ₂ O	0.70
9.	K ₂ O	0.90
10.	pH	7.60
11.	Accelerated Pozzolanic Acidity in 7 days	104.00
12.	Accelerated Pozzolanic Acidity in 28 days	117.00
12.	Surface Area in m ² /kg	1890

13.	Moisture Content	1.00
14.	Bulk Density	450-650

Quantities of Materials required for 1m³ of High Strength Self Compacting Concrete mixes

Table 4.7.1 Quantities of Materials required for 1m³ of High Strength Self Compacting Concrete mixes

Mix	Cement (Kg/m ³)	Fly ash (Kg/m ³)	Micro Silica (Kg/m ³)	Water (Kg/m ³) Coarse	Aggregate (kg/m ³)	Fine Aggregate (Kg/m ³)	SP (kg/m ³)	V.M.A (Kg/m ³)	Water/Powder Ratio
Mix 100	520	135	85	164	784.985	786.195	13.2	0.45	0.32

	Mix 10	Permissible limits as per Enforce Guidelines		
		Min	Max	
V-Funnel	10 sec	8 sec	10 sec	
Abrams slump flow	685 mm	660mm	820mm	
T 50cm slump flow	5.5 sec	3sec	6 sec	
L-Box	H2/H1	0.10	0.92	1.5
	T 20	2sec	2 sec	3 sec
	T40	3 sec	3 sec	4 sec

Fresh Concrete properties of High Strength Self Compacting Concrete Mix M 100

Grade of Concrete	10% HCl solution				10% Na ₂ So ₄ solution				10% H ₂ So ₄ solution			
	28 days	56 days	90 days	180 days	28 days	56 days	90 days	180 days	28 days	56 days	90 days	180 days
M100	1.78	4.74	5.25	5.92	0	0	0	0	9.12	15.78	24.38	28.98

Percentage Loss of Weight of High Strength Self Compacting mixes

Grade of Concrete	10% HCl solution				10% Na ₂ So ₄ solution				10% H ₂ So ₄ solution			
	28 days	56 days	90 days	180 days	28 days	56 days	90 days	180 days	28 days	56 days	90 days	180 days
M100	4.84	6.48	9.65	11.98	0	0	0	0	23.32	28.52	39.50	49.55

Percentage Loss of Compressive Strength of High Strength Self Compacting mixes

Grade of Concrete	10% HCl solution		10% Na ₂ So ₄ solution		10% H ₂ So ₄ solution	
	Relative strength	Durability Factor	Relative strength	Durability Factor	Relative strength	Durability Factor
M100	28	96.56	13.31	100.00	15.65	77.99
	54	91.92	29.41	100.00	31.31	70.80
	86	90.32	46.22	100.00	50.20	61.36
	160	87.0	86.94	100.00	100.00	50.75

Durability Factors of High Strength Self Compacting Mixes

IV. FIGURES



Test Specimens of High Strength SCC mix of M100 grade immersed in HCL solution



Test Specimens of High Strength SCC mix of M100 grade immersed in Na2SO4 solution



Test Specimens of High Strength SCC mix of M100 grade immersed in H2SO4 solution

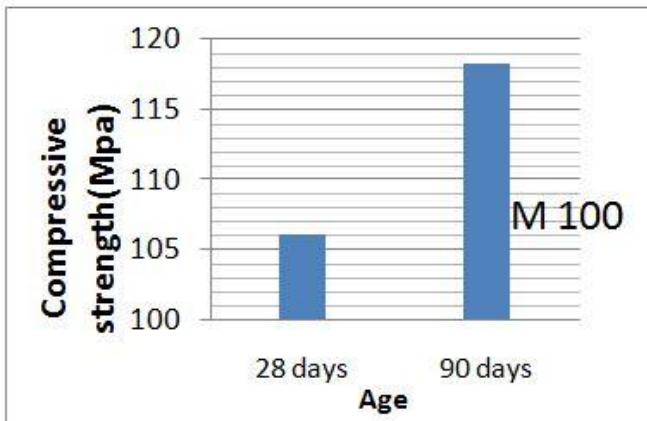


Figure 5.1 Age vs. Compressive strength for High Strength Self Compacting Concrete mix of M100 grade

V. TEST PROCEDURES

Test on salt resistance of high strength self compacting concrete victimization mineral admixtures salt resistance of concrete is determined by immersing take a look at specimens of size 100 X100 X 100 metric long measure cubes in 100 percent metallic element salt. The deterioration of specimens unit of measurement given within the style of share reduction in weight and share reduction in compressive strength concrete of specimens at twenty eight, 56, ninety and 100 and eighty days. Test on acid attack of high strength self compacting concrete victimization mineral admixtures Acid attack is determined by immersing check specimens of size a hundred X100 X 100 metric long measure cubes in 100 percent H2So4 answer and 100 percent HCL answer severally. The deterioration of specimens unit of

measurement conferred among the variability of share reduction in weight and share reduction in compressive strength concrete of specimens at twenty eight, 56, ninety and 100 and eighty days. Durability factors of high strength self compacting concrete victimization mineral admixtures. After casting, the specimens unit of measurement immersed in water for twenty eight days. Then they are immersed in 100 percent H2So4, 100 percent HCL and 100 percent Na2So4 answer unendingly. Then six specimens unit of measurement off from each cluster brushed with a soft nylon brush and rinsed in binary compound. This technique removes loose surface material from the specimen. The specimen's unit of measurement tested at twenty eight days, 56 days, ninety days and 100 and eighty days for the compressive strength.

The durability issue is calculated as follows.

$$\text{Durability issue (D F)} = (\text{Sr. N}) / \text{M}$$

Sr = Relative strength at N days or maybe weeks

N= style of days at that strength issue is needed

M= style of days at that the exposure is to be terminated.

The acid attack check is terminated at 100 and eighty days.

So, M may be a hundred and eighty during this case.

VI. CONCLUSION

High strength self compacting concrete mixes with addition of Victory Day little silica and 25% ash will offer optimum strength for M100 grade. Water powder magnitude relation of 0.22 is utilized to in developing High Strength self compacting concrete. The share weight loss of high strength self compacting concrete mixes once immersing in 10% troubles HCL resolution can increase paying homage to the time. The share weight loss of high strength self compacting concrete mixes once immersing in 10% troubles Na2So4 is discovered to be nothing for any quantity of some time. This shows that prime strength self compacting concrete mixes have the resistance against Na2So4 answer. The share weight loss of high strength self compacting concrete mixes once immersing in 10% troubles H2So4 resolution can increase paying homage to the time. The share loss of compressive strength of high strength self compacting concrete mixes once immersing in 100% HCL resolution can increase such as the time. The share loss in compressive strength of high strength self compacting concrete mixes once immersing in 10% troubles Na2So4 resolution is nothing. This shows that Na2So4 resolution indirectly serving to in solidification the specimens. the share loss of compressive strength of high strength self compacting concrete mixes once immersing in 10% troubles H2So4 resolution can increase such as the time. Higher the sturdiness issue higher is that the resistance to the acid and salt attacks

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