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Literature Survey of Concrete Containing Sulphonated Phenolic Bio Resins and Polymers

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Abstract: ***Concrete plays an important role in the construction industry, but has some disadvantages. It is durable and requires sustainable building material discovery time to overcome disadvantages. Cement Concrete leads to the development of a specific combination of various composite compounds used in many applications in the world. In particular, knowledge and understanding of the operation of the curing process, rather than materials in high mixing areas, has allowed the development of mineral or mineral modified concrete, mortar and grout. Textile and Concrete the world of polymer concrete as well as the world is conducting major research to improve the properties of existing concrete. We want to acknowledge and accept the building materials and the polymer which contributed by two people of the world to each other. This paper briefly examines the concrete polymer composites used in polymer form of hydrated cement paste matrix polymerization. Microstructures and Synthetic Polymers explain the properties of deformed concrete and may be part of the applications available today. Emerging from the polymer-modified concrete curing using this technique, the polymer shows even more improvement. Various methodologies and binding fibers and observed to vary in trend. It also explains how to use modern technology to strengthen existing structures. Several recently published articles and technical documents deal with the rehabilitation of polymer-modified concrete and are used to improve the seismic behavior of fiber-reinforced polymer (FRP), an important structure.***
Keyword: Polymer, SBR latex, Acrylic polymer, Steel Fib

I. INTRODUCTION

Concrete has been a popular building material for the past 170 years. Concrete is used worldwide, but has major disadvantages such as hardening delay, low tensile strength, and low chemical resistance to shrinkage. The same result occurs through the modification of thermoplastic resins to overcome polymer additives, cement concrete, insulation, cured epoxy resins, elastomers or rubbers, aboriginal polymeric celluloses, lignin, and proteins. Thermo-set. Cement composite polymers are preferred for high performance, versatility and sustainability compared to conventional cement concrete. The polymer modified cement matrix has a specific organic polymer gel matrix homogeneous monolith CO matrix. Modified monomers as various types of latex, water redispersible polymer powder, water-soluble powder, liquid resin and polymer concrete are used. It is very important in polymers and monomers. However, this composite cement penetrates well in the formation of hydration polymer cement hydration of different polymer cements and polymer cements to form a monolithic matrix phase having a network structure. It is also confined by the co-matrix phase because of the excellent quality of total polymer modified concrete compounds.

Styrene-butadiene polymer dispersions used as emulsion latex form of rubber polymer. SBR consists of butadiene, styrene, and water and can successfully bind to many materials. This tension is used to replace the cement binder to improve the compressive strength and bending of the concrete. SBR is a thick and wide appearance with high viscosity liquid moisture content of 52.7%. However, polymeric alkali strength, adhesion, durability and reinforcement steel fibers have proven their benefits in terms of good durability. It has therefore been found to be used in corrosive environments in corrosive environments. Concrete polymer composites bring long-term performance to natural resources, infrastructure and environmental protection due to conscious environment and storage problems.

II. HISTORY OF POLYMERS IN CONCRETE

The polymer was used in construction a long time ago around 4000 BC when the clay brick wall of Babylonia was built using natural polymer asphalt in a mortar. The Ur-Nina (King of Lagash) temple in Kish has stone foundations built of 25-35% bitumen (natural polymer), loam, chopped straw or reed mortar. Jericho walls were built using bitumen in 2500-2100 BC. Other historical applications of mortars with bitumen under construction have been identified near the ancient city of Indus Valley in Morhenjo-Daro and Harappa around 3000 BC and near the Tigris River in 1300 BCE. Many natural polymers are albumin, rice paste and others (Chandra and Ohama 1994). The earliest evidence for the use of polymers in PCC was explicitly used in the United States in 1909, when a patent

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for such use was granted to L. H. Backland; And in 1922 in France, M. E. Varegyas was granted a patent. In the UK, concrete polymers developed in 1923 with L. Cresson's patent for rubber modified road surface treatment materials. 1924 Development of natural rubber latex cement by V. Lefebure; In 1925 H. Kirkpatrik was proved by the innovation of this product (Ohama 1978; Chandra and Ohama 1994). Synthetic rubbers were invented in the 1940s in response to a decrease in the availability of natural rubber and an increase in war effort. The incorporation of synthetic polymers into Portland cement mortar and concrete began in the 1950s (Dikeou 1978; Chandra and Ohama 1994).

III. MICROSTRUCTURE OF POLYMER

Polymer concrete (PIC) is impregnated with monomer. Polymer concrete is impregnated with Portland cement concrete polymerization system (PC) by polymerization of monomers, and polymer composite aggregate mixture is classified as general. Polymerization of polymer monomers serves as a binder for aggregates, and polymer concrete (PMC) is converted to polymer cement concrete (PPCC). When mixing the first polymer, fresh concrete, latex suspension polymer particles are ideally distributed throughout the cement paste. Adjacent to the total level of saturated solution of hydrated cement, the thin and gaseous Et crystals of calcium silicate begin to begin to form in the region to form probably agglomerate CH. The hydrated polymer gel product is not sediment particles, clinker particles, etc. The use of water and the growth of hydrated hydration products cause the polymer particle hydrates to aggregate to form a layered capillary pore filled in the surface of the silicate layer in the gel product change cement particles. The accumulated polymer particles are eventually fully charged and fill most of the inner surface of the capillary gap coating. When the water is recovered by hydration or drying, the high-density polymer particles are hydrated cement pastes and gels, and the bonded or agglomerated pore continuous film hydrates the film that combines the mixed bond matrix form. Some polymer complex cement hydration participates in chemical reaction product damage.

IV. APPLICATIONS

PMC is mainly used as an overlay of roads and bridges and is used for repairing and repairing existing deteriorated structures. PMCs are used for flooring, water tanks, swimming pools, septic tanks, silos, sewers, pipes and ship decks. A relatively new application proved to be very promising is to use it with fiber reinforcement. PMC Cement adhesives, slags, tubes, panels, porous echo concrete, mechanical primitives and chemicals, industrial floor and liquid applied moisture materials. Eleven prefabricated building components used in concrete and stone repair materials. Future applications include runways, roads, parking lots, ducted concrete foundations, and roller compacted concrete (RCC) for shear wall connection. Its use is also predicted for marine and offshore structures.

V. EXAMPLES FROM THE LITERATURE

A. Review Paper

G. Polymer Polymer Modified Cement Mortar and Sophisticated Experimental Study. Variables were considered to be the polymer content, the age of hardening and hardening. The tensile compression was divided to study the effect of the polymer mixture of flexural strength and workability. The dosage of polymer varies from 0 to 25%. The effects of wet and dry treatments have been observed in all age groups of treatments. The results were compared with a locally significant increase in bending, cleavage tensile, and compressive strength for later cured samples compared to control samples without mortar water treatment polymer. The optimum content of polymer was found to be 20%. Short initial adhesive strength and the structure of old building materials can be restored. Eliminates loose concrete and concrete buildings to fill gaps in crude material. R Polymer modified mortars and concrete can be used for a variety of techniques in reinforced concrete and stone structures, depending on the type and extent of damage due to repair, restoration and earthquake. If the polymer is used for cement mortar, the mortar improves the workability by improving the strength with low water cement ratio. Air hardening is desirable to increase high velocity strength at later ages. Materials with greatly improved mechanical properties and durability have been efficiently used as they are restored and reinforced in the shortest possible time for repair of damaged, damaged and restored concrete and stone structures.

B. Review Paper

R. King (2009) Comparative Behavior of Micro and Macro Mechanical Properties of Paper Conditioned Cement and SBR. In this study, mechanical properties were observed by observing modified cement pastes modified with SBR latex with nanoindentation (NI) and confirming modified mullite macroscopic properties with SBR latex as standard test method. In both cases the ratio of the experiment is identified by NI and the comparison for this purpose in terms of the mean value of the compressive hardness is constant C / w and the P / C ratio is changed from 0-20% to 0.4% The mortar flexural strength of the paste was confirmed by the

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dynamic modulus of the mortar. A linear relationship is observed between the micro - mechanical and macroscopic properties of cement composites. Creating a linear relationship between microscopic and macroscopic strength characteristics emphasizes the origin of the microscopic performance of SBR latex modified mortars. It is also observed to affect the elasticity of the dynamic modulus of the predominantly modified SBR latex, as evidenced by the NI cementitious material, a cement paste with scales of different lengths. The addition of aggregate has the same effect as a mortar. I think there are the following observations for concrete complexes. In addition to the beneficial effects of 10 P / C ratio, it was% in terms of toughness and polymer cement was increased due to a discontinuous decrease in compression and bending strength ratio. Increased porosity was observed by addition of 10%. The SBR latex largely influenced the flexural strength mainly for flexural strength mortar control. In practical applications, a P / C ratio of 8-10% was found with the optimum SBR latex content.

C. Review Paper

V.M. Sautaraja et al. (2013) published a study analyzing the properties of concrete by adding SBR polymers along with steel fibers. This paper explains that the combined strength of steel fiber and polymer SBR latex in plain concrete increases strength, durability, toughness, resistance to cracking, and crack propagation as strength increases. Also, the influence of the curing conditions on the strength gain characteristics of the composite material was observed. The P / C ratio of maintaining constant steel fibers varies with the increase of 0.75% and 1.5% bt wt. The compressive strength and post-cracking ductility of the concrete is greatly increased. Test results were observed in terms of flexure and compressive strength, and the increase in flexural modulus and compressive strength was more effective in dry hardening and decreased in wet hardening. It is therefore assumed that wet curing is concluded to be detrimental to concrete strength. Decreased workability due to the addition of steel fiber is complemented by polymer additives in dry curing conditions.

D. Review Paper 4

Sivakumar.M.V.N (2011) study describes the comparative effect of different polymers on the structural properties of concrete. The mechanical and flexural properties of the polymer - modified concrete were observed in this study. Two different types of latex-styrene butadiene and styrene acrylic polymers were used in various doses (0-20%) in each case to individually modify the concrete complex.

Graphical comparisons of results were performed on days 7 and 28. The importance of this experiment is that the wet curing process has progressed to the test date. In addition, in both cases, it was observed that the dosage of polymer was optimal for 15% polymer. Acryl styrene proved to be superior to latex while justifying the efficacy of each polymer.

The number of possible ways of life and the number of materials depends on the application of repair materials, but the correct choice of repairing the structure to improve the success of jointte repair, mainly. Repair technology is determined mainly by resistance to water penetration and tensile cracking of the structure. Study the effect of cementitious materials and SBR latex. Mixing ratio of mortar 1: The weight of cement was made by adding 20% of 3 SBR. A comparative study was conducted by adding the cylinder compressive strength test without dividing the tensile strength of the SBR SBR into a control specimen. The sorption test was also carried out under the influence of thermal cycling in the repair concrete. SBR has superior tensile strength compared to adhesive cement mortar cement slurry, and SBR has excellent water penetration analysis. Modifiers and SBR as binders include cement mortars that meet the ASTM standard. Modified SBR supports better performance after thermal cycling demonstrates the benefits of the structure of the tropical climate.

E. Review Paper 5

Z.A. Siddhiqi et al. (2013) studied the effect of adding polymer SBR latex to concrete in terms of compressive strength and water absorption. It has been observed that the SBR latex improves the internal structure of the latex modified concrete, resulting in a significant decrease in the water absorption value of 28 days.

A comparison between controlled concrete and SBR modified concrete was observed. From the results, improvement of compressive strength and decrease of absorption rate were observed at 28th day, and it was concluded that the initial compressive strength showed adverse effect on the 7th day and disadvantageous in early absorption. Specimens vary in polymer content of 5%, 10% and 20%. Deformation of concrete-by-concrete increases workability compared with control concrete. A maximum increase in compressive strength was observed at 72% and a decrease in absorption at 30% was observed. It concludes that thin polymer membranes help restore water through hydration and reduce water absorption.

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F. Review Paper

Abdulkader Ismail A.AL. Hadithi et al. (2009) described the mechanical properties of steel fiber concrete as a combination of acrylic polymers. Fiber ratios in this study range from 0.5% by weight of cement up to 1.5% and acrylic polymer content of 3%, 7% and 10% by weight of cement. Significant curing of the entire water immersion hardened specimen with the Folic method. The observed results show that all properties of the control concrete are improved when steel fiber is added. Addition of acrylic polymer with steel polymer showed a greater effect than steel fiber reinforced concrete. Compressive strength of steel fiber reinforced concrete increased by 14.2% -29.2%, while PMSFRC increased by 44.8-86.64%. For PMSFRC, tensile strength splits (50-91%) were observed for steel fiber concrete reaching the maximum tensile strength (102.4-124.7%). A similar increase was observed at flexural strengths such as (24.2-48.3%) for SFRC and (62-78%) for P / C, with 7% of P / C being optimal for 1% variation in volume fraction appear.

VI. CONCLUSION

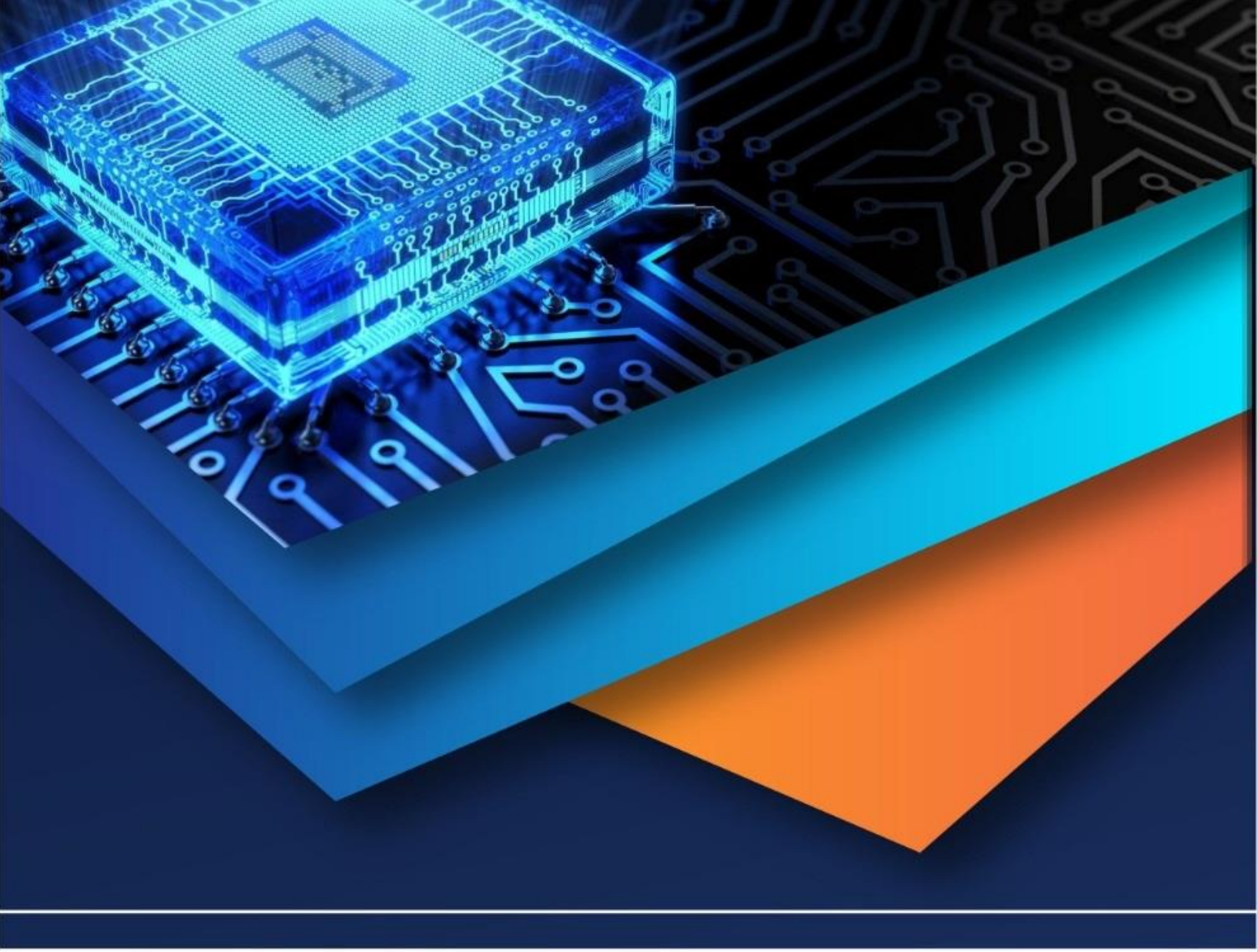
There is a big change in the use of polymers in the construction industry. The synergistic action of polymer and cement mortar, concrete provides significant improvements in a variety of new and innovative applications that increase the tensile strength of the composite, water hardening, resistance to cracking, high impact, and high absorption. composite. The use of polymers should be considered to ensure better performance and improve sustainability.

Polymers are not only special building materials that replace classical minerals or organic building materials, but they also enable new developments in new and durable structures as well as new restoration and remodeling technologies.

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