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Various Process and Advantages of Green Cement Construction

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Abstract

It is an idea of using normally all around arranged materials in concrete, to make the structure consistently genuine. These are implied as the futile essentialness in their creation and conveys less CO2 which causes Global Warming. Strong wastes like slag, power plant wastes, reused strong, mining and quarrying wastes, waste glass, expended earth, sawdust, combustor trash and foundry sand.

Keywords*: clay, Recycled concrete Lime etc.*

I. INTRODUCTION

Green concrete is an eco-obliging considering the way that it is made by the strong waste so it is in like manner called eco-obliging concrete. Green cement is continually and additionally unassuming to make, considering the path that for instance, waste things are utilized as a mostly substitute for strong, charges for the departure of waste are avoided, and power is progressively unmistakable. Its creation diminishes solid confirmation, and its huge unrefined materials join discarded mechanical wastes like effect warmer slag and fly garbage. Carbon dioxide transmitted all through the created strategy is widely diminished. The solid has thought of explicit conditions where Saltwater or even Wastewater can be effectively used at places where new water isn't in wealth. Green solid will offer insignificant exertion and quality points of interest in future.

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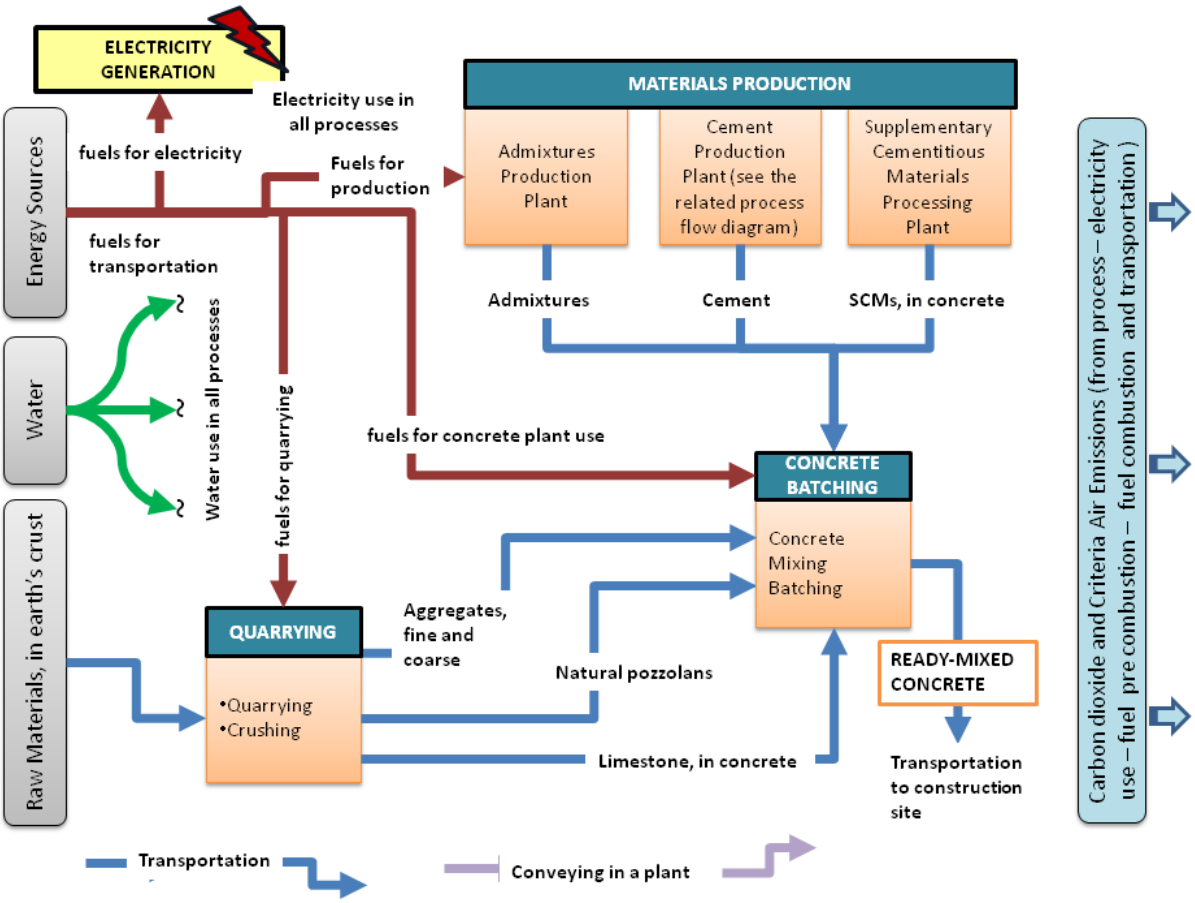


Fig 1: green cement manufacture process

Table 1

Physical Properties of Quarry Rock Dust

Property	Quarry Rock Dust
Specific gravity	2.54-2.60
Bulk relative density (kg/m3)	1720-1810
Absorption (%)	1.20-1.50
Moisture content (%)	Nil
Fine particles less than 0.075 mm (%)	12-15
Sieve analysis	Zone II

Table 2

Chemical Properties of Fly Ash

Sl. No.	Test Conducted	Observed Values (%)	Requirement as per IS:1320-1981
1	Loss of Ignition	2.32	5.0(max)
2	Silica as SiO_2	42.04	SiO_2+ Fe_2O_3+ Al_2O_3=70
3	Iron as Fe_2O_3	4.40	-
4	Alumina as Al_2O_3	33.60	-
5	Calcium as CaO	12.73	-
6	Magnesium as MgO	0.00	5.0
7	Sulphate as SO_3	0.40	3.0
8	Chloride	-	
9	Lime Reactivity	4 N/mm^2	4.5

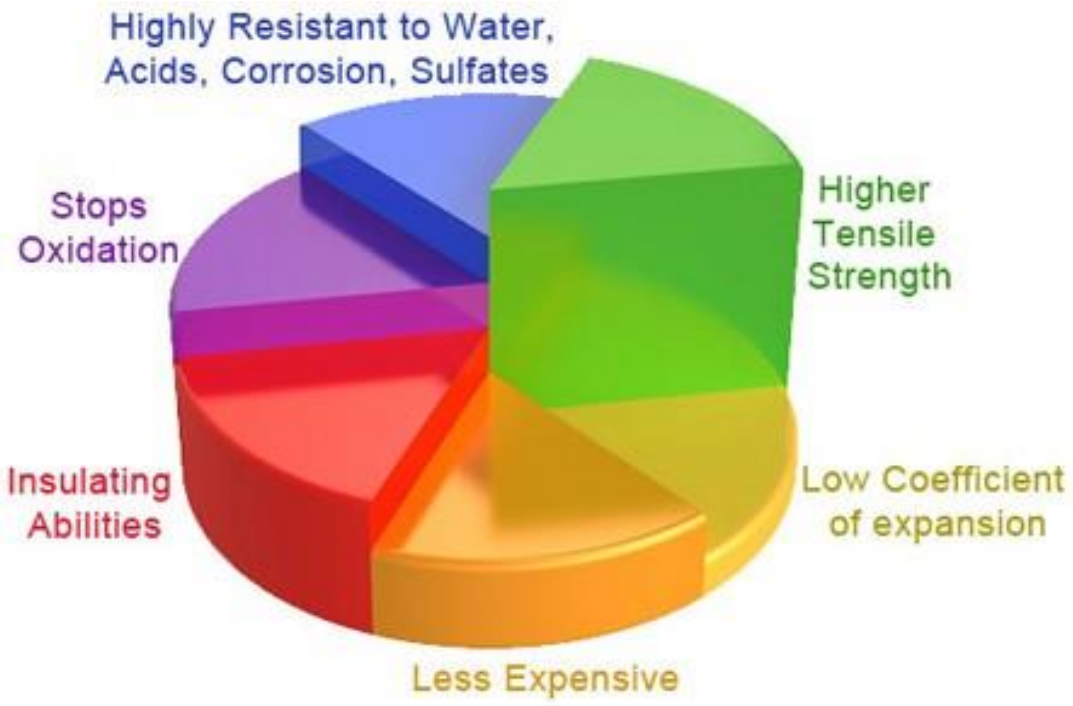
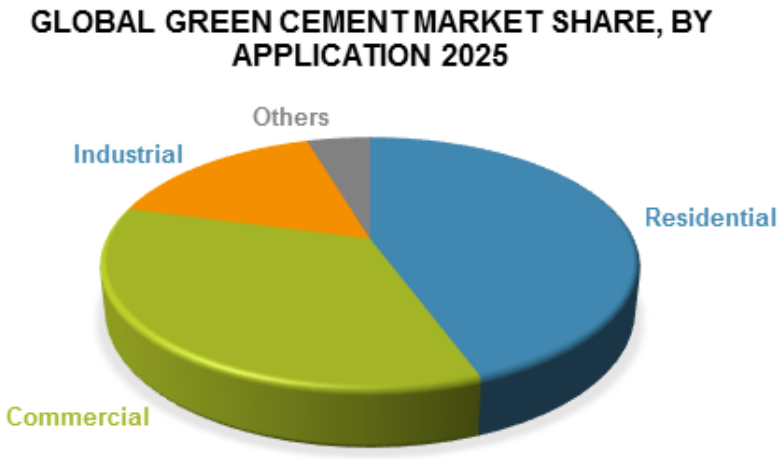


Fig2: benefits of green cement

II. ADVANTAGES OF GREEN CEMENT

S.no.	concept	Advantages
1.	Workability	Green concrete having better workability than conventional concrete.
2.	CO_2 Emission	Reduction of the concrete industry's CO2-emmision by 30 %.
3.	Waste Product	Increased concrete industry's use of waste products by 20%.
4.	environmental pollution	NO environmental pollution and sustainable development.
5.	maintenance	Green concrete requires low maintenance and repairs.
6.	resistant	Good thermal resistant and fire resistant.
7.	Compressive strength behavior	Compressive strength behavior of concrete with water cement ratio is similar to conventional concrete.
8.	strength, durability, and elasticity	The product has higher strength, durability, and elasticity which makes the concrete everlasting and low maintenance.
9.	less energy	Green Cement requires significantly less energy to produce, thus leaving a substantially smaller carbon footprint.
10.	cost-effective	The manufacturing process of Green cement does not involve the use of large energy-intensive kilns which makes it cost-effective.



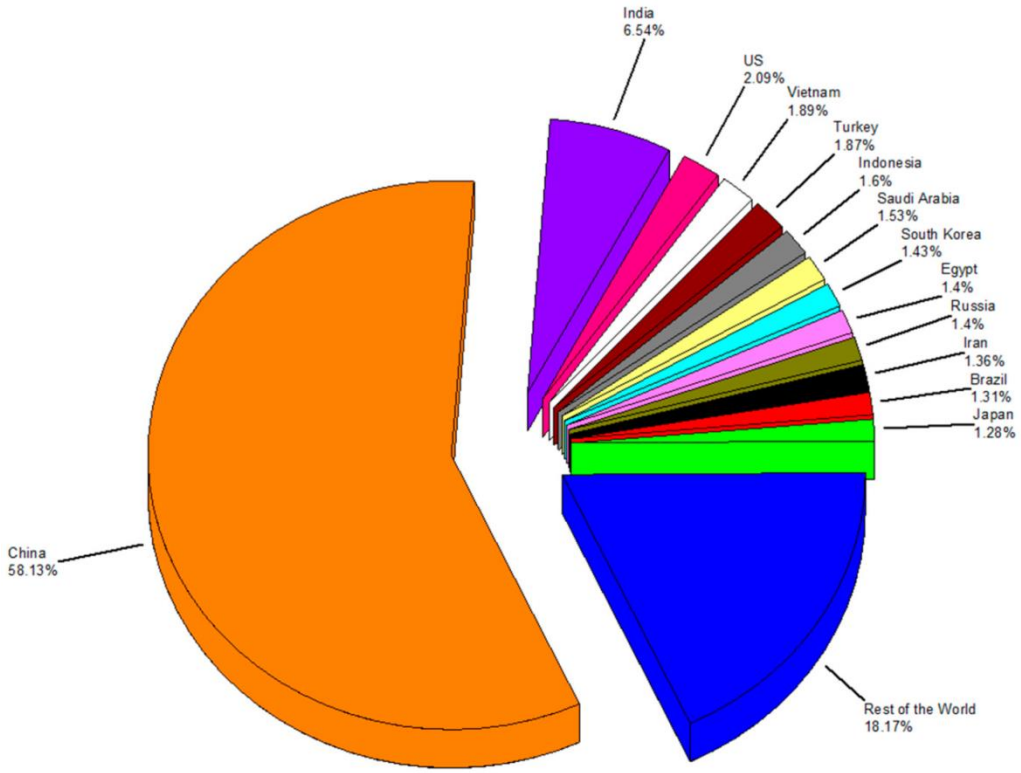


Fig 3. Global cement production

III. CONCLUSION

This paper shows that it will not only reduce the emission of CO2 in environment and environmental impact but it is also cost-effective to produce in future. In this paper we have discussed the various chemical composition of green cement with benefits and limitations.

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