

CEMENT AND RICE HUSK ASH BLENDED INTERLOCKING PAVER BLOCKS

Prefabricated interlocking paver blocks for sustainable pavement construction

Paver block is an environment-friendly and labour intensive technology which is widely used in many countries to solve special-purpose paving problems. One major advantage of using concrete paving blocks is that they can be re-assembled easily using many construction patterns. Cement is a binding material, that sets and hardens independently and binds all the materials used in the construction of paver block. Paver blocks with wider range of colour combinations are produced with different type of oxide components. The present research work has developed product using the agro industry waste for naturally coloring the complete block, that will not fade in long run. This is required because of the material scarcity, cost escalation of coloring pigments and colour loss due to wear and tear. The developed cement and rice husk ash blended paver blocks showcased a better strength characteristic, pleasant natural colour and reduced cost of product by reducing the use of cement in the concrete paver block by partial replacement with rice husk ash.

Features / Highlights

- Uses natural black colour (Rice husk ash) instead of pigments
- Replaces partially the cement content
- Strength can be easily altered for wider application
- High wear and tear resistance
- Low cost (Rs. 23 per block for 30MPa strength)
- High skid resistance texture
- Satisfied Indian Standard IS 15658-2006 requirements
- Green and waste to wealth product

Technical Details

- Dense microstructure
- High Compressive strength – wide range 30 to 50 MPa
- Less than 3.5% water absorption
- Abrasion resistance – less than 2 %
- Size tolerance – less than 1mm
- High durability

Applications

- Wider range of application for pathways, vehicle parking sites, cycle ways and for motor ways. The developed paver block is suitable for both light weight to heavy weight vehicle usage.



Typical casting



Typical mixing view



Typical water absorption test



Paver laying

Status of Technology

- Mix development using different source materials
- Design and development of building blocks for grades M30 to M50
- Rice Husk Ash used up to 20 % of cement replacement
- Density ranges from 2350- 2400 kg/m³

Future Plan

- Development of blocks with partially adding black colour pigments for mass production
- Demonstrating wider area like school assembly grounds, walkway in parks, etc.



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