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TEST

REPORT ON

EVALUATION OF PHYSICO-MECHANICAL PROPERTIES OF AGROCRETE



Advanced Structural Composites and Durability Group CSIR - CENTRAL BUILDING RESEARCH INSTITUTE Roorkee - 247667



June, 2022

Disclaimer

The responsibility of CSIR- Central Building Research Institute Roorkee is limited only to the Evaluation of Physico-Mechanical Properties of Agrocrete test report to the **sponsor (Greenjams Buildtech Pvt. Ltd.).** All procedural, legal, commercial and operational matters will be the responsibility of the sponsor only. CSIR-Central Building Research Institute, Roorkee is no way responsible for any of these.

EXECUTIVE SUMMARY

Greenjams Buildtech Pvt. Ltd., requested CSIR-CBRI to carryout following tests such as Compressive strength, Density & Dimensional Tolerance, Water Absorption, Drying Shrinkage as per the IS 2185, Thermal Conductivity for their product Agro Crete. CSIR-CBRI has carried out all the tests as per the standard procedure. The test report consists of outcome of five test results.

Title : Evaluation Of Physico-Mechanical Properties Of Agrocrete

Project Team :Dr. R. Siva Chidambaram (Scientist) – Project InvestigatorDr. G. Santhakumar (Sr. Scientist) – Co-P Project Investigator

Signature Project Investigator

Date : 08/06/2022

Objective

Evaluation of Physico-Mechanical Properties of Agrocrete according to the methods prescribed in Indian Standards.

Scope of work

The following tests to be carried out:

- 1. Compressive strength (Unconfined)
- 2. Dry density
- 3. Water absorption
- 4. Drying shrinkage
- 5. Thermal conductivity

Sample Details

Product name	Agrocrete solid blocks	Hollow Blocks
Date of manufacture	28 th July 2021	20 th April 2022
Sample submission date	24 th August 2021	25 th May 2022

Results

Dimensions:

Length (mm)	Height (mm)	Width (mm)	
Solid Blocks			
407	90	153	
Hollow Blocks			
400	150	200	

Dry Density:

Sample Nos.	Solid Blocks	Hollow Blocks
	Value	(kg/m^3)
Sample 1	1433	782.53
Sample 2	1525	806.36
Sample 3	1509	835.69
Mean	1489	808.19

Water Absorption:

Sample Nos.	Wet Weight (kg)		Dry Weight (kg)		Value (%)	
	Solid	Hollow	Solid	Hollow	Solid	Hollow
Sample 1	9.107	10.902	7.834	9.524	16%	14%
Sample 2	9.574	11.858	8.589	10.516	11%	13%
Sample 3	8.838	11.838	7.911	10.357	12%	14%
Average Value					13%	13.6%

Drying Shrinkage:

Sample Number	Average Value (%)		
Sample ($75 \times 75 \times 180 \text{ mm}$) 3 Nos	0.045%		

Compressive Strength of Solid Blocks:

Sample Numbers	Value (MPa)	Typical Failure
1	12.3918	A Station of the second
2	10.4092	
3	12.7866	Street -
4	13.0119	- alea-
		and the second sec
5	11.8728	(a)
6	10.303	
7	16.5937	
8	15.2013	
9	17.6709	
		the main harman and
10	16.8801	(b)
11	11.957	
12	10.7601	
13	15.5879	
14	16.4256	
15	15.9865	
16	16.047	
10	16.84/	(C)
Mean Comp. Strength	14.04 MPa	
Standard Deviation	2.6	

Sl.No	Area (mm ²)	Load (kN)	Strength (MPa)	Typical Failure
1	80000	416.5	5.21	
2	80400	409.0	5.09	G C
3	80400	410.5	5.11	
4	80400	415.0	5.16	
		Mean	5.14	and a start of
		SD	0.05	The second se

Compressive Strength of Hollow Blocks

Summary of Test Results of Agrocrete Blocks

Sl.No	Description	Solid	Hollow	Unit
1	Dry Density	1489.0	808.19	kg/m ³
2	Water Absorption	13.0	13.6	%
3	Drying Shrinkage	0.045		%
4	Compressive Strength	14.04	5.14	MPa
5	Thermal Conductivity	0.4185		W/m/K
	(@26 deg.cel)			

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