



**Test Values & Comparison of Products made  
with recycled plastic with conventionally  
used products**

# USP of our HDCP Tiles

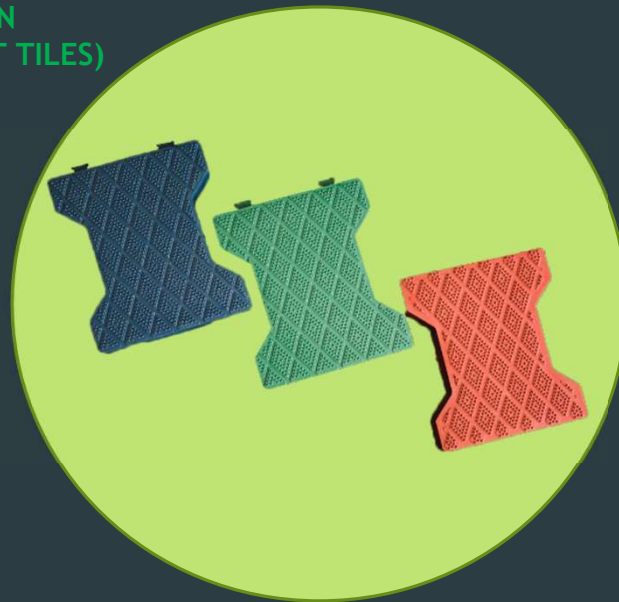


**RECYCLABLE**

**DURABLE**

(LASTS 4X LONGER THAN  
CONVENTIONAL CEMENT TILES)

**WEATHERPROOF**



**ACID  
RESISTANT**

**CORROSION  
RESISTANT**

**ANTI SKID**

**ANTI-STATIC**

**ANTI  
MICROBIAL**

# Test Reports of our HDCP Tiles



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SKD/NPL/WM/2k20-02

February 21, 2020

## TEST REPORT ON HDCP TILES

Source of sample: Shayna Ecountified India Pvt. Ltd.  
Number of samples tested: 6 (six)  
Sample: HDCP Tile  
Lab Environment: Temperature, 24 degree Celsius, humidity 50%  
Period of test: 10-02-2020 to 20-02-2020  
Condition of Sample: Sealed & Satisfactory

### 1. WATER ABSORPTION TEST AS PER ASTM STANDARDS D-570-98

Identification	Area in sq/mt per piece	Thickness	Water Absorption (%) by wt.)	Result
HDCP L.W.T	0.0269	25mm	0.06	Pass
HDCP H.W.T	0.0269	25mm	0.05	Pass
HDCP floor tile	0.0924	12mm	0.05	Pass

### 2. COMPRESSIVE STRENGTH TEST AS PER ASTM STANDARDS D 3998

Identification	Area in sq/mt per piece	Thickness	Slab	Values	Result
HDCP L.W.T	0.0269	25mm	0-20 tonnes	> 20	No break
HDCP H.W.T	0.0269	25mm	0-40 tonnes	> 40	No break
HDCP floor tile	0.0924	12mm	0-10 tonnes	> 10	No break

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### 3. ABRASION TEST (IS:1237-2012)

Identification	Size of test specimen (mm)	Thickness	Wear due to abrasion (mm)
HDCP L.W.T	0.0269	25mm	0.06
HDCP H.W.T	0.0269	25mm	0.05
HDCP floor tile	0.0924	12mm	0.03

### 4. FIRE RETARDANCY TEST AS PER ASTM STANDARD D 635-03

Specimen	Burned length (mm)	Time (seconds)	Linear burning rate (V)
HDCP	75	1024	4.39 mm/minute

### 5. ACID RESISTANCE TEST

Identification	Solutions	Test Result Observation
HDCP L.W.T	3% (v/v) Hydrochloric acid. About 5ml of the above test solution were allowed to fall on top surface of the paver plastic tile and kept for 24 hours to verify the acid resistance behaviour.	The tested specimen does not indicate any change in coloration, disintegration, softening, spalling or cracking on the tested surface after completion of the test
HDCP H.W.T	3% (v/v) Hydrochloric acid. About 5ml of the above test solution were allowed to fall on top surface of the paver plastic tile and kept for 24 hours to verify the acid resistance behaviour.	The tested specimen does not indicate any change in coloration, disintegration, softening, spalling or cracking on the tested surface after completion of the test

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## Why go for HDCP Tiles ?

### Conventional Cement Tiles

Old and conventional - Non recyclable

Generates dust & pollution, harming the environment.

Life span of 3-4yrs

Because of heavy weight of tiles, logistics cost is higher.

Breaks during transit and installation

Fungus and bacteria develops in rainy season with time.

Poor load bearing capacity, erodes easily upon contact with forces of nature

Does not have a residual value at the end of life cycle & creates the issue of proper waste disposal and management

### HDCP Tiles

New and Modern - Recyclable

Curbs pollution by using plastic waste and reducing carbon emission thereby saving the environment.

**Lasts 4x longer than conventional tiles**

Due to light weight of tiles logistics cost is lesser.

Unbreakable during transit and installation

Anti - Bacterial and Anti - Microbial properties.

Load bearing capacity of upto 50 tonnes & weather & corrosion free

Upon end of life cycle, the products can be sold at scrap value of plastic & can be recycled again to produce more tiles

# USP of our HDCP Plast Ply



**RECYCLABLE**

**DURABLE**

**WEATHERPROOF**

**FIRE  
RETARDANT**



**CORROSION  
RESISTANT**

**WATER-  
PROOF**

**ANTI  
MICROBIAL**

**TERMITE  
PROOF**

# Test Report of our recycled plastic Sheets

सिपेट : सीएसटीएस, भोपाल

Continuation Sheet

CIPET : CSTS, BHOPAL



ULR No. TC-63781900001551P

टेस्ट रिपोर्ट नं. 22100

दिनांक : 14.08.2019

पेज नं. 2 of 2

PART-C				
TEST RESULTS				
S.No.	Name of the Test	Testing Method	Unit	Test Value Obtained
01.	Degree of Protection ingress of foreign solid object (IP 6X)	IS 16205 pt-1	-	Conforms (The assembly tested for numerical; 6, shall be deemed to have passed the test if there is no ingress of dust visible to normal or corrected vision with out magnification.)
02.	Flammability	UL-94	-	V <sub>2</sub> (Continuous burn)
03.	Chemical acid resistance	ASTM D 543	%	2.82
04.	Water absorption	ASTM D570	%	2.76
05.	Moiture Content	ASTM D 6980	%	0.080
06.	Screw withdrawl strength	IS 2380:1997	N	720.4
07.	Abrasion resistance	ASTM D1044	%	0.006
08.	Flexural strength	ASTM D790	N/mm <sup>2</sup>	10.5
09.	Tensile strength	ASTM D638	N/mm <sup>2</sup>	8.4
10.	Compressive strength	ASTM D695	N/mm <sup>2</sup>	50.17
11.	Density	ASTM D792	g/cc	1.08

Remarks:-Nil

Note:

- 1) Selection of samples for individual test has been done in accordance with respective Clause of test method.
- 2) Details of test sub-contracted: Nil
- 3) Remnant samples will be disposed after 3 months from the date of issue of test report.

Dr. Sanjeev Kumar Jain – Manager (T.S.)  
अधिकृत हस्ताक्षर / Authorised Signatory

R.M. Mishra – Principal Director & Head  
अधिकृत हस्ताक्षर / Authorised Signatory

## TEST VALUES & COMPARISON

Description	HDCP Recycled Plastic Sheets	General Plywood	Wood Plastic Composite
WATER ABSORPTION TEST	0.25%	8%	4%
DENSITY TEST GM/CM <sup>3</sup> Compressive Strength N/mm <sup>2</sup>	1.09	0.75	1.85
Across grains	18.77	15.30	35.43
Along grains	39.92	32.28	35.43
Tensile Strength N/mm <sup>2</sup>	33.71	24.80	35.43
Flexural Strength N/mm <sup>2</sup>	25.17	24.80	23.48
Impact Test (No. of Blows)	1007		
Boil Water Test			
(4 Hr Boiling 4 Hr Air dry )	No Delamination		
72 Hr Boiling	No Swelling		
Screw Holding Strength Kg	139		
Nail Holding Strength	18		
Drilling	Easy	Easy	Easy
Adhesive Bonding Fevicol	SR 998 Heat X	White Glue PVA	SR 998
Heating Dimension Change % at 100 to 105°C	No Change		

## HDCP Recycled Plastic Sheets

CONSTRUCTION	MADE OF 100% INDUSTRIAL PLASTIC SCRAP SURFACE SMOOTH
PROPERTIES	WATER PROOF, FIRE RETARDANT, STRONG, GOOD NAIL / SCREW HOLDING, NO PEELING LIKE PLYWOOD LAYER, TERMITE / BORER PROOF, NO FUNGUS, BACTERIA EVEN IN HUMID CONDITION, EASY MACHINABILITY LIKE WOODWORKING, CUTTING, DRILLING CAN BE LAMINATED LIKE PLYWOOD WITH FEVICOL HEATEX
APPLICATIONS	DOOR CLADDING, TABLE TOPS, PARTITION WORK, MODULAR KITCHEN CAR CASE WORK, INDUSTRIAL TRAYS AUTO RICKSHAW SEAT & BACK IN PLACE OF PLYWOOD BUS, TRUCK BODY BUILDING BRICK MANUFACTURING AS BRICK PALLET INDUSTRIAL TANK AND VESSEL COVERS CHAMBER COVERS IN RESIDENTIAL & MULTISTORY PROJECTS FURNITURE PORTABLE CABINS
AVAILABLE SIZE	8 FT X 4 FT



## Comparison between Gypsum Board, Block board & HDCP Recycled Plastic Sheets

HDCP Recycled plastic sheets	Gypsum Board	Wood block board
100% water proof	Easily gets damaged with water	Gets damaged upon contact with water
Anti microbial	Easily gets fungus upon contact with water	Easily gets fungus upon contact with water
Unbreakable	Fragile and easily breakable	Not as flexible as HDCP sheets, break point is lower
Fire retardant	Fire proof	flammable
Chip & corrosion resistant	Can get easily chipped	Can get chipped easily
Recyclable	Non recyclable	Non recyclable
Utilizes waste plastic & does not pollute the environment	Production process is polluting	Production process leads to deforestation
Virtually unlimited life span	Limited life span	Limited life span
Easily drillable, better screw holding capacity, easy to install	Difficult to drill , poor screw holding capacity	Lower screw holding capacity as compared to HDCP sheets
Available in various thickness (6/8/12/18/24mm)	Available in 12mm only	Available in various thickness
Easy to clean	Difficult to clean	Cannot be cleaned using soap or water
Termite proof	Termite proof	Gets damaged with termites

Tech Tips

# UL 94 Classification and Flame-Retardant Thermoplastics

Posted On March 1, 2019 By [Protolabs](#)



UL 94 is a plastics flammability standard released by the Underwriters Laboratories (USA). The standard classifies plastics according to how they burn in various orientations and part thicknesses from the lowest flame-retardant to most flame-retardant in six different classifications.

UL 94 RATING	DEFINITION OF RATING
HB	Slow burning on a horizontal part
V-2	Burning stops within 30 seconds on a part allowing for drops of vertical flammable plastic.
V-1	Burning stops within 30 seconds on a vertical part allowing for drops of plastic that are not inflames.

- either application of the test flame.
2. The total flaming combustion time may not exceed 250 seconds for the 10 flame applications for each set of 5 specimens.
  3. The specimens may not burn with flaming or glowing combustion up to the holding clamp.
  4. The specimens may not drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.
  5. The specimens may not have glowing combustion that persists for more than 60 seconds after the second removal of the test flame.

## Requirements for V-2

1. The specimens may not burn with flaming combustion for more than 30 seconds after either application of the test flame.
2. The total flaming combustion time may not exceed 250 seconds for the 10 flame applications for each set of 5 specimens.
3. The specimens may not burn with flaming or glowing combustion up to the holding clamp.
4. The specimens can drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.
5. The specimens may not have glowing combustion that persists for more than 60 seconds after the second removal of the test flame.





v2 flammability rating

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### UL 94 Classification and Flame-Retardant Thermoplastics

UL 94 Rating	Definition of Rating
HB	Slow burning on a horizontal part
V-2	<b>Burning stops within 30 seconds on a part allowing for drops of vertical flammable plastic.</b>

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### UL 94 Classification and Flame-Retardant Thermoplastics

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