

MAAK IMPEX PVT LTD

GOGREEN

GO WITH MAAK

PACKAGING TECHNOLOGIES



HEAVY DUTY C CHANNEL PAPER PALLET VS WOODEN PALLET

THE WORLD MOVES ON A PALLET

DYNAMIC LOAD AND STATIC LOAD TEST



**DYNAMIC LOAD TEST OF 500 KGS
BY FORK LIFT**



**DYNAMIC DRAG TEST ON ROUGH
FLOOR WITH 500 KGS**



**STATIC RACK TEST 750 KGS WITH
PALLET WETTING OVER 3 DAYS**



**DYNAMIC LOAD TEST OF 500 KGS WITH FORK
LIFT PUSHING PALLET CORNER**

Dynamic and Static Tests validated by INDIAN INSTITUTE OF PACKAGING - Mumbai

LABORATORY TEST REPORT

Form / Format No : 32

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Issued To: Mr Ameen Rahman C/o M/s Ficus Pax @Private Limited SY.No.95/2B, Along NH 207 Koraluru Village Thirumala Shetty Halli Cross Bangalore - 560067	TEST REPORT NO:	100/02-1920/7741
	DATE	24 Feb 2020
	Date of Start of Test	20 Feb 2020
	Date of Completion of Test	24 Feb 2020
	Customer REF. Date:	Covering Letter
	Ref Date	20 Feb 2020
	Sampling Plan:	Sampling done by the party.

Sample Details: One Set of sample said to be "C Channel Paper Pallets" marked as below

Test Results

Sr. No.	Test	(Unit)	Result Obtained	Tested as Per
1			1200x1000x145 mm	
1.1	Static Load Test Weight of (250.00 kg) for a period of 72 hours.	-	06mm deformation was observed	Guidelines of IS 6219-1989 (RA 2009)
1.2	Static Load Test Weight of (500.00 kg) for a period of 72 hours.	-	07mm deformation was observed	Guidelines of IS 6219-1989 (RA 2009)

TESTED BY  ASST.DY.MT. DIRECTOR

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Testing laboratories of Mumbai are certified by ISO 9001: 2015, NABL, BIS, Directorate General of Shipping and Directorate General of Civil Aviation, Govt. of India for specified tests.

Head Office: Plot E-2, Road No. 8, MIDC, Area, Andheri (East), Mumbai-400060.

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LABORATORY TEST REPORT

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Issued To: Mr Ameen Rahman C/o M/s Ficus Pax @Private Limited SY.No.95/2B, Along NH 207 Koraluru Village Thirumala Shetty Halli Cross Bangalore - 560067	TEST REPORT NO:	100/02-1920/7387
	DATE	19 Feb 2020
	Date of Start of Test	10 Feb 2020
	Date of Completion of Test	19 Feb 2020
	Customer REF. Date:	Covering Letter
	Ref Date	09 Feb 2020
	Sampling Plan:	Sampling done by the party.

Sample Details: One Set of sample said to be "C Channel Paper Pallets" marked as below

Test Results

Sr. No.	Test	(Unit)	Result Obtained	Tested as Per
1			1200x1000x145 mm	
1.1	Compression Test:	Kgf	3680	IS7024-1967(Part-6) RA-2018
1.2	Bending Test	-	No deformation was Observed	IS: 6219: 1989 RA 2009
1.3	Drop Test (Drop height 1.0 mtr)	-	No deformation was Observed	IS: 6219: 1989 RA 2009
1.4	Dynamic Load Test (with 250 Kg Load for 5 minutes)	-	1 mm deflection was Observed	IS: 6219: 1989 RA 2009
1.5	Inclined Impact test (Pallet) and on each face (Speed 8 km/hrs)	-	Slight deformation was observed	IS: 7028-1987 Part-3) RA-2018
1.6	Static Load test Weight of (250.00) kg for a period of 24 hours	-	7mm deformation was observed	Guidelines of IS 6219 - 1989 (RA 2009)

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Dynamic and Static Tests validated by INDIAN INSTITUTE OF PACKAGING - Mumbai



भारतीय पैकेजिंग संस्थान
Indian Institute of Packaging
Accredited under the Ministry of Commerce, Govt. of India

EX PVT LTD

LABORATORY TEST REPORT

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Sr. No.	Test	(Unit)	Result Obtained	Tested as Per
1			1200x1000x145 mm	
1.7	Vibration Test: Exposure at -18 Degree with 500 kg load for one Hour. Frequency 180 c.p.m Amplitude 2.54 cms.	-	No damage to pallet was Observed	IS 7028(Part-2) 2002
1.8	Vibration Test with 500 kg load for One hour. Frequency. 180 c.p.m Amplitude 2.54 cms.	-	No damage to pallet was Observed	IS 7028(Part-2) 2002
1.9	Vibration Test Exposure at 50 Degree with 500 kg load for One hour. Frequency: 180 c.p.m. Amplitude: 2.54 cms.	-	No damage to pallet was Observed	IS 7028(Part-2) 2002

TESTED BY *ISK*

ASSET.DY./JT. DIRECTOR

HEAD
LABORATORIES DIVISION

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MAAK IMPEX

DOUBLE CLICK ON THE BELOW ICONS TO PLAY VIDEO

DYNAMIC DRAG TEST FOR 500KG LOAD ON ROUGH SURFACE



VID-20200717-WFA0013.mp4

DYNAMIC CORNER PUSH TEST WITH 500 KG LOAD



VID-20200708-WFA0011.mp4

DYNAMIC LOAD TEST WITH 500 KG LOAD



VID-20200717-WFA0014.mp4

DYNAMIC JERK TEST FOR 500 KGS LOAD



VID-20200717-WFA0012.mp4

Controlled Contract Forestry

The paper used to make our pallets comes from the long fibre of spruce and birch trees. These trees are grown under Controlled contract forests

Controlled Contract forest means, for every 100 trees that are felled for the purpose of making paper there are more than 100 trees over 5 years old still standing. This means no loss in green cover of the forest therefore it does not disturb the ecological balance.

Green Facts / USP

- **To manufacture 500 Wooden Pallets of size 1200 X 1000MM we require 10 Trees**
- **To manufacture 500 heavy duty C CHANNEL PAPER PALLET of size 1200 X 1000MM we require 1 Tree.**
- **Since only 1 tree is used there is a substantial saving of 9 trees which is very important for improving carbon footprint**

C CHANNEL PAPER PALLETS vs WOODEN PALLET



HEAVY DUTY C CHANNEL PAPER PALLET

Size: 1200 mm X 1000 mm

WEIGHT = 10 Kgs

Max Dynamic Load : 500 Kgs



WOODEN PALLET

Size: 1200 mm X 1000 mm

WEIGHT = 23 Kgs

Max Dynamic Load : 2000 Kgs

Using heavy duty C CHANNEL PAPER PALLET there is a saving of 13 kgs per pallet which benefits shipping cargo by air as well as improves carbon foot print

COST SAVINGS

A heavy duty C CHANNEL PAPER PALLET of 1200 x 1000 mm weighs about = 10 kgs

WOODEN PALLET of the same size weighs = 23 kgs.

Net Saving = 13 Kgs

Average air freight cost = \$3 per Kg,

Savings in air freight cost per pallet = $13 \times \$3 = \39 per pallet

Disposal of wooden pallet of 23 Kgs = $\$1 \times 23 = (-\$23)$ Paid to service provider for Collection and incineration.

Disposal of heavy duty C CHANNEL PAPER PALLET = $\$0.25 \times 10 = (+\$2.5)$, Paid by service provider due to C CHANNEL PAPER PALLET being recycled by a paper mill

TOTAL SAVINGS = \$ 39 + \$ 2.5 = \$ 41.5 PER PALLET

COST SAVINGS FOR THE AIRLINER

- If in a plane we load 500 heavy duty C CHANNEL PAPER PALLET, we can save 1% of Jet fuel (105kgs) per hour
- Reduce carbon emission by 332kgs per hour due to less fuel burn

INFORMATION

Product	Kgs/pallet	Qty/500 CBM	Total weight	Weight saved
C CHANNEL PAPER PALLET WEIGHT (Kgs)	10	500	5000	6500
Plywood pallet weight (Kgs)	23	500	11500	N A

% of weight saved with corrugated pallets	56 %
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Boeing 747/300	UOM	
Freight Capacity	m2	704
Empty Weight	tonnes	267
Average Fuel efficiency	Lts/hr	13434
Fuel Burnt per kg per hour	kgs/1kg/hr	0.03
Fuel Burnt per kg per hour	ml/1kg/hr	38
Each hour of flight burns 0.03 Kgs for 1 kg carried/hour=38 ml		

Jet fuel A1 Conversion chart	
Grams	Mile liters
1000	1266
790	1000
30	37.98
10612.86	13434000

CARBON FOOTPRINT	
Kg of fuel/hour	Co2 Emission Reduction(Kgs/hr)
1	3.16
105.0588	331.985808

FUEL SAVED PER HOUR = FUEL BURNT PER KG PER HOUR X WEIGHT SAVED	
Fuel Burnt/kg/hr(Kgs)	0.03
Weight saved (Kgs)	6500
Fuel Saved per hour (Kgs)	195
Fuel Saved per hour (Its)	246.87

Increase in Fuel Efficiency with C Channel Paper Pallet is 1% approx.	
Avg efficiency (Lts)	13434
Avg efficiency (Kgs)	10612
Increased efficiency (Kgs)	105.0588
Increased efficiency (%)	1.84

- 1% Fuel savings = \$700 million SAVED per annum for Global Aviation Industry

COMPARISON CHART

PALLET SIZE 1200 X 1000 X 150 MM

C CHANNEL PAPER PALLET

- Less weight 10 Kgs
- Easily recyclable
- Earns you money when you dispose
- No fumigation required. Complies to ISPM 15 Norms .
- No fungal and termite attack
- No nails, no rusting, no splinters
- Environmental health and safety (EHS) Compliant
- Carbon positive
- Weather resistant coating that prevents fungal growth
- Saves forests

WOODEN PALLET

- More weight 23 Kgs
- Difficult to recycle
- Loses you money when you dispose
- Expensive fumigation and heat treatment procedure required
- Susceptible to fungal and termite attack in spite of fumigation and heat treatment
- Nails, rusting, splinters causing hurt to operators
- Carbon negative
- Pallet gets wet and causes fungal growth
- Destroys forests

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INDIAN INSTITUTE OF PACKAGING – TEST REPORT



LABORATORY TEST REPORT

Issued To: Mr Ameen Rahman C/o M/s Ficus Pax Private Limited SY.No.95/2B, Along NH 207 Koraluru Village Thirumala Shetty Halli Cross Bangalore - 560067	TEST REPORT NO:	IIP-CHE/5/GTR/059/2020-2021
	DATE	23.09.2020
	DATE OF START OF TEST:	09.09.2020
	CUSTOMER REF.NO :	18.09.2020
	REF. Date:	Email:
	Sampling Plan:	12.08.2020
Environmental Test Condition:		Sampling done by the party.
Sample Details: One sample of Paper Pallets said to be of Size:1200x1000x135.		

Test Results

Sr. No.	Test (Unit)	Observation/Result	Tested as Per
A.	Exposure to low temp. of -18 °C for 24 hrs. 1.) Moisture gain (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed 0.03 10 mm deflection was found.	As per party's request
B.	Exposure to temp. of 5 °C and 20% RH for 24 hrs. 1.) Moisture gain (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed 0.01 10mm deflection was found	

TESTED BY *SKD/JLK* ASST. DY. DIR. DIRECTOR

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LABORATORY TEST REPORT

Sr. No.	Test (Unit)	Observation/Result	Tested as Per
C.	Exposure to low temp. of -23 °C and 90% for 24 hrs. 1.) Moisture gain/loss (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed Nil 10 mm deflection was found.	As per party's request
D.	Exposure to temp. of 27 °C and 65% RH for 24 hrs. 1.) Moisture gain/loss (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed Nil 10mm deflection was found	
E.	Exposure to temp. of 38 °C and 90% RH for 24 hrs. 1.) Moisture gain/loss (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed 2.00 10mm deflection was found.	

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Sr. No.	Test (Unit)	Observation/Result	Tested as Per
F.	Exposure to low temp. of 55 °C and 90% for 48 hrs. 1.) Moisture gain/loss (%) 2.) Compression test: A super impose load of 3 ton weight was placed on the pallet and released	No Physical Visual damage was observed 4.82 10 mm deflection was found.	As per party's request
G.	Exposure to Higher temp. of 55 °C and 90% RH for 48 hrs. 1.) Bottom Lift Test -1: A super impose weight of 500 kg was placed on the pallet and lifted at 6 feet height for 10 minutes.	No Physical Visual damage was observed No Physical Visual damage was observed	
H.	Exposure to temp. of 55 °C and 90% RH for 120 hrs. 2.) Bottom Lift Test-2: A super impose weight of 500 kg was placed on the pallet and lifted at 6 feet height for 10 minutes.	No Physical Visual damage was observed No Physical Visual damage was observed	
	2. Bottom Lift Test-3: (Stability Test) A super impose weight of 500 kg was placed on the pallet and lifted at 6 feet height and agitated for 2 minutes.	No Physical Visual damage was observed	

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LABORATORY TEST REPORT

Test Report No: IIP-CHE/5/GTR/059/2020-2021

Date: 23.09.2020

General Remarks:

1. This test report cannot be reproduced except in full, without written approval of the laboratory.
This is not applicable when part report is given due to failure of the machine or test in process.
2. Sampling done by the party. The test samples are submitted by the client. The sample descriptions provided in the test report are based on declaration by the party.
3. This report pertains to the submitted samples only.

TESTED BY  ASST. DIR. DIRECTOR

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Testing laboratories of Chennai are accredited to NABL, Directorate General of Shipping and Directorate General of Civil Aviation, Govt. of India for specified tests.

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FOR MORE DETAILS

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