

AIR SEA CONTAINERS, INCORPORATED  
PACKAGING TESTING

UNITED NATIONS PERFORMANCE CERTIFICATION

7.2 KILOGRAM 4 x 1 CELL

4G/Y7.2/S

M4733-141015

CODE 4G/Y7.2

October 15, 2014

TABLE OF CONTENTS

OBJECTIVE	3
TEST SAMPLE DESCRIPTION	4
TEST PROCEDURE AND RESULTS	6
UN CERTIFICATION	10

## OBJECTIVE

To certify the 7.2 Kilogram HAZARDOUS MATERIALS SHIPPER to the performance requirements outlined in UN RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS, TITLE 49 CODE OF FEDERAL REGULATIONS, ICAO TECHNICAL INSTRUCTIONS AND THE IMDG CODE.

PACKING CODE DESIGNATION:            4G - FIBERBOARD BOXES

PACKING GROUP:                        II - MODERATE DANGER HAZARD

GROSS MASS:                            NOT EXCEEDING 7.2 KILOGRAMS (1 SG)

## TEST SAMPLE DESCRIPTION

Type of package: fiberboard boxes

Outer Carton:

Style: RSC

Joint: lapped and glued inside

Tare Mass: 0.68 kgs

Fiberboard: 42/26/26/26/42 275 lb double wall "B/C" flute

Outside Dims:

Inside Dims: 20<sup>1</sup>/<sub>4</sub>" x 10<sup>5</sup>/<sub>8</sub>" x 6<sup>1</sup>/<sub>2</sub>" (51.44 x 27 x 16.51) cm.

Closure: 2" plastic self adhesive tape, 3 strips applied in line fashion along center seam & extended 2"

Cushioning: none

Partition: none

Pads: none

Intermediate Container: 4 boxes x ECT48 single wall "B/C" flute 0.18 kg

Inner Container: 4 Plastic bottles (PET) x 250 ml filled with water, 1 plastic bag filled with small plastic samples cups.

Net Mass : 5.83 kg

Gross Test Mass:

Gross Tare Mass: 1.40 KG

Net Mass 5.83 KG

Gross Test Mass: 7.23 KG

Plastic bucket: M&M Industires, Inc. Chattanooga, TN

Boxes: Timbar

Partitions: Timbar

Plastic Tape: Prime Tac, NJ

## DROP TEST

**SAMPLE SIZE:**

5 packages

**GROSS MASS:**

7.23

kgs

**DROP HEIGHT:**

1.2 meters

**CONDITIONING:**

23° C @ 50% RH

**DROP ORIENTATIONS**

flat on bottom

flat on top

flat on long side

flat on short side

on corner (joint)

**TEST STANDARD:**

United Nations Recommendations on the Transport of Dangerous Goods: Chapter 9 - "General Recommendations on Packing" section 9.7.3, 49 CFR 178.603, IMDG Annex 1, 8.4, ICAO Technical Instructions 4.3

**RESULTS:**

PACKAGE #	DROP ORIENTATION	RESULT
1	ON CORNER	PASS
2	FLAT ON TOP	PASS
3	FLAT ON BOTTOM	PASS
4	FLAT ON SIDE 1	PASS
5	FLAT ON SIDE 2	PASS

**CRITERIA FOR PASSING TEST:**

There should be no leakage from the inner packagings. The outer packaging should not exhibit any damage liable to affect safety during transport.

## STACK TEST

**SAMPLE SIZE:**

3 Packages

**CONDITIONING:**

23° C @ 50% RH

**EQUIPMENT:**

guide load stack tester

**MINIMUM LOAD REQUIRED:**

223 LB Per Box

**ACTUAL LOAD APPLIED:**

675 LBS (3 Boxes Stacked x 3)

**TEST DURATION:** 24 hours

**TEST STANDARD:**

United Nations Recommendations of the Transport of Dangerous Goods; Chapter 9 - "General Recommendations on Packing" Section 9.7.6, 49 CFR 178.606, IMDG Annex I 8.7, ICAO Technical Instructions 4.6

**RESULTS:**

PACKAGE #	MAXIMUM DEFLECTION (cm)	RESULT
-----------	-------------------------	--------

6	-	PASS
7	-	PASS
8	-	PASS

**CRITERIA FOR PASSING TEST:**

No test sample may leak. No test sample may show any deterioration which could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

## VIBRATION TEST

**SAMPLE SIZE:**

3 packages

**CONDITIONING:**

23° C @ 50% RH

**EQUIPMENT:**

Gaynes 250-V Vibration Tester

**PACKAGE FILLING MATERIAL:**

Water

**TEST DURATION:**

60 minutes

**GROSS MASS:**

7.23 KG

**TEST STANDARD**

49 CFR 178.608

**RESULTS:**

PACKAGE	RESULT
9	PASS
10	PASS
11	PASS

**CRITERIA FOR PASSING TEST:**

A packaging passes the vibration test if there is no rupture or a leakage from any of the packages. No test sample should show any distortions liable to reduce packaging strength.

## COBB WATER ABSORPTION TEST

**SAMPLE SIZE:**  
3 (100 CM<sup>2</sup>) outside container surfaces

**CONDITIONING:**  
23° C @ 50% RH

**TEST DURATION:**  
30 minutes

**EQUIPMENT:**  
Triple beam balance, graduated cylinder, Cobb water absorption apparatus

**TEST STANDARD:**  
United Nations Recommendations of the Transport of Dangerous Goods; Chapter 9 -  
“General Recommendations on Packing” Section 9.6.11, 49 CFR 178.516 (b)(1),  
IMDG Annex 17.11.1

**RESULTS:**

SAMPLE	WATER ABSORBED (Grams Per Meter Squared)	RESULT
1	125	PASS
2	90	PASS
3	100	PASS

**CRITERIA FOR PASSING TEST:**

An increase in mass greater than 155 grams per square meter over this 30 minute duration represents an unacceptable level of water resistance.



## UN PACKAGING CERTIFICATION

**AIR SEA CONTAINERS** certifies that the previously described testing services have been performed in accordance with good laboratory practices and that the packaging tested has passed that standard of the UN RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS, TITLE 49 CODE OF FEDERAL REGULATIONS, ICAO TECHNICAL INSTRUCTIONS, AND THE IMDG CODE, for code 4G, packing group II medium danger hazard, gross package mass 7.2 kilograms, All other warranties, expressed or implied, including any warranty that the packaging tested are merchantable or fit for a particular purpose is disclaimed. In no event shall Air Sea Container's liability exceed the total amount paid by Air Sea Containers, Inc. customer.

PACKAGING CERTIFICATION AGENCY:  
Air Sea Containers, Inc.

PACKAGING CERTIFICATION #:  
141015

TEST REPORT NUMBER:  
141015

UN MARKING:



4G/Y7.2/S/14\*  
USA/M4733

\* Replace with year actually manufactured.

---

ALAN H. BOND  
Laboratory Supervisor