R@K Testing, LLC

UNITED NATIONS

Performance Oriented Package Tests
U.S. Department of Transportation 49 CFR , HM - 181
4G Certified Fiberboard Box,Combination Type Packagings

UN Code : **4G** Fiberboard Boxes Packing Group : I Overall Package Gross Mass: 1.1 **Kg**

Description of outside fiberboard container : **Reference: Gebauer, 4 x 4.7 ounce Aerosol Cans**
Ethyl Chloride UN1037

Style : Regular Slotted Container (RSC) weight: .4 lbs.
Certification stamp: A-Kobak, Hinckley, Ohio

Facing Liner Weights : 41.6# / msf - 41.3# / msf

Medium Weights : 23.9# / msf Board Test Grade : 200# Flute : C

Carton Dimensions : Length 7.125" x Width 7.125" x Depth 5.25 " Inside Dimensions
Length 7.4375" x Width 7.4375" x Depth 5.9375" Outside Dimensions

Manufactures Joint : 1.5" inside glue

Flap Closure : 48 mm, 1.5 mil transparent water-proof pressure sensitive sealing tape.
Two 48 mm x 12" long strips (one top and one bottom) were positioned onto the major flaps at the center intersection and onto the sides of the box.

Description of Inner Packaging Materials : The cans were inserted into a .040 chipboard solid fiber 4-cell partition with 1.625" perimeter air-cell. Can cell size: 1.8125" x 1.8125" x 5.0625" tall. Total weight of assembled partitions: 90.25 grams. See Bradford Company specification dated 8-4-08 for details.

Description of inside receptacles: Four 4.7 ounce round metal aerosol cans. Can size with safety cap: 1.77" diameter x 5.06" tall, total weight empty: 51.16 grams. The can was manufactured by Crown Aerosol Packaging, see specification #100167R1 exhibit 4.1& 4.2 for part #CR-3007706-D dated 7-11-08. The aerosol sprayer was protected by a plastic cap. The cap was snapped in place over the top chime of the aerosol can. Cap size: 1.75" diameter x 1.5" tall, weight: 4.7 grams. The safety cap was manufactured by Berry Plastics Corp. see specification C1443-1 for details.

Number per Package : Four (2x2 arrangement)

UN Test Report Number : 72611

TEST PROCEDURES and RESULTS

Preparation of Packagings for Testing
(U.N. Orange Book 9.7.3 , HM - 181 178.602)

Each Inner receptacle was filled with : water

Total Gross Mass Weight = 2.42 lbs. / 1.1 kg
Tare Weight (packaging, including receptacles) = 1 lb.
Net " product " Weight (liquid , solid or gas) = 1.42 lbs.

The fiberboard outer packaging was conditioned at 73 ^{O} F and 50 % Relative Humidity for 24 hours

Special preparation of plastic inside containers at 0 ^{O} F performed ? n/a

Drop Test (U.N. Orange Book 9.7.3 , HM - 181 178.603)

Number of drops **5** , Height of drops 72**"** , Packing Group I , Great **Danger Level**
Test Results : 1st drop , flat on bottom **PASSED**
2nd drop , flat on top **PASSED**
3rd drop , flat on long side **PASSED**
4th drop , flat on short side **PASSED**
5th drop , bottom corner **PASSED**

Comments : No leaks occured from any inner receptacle
The outer fiberboard container did not exhibit any damage liable to affect safety during transit

Stacking Test (U.N. Orange Book 9.7.6 , HM - 181 178.606)

(3) samples were subjected to a weight of 550 **Lbs.** which is equal to or greater than identical packages of the same weight stacked to the height of 3 meters (9.84 feet) x 1.5 for dynamic compression testing.

Test Results : Sample # 1 **PASSED** .13 " Deflection
Sample # 2 **PASSED** .13 " Deflection
Sample # 3 **PASSED** .13 " Deflection

Comments : No rupture , leaking , or deformation occurred

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TEST PROCEDURES and RESULTS

Cobb Test (U.N. Orange Book 9.6.11.1 , HM -181 178.516)

Quantity of (5) 5" x 5" square samples from outside shipping container

Water absorbed	1)	103 **g/m2**
	2)	111 **g/m2**
	3)	108 **g/m2**
	4)	110 **g/m2**
	5)	109 **g/m2**

Mass increase can not exceed 155 g/m2 after a 30 minute testing period

Vibration Test (HM - 181 178.608)

(3) samples were tested for a **60 minute duration @ 200 Cycles Per Minute** Frequency
Mechanical Rotary Motion with a 1 " peak to peak Amplitude

Comments : Container and contents were not affected by the vibrations , no leakage of contents

TESTING EQUIPMENT **used during the Performance Testing**

Gaynes-Vibration tester # 1250
Gaynes-Drop tester # DT-125
Testing Machines Inc. Compression tester # 17-37 with a 50,000 lbs. Capacity
Testing Machines Inc. Cobb tester
GBC Temperature and Humidity Chamber
A&D Electronic Balance # EK-120 A

UN Test Report Number : 72611

RAK Testing, LLC certifies that the previously described testing services have been performed in accordance with standard good laboratory practices . The packaging tested has **PASSED** the standards of the United Nations Transport of Dangerous Goods HM - 181 and the Department of Transportation Title 49 CFR in accordance with recommendations for UN packaging , Code 4G , Fiberboard Boxes , Combination Type Packages , **Packing Group I**, Great Danger Level Hazardous Materials with overall gross weight not exceeding 1.1 **Kg** for a **Quantity of (four) 4.7 ounce aerosol cans with closures.**

In the event that any changes are made to the use classification assumed as a basis for these test or to any part of this combination package , such as a different inner container , a different closure method or any other variation , these test results will be deemed invalid and are not to be relied upon .

RAK Testing, LLC does not perform Internal Pressure (Hydraulic) test or compatibility test on inside containers . These test if needed should be performed by your inside container supplier .

ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY THAT THE PACKAGING TESTED IS MERCHANTABLE OR FIT FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL RAK Testing, LLC LIABILITY EXCEED THE AMOUNT PAID BY THE CUSTOMER FOR TESTING SERVICES.

The appropriate certification markings to be displayed on the outside of the fiberboard container :
(Lower case “un” letters circled)

u 4G/X1.1/S/11 ** Last two digits of date of manufacture of fiberboard box, i.e., 11

n USA / M5787

Re-Testing **MUST** be scheduled before 24 month anniversary from the last testing date .

Date Tested : 7-25 through 7-26-11 UN Test Report Number : 72611

Tested for : Company : A-Kobak Container
Address : 1701 West 130th St.
City : Hinckley
State : OH
Zip : 44233
Phone : 330.225.7791 Jerry Dolph

Test Performed by : RAK Testing, LLC
777 3rd NW
Massillon , Ohio 44648
Phone : 740-624-1314
Richard Kovaleski, CPLT