ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN
AN DER WIRTSCHAFTSUNIVERSITÄT WIEN
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LICENCE

for designs of packagings for the carriage of dangerous goods

Licence No.:

6773

Date: 2010-08-06

Designs: **4GV** Fibreboard Boxes

Applicant: Duropack
Wellpappe Ansbach GmbH

Robert-Bosch-Straße 3
D 91522 Ansbach

LICENCE FOR DESIGNS OF PACKAGINGS FOR THE CARRIAGE OF DANGEROUS GOODS

1 Legal Basis

Dangerous Goods Carriage Law - Federal Law Gazette I No. 145/1998 in the version of Federal Law Gazette I No. 63/2007

Roads with public traffic:
Enclosures A and B of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), Federal Law Gazette No. 522/1973, in the version of Federal Law Gazette III No. 15/2009

Railroad:
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID), Federal Law Gazette III No. 122/2006, in the version of Federal Law Gazette III No. 110/2009

Waterroutes:
Federal Law Gazette I No. 62/1997, in the version of Federal Law Gazette I No. 17/2009 and Federal Law Gazette II No. 13/2005 in the version of Federal Law Gazette II No. 356/2006

Transport by sea:
Federal Law Gazette No. 387/1996, in the version of Federal Law Gazette I No. 32/2002 with IMDG-Code, Amendment 34-08

Civil Aviation:
Federal Law Gazette No. 97/1949, with ICAO-TI, Edition 2009-2010

in connection with:

State-accreditation of the Austrian Institute for Packaging (ÖIV) as testing laboratory by the Republic of Austria, Federal Ministry for Economical Affairs (Notification of 1995-12-29, Zl. 92714/501-IX/2/95 in the version of Notification of 2007-05-16, Zl. 92.714/0224-I/12/2007)

Notification of the Republic of Austria, Federal Ministry of Transport, Section IV, concerning the allocation of a short marking to identify packagings which have been tested by the ÖIV in accordance with Federal Law Gazette No. 143/1981 (Notification of 1981-09-21, Zl. 75.170/1-IV/6-81)

2 Applicant

Duropack
Wellpappe Ansbach GmbH

Robert-Bosch-Straße 3
D 91522 Ansbach

3 Packaging Manufacturer

Identical to applicant

4 Description of the Packaging Designs

4.1 Design "7221"

Folding boxes made of single wall corrugated fibreboard (sort "Anscor 55000", composition according to the applicant 280 KLB/160 W/280 KLB, flute B) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 135 x 135 x 280 mm (L x W x H);
Outside dimensions: 140 x 140 x 290 mm (L x W x H);
Inner Packaging: one 500-ml-glass bottle (outside diameter: 80 mm; height <incl. closure>: 190 mm; gross mass of one filled inner packaging: 2.5 kg) with plastic screw closure, placed centric in the folding box, was used for the drop test;
Maximum gross mass of the filled and sealed package: 2 kg;

4.2 Design "7222"

Folding boxes made of single wall corrugated fibreboard (sort "Anscor 55000", composition according to the applicant 280 KLB/160 W/280 KLB, flute B) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 210 x 210 x 435 mm (L x W x H);
Outside dimensions: 215 x 215 x 445 mm (L x W x H);
Inner Packaging: one 2500-ml-glass bottle (outside diameter: 140 mm; height <incl. closure>: 290 mm; gross mass of one filled inner packaging: 10.0 kg) with plastic screw closure, placed centric in the folding box, was used for the drop test;
Maximum gross mass of the filled and sealed package: 8 kg;

4.3 Design "7223"

Folding boxes made of double wall corrugated fibreboard (sort "Anscor 34940", composition according to the applicant 140 KLB/140 W/140 TLB/140 W/170 TLB, flute BC) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 275 x 275 x 287 mm (L x W x H);
Outside dimensions: 285 x 285 x 310 mm (L x W x H);
Inner Packagings: four 500-ml-glass bottle (outside diameter: 80 mm; height <incl. closure>: 190 mm; gross mass of one filled inner packaging: 2.5 kg) with plastic screw closure, evenly distributed in the folding box, were used for the drop test;
Maximum gross mass of the filled and sealed package: 9 kg;

Original filling material: articles or inner packagings of any type for solids or liquids;
For the tests glass bottles as inner packagings filled with water and lead shot were used.

5 Requirements for the Packaging Designs

The packaging designs must be in conformity with the design types which were tested according to the below-mentioned Test Report for a design type **4GV** ("Fibreboard Boxes") in accordance with chapter 6.1, Provisions for the construction and testing of packagings of enclosure A to the European Agreement regarding the International Carriage of Dangerous Goods by Road (ADR).

Similar regulations are in force for the transport by train (RID), by ship (IMDG-Code) and by plane (ICAO-Code), whereby the test requirements regarding the packagings for carrying dangerous goods by the various transport operators have been largely harmonised, because of the acceptance of the UN-Recommendations ("Orange book", Recommendations prepared by the United Nations Committee of Experts on the Transport of Dangerous Goods, 15th revised edition, 2007).

Therefore the mentioned Test Report is an integral part of this Licence:

Test Report No.:	Date:	Testing House:
6773/6/10	2010-08-06	Österreichisches Institut für Verpackungswesen

6 Manufacturing of the Packagings

Packagings of these licensed designs may be mass-produced. By printing the UN-Marking on the packagings the manufacturer guarantees that the mass-produced packagings meet all the requirements of the licensed packaging designs and that all conditions and supports listed in this Licence are fulfilled.

7 Marking

Packagings, when mass-produced in accordance with the tested designs, must be durably and visibly marked as follows:

Design "7221"

4GV/X 2/S/..*)
A/PA-02/6773

*) the last two digits of the year of production of the fibreboard boxes

All letters, numerals and symbols shall be of an appropriate size.

Design "7222"

4GV/X 8/S/..*)
A/PA-02/6773

Design "7223"

4GV/X 9/S/..*)
A/PA-02/6773

*) the last two digits of the year of production of the fibreboard boxes

All letters, numerals and symbols shall be at least 6 mm high.

8 Conditions for the Use of the Packagings

8.1 Packagings, mass-produced in accordance with the licensed packaging designs and marked according to point 7 may be used for dangerous goods if such packagings are permitted by the regulations of the various transport operators. If used for transportation by ship, suitable qualities of papers for liners and flutes should be used and the glue of the corrugated board should be wet strength.

8.2 According to the capability of the packagings, dangerous goods to be transported can be classified in packaging group I, II or III.

8.3 The total gross mass of the inner packagings must not exceed:

- for packaging design "7221": 1.25 kg;

- for packaging design "7222": 5.0 kg;
- for packaging design "7223": 5.0 kg;

8.4 The gross mass of the packages must not exceed the maximum gross mass stated in point 4.

8.5 The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging shall not be reduced below the corresponding thicknesses in the originally tested packaging. When either fewer or smaller inner packagings are used (as compared to the inner packagings used in the drop test), the thickness of cushioning material between inner packagings shall not be less than the thickness of cushioning between the outside of the packaging and the inner packaging in the original test and sufficient additional cushioning material shall be used to take up void spaces.

8.6 Inner packagings containing liquids shall be completely surrounded with a sufficient quantity of absorbent material to absorb the entire liquid contents of the inner packagings.

8.7 In addition to the UN-Marking specified in point 7 the packagings have to bear other prescribed markings, symbols and dangerous goods labels.

8.8 Those parts of packagings which are in direct contact with dangerous substances shall not be affected by chemical or by other action of those substances. If necessary, they shall be provided with a suitable inner coating or treatment. Such parts of packagings shall not incorporate constituents liable to react dangerously with the contents so as to form hazardous products, or to weaken them significantly.

8.9 The applicant named in point 2 must be able to prove that all conditions concerning the usage of these packagings are well known to everybody who uses/fills these packagings for/with dangerous goods.

8.10 Direction is made to the necessary observation of the manufacturing of packagings of this packaging design according to the "BAM - Regeln zu den Vorschriften über die Beförderung gefährlicher Güter", "BAM-GGR 001 - Verfahren der Überwachung und Qualitätssicherung der Herstellung von Verpackungen".

9 Others

The packaging designs are in accordance with the test requirements for packagings for the carriage of dangerous goods as stated in the international agreements for traffic by road (ADR), rail (RID), sea (IMDG-Code) and air (IATA-DGR/ICAO-TI). This also covers the test requirements laid down in the Recommendations of the United Nations (UN).

This Licence is given but may be revoked at any time.

10 Licence

The packaging designs as prescribed in point 5 are licensed under the condition that the requirements of point 6 - 8 are fulfilled.

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN

Dir. Univ.-Lektor Th. Rieder
Head of Institute

Ing. Dipl.-Ing. (FH) M. Auer, MSc
Executive Officer

This Licence No. 6773 consists of 8 pages.

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN
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TEST REPORT

No. 6773/6/10

Duropack
Wellpappe Ansbach GmbH

Robert-Bosch-Straße 3
D 91522 Ansbach

The results of the investigations carried out only concern the submitted sample.

In case of duplication or publishing of this issue the content may be reproduced word by word and has to retain its shape without omission or addition. Duplication or publishing of excerpts requires the written agreement of the Testing House.

If the client refers to this Test Report, he has to add „Österreichisches Institut für Verpackungswesen an der Wirtschaftsuniversität Wien (ÖIV)" and the following article:

AKKREDITIERT FÜR DIE FACHGEBIETE SCHUTZ VOR GEFÄHRLICHEN GÜTERN, VERPACKUNG UND TRANSPORT IM ALLGEMEINEN, VERPACKUNGSMATERIALIEN, ZUBEHÖR, VOLLSTÄNDIGE VERPACKUNGS- UND TRANSPORTEINHEITEN, PAPIERE, PAPPEN
DURCH DAS BUNDESMINISTERIUM FÜR WIRTSCHAFTLICHE ANGELEGENHEITEN LT. BESCHEID ZL. 92714/501-IX/2/95 VOM 29. DEZEMBER 1995
IN DER FASSUNG DES 2. ÄNDERUNGSBESCHEIDES GZ 92.714/0224-I/12/2007 VOM 16. MAI 2007

1 Submitted Sample

1.1 Applicant

Duropack
Wellpappe Ansbach GmbH

Robert-Bosch-Straße 3
D 91522 Ansbach

1.2 Packaging Manufacturer

Identical to applicant

1.3 Description of the Packaging Designs

1.3.1 Design "7221"

Folding boxes made of single wall corrugated fibreboard (sort "Anscor 55000", composition according to the applicant 280 KLB/160 W/280 KLB, flute B) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 135 x 135 x 280 mm (L x W x H);
Outside dimensions: 140 x 140 x 290 mm (L x W x H);
Inner Packaging: one 500-ml-glass bottle (outside diameter: 80 mm; height <incl. closure>: 190 mm; gross mass of one filled inner packaging: 2.5 kg) with plastic screw closure, placed centric in the folding box, was used for the drop test;
Gross mass of the filled and sealed package: 3.37 kg;

1.3.2 Design "7222"

Folding boxes made of single wall corrugated fibreboard (sort "Anscor 55000", composition according to the applicant 280 KLB/160 W/280 KLB, flute B) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 210 x 210 x 435 mm (L x W x H);
Outside dimensions: 215 x 215 x 445 mm (L x W x H);
Inner Packaging: one 2500-ml-glass bottle (outside diameter: 140 mm; height <incl. closure>: 290 mm; gross mass of one filled inner packaging: 10.0 kg) with plastic screw closure, placed centric in the folding box, was used for the drop test;
Gross mass of the filled and sealed package: 13.59 kg;

1.3.3 Design "7223"

Folding boxes made of double wall corrugated fibreboard (sort "Anscor 34940", composition according to the applicant 140 KLB/140 W/140 TLB/140 W/170 TLB, flute BC) with outer top and bottom flaps meeting (FEFCO 0201); in the box a bag made of plastics, filled with absorbent material „Vermiculite No. 3" and leakproof sealed;
Manufactured with a glued joint;
Box closure: slot closure with a glass-fibre reinforced plastic tape (75 mm wide);
Nominal inside dimensions: 275 x 275 x 287 mm (L x W x H);
Outside dimensions: 285 x 285 x 310 mm (L x W x H);
Inner Packagings: four 500-ml-glass bottle (outside diameter: 80 mm; height <incl. closure>: 190 mm; gross mass of one filled inner packaging: 2.5 kg) with plastic screw closure, evenly distributed in the folding box, were used for the drop test;
Gross mass of the filled and sealed package: 14.00 kg;

Original filling material: articles or inner packagings of any type for solids or liquids;
For the tests glass bottles as inner packagings filled with water and lead shot were used.

2 Requested Investigations

In accordance with the provisions for the construction and testing of packagings of chapter 6.1, laid down in enclosure A of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), each packaging, except the inner packagings of combination packagings, must conform with a packaging design that has been tested and licensed in accordance with the regulations of chapter 6.1 of the above named enclosure.

Similar regulations are in force for the transport by train (RID), by ship (IMDG-Code) and by plane (ICAO-Code), whereby the test requirements regarding the packagings for carrying dangerous goods by the various transport operators have been largely harmonised, because of the acceptance of the UN-Recommendations ("Orange book", Recommendations prepared by the United Nations Committee of Experts on the Transport of Dangerous Goods, 15th revised edition, 2007).

The submitted samples should be tested for the packaging specification **4GV** („Fibreboard Boxes") for Packaging Groups I, II and III and in case of positive results UN-Markings (Packaging Licence Nos.) should be established.

Additionally the outer covers (top surfaces) of the corrugated fibreboards of the outer packagings should be tested in the respect whether they comply concerning their water absorptiveness with the requirements of subsection 6.1.4.12 of enclosure A of the European Agreement regarding the International Carriage of Dangerous Goods by Road.

3 Investigations Carried out - Results of Investigations

Receipt of test samples: 2010-06-14

The air-conditioning of the test samples was made under the standard climate condition 23 °C/ 50 % relative humidity till the achievement of constant weight. The tests were carried out under the same climatic conditions.

3.1 Test of Packaging Material

3.1.1 Determination of water absorptiveness - Cobb-Test

The tests were carried out in accordance with ISO-Standard 535:1991 (see also ÖNORM EN 20535), with an exposure time of 30 minutes; the tests were carried out only on the outer covers (top surfaces) of the corrugated fibreboards.

As arithmetical means of five tests (see also attached tables) for the water absorptiveness the following values were determined:

- Sort "Anscor 55000": **103.5 g/m²**
- Sort "Anscor 34940": **122.5 g/m²**

Date of tests: 2010-07-19

3.2 Packaging Tests

The tests were carried out in accordance with the instructions of the ADR (as described in section 6.1.5, Test provisions for packagings).

3.2.1 Drop Tests

The drop of the packages was done with a drop tester, supplied by Lansmont Corporation, Modell PDT-56E, the impact target was a steel plate.

The drop height was (according to the required packaging groups) **1.8 m**.

None of the tested samples was leaking or showed any appreciable damage after the tests. The inner packagings were leakproof.

Date of tests: 2010-07-16 and 2010-07-19

3.2.2 Stacking Tests

The tests were carried out with an electronically material testing machine supplied by Comp. Zwick, type BX1-FR050TH.A1K-002, and with a mechanical stacking device respectively.

The empty test samples were subjected to a force applied to the top surface of the test samples equivalent to the total weight of identical filled packages, which might be stacked on it, up to a height of 3 metres (including test sample). The gross masses of the packagings for the drop tests were used for the calculation. The tests were done in load direction side 1 - side 3 (identification of sides according ÖNORM EN ISO 22206:1992 "Packaging; complete, filled transport packages; identification of parts when testing").
Duration of the test: 24 hours.

According to the above mentioned conditions the following constant pressure loads were applied to the samples.

- Design "7221": **370 Newton**
- Design "7222": **790 Newton**
- Design "7223": **1200 Newton**

None of the samples tested showed any considerable damage. During and after the tests no deformation or other signs of early breakdown that could affect the strength of the cases or could cause an instability of the stack were detected.

Date of test: 2010-06-17 to 2010-06-23

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN

Dir. Univ.-Lektor Th. Rieder
Head of Institute

Ing. Dipl.-Ing. (FH) M. Auer, MSc
Investigator

Vienna, 2010-08-06

This Test Report No. 6773/6/10 consists of 7 pages and 2 tables.

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN
Staatlich akkreditierte Prüfstelle

Client:	Wellpappe Ansbach	Test Report No.:	6773/6/10
Material:	corr. fibreboard	Page:	8 of 9
Special Provisions:			

DETERMINATION OF WATER ABSORPTIVENESS
COBB-TEST
ISO 535:1991

Sample:	"Anscor 55000" - outer cover		Test time:	30 min
Test piece	dry mass (g)	wet mass (g)	difference (g)	water absorptive-ness (g/m²)
1	14,2014	15,2654	1,0640	106,40
2	14,3266	15,3542	1,0276	102,76
3	14,1752	15,2041	1,0289	102,89
4	14,3348	15,3700	1,0352	103,52
5	14,3120	15,3229	1,0109	101,09
Minimum				101,09
Maximum				106,40
Standard deviation (SD)				1,94
Coeff. of variation (in %)				1,87
Mean				**103,5**
Expanded uncertainty (k = 2)				1,89

Conditioning atmosphere: Temperature 23 °C; relative humidity 50 %; Conditioning according to ISO 187
Duration of climatisation: > 24 hours; without predrying;

Deviation from the Standard:

Remarks: Test area: 100 cm² Wassertemperatur: 23 °C
Quantity of water: 100 ml

The determination of water absorptiveness was done with a balance of Firma Sartorius, type BP211D-OCE, Serial No. 90708350.

water absorptiveness *A* (Cobb value): The calculated mass of water absorbed in a specified time by 1 m² of paper or board under specified conditions. Test pieces are not allowed to be penetrated through by the water.

The test results of the determination of water absorptiveness are expressed in g/m². 5 test pieces of the submitted material were tested. The measured individual test values and the statistical analysis are summarised in this table.

Vienna, 2010-07-19

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN

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Investigator

ÖSTERREICHISCHES INSTITUT FÜR VERPACKUNGSWESEN
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Client:	Wellpappe Ansbach	Test Report No.:	6773/6/10
Material:	corr. fibreboard	Page:	9 of 9
Special Provisions:			

DETERMINATION OF WATER ABSORPTIVENESS
COBB-TEST
ISO 535:1991

Sample:	"Anscor 34940" - outer cover		Test time:	30 min
Test piece	dry mass (g)	wet mass (g)	difference (g)	water absorptive-ness (g/m²)
1	15,8081	17,0423	1,2342	123,42
2	15,7051	16,8890	1,1839	118,39
3	15,5917	16,8394	1,2477	124,77
4	15,7324	16,9850	1,2526	125,26
5	15,6399	16,8349	1,1950	119,50
Minimum				118,39
Maximum				125,26
Standard deviation (SD)				3,13
Coeff. of variation (in %)				2,56
Mean				**122,5**
Expanded uncertainty (k = 2)				2,92

Conditioning atmosphere: Temperature 23 °C; relative humidity 50 %; Conditioning according to ISO 187
Duration of climatisation: > 24 hours; without predrying;

Deviation from the Standard:

Remarks: Test area: 100 cm² Wassertemperatur: 23 °C
Quantity of water: 100 ml

The determination of water absorptiveness was done with a balance of Firma Sartorius, type BP211D-OCE, Serial No. 90708350.

water absorptiveness *A* (Cobb value): The calculated mass of water absorbed in a specified time by 1 m² of paper or board under specified conditions. Test pieces are not allowed to be penetrated through by the water.

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The measured individual test values and the statistical analysis are summarised in this table.

Vienna, 2010-07-19

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