® TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Constructions Prague
Akreditovaná zkušební laboratoř, Autorizovaná osoba, Certifikační orgán, Inspekční orgán
Accredited Test Laboratory, Authorised Body, Certification Body, Inspection Body
Prosecká 811/76a, 190 00 Praue 9, Czech Republic

ES CERTIFICATE OF CONFORMITY

No. 1020 – CPD - 070022944

In compliance with the Directive 89/106/EC of European Communities dated 21 December 1988 on legal and administration regulations harmonization in member states regarding building products (Directive of building products – CPD), in the wording of the Directive No. 93/68/EC of European Communities dated 22 July 1993, it is confirmed hereby that

INSULATION BOARD VELOX
Type/Variant: WS single layer, double layer and multi-layer
WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3
and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)200-CI3

Which was launched at the market by:
VELOX-WERK, s.r.o.
Hranice I – Město, Bělotínská cesta, 753 01 Hranice, Id.No. 62363778
Czech Republic

And was produced by:
VELOX-WERK, s.r.o.
Hranice I – Město, Bělotínská cesta, 753 01 Hranice, Id.No. 62363778
Czech Republic

is subjected to production management qt the producer and other testing of samples taken at the production place in a specified way, and that the Authorized Body which is

Technical and Test Institute for Constructions Prague

Carried out initial tests of particular characteristics of the product type, initial inspection at the production site and production management system at the producer, and performs continuous supervision, assessment and approval of the production management system at the products.
The Certificate proves that any and all provisions were applied regarding the conformity proving and any and all indicators described in Annex No. ZA of the Standard

EN 13168:2002

And that the product meets all specified requirements.
The Certificate was issued for the first time on 7 June 2004 and it shall be effective until the conditions set forth in the harmonized technical specification referred to, or production conditions at the production site, or particular production management system, is significantly changed.
A person responsible for the correctness of the Certificate:

Stamp of the Authorized Body 204
Ostrava, 4 October 2004

Round stamp
of the Auth.Body
204

Signature illegible
Ing. Olivier Částka
Notified Body Deputy Head

PAVUS, a.s.
AUTHORIZED BODY AO 216

Prosecká 412/74, 190 00 Praha 9 – Prosek

Branch: čtvrť J. Hybeše 879
Veselí nad Lužnicí
391 81

RECORD OF CLASSIFICATION

PURSUANT TO CSN EN 13501-1:2003

1 KEY DATA

Subject of classification:	**Response of a building product to fire**
Item name and type:	**Chips cement board WS**
Identification number:	**PK1-02-04-013-C-0**
Date of issue:	2004-07-13
Owner of Record:	**VELOX WERK s.r.o.** Bělotínská cesta 753 01 Hranice
Issuing organization:	PAVUS, a.s. Authorized Body AO 216 Prosecká 412/74 190 00 PRAHA 9 Test Laboratory and Fire Technical Laboratory Veselí nad Lužnicí
Number of copies:	4
Number of issue:	1
Number of pages:	3

2 INTRODUCTION

2.1 The Record of Classification determines classification of a particular item in accordance with procedures set forth in CSN EN 135012-1.

2.2 The Record of Classification consists of 3 pages and can only be used as a whole.

3 DETAILED INFORMATION OF A CLASSIFIED ITEM

3.1 Origin and application in practice

A product – single layer chips cement insulation board WS, bound by hydraulic cement.

Suitable as thermally and acoustically insulation material with water steam permeability.

3.2 Description

Boards WS – cement bound insulation board, of coarsely porous structure, which is made by pressing from particles based on wood and additives. Medium volume mass of the board is 630 – 710 kg m^{-3}.

4 RECORD OF TEST AND TEST FINDINGS APPLIED FOR THE CLASSIFICATION

4.1 Test Record

Laboratory name Address Accreditation number	Applicant for the Test Record	Record No.	Test procedure according to
PAVUS, a.s. Veselí nad Lužnicí AZL No. 1026.1 AZL No. 1026.2	VELOX WERK s.r.o. Bělotínská cesta 753 01 Hranice	Pr-04-1.01.001 Pr-04-2.07.045	EN 13823 EN ISO 11925 – 2

4.2 Findings of tests of building products

Test procedure according to	Parameter	Number of tests	Findings	
			Means continual parameter	Parameter of compliance
EN 13823	FIGRA (W/s) THR_{600s} (MJ) LFS (m) SMOGRA (m^2/s^2) TSP_{600s} (m^2)	3	23.76 2.6 0 0 13.47	≤120 ≤7.5 < 1 ≤30 (s1) ≤ 50 (s1)

Test procedure according to	Parameter	Number of tests	Findings	
			Means continual parameter	Parameter of compliance
EN ISO 11925-2	Fs (mm)	6	20	≤ 50

5 CLASSIFICATION AND DIRECT APPLICATION AREA

5.1 Reference and area of direct application

The classification was performed in accordance with the Article 10, CSN EN 13501-1.

5.2 Classification

According to a response to fire, the product Chips cement board WS is classified in

The class of response to fire: B-s1, d0

5.3 The area of application

The classification applies to the following application in practice: As a lining partition material for wall items in common construction building. Or also as permanent formwork in civil and house-building.

Technological procedures of the producer should be followed in application.

6 APPLICABILITY PROVISIONS

6.1 Limitation

A time limitation for the Record of Classification validity is 5 years from a date of its issue.

6.2 Notice

The Record of Classification does not supersede approval of a type or certificate of the product.

Prepared by:

Signature illegible
Ing. Bohumír Adámek

Checked by:

Signature illegible
Ing. Roman Zoufal, CSc.

PAVUS, a.s.
Authorized Body AO 216
Branch
391 81 Veselí nad Lužnicí

Round stamp of Ing. Roman Zoufal,CSc.
Authorized Engineer for fire safety
of constructions

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Constructions Prague
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Accredited Test Laboratory, Authorised Body, Certification Body, Inspection Bod
Branch 0700 Ostrava – Testing Laboratory No. 1018.7, Accredited by the Czech Institute of Accreditation

RECORD

No. 070-022449

Of a Test of Determination of Thermal Resistance of Insulation Woody Chips Boards WS 25

Applicant: **Technical and Test Institute for Constructions Prague**
Authorized Body 204
Prosecká 811/76a, 190 00 Prague 9
Branch Ostrava

Contract of Control Activity Number 308/2004 dated 2004-03-17

Order No.: Z070040308

Annexes: 7.1 Thermal conductivity
7.2 Thermal resistance

The Record consists of 4 written pages including a covering page and it was made in three counterparts. The first original shall be given to the Applicant, the other and third ones are archived together with other documentation in the Technical and Test Institute for Constructions Prague (TZÚS), state enterprise – branch Ostrava.

Person responsible for the Record wording:

Signature illegible
Ing. Soňa Godická
Test Department Head

Person responsible for the Record correctness:

Ostrava, 2004-04-30 Round stamp of TZÚS, branch Ostrava
Stamp of an authorized test laboratory

Signature illegible
Ing. Tomáš Klepáč
Test Laboratory Head

Notices:

3) *Test findings only apply to subjects (patterns) being tested.*
4) *The Record should only be reproduced as a whole if not approved otherwise in writing by the Test Laboratory.*

1 Data of the subject (pattern) test

1.1 Product:

Insulation woody chips boards type WS 25 from the production plant VELOX – WERK s.r.o., Hranice, nominal thickness 25 mm.

1.2 Term of tests performance:

The tests were performed in a period of 2004-04-05 to 2004-04-23.

2 Acceptance of samples:

Date of sampling:	2004-03-19
Place of sampling:	VELOX – WERK s.r.o. Hranice
Sampling made by:	Representative of Author.Test Laboratory Ing. Vojtěch Šebek
Samples accepted by:	Representative of Author.Test Labor. Mr. František Kostka
Sampling procedure:	Accidental choice from a storage of products
Sample identification:	The test sample is marked by a number from the Sample Register 227.

3 Data of product:

Insulation woody chips boards type WS 25 are single-layer – chips-cement boards produced by pressing from wood based particles bound by hydraulic cement and additives.

A sample for the tests was delivered into the laboratory and it was registered in the Sample Register under number 227.

Marking of a sample	WS 25/1, WS 25/2, WS 25/3, WS 25/4, WS 25/5 WS 25/6, WS 25/7, WS 25/8, WS 25/9, WS 25/10
Number of samples by kinds	10 boards 2000 x 500 x 25 mm
Date of sample production	
Date of delivery in the laboratory	2004-03-22

4 Test methods, regulations and procedures

4.1 Following procedures were applied for testing:

Consecutive number	Exact name of test	Method identification
5/8	Determination of thermal resistance .- conductivity of materials and products in stabilized thermal condition	IP No. 0745T008 (CSN 72 7012-2 to 3, CSN 72 7014, CSN 72 7302, CSN 72 7306, CSN EN 12664, CSN EN 12667, CSN EN 12939, CSN EN ISO 8497, CSN EN 13162 Art. 5.3.2 to CSN EN 13171 Art. 5.3.2)

4.2 Specification of applied test procedures:

Procedures according to following technical specifications were applied for testing:

- CSN EN 13168:2002 Thermal insulation products intended for the building industry – Industrially made wood wool products – Specification.
- CSN EN 12667:2001 Thermal behavior of building materials and products – Determination of thermal resistance by methods of protected heat board and heat flow gauges – Products of high and medium thermal resistance.

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5 Test equipment and its metrological relationship

Equipment, gauge	Inventory number	Certification valid by
Two meter folding rule	III-48	2006-04-17
Digital sliding gauge (0-300 mm)	070.0327	2005-03-01
Steel angle	2/1677	2009-01-18
Steel angle	III-45	2009-01-18
Thermometer	296	2010-02-18
Sartorius scales	7-8109	2005-01-19
Air conditioning Temperature/humidity	070.8179	2007-02
Thermal conductivity gauge	7-9611	Prior to the use by the means of etalon

The test equipment and gauges used for the test are verified in a metrological way and stated in a metrological code of the Test Laboratory. Registration verification sheets are kept at the Laboratory metrological technician.

6 Test of determination of thermal conductivity coefficient

6.1 Preparation, identification of samples for testing, measurement findings

A test of the thermal conductivity coefficient was carried out according to /4/ at medium temperature of measurement 10°C using a set of samples, the set comprised totally 10 pieces of WS 25 boards.
The measurement findings are presented in the following tables.

Thermal conductivity of woody chips board type WS 25					
Sample marked by author	WS 25/1	WS 25/2	WS 25/3	WS 25/4	WS 25/5
Sample size (mm) (Length/Width/Thickness	600/600/26.8	598/599/26.3	599/600/26.8	596/599/26.2	599/599/27.0
Volume mass ($kg.m^{-3}$)	700.7	723.6	706.6	704.4	711.1
Medium measurement temperature (°C)	10.2	10.2	10.1	10.5	10.5
Measured value of thermal conductivity coefficient λ ($W.m^{-1}.K^{-1}$)	0.1089	0.1128	0.1090	0.1020	0.1072

Thermal conductivity of woody chips board type WS 25					
Sample marked by author	WS 25/6	WS 25/7	WS 25/8	WS 25/9	WS 25/10
Sample size (mm) (Length/Width/Thickness	599/602/26.8	599/597/27.2	599/601/26.0	597/599/26.3	599/600/26.4
Volume mass ($kg.m^{-3}$)	736.8	711.4	698.9	721.7	710.3
Medium measurement temperature (°C)	10.3	10.6	10.2	10.5	10.6
Measured value of thermal conductivity coefficient λ ($W.m^{-1}.K^{-1}$)	0.1023	0.1029	0.1091	0.1042	0.1001

6.2Tests evaluation

The evaluation of tests is presented in Tables, Chapter No. 7 herein.

6.3 Measurement uncertainty

The measurement uncertainties were not defined.

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7 Annex

7.1 Thermal conductivity

Thermal conductivity of insulation woody chips boards type WS 25										
Sample marked by author	WS25/1	WS25/2	WS25/3	WS25/4	WS25/5	WS25/6	WS25/7	WS25/8	WS25/9	WS25/10
Measured value of thermal conductivity coefficient of sample λ ($W.m^{-1}.K^{-1}$)	0.1089	0.1128	0.1090	0.1020	0.1072	0.1023	0.1029	0.1091	0.1042	0.1001
Mean value of thermal conductivity sample λ_{mean} ($W.m^{-1}.K^{-1}$)	0.1058									
Choice standard deviation S λ ($W.m^{-1}.K^{-1}$)	0.0039									
Value k for 10 test results (-)	2.07									
Thermal conductivity coefficient $\lambda_{90/90}$ $\lambda_{90/90} = (\lambda_{mean} + k \times s\lambda_0$ ($W.m^{-1}.K^{-1}$)	0.1139									
Thermal conductivity coefficient $\lambda_{90/90}$ (rounded) ($W.m^{-1}.K^{-1}$)	**0.11**									

7.2 Thermal resistance

Thermal resistance of woody chips insulation boards type WS 25		
Nominal thickness of product dN	(m)	0.025
Thermal conductivity coefficient $\lambda_{90/90}$	($W.m^{-1}.K^{-1}$)	0.1139
Thermal resistance $R_{90/90}$ $R_{90/90} = dN/ \lambda_{90/90}$	($m^2.K^{-W1}$)	0.220
Thermal resistance $R_{90/90}$ (Rounded)	($m^2.K^{-W1}$)	**0.22**

End of Record

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The Municipal Authority in Hranice.
Dated: 16 March 2005. Signature: illegible Round stamp of TZÚS, branch Ostrava
Jaroslava Skácelová
Authorized by vidimus and authentication. Round stamp of the Municipal Authority of Hranice

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Constructions Prague
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Accredited Test Laboratory, Authorised Body, Certification Body, Inspection Body
Prosecká 811/76a, 190 00 Praue 9, Czech Republic

Authorized Body 204 according to Decision by ÚNMZ No. 3/2004
Notified Body 1020
Branch 0700 – Ostrava

RECORD

Of the Product Certification Result

Pursuant to § 5 Par. 1 Letter d) Government Decree No. 190/2002 Coll. (Conformity Assessment System 1) and in compliance with the Directive 89/106/EC of the European Communities Council (Directive of building products – CPD), in the wording of the Directive No. 93/68/EC of the European Communities Council

No. 070-022943

Product name:
Insulation Board VELOX
Type/Variant: WS single layer, double layer and multi-layer
WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3
and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)200-CI3

Producer:
VELOX-WERK, s.r.o.

Id.No.:	62363778
Address:	Bělotínská cesta, 753 01 Hranice
Production plant:	VELOX-WERK, s.r.o.
Address:	Bělotínská cesta, 753 01 Hranice
Order:	Z070 04 0308

Number of pages of the Record incl. covering page: 4 Number of Annex pages: 17

A person responsible for the Record content:

Signature illegible
Ing. Vojtěch Šebek
Chief Assessor

Stamp of the Authorized Body 204
Ostrava, 4 October 2004

Round stamp of the Auth.Body 204

Signature illegible
Ing. Olivier Částka
Notified Body Deputy Head

1 General data

1.1 Data of producer

Business name:	VELOX-WERK, s.r.o.
Seat:	Bělotínská cesta, 753 01 Hranice
Id. No.:	62363778

1.2 Data of product:

Product description and its application: Insulation board VELOX type marking according to CSN EN 13168 WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3 and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)20 CI3
Product description and its application: A board VELOX single layer – chips cement is made by pressing from particles based on wood bound by hydraulic cement and additives.
A board VELOX multi-layer – combination of single layer boards or in combination with thermally insulation material.
The board VELOX is made from following raw materials:

- Woody chips - coniferous sawn wood (spruce and fir) – cut-outs of quality classes IV and V
- Binder – Portland cement CEM I 42.5 R
- Mixing water
- Additives water glass Na2SiO3 (serves to mineralization of woody chips)
- Foam polystyrene boards EPS 70
- Wood laths: material – spruce, thickness – 8 mm, width 22-24 mm, length 1900 mm, laths should be free of any knots or other defects which would adversely impact the strength of in a product they are used in.

The board VELOX is made in following variants:
WS- cement bound woody chips insulation board, coarsely porous structure and not flammable incrustation of chips guarantees its high strength, thermal resistance, fire resistance, acoustic properties and permeability of water steams.
WSC- structure as a WS board with admixtures of iron trioxide Fe2O2 for red color of the board in the whole volume.
WSD – structure as a WS board, with properties of high dynamic stiffness with higher admixture of cement and due to higher volume mass.
WSL – structure as a WS board, with a property of high strength due to wood laths insertion
WS EPS – the same structure as in case of boards WS and WSC with single side lamination (by bonding a board from foam polysterene).

A choice of representative: Representatives were chosen according to procedures of CSN EN 13168, the insulation board VELOX was randomly chosen as a representative of the product set so as to represent the production for 4 weeks of production: 5 pc of WS 50 boards for tests of response to flame, WS 25 15 pc of boards WS 135 5 boards and 15 pc of boards WS 35 for mechanical and physical tests.

1.3 A summary of background documents handed over by the producer for the product certification

- Application for performance of the Authorized Body – product certification pursuant to § 5 Par. 1 Letter d) Government Decree No. 190/2002 Coll. No.
- Description of a management system of production of insulation boards VELOX;
- PN 3-03 CHIPS CEMENT BOARD VELOX Z DATED 2003-04-01

1.4 A list of other background documents used for the product certification

- IP AO 99, TZÚS Prague, April 2004
- Government Decree No. 190/2002 Coll. determining technical requirements for building products

1.5 Technical specification related to the product certification

- CSN EN 13168:2002 Thermally insulation products for the building industry – Industrially made products from wood wool (WW) - Specification

1.6 Information of previous product certification

- In the previous sub-period, the product was certified in the national regime according to the Government Decree of the Czech Republic 163/2002 Coll. and CSN EN 13168:2002.

2 Product assessment

2.1 Technical requirements

- The product was assessed according to CSN EN 13168 and related CSN Standards in followed properties:

- Response to flame
- Thermal resistance
- Length and width
- Thickness
- Rectangularity
- Evenness
- Volume mass
- Dimensional stability
- Compatibility with other substances (content of chlorides)
- Compression strength
- Short-term absorption ability
- Release of hazardous substances

2.2 A bill of records of tests and assessments

- Record of type examination No. 1020 – CPD – 070022427 dated 2004-06-04, TZÚS Praha, s.p., branch Ostrava
- Record No. 070-022428 of production management system assessment finding at producer, AO 204 dated 2004-05-10.

2.3 Evaluation of test findings and product assessment

Followed property	Test record	Test procedure	Test result	Required declared level	Evaluation
1	2	3	4	5	6
Response to flame	070-022284	EN 13823 EN ISO 11925-2	B-s1,d0	B-s1, d0	Compliant
Compression strength	070-022284	0743T018	253 kPa	≥ 200.0 kPa	Compliant
Thermal resistance	070-022284	0743T018	0.20 m^2*K*m^{-1}	≥ 0.15 m^2*K*m^{-1}	Compliant
Release of hazardous substances	070-022284	No hazardous substances occur in production inputs according to the formula of the producer			Compliant
Compatibility with other substances	070-022284	CSN EN 13168, C.1	≥0.06 %	≥ 0.002 %	Compliant
Dimensional stability	070-022284	0743T018	0.20 %	0.50 %	Compliant
Short-term absorption ability	070-022284	0743T018	5.85 kg/m2	Not required	Compliant
Volume mass	070-022284	0743T018	WS25 illegible	25 mm 700 $kg*m^{-3}$ +/.-10 % 35 mm 670 $kg*m^{-3}$ +/.-10 % 50 mm 630 $kg*m^{-3}$ +/.-10 %	Compliant

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Followed property	Test record	Test procedure	Test result	Required declared level	Evaluation
1	2	3	4	5	6
Length Width	070-022284	0743T018	2000 + 2 500 + 1	+ 3, - 5 mm	Compliant
Thickness	070-022284	0743T018	+2 mm	+/-3 mm	Compliant
Evenness	070-022284	0743T018	0.5 mm/m	≤ 6.0 mm/m	Compliant
Rectangularity	070-022284	0743T018	1.0 mm/m	≤ 4.0 mm/m	Compliant

3 Production management system assessment

- The assessment was made on 2004-04-09.

3.1 A requirement of technical specification for the production management system

- Requirements for the production management system are included in CSN EN 13986.

3.2 Assessment of the production management system:

- The assessment is presented in the Record of the production management system assessment.

4 Conclusion

The product sample in followed properties meets the requirements of the technical specification. The production management system is in compliance with the technical documentation and its proper functioning is guaranteed. Findings and conclusions herein apply under a precondition that no change occurs in the facts under which the assessment of conformity was performed, and provided such change can impact properties of products (such as change in technical regulations, technical specification, production technology, input materials and production equipment).
The technical documentation of the product should be supplemented by reports of supervision over proper production management system functioning in accordance with provisions of § 5 Par. 1 Letter d) of the Government Decree No. 190/2002 Coll..

5 Annexes

5.1 Record No. 1020-CPD-070022284 of an initial type test of the insulation board VELOX dated 2004-07-02, AO 204 – TZÚS Praha, s.p., branch Ostrava

5.2 Record No. 070-022283 of the production management system assessment finding at producer, AO 204 - TZÚS Praha, s.p., branch Ostrava

Stamp of the Authorized Body 204

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The Municipal Authority in Hranice.
Dated: 16 March 2005. Signature: illegible
Jaroslava Skácelová
Authorized by vidimus and authentication. Round stamp of the Municipal Authority of Hranice

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
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Branch 0700 Ostrava – Testing Laboratory No. 1018.7, Accredited by the Czech Institute of Accreditation

RECORD

No. 070-022282

Of a Test of Woody Chips Boards WS 25, WS 35 and WS EPS 135

Applicant: Authorized Body 204, Ing. V. Šebek

Contract No.: 308/04 Dated: 2003-03-30

Order No.: Z070040308

Annexes:

The Record consists of 4 written pages including a covering page and it was made in three counterparts. The first original shall be given to the Applicant, the other and third ones are archived together with other documentation in the Technical and Test Institute for Constructions Prague (TZÚS), state enterprise – branch Ostrava.

Person responsible for the Record wording:

Signature illegible
Ivo Rajnošek
Test Department Head

Person responsible for the Record correctness:

Ostrava, April 15, 2004 Round stamp of TZÚS, branch Ostrava
Stamp of an authorized test laboratory

Signature illegible
Ing. Tomáš Klepáč
Test Laboratory Head

Notices:

1) *Test findings only apply to subjects (patterns) being tested.*
2) *The Record should only be reproduced as a whole if not approved otherwise in writing by the Test Laboratory.*

1 Data of the subject (pattern) test

1.1 Product:
Boars from woody chips WS 25, WS 35, WS EPS 135

1.2 Term of tests performance:
Tests of determination of mechanical characteristics and sizes were performed in a period defined in Item 6.2.

2 Acceptance of samples:

Date of sampling:	See Table in Item 3
Place of sampling:	Production plant Hranice
Sampling made by:	Ing. Šebek
Sampling procedure:	Accidental sampling
Sample identification:	Number from the Sample Register 395

3 Data of product:
Samples of taken over samples for the test were delivered to the laboratory of TZÚS (See Table) and registered in the Sample Register under the number 395.

Marking of set of samples	1/395	2/395	3/395
Product kind	WS 25	WS 35	WS EPS 135
Number of samples	15	15	5
Date of delivery in the laboratory	22/3/2004	22/3/2004	22/3/2004

4 Test methods, regulations and procedures
4.1 Following procedures were applied for testing:

Consecutive number	Exact name of test	Method identification
3/18	Determination of mechanical characteristics and sizes	IP No. 0743T018 (CSN EN 13168 Annex C.2 and C.3, CSN EN 822 to CSN EN 826, CSN EN 1602, CSN EN 1604, CSN EN 1605, CSN EN 1606, CSN EN 1609, CSN EN 12089, CSN EN 12430)

4.2 Specification of applied test procedures:
- The tests were carried out pursuant to CSN EN 822 to CSN EN 826, CSN EN 1602, CSN EN 1609, CSN EN 12089

5 Test equipment and its metrological relationship

Equipment, gauge	Inventory number	Certification valid by
Scales	Z.2481	12/2004
Press 3000 kN	7.5585	10/2004
Breaking machine	7.5618	05/2004
Steel zone	C/326/29	03/2007
Sliding gauge 300 mm	707.0327	04/2006
Steel angle	2/1677	12/2005
Measuring wedge	32	02/2008
Scales	7.8109	01/2005
Drier	I-5918	04/2005
Air conditioning	070.8179	02/2007
Thickness gauge	3-5/86	03/2005
Dial gauge	83	04/2006

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The test equipment and gauges used for the test are verified in a metrological way and stated in a metrological code of the Test Laboratory. Registration verification sheets are kept at the Laboratory metrological technician.

6 Test findings

6.1 Preparation and identification of samples for testing

Samples for the test were prepared by the Applicant in the production plant in Hranice. Samples of boards from woody chips were marked (See Table in Item 3).

6.2 Test findings

Tab. No. 1 Determination of mechanical characteristics and sizes, tests carried out in a period of 29 – 31 March 2004.

Sample kind	Sample number	Weight kg	Volume mass kg*m	Size in mm L	W	H	Evenness mm L	W	Rectang .mm L	W
WS 25	1	18.4	710	2000	500	26	0.5	0	1.5	0.5
	2	19.5	750	2000	500	26	0	0	1.0	0.5
	3	18.5	710	2000	500	26	0.5	0	0.5	1.0
	4	18.9	700	2000	500	27	0	0	2.0	1.0
	5	18.3	680	2000	500	27	0	0	1.5	0.5

Sample kind	Sample number	Weight kg	Volume mass kg*m	Size in mm L	W	H	Evenness mm L	W	Rectang .mm L	W
WS 35	1	25.7	710	2000	500	36	1.0	0	2.0	0.5
	2	24.8	710	2000	500	35	0.5	0	1.5	1.5
	3	23.1	680	2000	500	34	0.5	0	1.0	1.0
	4	24.2	690	2000	500	35	0	0	1.0	1.0
	5	23.5	650	2000	500	36	0	0	1.5	0.5

Tab.No. 2 Determination of bending strength, tests carried out in a period of 1 – 2 April 2004

Sample kind	Sample number	Span of supports mm	Force in failure (N)	Bending strength kPa	Total deflection (mm)
WS 25	1	1900	130	1096	37
	2	1900	120	1012	36
	3	1900	110	928	31
	4	1900	130	1016	26
	5	1900	160	1251	45

Sample kind	Sample number	Span of supports mm	Force in failure (N)	Bending strength kPa	Total deflection (mm)
WS 35	1	1900	280	1231	41
	2	1900	270	1256	28
	3	1900	330	1627	37
	4	1900	280	1303	40
	5	1900	280	1231	35

Tab. No. 3 Determination of compression strength, tests carried out in a period of 6 – 8 April 2004

Sample kind	Sample number	Size in mm L	W	Th.	Loading force 10 % kN	Loading force of flux N	Compression strength kPa	Stress in 10 % def. kPa
WS 25	1	200	200	26	270	1300	32.5	6.8
	2	200	200	26	255	1140	28.5	6.4

Round stamp of TZÚS, branch Ostrava

Sample kind	Sample number	Span of supports mm	Force in failure (N)	Bending strength kPa	Total deflection (mm)
WS 35	1	1900	280	1231	41
	2	1900	270	1256	28
	3	1900	330	1627	37
	4	1900	280	1303	40
	5	1900	280	1231	35

Tab. No. 3 Determination of compression strength, tests carried out in a period of 6 – 8 April 2004

Sample kind	Sample number	Size in mm L	W	Th.	Force on 10 % of deformation N	Loading force of flux N	Compression Strength kPa	Stress in 10 % def. kPa
WS 25	1	200	200	26	11700	13000	325	293
	2	200	200	26	10080	11400	285	252
	3	200	200	27	10110	11450	286	253
	4	200	200	26	10950	12100	303	274
	5	200	200	27	11600	12800	320	290

Tab. No. 4 Determination of short-term absorption ability in partial dipping, method A, tests carried out in a period of 5-8 April 2004

Sample kind	Sample number	Size in mm L	W	Th.	Initial weight m_o g	Weight after 24 hours of dipping m_{24}	Short-term absorption ability W_p Kg/m2
WS 25	1	200	200	34	0.586	0.791	5.13
	2	200	201	35	0.700	0.932	5.80
	3	201	200	35	0.571	0.775	5.10
	4	200	200	35	0.650	0.884	5.85

Tab. No.5 Determination of tearing strength, tests carried out in a period of 9 – 14 April 2004

Sample kind	Sample number	Tearing force	Tensile strength
WS EPS 135	1	860	Failure out of the glued joint
	2	810	Failure out of the glued joint
	3	850	Failure out of the glued joint

Tab. No. 6 "Cl" analysis, tests carried out in a period of 25 March – 6 April 2004 in VUCHEM Ostrava

Sample kind	Sample number	Concentration Cl mass %
WS 25	1	< 0.001
	2	0.002
	3	<0.001

End of Record

This photocopy Consecutive No. 907/2005
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of 4 sheets.
The Municipal Authority in Hranice.
Dated: 16 March 2005. Signature: illegible Round stamp of TZÚS, branch Ostrava
Jaroslava Skácelová
Authorized by vidimus and authentication. Round stamp of the Municipal Authority of Hranice

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Constructions Prague
Akreditovaná zkušební laboratoř, Autorizovaná osoba, Certifikační orgán, Inspekční orgán
Accredited Test Laboratory, Authorised Body, Certification Body, Inspection Body
Prosecká 811/76a, 190 00 Praue 9, Czech Republic

Authorized Body 204 according to Decision by ÚNMZ No. 3/2004
Notified Body 1020
Branch 0700 – Ostrava

REPORT

Of the Production Management System Evaluation Finding

Pursuant to §5 Par. 1 Letter d) Government Decree No. 190/2002 Coll.
(Conformity Assessment System 1) of the Czech Republic

No. 070-022283

Product name:
Insulation Board VELOX
Type/Variant: WS single layer, double layer and multi-layer
WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3
and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)200-CI3

Producer:
VELOX-WERK, s.r.o.

Id.No.:	62363778
Address:	Bělotínská cesta, 753 01 Hranice
Production plant:	VELOX-WERK, s.r.o.
Address:	Bělotínská cesta, 753 01 Hranice
Order:	Z070 04 0308

Number of pages of the Report incl. covering page: 1
Background materials for assessment:

1. PN 3-03 WOODY CHIPS CEMENT BOARD VELOX dated 2003-04-01.
2. Description of the production management system including a control and test plan and quality records
3. Production management system review at the producer in certification dated 2004-06-25, Authorized Body 204 Technical and Test Institute for Construction Prague – branch Ostrava
4. Record of remedy of incompliance dated 2004-07-15.

A conclusion: The production management system is in compliance to the technical documentation and ensures that products launched at the market correspond to the technical documentation.

A person responsible for the Report content:

Stamp of the Authorized Body 204
Ostrava, 29 September 2004

Round stamp of the Auth.Body 204

Signature illegible
Ing. Vojtěch Šebek
Chief Assessor

VYSOKOŠKOLSKÝ ÚSTAV CHEMIE MATERIÁLŮ
UNIVERSITY INSTITUTE OF CHEMISTRY OF MATERIALS
MINING UNIVERSITY-TECHNICAL UNIVERSITY OSTRAVA
TŘ. 17. LISTOPADU 708 33 OSTRAVA-PORUBA

RECORD OF TESTS PERFORMANCE

Record number: 133/04

Number of Record pages: 1
Number of Annex pages: 0

Customer: TZÚS (Technical and Test Institute for Construction, U Studia 14, 700 30 Ostrava – Zábřeh,
CAL order number: = 006-04=
Test subject: Solid substance

Former designation	VÚCHEM number
1	583/04
2	584/04
3	585/04

Required analyses: Cl concentration
Date of samples reception: 25 March 2004
Date of tests performance: 25 March – 6 April 2004
Description of sampling: Samples taken by the Customer. VÚCHEM assumes no guarantee for any mistakes caused by wrong sampling.
Methods applied: CSN EN 13168.
Date of Record issue: 7 April 2004

The test findings only apply to the test subject and do not supersede any other documents (for example of an administrative character) required by government technical supervision pursuant to specific requirements.

The Record should only be reproduced as a whole if not approved otherwise in writing by VÚCHEM.

Test findings:

Former designation	VÚCHEM number	Cl concentration (mass %)
1	583/04	< 0.001
2	584/04	0.002
3	585/04	<0.001

The measurement uncertainty equals 23 %.

Responsible person: Ing. Zdeněk Lacný, Head of the Department of Organic Analysis

VÚCHEM Director: Prof. RNDr. Zdeněk Weiss, DrSc.
Signature illegible

Stamp: Mining University
Technical University Ostrava
University Institute of
Chemistry of Materials
708 33 OSTRAVA-PORUBA
17. listopadu 15/2172

TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Constructions Prague
Akreditovaná zkušební laboratoř, Autorizovaná osoba, Certifikační orgán, Inspekční orgán
Accredited Test Laboratory, Authorised Body, Certification Body, Inspection Body
Prosecká 811/76a, 190 00 Praue 9, Czech Republic

Authorized Body 204 according to Decision by ÚNMZ No. 3/2004
Notified Body 1020
Branch 0700 – Ostrava

RECORD

Of the Product Type Test

Pursuant to § 5 Par. 1 Letter d) Government Decree No. 190/2002 Coll.
(Conformity Assessment System 1) and in compliance with the Directive 89/106/EC of the European Communities Council (Directive of building products – CPD), in the wording of the Directive No. 93/68/EC of the European Communities Council

No. 1020-CPD-070022284

Product name:
Insulation Board VELOX
Type/Variant: WS single layer, double layer and multi-layer
WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3
and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)200-CI3

Producer:
VELOX-WERK, s.r.o.

Id.No.:	62363778
Address:	Bělotínská cesta, 753 01 Hranice
Production plant:	VELOX-WERK, s.r.o.
Address:	Bělotínská cesta, 753 01 Hranice
Order:	Z070 04 0308

Number of pages of the Record incl. covering page: 3 Number of Annex pages: 13

A person responsible for the Record content:

Ing. Tomáš Klepáč
Test Laboratory Head

Signature illegible
Ing. Vojtěch Šebek
Chief Assessor

Stamp of the Authorized Body 204
Ostrava, 4 October 2004

Round stamp of the Auth.Body 204

Signature illegible
Ing. Olivier Částka
Notified Body Deputy Head

1 Specification of the test subject

Sample specification: Insulation board VELOX, type WS single layer, double layer and multi-layer
Producer: VELOX-WERK, s.r.o., Bělotínská cesta, 753 01 Hranice
Production plant: VELOX-WERK, s.r.o., Bělotínská cesta, 753 01 Hranice
Product name: Insulation board VELOX type marking acc. to CSN EN 13168 WW-C/2 EPS 85(95, 115, 135, 155, 185, 215. 235)-EN 13168-L2-W1-T3-S2-P1-CS (10/Y)200-CI3 and WW 25, 35, 50-EN 13168-L2-W1-T1-S2-P1-CS(10/Y)20 CI3
Product description and Its application: A board VELOX single layer – chips cement is made by pressing from Particles based on wood bound by additives, hydraulic cement, and which Provide fire response to fire of the class B-s1, d0.
A board VELOX multi-layer – combination of single layer boards or in Combination with thermally insulation material.
Technical specification: CSN EN 13168 Thermally insulation products for the building industry – Industrially made products from wood wool (WW) - Specification
Date of test completion: 2004 –07-13

2 Sampling:

Date of sampling: 2004-03-18 boards WS 25 – 15 pc, WS 35 – 15 pc; WS 135 – 5 pc WS 50 5 pc; 2004-05-17 test of determination of response to fire
Place of sampling: VELOX – WERK s.r.o.,Bělotínská cesta, 753 01 Hranice
Sampling made by: Ing. Vojtěch Šebek
Sampling procedure: Accidental choice and according to CSN EN 326-1 Article 5
Transport means: By vehicle
Acceptance date: 2004-02-13, 2004-04-09, 2004-04-20 and 2004-05-17
Sample Reg. No. : 363, 423, 410 and 452

3 Test findings

3.1 Geometric parameters

The determination was performed according to following test regulations:
CSN EN 882 Thermally insulation products for the building industry – Determination of the length a width
CSN EN 883 Thermally insulation products for the building industry – Determination of the thickness
CSN EN 882 Thermally insulation products for the building industry – Determination of the rectangularity
CSN EN 882 Thermally insulation products for the building industry – Determination of the evenness
Tests carried out by: Mr. Ivo Rajnošek
Other test data: The size measurement was carried out in normal laboratory environment.
Test findings:

Property	Found values					Production size
	Sample No. 1	Sample No. 2	Sample No .3	Sample No. 4	Sample No. 5	
Length width WS 25 WS 35	2001, 501 2000, 500	2000, 501 2000, 501	2002, 500 2002, 501	2001, 501 2001, 500	2000, 500 2000, 501	2000,500 mm
Thickness WS25, WS35	26, 36	26, 35	26, 34	27, 35	27, 36	25, 35 mm
Rectang.WS25,WS35	0.75; 1.0	0.5; 0.75	0.25; 0.5	1.0; 0.5	0.75; 0.75	≤ 4 mm/m
Evenness WS 25, WS 35	0.5; 1.0	0; 0.5	0.5; 0.5	0; 0	0; 0	≤ 6 mm

3.2Mechanical and physical properties

The determination was performed according to following test regulations:

CSN EN 13823 Testing of building products response to fire -Building products save floor covers exposed to thermal leakage of a particular burning object

CSN EN ISO 11925-2 Testing of response to fire – Ignition ability of building products exposed to direct flame acting. Part 2: Testing by a small flame source

CSN EN 13168 Annex No.: C.2

CSN EN 12667 Thermal behavior of building materials and products – Determination of thermal resistance by methods of a protected heating plate and thermal flow gauge – Products of high and medium thermal resistance

CSN EN 826 Thermal insulation products for the building industry – Pressure testing

CSN EN 1602 Thermal insulation products for the building industry - Determination of volume mass

CSN EN 1609 Thermal insulation products for the building industry – Determination of short-term absorption ability under partial dipping

CSN EN 12089 Thermal insulation products for the building industry – Bending test

Tests carried out by: PAVUS AO 216, Ing. Soňa Godická, Ivo Rajnošek and Radek Valový

Other test data: The tests were carried out following samples conditioning in normal laboratory environment, or according to valid procedures of test laboratories..

Test findings:

Property	Found values				
	Sample No. 1	Sample No. 2	Sample No. 3	Sample No. 4	Sample No. 5
Characteristics of response to fire	B-s1, d0				
Thermal resistance (m^2*K*m^{-1})	0.20				
Hazardous substance release	No hazardous substances are presented in production inputs according to the formula of the producer				
Corrosive substance release (%)	0.001	0.002	0.001	-	-
Water permeability (kg/m2)	5.13	5.80	5.10	5.85	-
Dimensional stability (length, width, thickness) %	0.15; 0.15; 0.20	0.10; 0.15; 0.20	0.20; 0.15; 0.20	-	-
Compression strength (kPa)	293	252	253	274	290
Bending strength (kPa)	1096	1012	958	1016	1251
Volume mass WS25 /WS35 kg/m3	710/710	750/710	710/680	700/690	680/650

4 Annexes:

- Record No. 070-022449 of a test of determination of thermal resistance of insulation woody chips boards type WS 25, AZL 1018.7, 2004-04-03;
- Record No. PK1-02-04-013-C-0 of classification according to CSN EN 13501-1, AO 216 PAVUS, 2004-07-13
- Record No. 070-022282 of a test of woody chips board WS 25, WS 35 and WS EPS 135, AZL 1018.7, 2004-04-15;
- Record of tests performance No. 133/04 Cl concentration analysis, VÚCHEM Mining University-Technical University, 2004-03-25 to 2004-04-06.