

**CLASSIFICATION OF REACTION TO FIRE
FIRES-CR-100-17-AURE**

Cement-bonded particleboard CETRIS® / CETRIS® AKUSTIC

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CLASSIFICATION OF REACTION TO FIRE with extended field of application

FIRES-CR-100-17-AURE

Name of the product: Cement-bonded particleboard CETRIS[®] / CETRIS[®] AKUSTIC

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1. INTRODUCTION

This classification report defines the reaction to fire classification assigned to element Cement-bonded particleboard CETRIS® / CETRIS® AKUSTIC in accordance with the classes given in EN 13501-1: 2007 + A1: 2009.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, cement-bonded particleboard CETRIS®, is used in vertical and horizontal building constructions, non-loadbearing walls and partitions, cladding of walls, shaft walls, exterior loadbearing and non-loadbearing walls, floor systems, hollow core floors, cladding of timber and steel constructions in order to increase fire resistance, as membrane of suspended ceiling according to EN 13964, and Cement-bonded particleboard CETRIS® AKUSTIC is used as acoustic cladding of walls and ceilings, which is fixed to the steel supporting construction with a layer of mineral wool.

2.2 PRODUCT DESCRIPTION

Cement-bonded particleboard CETRIS® consists of timber mass, cement, water, hydrating ingredients and surface treatment. There are openings with diameter of 12 mm drilled in the board in case of type CETRIS® AKUSTIC. These openings are evenly distributed on the whole surface in distance 32 mm.

Content of individual components (volume %):

- timber mass 60 %;
- cement 22 %;
- water 15 %;
- hydrating ingredients 3 %.

Board thickness: 8 mm - 40 mm.

Bulk density: 1350 kg/m³.

Cement-bonded particleboard CETRIS® are produced with following surface treatments:

Table No. 1

BASIC	smooth surface, without surface treatment
PROFIL	relief surface, without surface treatment;
AKUSTIC	smooth surface, evenly drilled openings;
PLUS	smooth surface, with surface treatment: <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (140 – 220) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight;
PROFIL PLUS	relief surface, with surface treatment: <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (140 – 220) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight;
FINISH	smooth surface, with surface treatment: <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • top coat BTAitop 1000A/CTS, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight;



FINISH PROFIL	<p>relief obverse side, with surface treatment:</p> <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • top coat BTAitop 1000A/CTS, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight;
AKUSTIC FINISH	<p>smooth surface, evenly drilled openings, with surface treatment:</p> <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • top coat BTAitop 1000A/CTS, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight;
LASUR	<p>smooth surface, with surface treatment:</p> <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • scumble varnish BTAitop 1000A/CTS-lazura, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 38 % by weight;
PROFIL LASUR	<p>relief obverse side, with surface treatment:</p> <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • scumble varnish BTAitop 1000A/CTS-lazura, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 38% by weight;
LASIN	<p>smooth grinded surface, with surface treatment:</p> <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • scumble varnish BTAitop 1000A/CTS-lazura, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 38 % by weight;



AKUSTIC LASIN	smooth grinded surface, evenly drilled openings, with surface treatment: <ul style="list-style-type: none"> • base coat BTAitop 1000A/CRT, area density (200 – 250) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 52% by weight; • base coat BTAi EP 3000 AB, area density (110 – 130) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 56% by weight; • top coat BTAitop 1000A/CTS-lazura, area density (160 – 200) g/m² (in wet state), applied on obverse/seamy side of board and on edges of board, dry matter content min. 38 % by weight;
DOLOMIT NEW	smooth surface, with surface treatment: surface treatment on obverse side of board: <ul style="list-style-type: none"> • coat Waterstop, water resistant coat for surface treatment of seamy side, area density 0,100 kg/m²; • epoxide plaster EPOXY-β-2 water resistant glue used as base for marble brush on obverse side, area density 0,200 kg/m² • marble brush, area density 2,5 – 3 kg/m², grain 3 mm thick;

Note: Manufacturer of coats and varnish BTAitop 1000A/CRT, BTAitop 1000A/CTS, BTAitop 1000A/CTS-lazura and BTAi EP 3000 is BTA Industry a.s., K velké Ohradě 776, 155 00 Praha 5, Czech Republic. Manufacturer of individual components of surface treatment DOLOMIT NEW is UAB "Vilsoplat", Titnago g. 19, 023 00 Vilnius, Lithuania.

Cement-bonded particleboards are fixed to the supporting construction (timber or steel) by steel screws placed in spacing max. 300 mm.

Boards CETRIS[®] AKUSTIC are fixed to supporting construction made of steel galvanized profiles (60 x 27 x 0,6) mm, by means of steel screws (Ø 4,2 x 25) mm placed in spacing max. 300 mm.

Layer of insulating material (building construction without cavity), e.g. mineral wool Orsil HARDSLIL, Orsil N (manufacturer SAINT-GOBAIN ORSIL s.r.o. Častolovice, Czech Republic) or other type of mineral wool with bulk density min. 60 kg/m³ and reaction to fire class A1 may be applied to CETRIS[®] boards or building constructions are produced with cavity (without insulation).

Layer of insulating material, e.g. mineral wool with bulk density min. 22 kg/m³ and reaction to fire class min. A2-s1, d0 is applied to CETRIS[®] AKUSTIC boards from the inside of the construction.

Joints of cement-bonded particleboards CETRIS[®] are without mastic or with mastic DEXAFLAMM-R (manufacturer: TORA, spol. s r.o., Czech Republic).

Suspended ceilings

Supporting construction of suspended ceiling according to EN 13964 is made of profiles CD (60 x 27 x 0,6) mm, loadbearing and assembling. Maximal spacing between loadbearing CD profiles is 960 mm. Maximal spacing between assembling CD profiles is 420 mm. Assembling profiles are fixed to loadbearing profiles by cross coupling. Loadbearing profiles are fixed to roof by means of straight hinges. Type of CD profile, cross coupling and straight hinge is of KNAUF, type D 112 (supplier KNAUF Praha, s.r.o., Czech Republic) ceiling construction. Material of CD profiles, suspension and fixation elements – steel of class min. DX 51D+Z according to EN 10142, with a continuous metal layer, applied in hot state Z100 according to EN 10327.

There are 5 mm wide dilatation gaps between boards, which are sealed by mastic DEXAFLAMM-R (manufacturer TORA Spytihněv spol. s r.o., Czech Republic). Boards CETRIS[®] are fixed to loadbearing construction by means of screws (Φ4,2 x 35) mm or (Φ3,9 x 30) mm placed in spacing max. 300 mm. Screw heads are sealed by mastic DEXAFLAMM-R (manufacturer TORA Spytihněv spol. s r.o., Czech Republic).



40 mm thick insulating layer made of mineral wool (according to table No. 2) is inserted between CD profiles of supporting construction. Second layer of mineral wool (according to table No. 2), 40 mm thick is placed on first mineral wool layer. Upper layer of mineral wool is rotated 90°, so the joints are overlapped.

Table No. 2

Product variant A)	Orsil HARDSIL with bulk density 60 kg.m ⁻³ (manufacturer SAINT-GOBAIN ORSIL s.r.o. Častolovice, Czech Republic)
Product variant B)	Orsil N with bulk density 100 kg.m ⁻³ (manufacturer SAINT-GOBAIN ORSIL s.r.o. Častolovice, Czech Republic)

3. EXTENDED APPLICATION REPORTS AND TEST RESULTS IN SUPPORT OF CLASSIFICATION

3.1 EXTENDED APPLICATION REPORTS

No.	Name of laboratory	Name of sponsor	Report No.	Date of issue
[1]	FIRES, s.r.o., Batizovce, Slovak Republic	CIDEM Hranice, a.s., Czech Republic	FIRES-ER-016-17- NURE	12. 04. 2017

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with classes defined in clause 11.7 of EN 13501-1: 2007 + A1: 2009.

4.2 CLASSIFICATION

The element, Cement-bonded particleboard CETRIS® / CETRIS® AKUSTIC, in relation to its reaction to fire behaviour is classified:

A2

The additional classification in relation to smoke production is:

s1

The additional classification in relation to flaming droplets / particles is:

d0

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation products is:

Fire behaviour		Smoke production			Flaming droplets	
A2	-	s	1	,	d	0

Reaction to fire classification: A2-s1, d0



4.3 FIELD OF APPLICATION

This extended application report is valid for product described in clause 2.1 and following end use:

- i) in horizontal (excluding floorings) and vertical position;
- ii) without surface treatment;
- iii) with surface treatment according to clause 2.2.2 (all color shades);
- iv) without cavity;
- v) with cavity (apart from boards CETRIS® AKUSTIC);
- vi) with timber supporting construction (apart from boards CETRIS® AKUSTIC);
- vii) with steel supporting construction;
- viii) gaps in joints of boards without mastic;
- ix) gaps in joints of boards with mastic (apart from boards CETRIS® AKUSTIC).

This extended application report is valid for following product parameters:

Thickness	<ul style="list-style-type: none"> - thickness of cement-bonded particleboards CETRIS® and CETRIS® AKUSTIC may vary in range from 8 mm to 40 mm; - thickness of mineral wool be changed; - change in surface treatment thickness is allowed within the scope of manufacturing tolerances;
Bulk density [kg/m ³]	<ul style="list-style-type: none"> - change in the bulk density of cement-bonded particleboards CETRIS® and CETRIS® AKUSTIC is allowed within the scope of manufacturing tolerances; - increase in the bulk density of mineral wool is allowed;
Area density [kg/m ²]	<ul style="list-style-type: none"> - change in the bulk density is allowed within the scope of manufacturing tolerances;
Product composition	<ul style="list-style-type: none"> - content of individual components CTD according to clause 2.2.2 shall not be changed; - only surface treatment according to clause 2.2.2 may be used for CTD; - only mineral wool with minimal reaction to fire class A2-s1, d0 is allowed to be used in construction of the product; - ceiling according to EN 13964 is produced with/without cavity above membrane, only mineral wool with reaction to fire class A1 may be used for insulation; - supporting construction may be made of timber (apart from boards CETRIS® AKUSTIC), timber-based materials (apart from boards CETRIS® AKUSTIC) and steel, or other materials with reaction to fire class A1.

5. LIMITATIONS

This classification document does not represent type approval or certification of the product.

The classification is valid provided that the product, field of application, standards and regulations are not changed.

Approved:

Signed:

Ing. Štefan Rástocký
leader of the testing laboratory



Ing. Samuel Skokan
technician of the testing laboratory