



Order No.: Z210160063

PAVUS, a.s.

AUTHORIZED BODY AO 216
NOTIFIED BODY 1391
EGOLF MEMBER



FIRE TESTING LABORATORY VESELÍ NAD LUŽNICÍ

Testing Laboratory No. 1026 accredited by ČIA

REACTION TO FIRE TEST REPORT

č. Pr-16-1.068-En

Issued on 2016-04-06

for product

MgO board

WellYoung MgO Board

Sponsor:

Technický a zkušební ústav stavební Praha s.p.
Branch Brno
Hněvkovského 228/77
617 00 Brno
Czech Republic

For company:

Zhangjiagang Wellyoung Material Co., Ltd.,
DongFang Xintiandi D-2501,
Zhangjiagang City,
Jiangsu Province,
China 215600

Test method:

EN ISO 1716

» Reaction to fire tests for products

– Determination of the gross heat combustion (calorific value) «

Report contains: 5 pages
(3 text pages + 2 annexes)

No. of copies: 3
Copy No.: 3

The report may not be reproduced other than in full, except with the written approval of testing laboratory.

Prosecká 412 / 74, 190 00 Prague 9 – Prosek, mail to: mail@pavus.cz, <http://www.pavus.cz>
CIN: 60193174, TIN: CZ60193174, in Commercial Register of the Municipal Court in Prague, section B, inset 2309
Phone: +420 286 019 587, Fax: +420 286 019 590

Branch Veselí nad Lužnicí
Čtvrť J. Hybeše 879, 391 81 Veselí nad Lužnicí, mail to: veseli@pavus.cz
Phone: +420 381 477 418, Fax: +420 381 477 419

1 INTRODUCTION

The gross head of combustion of WellYoung MgO Board was determined following the order of the company Technický a zkušební ústav stavební Praha s.p., Branch Brno in the Fire Testing Laboratory of PAVUS, a.s. in Veselí nad Lužnicí.

In case of dispute, the Czech version of the text shall prevail.

The tests were prepared, performed and evaluated on the basis of following documents:

- [1] EN ISO 1716:2010 Zkoušení reakce výrobků na oheň – Stanovení spalného tepla (kalorické hodnoty)
(*Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)*)
- [2] EN 13238:2010 Zkoušení reakce stavebních výrobků na oheň – Postupy kondicionování a obecná pravidla pro výběr podkladů
(*Reaction to fire tests for building products – Conditioning procedures and general rules for selection of substrates*)
- [3] Technical documentation of the test product (delivered by the sponsor)

For the purposes of this report the definitions stated in [1] and [2] are valid together with following abbreviations:

ČIA Český institut pro akreditaci, o.p.s. (Czech Accreditation Institute)
ATL Accredited Testing Laboratory

2 TEST SUBJECT

Product name: WellYoung MgO Board

Product identification: MgO boards

Manufacturer: Zhangjiagang Wellyoung Material Co., Ltd.,
DongFang Xintiandi D-2501,
Zhangjiagang City,
Jiangsu Province,
China 215600

Product thickness: 12 mm

Density: 1,100 kg/m³

Product composition: MgO (52.0-55.0) %, MgCl₂ (25.0-30.0) %, Fiberglass (1.0-1.5) %, Perlite (5.5-6.5) %, wood powder (3.0-3.5) %, CaCO₃ (5.5-6.0) %.

Product use: interiors and exteriors claddings boards

Date of sample arrival: 2016-02-16

Sampling procedure: performed by sponsor without ATL participation

Conditioning: according to [2]

3 TEST PERFORMANCE

Tests were performed according to [1] and [2].

The testing and measuring equipment used is given in Annex 1.

The tests were performed in the laboratory on 6th April, 2016. The ambient air temperature was 25 °C with 35 % relative ambient air humidity.

The gross heat of combustion has been with all specimens determined by crucible method in adiabatic calorimeter.

4 TEST RESULTS

The gross heat of combustion of the specimen has been calculated from the measured values given in Annex 2.

Specimen	Gross heat of combustion Q_{PCS} (MJ/kg)
1_022/16	0.07
2_022/16	0.21
3_022/16	0.17
Average	0.15

The gross heat of combustion of the specimen is 0.15 MJ/kg.

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

Report and annexes sheets are valid with embossed stamp only.



Elaborated by:

Hejna
Pavla HEJNÁ
ATL Engineer

Approved by:

Kápl
Jiří KÁPL
ATL Manager

ANNEX 1: TESTING AND MEASURING EQUIPMENT, MEASUREMENT UNCERTAINTY

Test apparatus:	Registration number
Adiabatic calorimeter IKA C4000, pressure equipment, cooler	0059

Measuring equipment:	Metrological registration number:
Elektronic thermometer of calorimeter	3 10 57
Thermo-hygro-baro-graph D 4130	3 13 08, 3 09 11
Digital balance KERN EW 6000	3 04 09
Analytical balance WAX 60/220	3 04 14

The metrological relationships of the device are defined in the metrological registration card of the device, this card is expressly identified by the metrological registration number of the device.

Measured quantity			Expanded measurement uncertainty
Name	Symbol	Unit	
Ambient air temperature	T	°C	< 0.7
Calorimeter temperature	Q	°C	< 0.001
Ambient air relative humidity	φ	%	< 2.6
Water mass, specimen mass	m	g	< 0.12
Specimen mass	m	g	< 0.0001
Specimen size	d	mm	< 0.1

The reported expanded uncertainties of measurement are stated as the standard uncertainties of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %.

The standard uncertainty of measurement has been determined in accordance with EA-16/02 and GUM.

ANNEX 2: MEASUREMENT

Component mass and temperature rise during the individual determination:

Specimen	Specimen mass (g)	Benzoic acid mass (g)	Temperature rise ΔT (K)
1_022/16	0.50157	0.40480	1.165
2_022/16	0.46681	0.58123	1.675
3_022/16	0.48179	0.49215	1.419

In all three cases a firing wire with 30 J gross heat of combustion and a cotton thread with 50 J gross heat of combustion has been used. The gross heat of combustion of the benzoic acid was 26 460 J/g.

Calculation of the gross heat of combustion:

$$Q_{PCS} = \frac{E(T_m - T_i + c) - b}{m}$$

Where:

Q_{PCS} ... gross heat of combustion (MJ/kg)
 E water equivalent of calorimeter with accessories (in this case 9 292 by the 1st bomb and 9 288 by the 2nd bomb) (J/K)
 ΔT temperature rise ($T_m - T_i$) (K)
 b correction to combustion supporting means (MJ)
 c temperature correction required for the exchange of heat with the outside (zero in this case) (K)
 m mass of the test specimen (kg)

From the above expression the final values given in chapter 4 have been calculated.

In determination 1_022/16 and 3_022/16 was used the 1st bomb, in determination 2_022/16 was used the 2nd bomb.