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Accred. No. 1002
Testing
ISO/IEC 17025

ByggForm AS
Eternitveien 8
NO-3470 Slemmestad
Norge

Reaction to fire classification report.

1 Introduction

This classification report defines the classification assigned to the product "Moxi board" in accordance with the procedure given in EN 13501-1:2007+A1:2009.

This classification report replace SP classification report 5P07788-1, dated December 21, 2016.

2 Details of classified product

2.1 General

The product "Moxi board" is defined as a non-combustible board.

2.2 Product description

The product, "Moxi board", is fully described below:

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

3 Test reports

3.1 Test reports

This classification is based on the test reports listed below:

Name of laboratory	Name of sponsor	Test report ref no	Accredited test method
SP	Byggform AS	5P07788rev1	EN ISO 1182
SP	Byggform AS	5P07788-01	EN ISO 1716

3.2 Test results

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean (m)	Compliance with parameters
EN ISO 1182		5		
	ΔT (°C)		8	Compliant
	Δm (%)		46.7	Compliant
	T_f (s)		0	Compliant
EN ISO 1716		3		
	PCS (MJ/kg)* (4)		1.08	Compliant

* : the product is homogeneous

(4): the parameter for the product as a whole

4 Classification and field of application

4.1 Reference and direct field of application

This classification has been carried out in accordance with clause 11 and 15 of EN 13501-1:2007+A1:2009.

4.2 Classification

The product called "Moxi board" in relation to its reaction to fire behaviour is classified:

A1

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

Fire Behaviour
A1

Reaction to fire classification: *A1*

4.3 Field of application:

This classification is valid for the following product parameters:

Density: 1200 kg/m^3.

Composition: See section 2.2 Product description.

The sample was delivered by the client. SP Fire Research was not involved in the sampling procedure.

5 Limitations

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

SP Technical Research Institute of Sweden
Fire Research - Fire Dynamics

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Non-combustibility according to EN ISO 1182

(2 appendices)

Introduction

SP has by request of ByggForm AS performed fire tests according to EN ISO 1182. The purpose of the test is to form a basis for technical fire classification.

This report replace SP test report 5P07788, dated December 21, 2015.

Product

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

Manufacturer

Byggform AS, Slemmestad, Norway.

Sampling

The sample was delivered by the client. It is not known to SP Fire Research if the product received is representative of the mean production characteristics.

The sample was received October 8 and November 6, 2015 at SP Fire Research.

Test results

The test results are given in appendix 1.

The test results relate only 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.

Note

The accreditation referred to is valid for EN ISO 1182.

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Fire Research - Fire Dynamics

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Appendices

1. Test results – "Moxi board"
2. Calibration results according to EN ISO 1182:2010

Appendix 1

Test results – EN ISO 1182:2010

Product

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

Test results

The table below shows the maximum temperature rise relative to the final temperature recorded by the furnace thermocouple, duration of sustained flaming and mass loss.

Test specimen No.	Max. temperature rise Furnace (°C)	Duration of sustained flaming (s)	Mass loss (%)
1	5	0	47.2
2	7	0	46.4
3	8	0	46.7
4	11	0	46.4
5	11	0	47.0
Average	8	0	46.7

Measured data

Thickness 6.0 – 6.8 mm.

Density 1070 – 1150 kg/m^3.

Conditioning

Temperature (60 ± 5) °C.

Time (20 – 24) h.

Date of test

November 17 – 18, 2015.

Appendix 2

Calibration results according to EN ISO 1182:2010

Calibration of furnace wall temperature according to EN ISO 1182:2010 part 7.3.1

The average deviation of the temperature on the three vertical axes from the average furnace wall temperature $T_{avg.dev.axis}$ shall be less than 0.5 %.

SP, $T_{avg.dev.axis}$ = 0.1 %.

The average deviation of the temperature on the three levels from the average furnace wall temperature $T_{avg.dev.level}$ shall be less than 1.5 %.

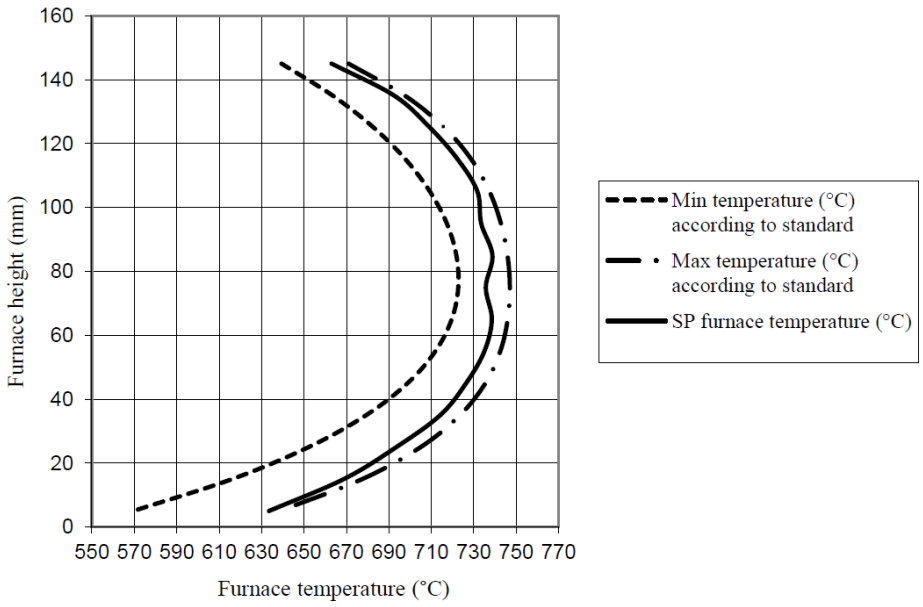
SP, $T_{avg.dev.level}$ = 0.1 %.

The average wall temperature at level (+30 mm) $T_{avg.level\ a}$ is less than the average wall temperature at level (-30 mm), $T_{avg.level\ c}$.

SP, $T_{avg.level\ a}$ = 835 °C.

SP, $T_{avg.level\ c}$ = 837 °C.

Calibration of furnace temperature according to EN ISO 1182:2010 part 7.3.2



Furnace temperature profile along its axis measured with Thermal sensor.

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Non-combustibility according to EN ISO 1182

(3 appendices)

Introduction

SP has by request of ByggForm AS performed fire tests according to EN ISO 1182. The purpose of the test is to form a basis for technical fire classification.

Product

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Fibersementplate BF	Silica sand Cement Wood pulp	6	9.0	1500	Grey
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

Manufacturer

Byggform AS, Slemmestad, Norway.

Sampling

The samples were delivered by the client. It is not known to SP Fire Research if the products received are representative of the mean production characteristics.

The samples were received October 8 and November 6, 2015 at SP Fire Research.

Test results

The test results are given in appendix 1 - 2.

The test results relate only 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.

Note

The accreditation referred to is valid for EN ISO 1182.

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Appendices

1. Test results – "Fibersementplate BF"
2. Test results – "Moxi board"
3. Calibration results according to EN ISO 1182:2010

Appendix 1

Test results – EN ISO 1182:2010

Product

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Fibersementplate BF	Silica sand Cement Wood pulp	6	9.0	1500	Grey

Test results

The table below shows the maximum temperature rise relative to the final temperature recorded by the furnace thermocouple, duration of sustained flaming and mass loss.

Test specimen No.	Max. temperature rise Furnace (°C)	Duration of sustained flaming (s)	Mass loss (%)
1	32	0	19.7
2	51	15	19.4
3	29	0	20.3
4	51	0	19.5
5	51	11	19.7
Average	43	5.2	19.7

Measured data

Thickness 6.4 – 7.3 mm.

Density 1180 – 1270 kg/m^3.

Conditioning

Temperature (60 ± 5) °C.

Time (20 – 24) h.

Date of test

November 18 – 19, 2015.

Test results – EN ISO 1182:2010

Product

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

Test results

The table below shows the maximum temperature rise relative to the final temperature recorded by the furnace thermocouple, duration of sustained flaming and mass loss.

Test specimen No.	Max. temperature rise Furnace (°C)	Duration of sustained flaming (s)	Mass loss (%)
1	5	0	47.2
2	7	0	46.4
3	8	0	46.7
4	11	0	46.4
5	11	0	47.0
Average	8	0	46.7

Measured data

Thickness 6.0 – 6.8 mm.

Density 1070 – 1150 kg/m^3.

Conditioning

Temperature (60 ± 5) °C.

Time (20 – 24) h.

Date of test

November 17 – 18, 2015.

Appendix 3

Calibration results according to EN ISO 1182:2010

Calibration of furnace wall temperature according to EN ISO 1182:2010 part 7.3.1

The average deviation of the temperature on the three vertical axes from the average furnace wall temperature $T_{avg.dev.axis}$ shall be less than 0.5 %.

SP, $T_{avg.dev.axis}$ = 0.1 %.

The average deviation of the temperature on the three levels from the average furnace wall temperature $T_{avg.dev.level}$ shall be less than 1.5 %.

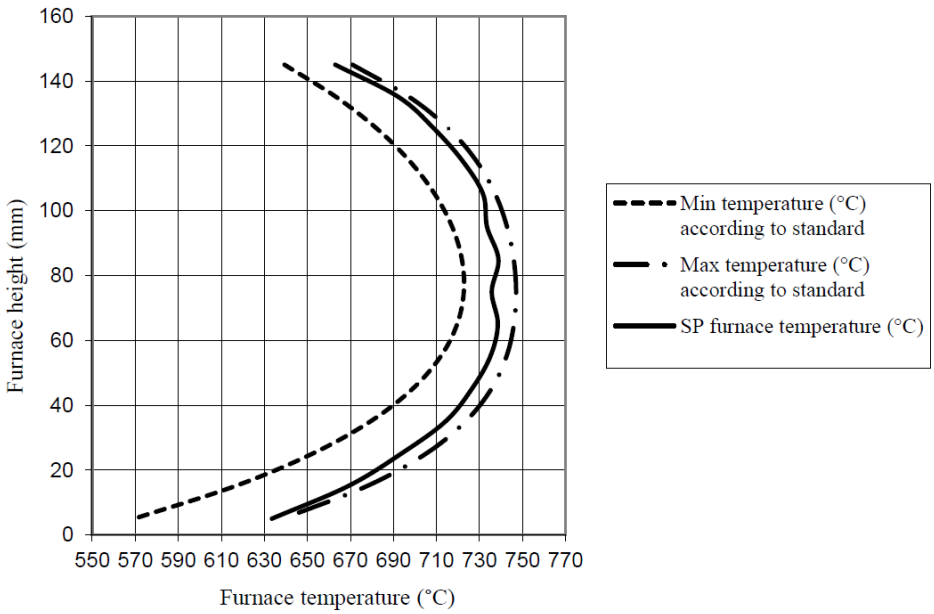
SP, $T_{avg.dev.level}$ = 0.1 %.

The average wall temperature at level (+30 mm) $T_{avg.level\ a}$ is less than the average wall temperature at level (-30 mm), $T_{avg.level\ c}$.

SP, $T_{avg.level\ a}$ = 835 °C.

SP, $T_{avg.level\ c}$ = 837 °C.

Calibration of furnace temperature according to EN ISO 1182:2010 part 7.3.2



Furnace temperature profile along its axis measured with Thermal sensor.

REPORT
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Date 2015-12-14 Reference 5P07788-01 Page 1 (2)

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Heat of combustion according to EN-ISO 1716

Product Description

Product	Thickness, mm	Area weight, kg/m^2	Density, kg/m^3	Colour
Fibersementplate BF	6	9.0	1500	Grey
Moxi board	6	-	1200	White-grey

Manufacturer

ByggForm A/S, Slemmestad, Norway.

Purpose of test

Basis for technical fire classification.

Conditioning

Temperature (23 ±2) °C
Relative humidity (50 ± 5) %
Time 2 weeks

Sampling

The samples were delivered by the client. It is not known to SP Chemistry, Materials and Surfaces if the products received are representative of the mean production characteristics.

Fibersementplatte BF was received October 8, 2015 at SP, Fire Research.
Moxi board was received November 6, 2015 at SP, Fire Research.

Water equivalent E

Calorimetric bomb	Water equivalent E (MJ/K)
1	10.918
2	10.925

Date of test

Fibersementplatte BF -November 4, 2015.
Moxi board –December 2, 2015.

Test results – EN ISO 1716:2010

Product	Area weight kg/m^2	Gross heat of combustion at constant volume MJ/kg			**PCS** Average value MJ/kg
		Test 1	Test 2	Test 3	
Fibersementplate BF	9.0	1.46	1.44	1.46	**1.46**
Moxi booard	-	1.06	1.12	1.08	**1.08**

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

SP Technical Research Institute of Sweden
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Reaction to fire classification report.

1 Introduction

This classification report defines the classification assigned to the product "Moxi board" in accordance with the procedure given in EN 13501-1:2007+A1:2009.

2 Details of classified product

2.1 General

The product "Moxi board" is defined as a non-combustible board.

2.2 Product description

The product, "Moxi board", is fully described below:

Product	Content	Thickness mm	Area weight kg/m^2	Density kg/m^3	Colour
Moxi board	Magnesium oxide Magnesium chloride Perlite	6	-	1200	White-grey

3 Test reports

3.1 Test reports

This classification is based on the test reports listed below:

Name of laboratory	Name of sponsor	Test report ref no	Accredited test method
SP	Byggform AS	5P07788	EN ISO 1182
SP	Byggform AS	5P07788-01	EN ISO 1716

3.2 Test results

Test method	Parameter	Number of tests	Results	
			Continuous parameter mean (m)	Compliance with parameters
EN ISO 1182		5		
	ΔT (°C)		8	Compliant
	Δm (%)		46.7	Compliant
	T_f (s)		0	Compliant
EN ISO 1716		3		
	PCS (MJ/kg)* (4)		1.08	Compliant

* : the product is homogeneous

(4): the parameter for the product as a whole

4 Classification and field of application

4.1 Reference and direct field of application

This classification has been carried out in accordance with clause 11 and 15 of EN 13501-1:2007+A1:2009.

4.2 Classification

The product called "Moxi board" in relation to its reaction to fire behaviour is classified:

A1

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

Fire Behaviour
A1

Reaction to fire classification: *A1*

4.3 Field of application:

This classification is valid for the following product parameters:

Density: 1200 kg/m^3.

Composition: See section 2.2 Product description.

The sample was delivered by the client. SP Fire Research was not involved in the sampling procedure.

5 Limitations

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

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