



Corium component fire certification



Corium Tile

BRE Global Classification Report

**Classification of reaction to fire performance in accordance with
EN 13501-1: 2007 + A1: 2009 on Corium Tile**

Prepared for: Wienerberger Ltd.
Date: 20 December 2018
Report Number: P110028-1001 Issue 1

BRE Global Ltd
Watford, Herts
WD25 9XX

Customer Services 0333 321 8811

From outside the UK:
T + 44 (0) 1923 664000
F + 44 (0) 1923 664010
E enquiries@bre.co.uk
www.bre.co.uk

Prepared for:

Wienerberger Ltd.
Wienerberger House
Brooks Drive
Cheadle Royal Business Park
Cheadle
Cheshire
SK8 3SA
United Kingdom





Prepared by

Name C A Rock

Position Senior Consultant

Signature

A handwritten signature in blue ink that reads "CA Rock".

Authorised by

Name J Hunter

Position Section Leader – Reaction to Fire

Date 20 December 2018

Signature

A handwritten signature in black ink that reads "J Hunter".

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1 Introduction

This classification report defines the classification assigned to 'Corium Tile' in accordance with the procedures given in EN 13501-1:2007+A1: 2009¹.

BRE Global

CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH EN 13501-1: 2007+A1: 2009

Sponsor:	Wienerberger Ltd., Wienerberger House, Brooks Drive, Cheadle Royal, Business Park, Cheadle, Cheshire, SK8 3SA, United Kingdom
Prepared for:	Wienerberger Ltd., Wienerberger House, Brooks Drive, Cheadle Royal, Business Park, Cheadle, Cheshire, SK8 3SA, United Kingdom
Place of Manufacture:	Ammonit keramik Rolf Plümacher & Co. KG
Prepared by:	BRE Global, Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX, UK
Notified Body No.:	0832
Product name:	Corium Tile
Classification report No.:	P110028-1001
Issue number:	One
Date of issue:	20 December 2018

This classification report consists of eight pages and may only be used or reproduced in its entirety.



2 Details of classified product

2.1 General

The product, 'Corium Tile', is defined by the test sponsor as an extruded clay tile in accordance with EN 1304².

2.2 Product description

The product, 'Corium Tile', is described in section 2.2.2.

2.2.1 Traceability

The test samples were supplied by the test sponsor. BRE Global was not involved in the sampling process and therefore cannot comment upon the relationship between the samples supplied for test and the products supplied to market.

2.2.2 Sample details

Unless otherwise stated all measurements are nominal.

Parameter	Details
Test sponsor	Wienerberger Ltd. Wienerberger House Brooks Drive Cheadle Royal Business Park Cheadle, Cheshire SK8 3SA United Kingdom
Manufacturer of sample	Ammonit keramik Rolf Plümacher & Co. KG
Place of manufacture	Note 1
Trade name	Corium Tile
Sample reference	Corium Tile
Sample description (as provided by test sponsor/manufacturer)	Extruded clay tile
Description of samples (as received)	Red brick coloured circular tiles as shown in Appendix A
Test sponsor's product data	
Generic type of product	Extruded clay tile
Density (kg/m ³)	2500
Mass per unit area (kg/m ²)	80
Thickness (mm)	32
Colour	Red/brown (71220)
Flame retardant treatment added or organic content limited during production	No
European product standard, if applicable	EN 1304 ²



Parameter	Details
Measured product data	
Density of core (kg/m ³)	2339.02 (range 2316.22 - 2375.48)
Colour	Red/brown
Test information	
Orientation aspects	Not applicable
Test sponsor's sampling identification	Note 1
BRE Global sample number	E10429
Additional information	The test sponsor stated that the coatings applied to the clay tiles were produced from clay and glass components, mixed with minerals or metallic oxides, which after firing at 1100°C are chemically inert with no organic content. Purchase order: 4504244176 dated 29 September 2017.

Note 1: This information was not supplied by the test sponsor.

3 Reports & results in support of this classification

3.1 Reports

Name of Laboratory	Name of test sponsor	Test reports Nos.	Test method/field of application rules
BRE Global	Wienerberger Ltd.	P1110028-1000 Issue 2	EN ISO 1716 ³
BRE Global	Wienerberger Ltd.	P1110028-1003 Issue 1	EN ISO 1182 ⁴

3.2 Results

Test method & test number	Parameter	No. test runs	Results	
			Continuous parameter - mean (m)	Compliance with parameters Criterion / Compliance status A1
EN ISO 1716	Q _{PCS}	3	-0.0171 MJ/kg	≤ 2.0 MJ/kg / Compliant
	Q _{PCSs} @ 80 kg/m ²	3	-1.368 MJ/kg	- / -
EN ISO 1182	ΔT	5	5 °C	≤ 30 °C / Compliant
	Δm		0.10 %	≤ 50 % / Compliant
	t _f		0 s	t _f = 0s / Compliant



4 Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with EN 13501-1:2007+A1: 2009.

4.2 Classification

The product, 'Corium Tile', in relation to reaction to fire behaviour is classified:

A1

The additional classification in relation to smoke production is:

-

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

-

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
A1	-	s	-	, d -

i.e. A1

Reaction to fire classification: A1

4.3 Field of application

This classification is valid for:

- i) Extruded clay tiles

And the following product and mounting and fixing parameters:

Colour	Valid for all colours, valid for inorganic pigments only.
Composition	As tested, no variation in composition allowed.
External coatings	Valid for inorganic coatings only
Build up and ordering of layers	As tested, no variation allowed.
Overall thickness	Valid for all thicknesses.
Overall density	As tested, no variation in density allowed
Product orientation and geometry	Valid in all orientations



5 Limitations

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

The classification assigned to the product in this report is appropriate to a declaration of performance by the manufacturer within the context of system 3 of assessment and verification of constancy of performance and CE marking under the Construction Products Regulation.

The manufacturer has made a declaration, which is held on file. This confirms that the product's design requires no specific processes, procedures or stages (e.g. no addition of flame-retardants, limitation of organic content, or addition of fillers) that are aimed at enhancing the fire performance in order to obtain the classification achieved. As a consequence, the manufacturer has concluded that system 3 attestation is appropriate.

The test laboratory has, therefore, played no part in sampling the product for the test, although it holds appropriate references, supplied by the manufacturer, to provide for traceability of the samples tested.

6 References

1. EN 13501-1: 2007+A1: 2009. Fire classification of construction products and building elements. Part 1: Classification using data from reaction to fire tests. CEN, Avenue Marnix 17, B-1000 Brussels. 2009.
2. EN 1304:2013. Clay roofing tiles and fittings - Product definitions and specifications. CEN, Avenue Marnix 17, B-1000 Brussels. 2013.
3. EN ISO 1716: 2010. Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value) (ISO 1716:2010). CEN, Avenue Marnix 17, B-1000 Brussels. 2010.
4. EN ISO 1182: 2010 Incorporating corrigendum August 2010. Reaction to fire tests for products – Non-combustibility test. CEN, Avenue Marnix 17, B-1000 Brussels. 2010.



Corium Magnelis Rail

Company: ArcelorMittal Flat Carbon Europe SA

Address: 19, avenue de la Liberté
L – 2930 Luxembourg

Certificate of compliance concerning the fire reaction of uncoated and metallic-coated steels

Flat carbon steel production centers:

ArcelorMittal Dudelange S.A., ArcelorMittal Piombino S.p.a, ArcelorMittal Méditerranée SAS, ArcelorMittal Atlantique et Lorraine SAS, ArcelorMittal Sagunto S.L., ArcelorMittal España S.A., ArcelorMittal Sestao S.A., ArcelorMittal Liège Upstream S.A., ArcelorMittal Belgium S.A., ArcelorMittal Bremen GmbH , ArcelorMittal Eisenhuettendorf GmbH, ArcelorMittal Ostrava a.s, ArcelorMittal Tallinn, ArcelorMittal Poland SA, ArcelorMittal Galati SA, ArcelorMittal Frydek-Mistek a.s.

The European Standard EN 13501-1:2007 indicates that the European Commission has drawn up a list of products which, under specified conditions, can be considered to be Class A1 without testing.

The Commission Decision 96/603/EC of 4 October 1996 applying the European directive 89/106/EEC¹ indicates, in its appendix, the list of building products which are considered as belonging to classes A1 and A1_{FL}² without previous tests (products equivalent to incombustible products). See appendix in page 2.

Iron, steel and stainless steel, copper and copper alloys, zinc and zinc alloys, aluminium and aluminium alloys, lead like these products coated with an inorganic layer (metallic protection) are in compliance with the standard quoted above, i.e. they are classified by default A1 and A1_{FL}³.

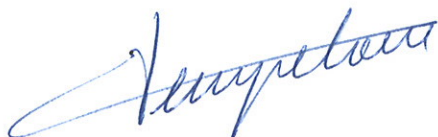
Contacts:

ArcelorMittal Health and Safety	ArcelorMittal Flat Carbon Europe
Xavier Verni E-mail: xavier.verni@arcelormittal.com	Anne GrosPierre E-mail: anne.grosPierre@arcelormittal.com

Anita DEWISPELAERE
General Manager AGS
Finance and Administration
ArcelorMittal Flat Carbon Europe

Jean-François DEWANDRE
Head Technical Client Team
ArcelorMittal Flat Carbon Europe

Frank HAERS
Vice President
Head Corporate Health and Safety
ArcelorMittal



¹ Council Directive 89/106/EEC of 21 December 1988 relating to the approximation of laws, regulations and administrative provisions of the Member States concerning the construction products.

² FL: specific classification of building products for floors

³ This classification replaced the M0 classification defined by the Order of 06/30/1983.

APPENDIX

Conventional classification of building products (extract)

Material	Comments
Iron, Steel and stainless steel	Except for under a very-separated shape
Copper and copper alloys	
Zinc and zinc alloys	
Aluminium and aluminium alloys	
Lead	



Corium Stainless Steel Rail

SPECIFICATIONS

Commercial 304

Stainless steel types 1.4301 and 1.4307 are also known as grades 304 and 304L respectively. Type 304 is the most versatile and widely used stainless steel. It is still sometimes referred to by its old name 18/8 which is derived from the nominal composition of type 304 being 18% chromium and 8% nickel.

Type 304 stainless steel is an austenitic grade that can be severely deep drawn. This property has resulted in 304 being the dominant grade used in applications like sinks and saucepans.

Type 304L is the low carbon version of 304. It is used in heavy gauge components for improved weldability. Some products such as plate and pipe may be available as "dual certified" material that meets the criteria for both 304 and 304L.

304H, a high carbon content variant, is also available for use at high temperatures.

Property data given in this document is typical for Bar and Section to EN 10088-3:2005. ASTM, EN or other standards may cover products sold. It is reasonable to expect specifications in these standards to be similar but not necessarily identical to those given in this datasheet.

CHEMICAL COMPOSITION

EN 10088-3:2005
1.4301 Steel

Element	% Present
Chromium (Cr)	17.50 - 19.50
Nickel (Ni)	8.00 - 10.50
Manganese (Mn)	0.0 - 2.00
Silicon (Si)	0.0 - 1.00
Nitrogen (N)	0.0 - 0.11
Carbon (C)	0.0 - 0.07
Phosphorous (P)	0.0 - 0.05
Sulphur (S)	0.0 - 0.03
Iron (Fe)	Balance

ALLOY DESIGNATIONS

Stainless Steel Grade 1.4301/304 also corresponds to the following designations **but may not be a direct equivalent:**

S30400
304S15
304S16
304S31
EN58E

SUPPLIED FORMS

- Sheet
- Strip
- Tube
- Bar
- Fittings & Flanges
- Pipe
- Plate
- Rod

GENERIC PHYSICAL PROPERTIES

Property	Value
Density	8.00 g/cm ³
Melting Point	1450 °C
Thermal Expansion	17.2 x10 ⁻⁶ /K
Modulus of Elasticity	193 GPa
Thermal Conductivity	16.2 W/m.K
Electrical Resistivity	0.072 x10 ⁻⁶ Ω .m

MECHANICAL PROPERTIES

EN 10088-3:2005
Bar & Section
Up to 160mm Dia / Thickness

Property	Value
Proof Stress	190 Min MPa
Tensile Strength	500 to 700 MPa
Elongation A50 mm	45 Min %
Hardness Brinell	215 Max HB

Above properties are for 1.4301 bar & section

APPLICATIONS

304 stainless steel is typically used in:

Sinks and splashbacks

Saucepans

Cutlery and flatware

Architectural panelling

Sanitaryware and troughs

Tubing

Brewery, dairy, food and pharmaceutical production equipment

Springs, nuts, bolts and screws

CORROSION RESISTANCE

304 has excellent corrosion resistance in many environments and when in contact with different corrosive media. Pitting and crevice corrosion can occur in environments containing chlorides. Stress corrosion cracking can occur above 60°C.

HEAT RESISTANCE

304 has good resistance to oxidation in intermittent service up to 870°C and in continuous service to 925°C. However, continuous use at 425-860°C is not recommended if corrosion resistance in water is required. In this instance 304L is recommended due to its resistance to carbide precipitation.

Where high strength is required at temperatures above 500°C and up to 800°C, grade 304H is recommended. This material will retain aqueous corrosion resistance

FABRICATION

Fabrication of all stainless steels should be done only with tools dedicated to stainless steel materials. Tooling and work surfaces must be thoroughly cleaned before use. These precautions are necessary to avoid cross contamination of stainless steel by easily corroded metals that may discolour the surface of the fabricated product.

COLD WORKING

304 stainless steel readily work hardens. Fabrication methods involving cold working may require an intermediate annealing stage to alleviate work hardening and avoid tearing or cracking. At the completion of fabrication a full annealing operation should be employed to reduce internal stresses and optimise corrosion resistance.

HOT WORKING

Fabrication methods, like forging, that involve hot working should occur after uniform heating to 1149-1260°C. The fabricated components should then be rapidly cooled to ensure maximum corrosion resistance.

MACHINABILITY

304 has good machinability. Machining can be enhanced by using the following rules:

Cutting edges must be kept sharp. Dull edges cause excess work hardening.

Cuts should be light but deep enough to prevent work hardening by riding on the surface of the material.

Chip breakers should be employed to assist in ensuring swarf remains clear of the work

Low thermal conductivity of austenitic alloys results in heat concentrating at the cutting edges. This means coolants and lubricants are necessary and must be used in large quantities.

HEAT TREATMENT

304 stainless steel cannot be hardened by heat treatment.

Solution treatment or annealing can be done by rapid cooling after heating to 1010-1120°C.

WELDABILITY

Fusion welding performance for type 304 stainless steel is excellent both with and without fillers. Recommended filler rods and electrodes for stainless steel 304 is grade 308 stainless steel. For 304L the recommended filler is 308L. Heavy welded sections may require post-weld annealing. This step is not required for 304L. Grade 321 may be used if post-weld heat treatment is not possible.

CONTACT

Address:	Please make contact directly with your local service centre, which can be found via the Locations page of our web site
Web:	www.aalco.co.uk

REVISION HISTORY

Datasheet Updated	14 November 2018
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DISCLAIMER

This Data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

Please note that the 'Datasheet Update' date shown above is no guarantee of accuracy or whether the datasheet is up to date.

The information provided in this datasheet has been drawn from various recognised sources, including EN Standards, recognised industry references (printed & online) and manufacturers' data. No guarantee is given that the information is from the latest issue of those sources or about the accuracy of those sources.

Material supplied by the Company may vary significantly from this data, but will conform to all relevant and applicable standards.

As the products detailed may be used for a wide variety of purposes and as the Company has no control over their use; the Company specifically excludes all conditions or warranties expressed or implied by statute or otherwise as to dimensions, properties and/or fitness for any particular purpose, whether expressed or implied.

Advice given by the Company to any third party is given for that party's assistance only and without liability on the part of the Company. All transactions are subject to the Company's current Conditions of Sale. The extent of the Company's liabilities to any customer is clearly set out in those Conditions; a copy of which is available on request.



Corium Pointing Mortar

- 1 **Unique identification code of the product-type:**
HISTORIC KL MORTAR (EA002##)
- 2 **Type, lot or serial number or any other element permitting identification of the construction product, in accordance with article 11, paragraph 4:**
See packaging: product name, manufacturing date, batch number, manufacturing centre
- 3 **Intended use or uses of the construction product in accordance with the applicable harmonised technical specification as prescribed by the manufacturer:**
General purpose masonry mortar for non-structural, internal and external applications.
- 4 **Name, registered trade name or registered trade mark and contact address of the manufacturer as required in accordance with article 11, paragraph 5:**
Parex Ltd, Abeles Way, Holly Lane Industrial Estate, Atherstone, Warwickshire, CV9 2QZ. www.parex.co.uk
- 5 **Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in article 12, paragraph 2:**
Not applicable
- 6 **System or systems of assessment and verification of performance constancy of the construction product in accordance with Annex V:**
System 4
- 7 **In the event that the performance declaration concerns a construction product covered by a harmonised standard:**
EN 998-2:2016
- 8 **In the event that the performance declaration concerns a construction product for which a European technical evaluation has been issued:**
Not applicable
- 9 **Declared performance:**

Essential characteristics	Performance	Harmonised technical specifications
Reaction to fire	Class A1	EN 998-2 : 2016
Compressive Strength	Category M5	
Bond strength	NPD	
Contents of chlorides	NPD	
Water absorption	0.06 kg/(m ² .min ^{0.5})	
Thermal conductivity	P=50% 0.81[W/(m.K)] P=90% 0.88 [W/(m.K)] (tab. value)	
Water vapour permeability	μ 15/35	
Durability (resistance to freeze / thaw)	Durability (frost resistance): Suitable for constructions subjected to severe exposure.	
Hazardous substances	Complies, see MSDS	

- 10 **The performance of the product identified in points 1 and 2 is in conformity with the declared performance stated in point 9.**

This performance declaration is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by: Owen Griffiths Technical Resources Manager

At Atherstone on: 24/08/2017

Signature

