



adhesives & sealants

FIRE AND SMOKE RESISTANCE

Overview of the achieved classifications
Sabaprotect M500



Fire resistant up to 240 minutes!

a strong bond

INTRODUCTION

Fire and smoke resistance

Structural fire prevention makes an essential contribution to safety in homes, offices and other buildings. To ensure a high level of fire safety, the government has introduced strict laws and regulations. In addition to resistance to fire penetration and fire spread (WBDBO), the BBL (Building Decree for the Built Environment) also sets requirements for the degree of smoke resistance.

Sabaprotect M500 meets the latest standards regarding smoke and fire resistance. This has been externally tested by Peutz, an independent consultancy in the area of fire safety, among others. The tested configurations and the classifications achieved are included in this summary. For detailed information on classifications, please refer to the classification reports, which are available on request.

Sabaprotect M500 is a smoke- and fire-resistant, permanently elastic sealant. Very low emission, solvent-free, stable, UV-stable and (air) moisture-curing based on MS Polymer (1-component). Free of hazard symbols, easy to process and durable thanks to excellent elastic recovery after loading within the maximum permissible deformations.

- ✓ Fire resistant up to 240 minutes with standard backer rod
- ✓ Can be painted with water-based paint systems
- ✓ Does not contain silicones, solvents, isocyanates or other CMR substances
- ✓ No edge zone contamination (tested in accordance with ISO 16938-1)
- ✓ EMICODE EC1 PLUS certified
- ✓ Smoke-resistant classification for various applications in accordance with NEN 6075
- ✓ Fire-resistant classification for various applications in accordance with EN 1366-4
- ✓ EPD on request
- ✓ M500 is suitable for BREEAM and LEED projects



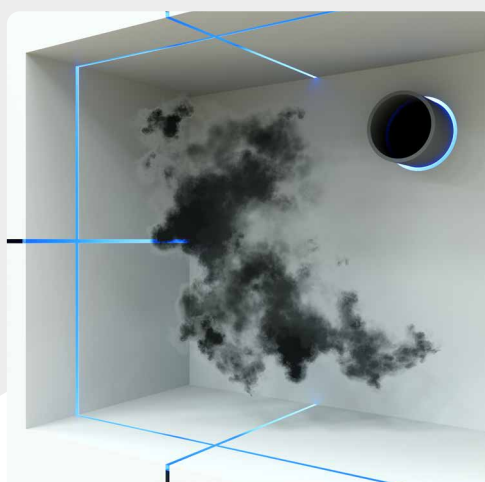
SMOKE-RESISTANT

NEN 6075 / NEN-EN 1634-3

The smoke resistance of a structure is determined by means of a smoke control test in accordance with European standard EN 1634-3. This part of EN 1634 specifies a method for determining the leakage of cold and hot smoke from one side of a closure to the other under the specified test conditions. The test aims to assess the extent to which smoke spread is limited in the event of a fire, which is essential for safe evacuation and limiting smoke damage.

NEN 6075 describes how joints and penetrations should be tested and what the maximum air leakage may be. A distinction is made between Sa (cold smoke) and S200 (hot smoke). Sa describes smoke resistance at an ambient temperature of about 20°C and S200 describes smoke resistance at a temperature of 200°C. The test results can then be used to determine whether the penetration or joint complies with Sa and/or S200.

The current Buildings Decree stipulates that the smoke resistance of the partition must be Ra or R200. All structural components of this partition must comply accordingly with Sa or S200.



✓ Smoke-resistant sealing of linear joints in various materials

Substrate ¹	Joint width ²	Joint thickness ³	Background ⁴	Standard ⁵	
Stone-like	≤ 50 mm	10 mm	backer rod	S _a	S ₂₀₀
Steel	≤ 50 mm	10 mm	backer rod	S _a	S ₂₀₀
Wood	≤ 50 mm	10 mm	backer rod	S _a	S ₂₀₀
Plasterboard (2 x 12.5 mm)	≤ 45 mm	10 mm	backer rod	S _a	S ₂₀₀
Gypsum fibreboard (1 x 12.5 mm)	≤ 45 mm	10 mm	backer rod	S _a	S ₂₀₀

Classification report: C1918-1-RA-001 dated 14 October 2019 (results t2.3)

✓ Smoke-resistant sealing of pipe penetrations

Substrate ¹	Joint width ²	Joint thickness ³	Background ⁴	Standard ⁵	
PVC pipe (≤Ø 160 x 3.2 mm)	≤15 mm	10 mm	backer rod	S _a	S ₂₀₀
Steel tube (≤Ø 158 x 3.2 mm)	≤15 mm	10 mm	backer rod	S _a	S ₂₀₀

Classification report: C1918-1-RA-001 dated 14 October 2019 (results t2.3)

FIRE-RESISTANT

EN 13501-2 / EN 1366-4

The fire resistance of building products and building elements is determined based on standardised tests in accordance with NEN-EN 13501-2. This standard specifies the classification procedure based on test results for fire resistance, flame integrity (E) and insulation (I). Depending on the type of structural component, relevant test methods are applied, determining the degree of resistance to fire penetration and fire spread. The joints tested must correspond to the practical situation, in terms of the use of materials, dimensions and orientation, such as joints in the vertical or horizontal plane. This chapter presents and explains the test results obtained. This provides insight into the performance of the Sabaprotect M500 under fire load.

JOINTS IN THE VERTICAL PLANE, SUCH AS A WALL

Fire-resistant sealing of vertical and horizontal expansion/connection joints in a vertical plane such as a wall.

✓ Stone-like – stone-like

Vertical and horizontal expansion/connection joints between stone-like materials in a vertical plane, such as concrete walls, plasterboard, aerated concrete and brickwork.



Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YA 1515-1 7	vertical	≥100 mm	20 to 30 mm	$d = (jw/3) + 6$ mm	fire side	EI 120
YA 1515-1 7	vertical	≥100 mm	30 to 50 mm	$d = (jw/3) + 6$ mm	double-sided	EI 120
YA 3255-1E 16	vertical	≥140 mm	0 to 25 mm	20 mm	one-sided	EI 45 E 240
YA 3255-1E 16	vertical	≥140 mm	0 to 50 mm	30 mm	one-sided	EI 90
YA 3255-1E 13	vertical	≥140 mm	0 to 50 mm	$d = (jw/3) + 6$; min 13 mm	double-sided	EI 240
YA 1515-1 8	vertical	≥100 mm	5 mm	Δ10 x 10 mm	fire side	EI 120
YG 1950 1E 10	horizontal	≥70 mm	20 to 30 mm	$d = (jw/3) + 6$; min 13 mm	one-sided	EI 30; E 120
YG 1950 1E 13	horizontal	≥70 mm	8 to 30 mm	$d = (jw/3) + 6$; min 13 mm	double-sided	EI 120
YA-1515-3 7	horizontal	≥100 mm	8 to 20 mm	13 mm	double-sided	EI 60
YA 3255-1E 15	horizontal	≥100 mm	0 to 35 mm	18 mm	one-sided	EI 30; E 120
YA 3255-1E 15	horizontal	≥100 mm	36 to 50 mm	23 mm	one-sided	EI 60; E 90
YA 3255-1E 17	horizontal	≥140 mm	0 to 8 mm	13 mm	one-sided	EI 30
YA 3255-1E 17	horizontal	≥140 mm	9 to 25 mm	15 mm	one-sided	EI 60
YA 3255-1E 17	horizontal	≥140 mm	26 to 50 mm	22.7 mm	one-sided	EI 60
YA 3255-1E 13	horizontal	≥140 mm	0 to 50 mm	$d = (jw/3) + 6$; min 13 mm	double-sided	EI 240
YG 1950-1E 15	horizontal	≥150 mm	0 to 50 mm	$d = (jw/3) + 6$; min 13 mm	one-sided	EI 30; E 120
YG 1950-1E 15	horizontal	≥150 mm	30 to 50 mm	$d = (jw/3) + 6$ mm	one-sided	EI 45; E 120

✓ Stone-like – wood

Vertical and horizontal expansion/connection joints between stone-like materials on wood in a vertical plane, such as wooden frames.

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YA 1515-1 8	vertical	≥100 mm	8 to 50 mm	$d=(jw/3) + 6$; min 13 mm	double-sided	EI 120
YA 1515-1 6	horizontal	≥100 mm	8 to 20 mm	13 mm	double-sided	EI 60

✓ Stone-like – steel

Vertical and horizontal expansion/connection joints between stone-like materials on steel in a vertical plane, such as steel frames.

Classification report + page	Orientation ⁶	Wall thickness ⁷	Thickness of steel*	Joint width ²	Position ⁸	EI value ⁹
YA 3255-1E 23	vertical	≥100 mm	2 mm	0 to 5 mm	double-sided	EI 90; E 240
YA 3255-1E 23	vertical	≥100 mm	2 mm	6 to 20 mm	double-sided	EI 60; E 240
YA 3255-1E 23	vertical	≥100 mm	2 mm	21 to 35 mm	double-sided	EI 60; E 240
YA-1515-3 6	horizontal	≥100 mm	8 mm	8 to 20 mm	double-sided	EI 45; E60
YA 3255-1E 23	horizontal	≥100 mm	2 mm	0 to 5 mm	double-sided	EI 90; E 240
YA 3255-1E 23	horizontal	≥100 mm	2 mm	6 to 20 mm	double-sided	EI 90; E 240
YA 3255-1E 23	horizontal	≥100 mm	2 mm	21 to 35 mm	double-sided	EI 90; E 240
YG 1950 1E 23	horizontal	≥150 mm	2 mm	8 to 20 mm	double-sided	EI 120

* due to excessive temperature conduction of steel = insulation (I). Request the Peutz expert judgement on steel window frames via construction@saba-adhesives.com

✓ Stone-like – gypsum fibreboard

Vertical expansion/connection joints between stone-like materials on gypsum fibreboard in a vertical plane.

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YB-2024-2E 7	vertical	≥75 mm	8 to 30 mm	$d= (jw/3) + 6$; min 11 mm	double-sided	EI 30

✓ Stone-like – Timber frame

Vertical and horizontal expansion/connection joints between stone-like materials on gypsum fibreboard in a vertical plane (such as timber frame walls).

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YB-2024-3E 8	vertical	≥200 mm	8 to 30 mm	16 mm*	fire/plaster side	EI 30*
YB-2024-3E 8	vertical	≥200 mm	30 to 45 mm	$d = (jw/3) + 6$ mm	fire/plaster side	EI 30
YB-2024-3E 9	horizontal	≥200 mm	8 to 45 mm	$d = (jw/3) + 6$; min 11 mm	fire/plaster side	EI 30

* due to fire circulation through the timber = minimum joint thickness of 16 mm required. Request the Peutz expert judgement on timber frame walls via construction@saba-adhesives.com

✓ Timber frame – Timber frame wall

Vertical and horizontal expansion/connection joints between Fermacell gypsum fibreboards in a vertical plane (such as timber frame walls).

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YB-2024-3E 10	vertical	≥200 mm	8 to 45 mm	$d = (jw/3) + 6$; min 16 mm*	fire/plaster side	EI 30*
YB-2024-3E-12	horizontal	≥200 mm	0 to 8 mm	11 mm	fire/plaster side	EI 45
YB-2024-3E 12	horizontal	≥200 mm	8 to 45 mm	$d = (jw/3) + 6$; min 11 mm*	fire/plaster side	EI 30

* due to fire circulation through the timber = minimum joint thickness of 16 mm required. Request the Peutz expert judgement on timber frame walls via construction@saba-adhesives.com

✓ Stone-like – plasterboard

Vertical and horizontal expansion/connection joints between stone-like materials on plasterboard in vertical plane (such as metal-stud walls on concrete columns).

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YB-2024-1E-8	vertical	≥100 mm	8 to 45 mm	$d = (jw/3) + 6$; min 11 mm	double-sided	EI 120
YB-2024-1E 9	horizontal	≥100 mm	8 to 30 mm	2x12.5 mm	double-sided	EI 120

✓ Timber – plasterboard

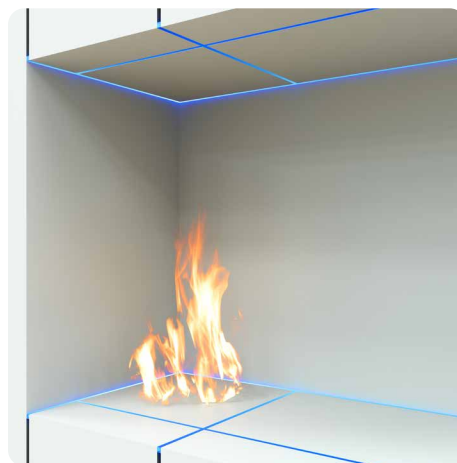
Vertical and horizontal expansion/connection joints between timber on plasterboard in a vertical plane (such as metal-stud walls on frames).

Classification report + page	Orientation ⁶	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
YB-2024-1E 10	vertical	≥100 mm	8 to 45 mm	$d = (jw/3) + 6$; min 11 mm	double-sided	EI 120
YB-2024-1E 11	horizontal	≥100 mm	8 to 30 mm	2x12.5 mm	double-sided	EI 120

JOINTS IN THE HORIZONTAL PLANE, SUCH AS CEILING OR FLOOR

✓ Stone-like – stone-like

Horizontal expansion/connection joints between stone-like materials in a horizontal plane (such as ceiling or floor) or a horizontal joint in a vertical wall.



Classification report + page	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
1950-1E 10	≥ 70 mm	8 to 20 mm	$d = (jw/3) + 6$; min 13 mm	one-sided	EI 30; E 120
1950-1E 12	≥ 70 mm	8 to 20 mm	13 mm + 32 mm rockwool	one-sided	EI 30; E 120
1950-1E 13	≥ 70 mm	8 to 30 mm	$d = (jw/3) + 6$; min 13 mm	double-sided	EI 120
1950-1E 15	≥ 150 mm	8 to 30 mm	$d = (jw/3) + 6$; min 13 mm	one-sided	EI 30; E 120
1950-1E 15	≥ 150 mm	30 to 50 mm	$d = (jw/3) + 6$;	one-sided	EI 45; E 120

✓ Stone-like – steel

Horizontal expansion/connection joints between stone-like materials on steel in a horizontal plane (such as a ceiling or floor) or a horizontal joint in a vertical wall.

Classification report + page	Wall thickness ⁷	Steel thickness	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
1950-1E 23	≥ 150 mm	≥ 2 mm	8 to 20 mm	13 mm	double-sided	EI 120
1950-1E 25	≥ 300 mm	≥ 2 mm	8 to 50 mm	$d = (jw/3) + 6$; min 16 mm	one-sided	EI 120

CEILING-WALL CONNECTION, JOINT IN A HORIZONTAL PLANE

✓ Stone-like – stone-like

Horizontal expansion/connection joints between stone-like materials in a horizontal plane in a wall-floor connection.

Classification report + page	Wall thickness ⁷	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
1950-1E 17	≥ 150 mm	8 to 50 mm	$d = (jw/3) + 6$; min 13 mm	one-sided	EI 30; E 60

✓ Stone-like – steel

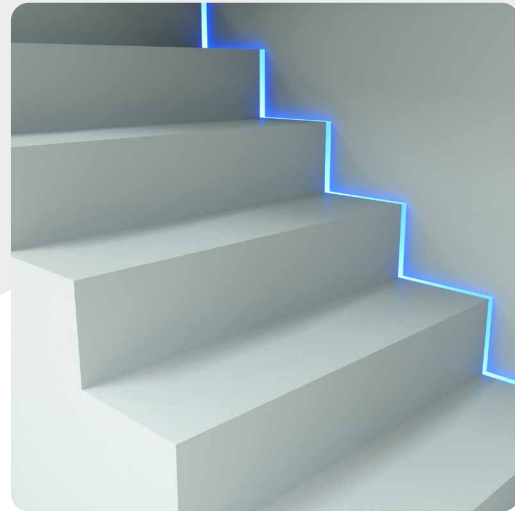
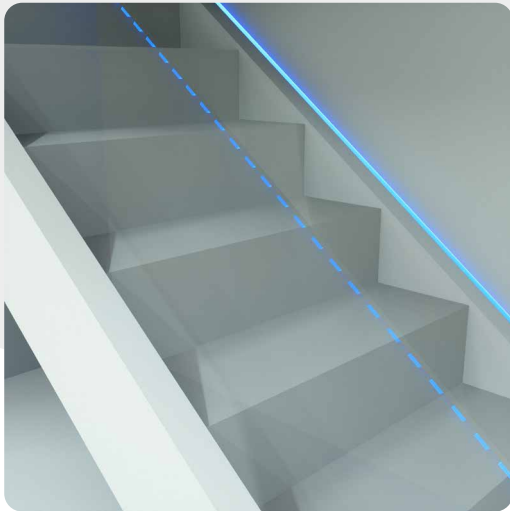
Horizontal expansion/connection joints between stone-like materials on steel in a horizontal plane in a wall-floor connection.

Classification report + page	Wall thickness ⁷	Steel thickness	Joint width ²	Joint thickness ³	Position ⁸	EI value ⁹
1950-1E 23	≥ 150 mm	≥ 2 mm	8 to 20 mm	13 mm	double-sided	EI 120
1950-1E 25	≥ 300 mm	≥ 2 mm	8 to 50 mm	$d = (jw/3) + 6$; min 16 mm	one-sided	EI 120

STAIRCASES

NEN-EN 15725 / EN 1366-4

Sabaprotect M500 has been tested in numerous configurations as described above in accordance with EN 1366-4 at the Peutz fire laboratory in Mook. However, the EN 1366-4 standard only provides for horizontally and vertically oriented connections. In practice, stairwells and similar areas often feature a combination of horizontally, vertically and diagonally oriented fire-resistant joint connections. Based on this given, Peutz has drawn up a generic expert assessment for connections with concrete stairs/elements.



- ✓ Fire-resistant sealing of horizontal, vertical and diagonal connections between concrete staircases and/or concrete landings and stone-like shaft walls.

Shaft wall ¹⁰	Joint width ²	Type of sealant joint ¹¹	Joint width ²	Joint thickness ⁴	Position ⁸	EI value ⁹
stone-like	3 to 5 mm	Δ joint	8 to 20 mm	Δ 10 x 10 mm	one-sided	60 min.
stone-like	8 to 30 mm	on backer rod	8 to 50 mm	13 - 16 mm	one-sided	60 min.
stone-like	30 to 50 mm	on backer rod	8 to 50 mm	(jw/3) + 6 mm	double-sided	60 min.

Report C 2043-2-RA-002 dated 24 February 2021

- ✓ Fire-resistant sealing of horizontal, vertical and diagonal connections between concrete staircases and/or concrete landings and plasterboard shaft walls.

Shaft wall ¹⁰	Joint width ²	Type of sealant joint ¹¹	Joint thickness ⁴	Position ⁸	EI value ⁹
plasterboard	3 to 5 mm	Δ joint	Δ 10 x 10 mm	one-sided	60 min.
plasterboard	8 to 30 mm	on backer rod	16 mm	one-sided	60 min.
plasterboard	30 to 45 mm	on backer rod	(jw/3) + 6 mm (minimum 10 mm)	double-sided	60 min.

Report C 2043-2-RA-002 dated 24 February 2021

LEGEND

Substrate¹	Tested substrate/surface material on which Sabaprotect M500 has been applied.
Joint width²	The fire resistance achieved is based on the tested joint widths. Narrower joints than those tested are permitted, provided the sealant joint thickness is not less than the first tested value. Request the Peutz expert judgements/Peutz brief on narrower joints via construction@saba-adhesives.com .
Joint thickness³	Joint thickness refers to the thickness of the sealant body measured at the centre of the joint. When determining joint thickness according to the formula, always round up.
Background⁴	Unless otherwise stated, the sealant joint is applied to a PU backer rod. For metal-stud walls, no backer rod is applied horizontally but the sealant is applied directly to the metal profile, in the same thickness as 2x plasterboard of 12.5 mm on each side of the wall.
Standard⁵	Resistance to smoke passage between rooms in accordance with NEN 6075:2011/C1:2012 and 1634-3:2004+C1:2007.
Orientation⁶	Tested in a vertical wall structure with both vertical and horizontal expansion or connection joints. The fire resistance achieved is based on the tested joint widths. Narrower joints than those tested are permitted, provided the sealant joint thickness is not less than the first tested value. Request the Peutz expert judgements/Peutz brief on narrower joints via construction@saba-adhesives.com .
Wall thickness⁷	The value stated refers to the tested wall thickness. Any wall of equal composition or better is permitted, as is an equal structure of greater thickness.
Position⁸	The position of the sealant joint indicates whether it should be applied on one side (single-sided) or on both sides, or on the fire side or non-fire side of the wall.
EI value⁹	Linear sealant joints are tested for flame resistance (E) and insulation (I). It is particularly important with metal surfaces that the temperature conduction is not too high. Request the Peutz expert judgement on steel window frames via construction@saba-adhesives.com .
Shaft wall¹⁰	Minimum 60 minutes fire-resistant shaft wall made of stone-like material (such as precast or in-situ concrete, masonry, etc.) or plasterboard composition; the fire resistance of the concrete stairs and shaft walls must be demonstrated separately by third parties.
Type of sealant joint¹¹	Structure and application of the sealant joint in accordance with the processing instructions according to the product sheet.

More information? Contact our specialists;



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