



# Mapetherm AR1

**One component cementitious mortar for bonding and levelling thermal insulating panels and insulation cladding systems**



## WHERE TO USE

Bonding all types of thermal insulation panels (foam/extruded polystyrene, foam polystyrene, mineral fibres, cork, etc.) directly on render, brickwork or concrete walls or ceilings.

Smoothing thermal insulation panels with embedded fibreglass reinforcing mesh on internal and external walls (thermal insulation cladding).

## Some application examples

Bonding and smoothing insulating panels in interior areas and external foamed insulation on:

- cementitious renders or cement lime mortar renders;
- concrete;
- concrete blocks.

Also suitable for bonding and smoothing the following systems:

- insulation of the heating niches;
- insulation of under-tile roofing;
- insulation of attic room floors;
- internal insulation of room walls which are not underground;

- internal insulation of wall to floor walls in cellars/basements;
- internal insulation of mansard roofs;
- external insulation of ventilated façades.

## TECHNICAL CHARACTERISTICS

**Mapetherm AR1** is a grey powder consisting of cement, selected fine grained sands, synthetic resins and special additives prepared according to a formula developed in the MAPEI Research & Development laboratories. Mixed with water, **Mapetherm AR1** becomes a mortar with the following characteristics:

- low viscosity therefore easy to trowel;
- highly thixotropic: **Mapetherm AR1** can be applied on vertical surfaces without sagging and without letting even large sized insulating panels slip;
- bonding perfectly to all types of insulating panels and to all materials normally used in the building industry: levelling products, traditional render and old, well-adhered paints and coatings;
- hardens without noticeable shrinkage.

## RECOMMENDATIONS

- Do not use **Mapetherm AR1** to bond insulating panels on metal surfaces or on substrates subject to strong movement (wood, asbestos cement, etc.).

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Applying Mapetherm AR1 on the back of the panel with a notched trowel



Installing the insulating panels



Applying pressure on the panels once they have been installed. This is to ensure a good bonding to the surface

## TECHNICAL DATA (typical values)

Conformity with: – EN 998-1  
– ETAG 004 ETA 04/0061 - 10/0024 - 10/0025

### PRODUCT IDENTITY

Consistency:	powder
Colour:	grey
Maximum size of aggregate:	approx. 0,50

### APPLICATION DATA (at +23°C - 50% R.H.)

Mixing ratio with water (%):	21-24
Consistency of mix:	paste
Density of mix: (kg/m <sup>3</sup> ):	approx. 1.450
Application temperature:	da +5°C a +35°C
Workability time:	approx. 3 h
Open time:	approx. 30'
Adjustment time:	approx. 40'
Waiting time before finishing operation:	15 days
Consumption (kg/m <sup>2</sup> ):	approx. 4.0-6.0: bonding insulating panels approx. 1.3-1.5: skimming (per mm of thickness)

### FINAL PERFORMANCE

Modulus of elasticity (N/mm <sup>2</sup> ):	6.000
Flexural strenght after 28 days (N/mm <sup>2</sup> ):	approx. 4.5
In service temperature:	from -30°C to +90°C

### PERFORMANCE CHARACTERISTICS according to EN 998-1

Performance characteristic	Test method	TEST RESULT AND CONFORMITY TO THE REQUIREMENTS
Dry bulk density (kg/m <sup>3</sup> ):	EN 1015-10	1.255
Compressive strenght (N/mm <sup>2</sup> ):	EN 1015-11	8,23 Category CS IV
Adhesion (concrete) (N/mm <sup>2</sup> ):	EN 1015-12	≥ 1 failure mode (FP) = B
Capillary water absorbtion [kg/(m <sup>2</sup> ·min <sup>0,5</sup> )]:	EN 1015-18	0,19 Category W2
Water vapour permeability coefficient (μ):	EN 1015-19	15
Thermal conductivity (λ <sub>10 dry</sub> ) (W/mK):	EN 1745	0,34
Reaction to fire:	EN 13501-1	Euroclass A1

- Do not use if the panels have a smooth surface; good bonding may be impeded: foam polyurethane or mineral fibres with a surface coating of kraft paper, fibreglass gauze, extruded polystyrene with a surface skin, high density pressed foam polystyrene, etc.
- Do not bond insulating panels on damaged substrates or renders (in these cases always secure with anchors nylon mechanical fixings with additional centre nail for final fixation).

## APPLICATION PROCEDURE

### Substrate preparation

The substrate must be sound, free from dust and loose parts, oils, glue, etc. Gypsum substrates (hand or machine applied renders, prefabricated panels, etc.) must be perfectly dry and free of dust. Insulation panels must be treated with **Primer G** or **Eco Prim T** before bonding them with **Mapetherm AR1**.

It is recommended to use **Nivoplan** to even out variations in cementitious surface levels.

### Preparing the mix

Pour **Mapetherm AR1** into a bucket containing 22% (by weight of powder) of clean water (approx. 5.5 l of water for 25 kg of powder). Mix with a low-speed mixer, until a homogeneous and lump free paste is obtained.

After 5 minutes standing it should be restirred. The mix is workable for at least 3 hours.

### Spreading the mix

#### Used as adhesive

Spread an even layer of **Mapetherm AR1** on the back of the panels with a 10 mm notched spreader if the substrate is flat, or in a series of dots and beads if the wall is uneven.

After laying, press the panels down well to guarantee a good bond to the substrate, and check the flatness with a straightedge.

#### Used as smoothing and levelling compound

Once the adhesive is completely dry, at least 24 hours after applying the panels according to climatic conditions, spread an even layer of **Mapetherm AR1** on the surface and then embed **Mapetherm Net** alkali-resistant glass fibre mesh in the mortar. The **Mapetherm Net** must be pressed down with a smooth trowel on the fresh layer of mortar, and must overlap by at least 10 cm along the joints. After 12-24 hours, apply a second layer of **Mapetherm AR1** smoothing and levelling compound to form a compact, even surface suitable for the final coating which must only be applied once the smoothing layer is hardened and cured.

### Cleaning

Tools and containers can be cleaned with water while **Mapetherm AR1** is still fresh.

## CONSUMPTION

Bonding of insulating panels: 2-4 kg/m<sup>2</sup>

Bonding insulating panels with a uniform layer on the back of the panel, using a N. 10 notched trowel: 4-6 kg/m<sup>2</sup>

Smoothing: 1.3-1.5 kg/m<sup>2</sup> per mm of thickness (recommended thickness: 4 mm in 2 layers)

## PACKAGING

**Mapetherm AR1** is supplied in 25 kg paper bags.

## STORAGE

**Mapetherm AR1**, kept in a dry place and in its original packing, can be stored for 12 months.

The product complies with the conditions of Annex XVII to Regulation (EC)

N° 1907/2006 (REACH) - All. XVII, item 47.

## SAFETY INSTRUCTION FOR PREPARATION AND APPLICATION

**Mapetherm AR1** contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention. It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.

For further and complete information about a safety use of our product please refer to our latest version of the Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

## WARNING

*Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.*

Please refer to the current version of the **Technical Data Sheet**, available from our web site [www.mapei.com](http://www.mapei.com)



Smoothing insulating panels: spreading the **Mapetherm AR1**



Smoothing insulating panels reinforced with a Fibreglass Mesh drowned into the coat of **Mapetherm AR1**



Bonding the insulating blocks to the façade with **Mapetherm AR1**

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## LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at [www.mapei.com](http://www.mapei.com). ANY ALTERATIONS

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All relevant references for the product are available upon request and from [www.mapei.com](http://www.mapei.com)



Private villa with foamed heating insulation - Hungary



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