



# Mapetherm AR1 Light

**One-component,  
lightweight cementitious  
mortar for bonding and  
reinforcing insulating  
panels and thermal  
insulation systems**



## WHERE TO USE

- Bonding insulating panels in general (made from foam/extruded polystyrene, foam polyurethane, mineral fibres, cork, wood fibres, etc.) directly on render, masonry and concrete on walls and ceilings.
- Reinforcing coat for insulating panels with embedded fibreglass reinforcement mesh on internal and external walls.
- Reinforcing coat for repaired masonry with embedded fibreglass reinforcement mesh for internal and external walls.
- Making substrates flat when preparing them prior to installing thermal insulation systems (except concrete; specific products are required in such cases).

## Some application examples

Bonding and skimming internal and external insulating panels and thermal insulation systems on:

- cementitious render or lime-mortar render;
- concrete;
- concrete blocks;
- brickwork in general;
- impact area where a higher level of strength is required.

## Ideal for bonding and reinforcing:

- insulating systems installed on the internal walls of rooms above ground;
- insulating systems installed on the internal side of facing walls and the inner face of basement walls with no water infiltration and/or rising damp;
- insulating systems installed inside loft ceilings;
- insulating systems on ventilated façades.

## TECHNICAL CHARACTERISTICS

**Mapetherm AR1 Light** is a white coloured powder made from cement, lightweight mineral aggregates, selected sand, synthetic resin and special additives with a fine grain size of up to 1 mm according to a formulation developed in the MAPEI Research & Development laboratories. When mixed with water, it forms a mortar with the following characteristics:

- low viscosity and, therefore, good workability;
- high mechanical strength (up to twice that of lightweight reinforcing compound with EPS);
- high thixotropic consistency: **Mapetherm AR1 Light** may be applied on vertical surfaces without running and without the risk of insulating panels slipping;
- 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 or coatings;
- allows for thicker layers to be applied in a single go (up to around 8/10 mm);
- hardens and cures without significant shrinkage.

## RECOMMENDATIONS

- Do not use **Mapetherm AR1 Light** to bond insulating panels on metallic surfaces or substrates subject to high movements.
- Do not use if the panels have a smooth surface, they may not adhere sufficiently: polyurethane or extruded polystyrene with a surface skin, etc.
- Do not bond insulation panels on deteriorated substrates or crumbly render.
- Do not use on de-humidifying render.
- Do not apply on masonry with capillary rising damp.

# Mapetherm AR1 Light



Application of the Mapetherm Dripnose Bead with Mapetherm AR1 Light



Application of the first skimming coat of Mapetherm AR1 Light

## APPLICATION PROCEDURE

### Substrate preparation

The substrate must be compact, strong and free of dust, loose parts, grease, oil, adhesive, etc. We recommend eliminating any particularly uneven areas in the surface by applying a preliminary layer of **Mapetherm AR1 Light**. Gypsum substrates (render applied by hand or with a rendering machine, pre-fabricated panels, etc.) must be perfectly dry and have no traces of dust and, before bonding the insulating panels with **Mapetherm AR1 Light**, must be treated with **Primer G**.

### Preparation of the mix

Pour the **Mapetherm AR1 Light** while mixing into a container with 29-31% in weight of clean water (approx. 6.7-7.1 litres of water per 23 kg of powder). Stir the mix, preferably with a mixer at low-speed to avoid air entrainment, until a smooth, creamy, lump-free paste is obtained. Let the mix stand for 5 minutes then mix again briefly before use. The mix obtained as described above remains workable for at least 3 hours.

### Spreading the mix

#### Used as skimming mortar:

The application of an 8-10 mm thick layer of **Mapetherm AR1 Light** to repair the surface will cover defects in the render on the façade under maintenance. It is ideal for making substrates perfectly flat before installing a thermal insulation system.

#### Used as adhesive:

Spread an even layer of the **Mapetherm AR1 Light** mix directly on the back of the panels using a 10 mm notched trowel if the substrate is flat, or in a series of beads and spots if the masonry is uneven. After installing the panels, press them down well to guarantee good adherence to the substrate and check the flatness with a straightedge.

#### Used as reinforcing compound:

Once the adhesive is completely dry, spread an even layer of **Mapetherm AR1 Light** on the surface and then embed **Mapetherm Net** alkali-resistant fibreglass mesh in the mortar. The **Mapetherm Net** mesh must be pressed down with a smooth trowel into the fresh layer of mortar mix and each piece must overlap by at least 10 cm along the edges. After 12-24 hours, apply a second layer of **Mapetherm AR1 Light** reinforcing compound to form a compact, even surface suitable for the final coating or covering, which must only be applied once the first layer is hardened and cured.

### Cleaning

Tools and containers may be cleaned with water while the **Mapetherm AR1 Light** is still fresh.

## CONSUMPTION

- Bonding insulating panels:  
3.0-5.0 kg/m<sup>2</sup> according to the bonding technique used.
- Skimming: 1.20-1.40 kg/m<sup>2</sup> per mm of thickness (recommended thickness: approx. 4 mm).

## PACKAGING

**Mapetherm AR1 Light** is available in 23 kg paper bags.

## STORAGE

**Mapetherm AR1 Light** may be stored for 12 months in its original packaging in a dry place.

The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH) - All. XVII, item 47.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Mapetherm AR1 Light** 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.

It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention.

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

PRODUCT FOR PROFESSIONAL USE.

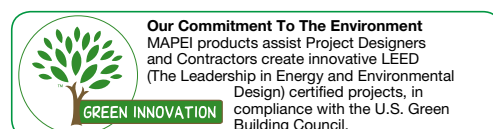
## WARNING

*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 website [www.mapei.com](http://www.mapei.com)

## 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 TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**



| TECHNICAL DATA (typical values)                           |  | In compliance with the requirements defined by EN 998-1 |
|---|--|---|
|   |  |   |
| PRODUCT IDENTITY  |  |   |
| Consistency:  | powder   |   |
| Colour:   | white  |   |
| Maximum size of aggregate:                                | approx. 1,0  |   |
| APPLICATION DATA (at +23°C - 50% R.H.)                    |  |   |
| Mixing ratio with water (%):                              | 29- 31   |   |
| Consistency of mix:                                       | paste  |   |
| Density of mix (kg/m³):                                   | approx. 1.300  |   |
| Application temperature:                                  | from +°5C to +35°C   |   |
| Workability time:   | approx. 3 h  |   |
| Open time:  | approx. 25'  |   |
| Adjustment time:  | approx. 40'  |   |
| Waiting time before finishing operation:                  | 15 days  |   |
| Consumption (kg/m²):                                      | approx. 3,0 -5,0: bonding insulating panels<br>approx. 1,20-1,40: skimming (per mm of thickness) |   |
| FINAL PERFORMANCE   |  |   |
| Modulus of elasticity (N/mm²):                            | 3.000  |   |
| Flexural strenght after 28 days (N/mm²):                  | approx. 4,0  |   |
| In service temperature:                                   | from -30°C to +90°C  |   |
| PERFORMANCE CHARACTERISTICS according to EN 998-1         |  |   |
| Performance characteristic                                | Test method  | Test results and conformity to the requirements         |
| Dry bulk density (kg/m³):                                 | EN 1015-10   | 1131  |
| Compressive strenght (N/mm²):                             | EN 1015-11   | 9,48 Category CS IV                                     |
| Adhesion (concrete) (N/mm²):                              | EN 1015-12   | ≥ 1 failure mode (FP) = B                               |
| Capillary water absorbtion [kg/(m²·min <sup>0,5</sup> )]: | EN 1015-18   | 0,121 Category W2                                       |
| Water vapour permeability coefficient (μ):                | EN 1015-19   | 13  |
| Thermal conductivity (λ <sub>10dry</sub> ) (W/mK):        | EN 1745  | 0,31  |
| Reaction to fire:   | EN 13501-1   | Euroclass A1  |



*Application of Mapetherm Net into the first skimming coat*



*Embedding the Mapetherm Net reinforcing mesh*



# Mapetherm AR1 Light



*Application of Mapetherm AR1 Light as an adhesive and as a skimming compound -  
Private house - Noale (Venice) Italy*

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

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