# ThermoPor

## Thermal Insulating Plaster/Render

### Product information and Method Statement

Version 1.1

**CHRODA Eco Ltd**
The Croft
97 Bretforton Road
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WR11 7XQ

# 1. Contents

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# 2. What is ThermoPor?


ThermoPor is an innovative new high performance ready to mix thermal insulating render/plaster product for both internal & external use. Manufactured from 98% sustainable naturally occurring inorganic materials with recycled glass, ThermoPor is non-toxic, harmless, and safe. This multi-characteristic insulation product is incredibly light-weight and easy to apply to a wide variety of surfaces which will help to reduce overall material and labour costs and improving energy efficiency to help lower fuel costs.

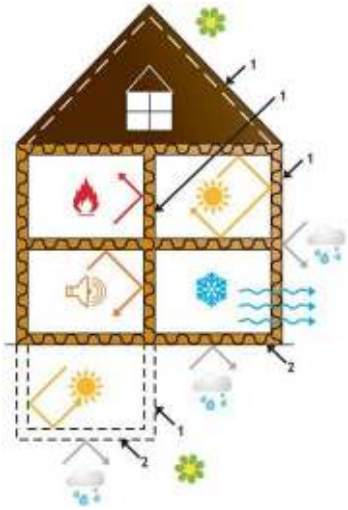
ThermoPor also boasts significant advantages over existing products on the market as a result of its multi-characteristic properties (*Please see 'Properties' below for further details*).
This highly durable insulation plaster/render product will not deteriorate over time and will last for the life of the building.

With thermal insulation, vapour permeability, damp resistance, fire resistance, sound absorption and the fact that it's manufactured from natural sustainable materials making up its key properties, it's not surprising that the demand for ThermoPor is growing enormously year on year.

*Additional information;*

- It should be noted that ThermoPor is not sand & cement render and as such will "*handle*" differently.
- Time should be taken to become accustomed to its unique characteristics and handling.
- Training on the application of ThermoPor is available if required.

**Image Key**: ThermoPor – 1, ThermoSap - 2



# 3. Multi-characteristic properties

ThermoPor boasts significant advantages over existing products in the market as a result of its multi-characteristic benefits.

- **Thermal Insulation:** Internal wall insulation (*IWI*) and External wall insulation (*EWI*), can be used for either.
- **Vapour Permeability:** Allows a building to 'Breathe', preventing the growth of mould & fungus and promoting a healthy living and working environment.
- **Damp resistance (Hydrophobic):** Ideal for damp issues on walls, within basements, lift shafts etc. *Please note that ThermoPor is not resistant to salts.*
- **A1 fire resistant:** SAY ThermoPlast products are certified up to 500°C with a melting point of 1100°C.
- **Sound Absorbent:** 23dB @20mm.
- **Sustainable materials:** Manufactured from 98% naturally occurring inorganic materials, the majority of which is expanded recycled glass.

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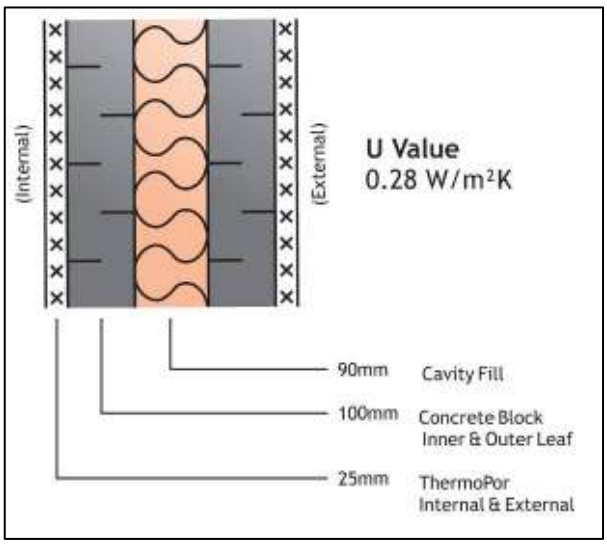
**ThermoPor is also:**
Extremely light-weight and has high adhesive qualities.

# 4. U Values below 0.30 W/m2K




UK Building regulations state that new build properties require a U Value of 0.30 W/m2K and building extensions require a U Value of 0.35 W/m2K. This illustration to the left demonstrates a practical example of the U Values that can be achieved by using ThermoPor internally and externally. This is however just one of the many ways in which ThermoPor can be used to achieve the required building regs U Values (*ThermoPor has a thermal conductivity of 0.054W/mK making it an ideal thermal insulation material for IWI 'Internal Wall Insulation' and EWI 'External Wall Insulation' on both new and retro-fit projects*).

This also means that ThermoPor is ideally suited to assisting with the needs of the UK's carbon emissions reduction targets. For the average homeowner, this simply means lower energy costs! ThermoPor can assist in reducing your energy costs by as much as 45%, and that translates to roughly £370 p/year for an average 3 bedroom semi-detached house.

# 5. ThermoPor surface preparation

- The application surface should be clean and free from any dust, grease or lose materials before applying ThermoPor.
- **Please note** that non-porous surfaces such as granite may require the aid of expanded stainless steal mesh to ensure maximum adhesion.
- To ensure adhesion to smoother surfaces, or previously painted surfaces, score the wall at 10cm intervals before applying the ThermoPor.

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# 6. ThermoPor product preparation


Between 4 & 5 litres of water will be used for the mixing process. This depends mainly on weather conditions i.e. colder conditions will require slightly less water. Empty a small amount of water into the container to begin with. Carefully and slowly empty the **FULL** contents (***Do not use part bag mixes***) of an 8kg bag of ThermoPor into the flat-bottom container. Make use of standard PPE, face masks and goggles to avoid dust irritation.

Add some water to the dry mixture and begin mixing the product. The mixing process will be carried out for a total of 6 minutes using a mechanical mixer. During the 6 minutes continue to add the remaining water while continually mixing with the mechanical mixer until the desired consistency is achieved. Be sure to periodically stop the mixing process and using a trowel, scrape the bottom of the container in the corners to ensure that no dry material has escaped the mixing process.

**NB:** The mixing process is one of the most, if not the most important part of the entire process. If in doubt, mix the material for a little longer.

Once mixing is complete, let the product stand for a further 5 minutes or more before use, and be sure to use the entire mixture within 2 hours of preparation. If the mixture has been left standing for a while and has become slightly stiff then mix again by hand or mechanically and if needed add a small amount of water while mixing to soften.

**Please note:**
It is important to again reiterate two of the most important factors when it comes to the mixing of ThermoPor.

1. Ensure that the entire bag is used during preparation, ThermoPor consists of a number of natural ingredients, so it is therefore important to ensure that the entire contents of the bag is used.
2. Secondly, during the mixing process ensure that no dry material escapes the mixing process. If necessary use a trowel to scrap the corners of the mixing container to ensure that no dry material remains.
3. Finally, ensure that the product is thoroughly mixed for the full duration, if in doubt, mix for a little longer.

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# 7. ThermoPor application

It is essential that guides are used in the application process, for 2 reasons; number 1 being that it will prevent material movement which is common without the guides due the light-weight almost sticky nature of the material and number 2, because the guides help the person applying the ThermoPor to obtain the correct depth of the material on the wall. We would recommend that the guides are put in place before the application process begins at 1 meter intervals.

Begin the application process by first of all applying a very thin layer of ThermoPor to the surface area with pressure in an upward motion. With the guides in place, apply the ThermoPor to the wall by hand using a stainless steel trowel in an upward motion and build the material up to the required thickness. *This can however also be sprayed onto the surface area by machine.*

Once the area between the guides has been filled, run a straight edge up against the rail guides in an upward short left to right to left sawing motion to remove any excess ThermoPor to achieve a flat even finish. Run a stainless steel trowel over the area to finish. After the first section is complete, continue with the next area and then repeat and drop back to fill in the area occupied by the guides and trowel over until the desired finish is achieved. For the best results, allow approx. 20-30 mins before towelling over finally.

You will soon become familiar with the time required to get the desired finish and will be able to adjust techniques to meet your needs.

Note that times may vary depending on atmospheric conditions, i.e. colder conditions will take longer.

# 8. Finishes

ThermoPor can be painted if required and is ready to do so after 40 hours in '*normal*' conditions.
For smooth internal finishes, the product can be sanded, however this does create dust. We would recommend that you finish the wall with a permeable, '*Breathable*' plaster.

To ensure the walls vapour permeability is not affected in any way, you are also advised to use a mineral paint if the wall is painted. Using a normal paint will not negatively affect the product in any way, other than preventing it to breathe.

# 9. Health and Safety

Please refer to our Material Safety Datasheet for more information. *This is available on the ThermoPor product page on our website.*

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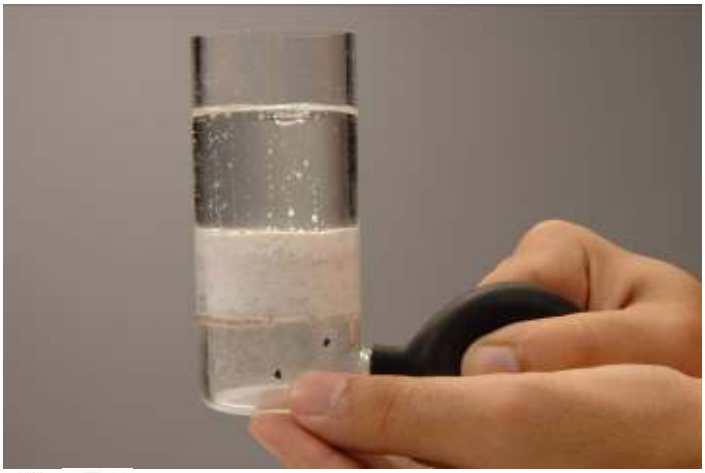
# 10. General notes

- *ThermoPor can be applied to various surfaces including brick, concrete block, stone, timber and many more.*
- *Drying time may vary depending on weather conditions, but the surface should be ready for painting if desired after 40 hours.*
- *Do not apply ThermoPor to a wall in direct sunlight, and avoid frosty conditions.*
- *ThermoPor should not be applied in temperatures **below** 5 degrees C, and should be stored in temperatures **above** 5 degrees C.*
- *ThermoPor can be stored for a total of 18 months in proper conditions and has a working time of 2 hours after mixing.*



Vapour permeable & Damp resistant - Demonstrating the products ability to 'Breathe' while at the same time showing its water repellent damp resistant characteristics.

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Fire Resistant - The image above shows the products fire resistant characteristics. Class A1 (500°C with a melting point of 1100°C)

Recycled Glass - The two images above show the product in its semi-raw state, expanded recycled glass. Click **HERE** for more information. ThermoPor is manufactured from 98% naturally occurring sustainable materials including expanded recycled glass.

# 11. Frequently asked questions (FAQ)

- **How different is it in terms of application weight and structure to normal sand & cement render?**
  - ThermoPor is completely different to sand and cement render because ThermoPor provides a number of additional benefits which are not present in normal renders or plasters, i.e. Thermal resistance, vapour permeability, hydrophobic (repels water), fire resistance, sound absorption, and it is manufactured from sustainable materials.
  - ThermoPor is also much lighter, being just 334 kg/m³ (± 10%). Portland cement for example is ± 1506 kg/m³ and Plaster is ± 849 kg/m³ with sand being ± 1602 kg/m³.
    - *Other product weight examples:*
      - *Portland cement: ± 1506 kg/m³*
      - *Plaster: ± 849 kg/m³*
      - *Sand: ± 1602 kg/m³*
      - *Hydrated Lime: ± 481 kg/m³*
  - In terms of application and structure, ThermoPor feels very different to render and plaster because it is much lighter and airy and is also quite "sticky". As a result of it's 'stickiness', specific application procedures need to be followed, i.e. using guides to set depth and a straight edge to even off the surface. Please refer to sections above for further details on application.
- **Can you mix colour with ThermoPor?**
  - **No**. Nothing else can be added to ThermoPor other than the water used to mix it. ThermoPor is white in colour and can be painted if needed 40 hours after application, or left white as is.
- **Can it be used in conjunction with other 'slab' or 'board' type insulation products?**

  - ThermoPor can be used in conjunction with some other insulation products where ThermoPor is used as a finish and to help reduce material costs by enabling the reduction of other insulation material, cavity space requirements and thickness of walls. It is advised that ThermoPor is however applied using a mesh
  - If you have a specific insulation material in mind and want to know if ThermoPor is approved or compatible with it, please contact us by phone on ***0845 504 0809*** or email info@chroda-eco.co.uk.
- **How long does it last once applied.**
  - ThermoPor will last for the life of the building.
- **Is it recyclable?**
  - Yes, ThermoPor is 100% recyclable but cannot be reused.
- **Can ThermoPor be applied with machinery and is this available in this country?**
  - Yes, ThermoPor can be applied by machine and sprayed onto wall surfaces and plaster machines can be hired and purchased in this country.
- **What about Thermal bridging around doors, windows and internal wall returns?**
  - Windows and door reveals need to be covered to full height.
  - The return to an internal wall, assuming brick, should be 250-300mm in length and full wall height. Please discuss the exact requirements with your architect for more information and provide them with the thermal conductivity of ThermoPor, which is 0.054 W/mK.
- **What U values can be achieved using ThermoPor?**
  ***(Thermal conductivity of ThermoPor: 0.054 W/mK)***
  - Solid 220mm Brick Wall, Browning Plaster & Skim ***without*** ThermoPor:
    - 1.98 W/m2K
  - Solid 220mm Brick Wall, 40mm ThermoPor internally:
    - 0.84 W/m2K
  - Solid 220mm Brick Wall, 40mm ThermoPor internally & 30mm externally:
    - 0.57 W/m2K
  - 15mm internal lightweight plaster, 240mm Thermoplan blocks, 40mm ThermoPor:
    - 0.30 W/m2K.
  - 15mm internal lightweight plaster, 365mm Thermoplan blocks, 40mm ThermoPor:
    - 0.22 W/m2K.
- **How does ThermoPor's sound absorption compare with other materials? *(SRI – Sound Reduction Index*)**
    - ThermoPor itself has 23dB of sound absorption at 20mm.
    - **100mm solid brickwork** (Plastered 12mm): 45dB
    - **250mm Cavity brick wall (i.e. 2 x 110mm):** 50dB
    - **200mm lightweight concrete slabs:** 40dB
    - **340mm Brickwork (Plastered both sides 12mm):** 53dB