# Nobilium® Thermalpanel solution with natural hydraulic lime plaster

Innovative NOBILIUM® solution for plaster with an Sd value about 10 times lower than that of a conventional 15mm-thick plaster and a thermal resistance R about 10 times higher.

**What does Sd mean for a Plaster**

Sd is a technical measure indicating a material's resistance to the diffusion of moisture and steam in relation to its thickness. For plasters, Sd is a crucial value as it directly affects the material's ability to handle moisture within the masonry system.

**What does Sd stand for?**

- Sd is an abbreviation for the German term "Wasserdampfdiffusionswiderstandszahl," or "steam diffusion resistance number".
- It represents a material's intrinsic resistance to the migration of moisture vapours within it.
- The higher the Sd value, the greater the material's resistance to moisture vapour diffusion. Conversely, a lower Sd value means greater moisture permeability.

**Impact on Construction:**

- In construction, knowledge of the Sd value is critical to ensuring proper control of moisture within the walls.
- Under different climatic conditions, having an appropriate Sd value can impede the formation of condensation inside the structure, thus preventing damage, mould and mildew.
- A plaster with an Sd value 10 times lower than that of conventional plaster implies greater moisture permeability, a factor which could prove advantageous in some specific situations.

**Technical Considerations:**

- The choice of the Sd value depends on several factors, including local climate, building conditions and specific moisture control requirements.
- A lower Sd value may allow moisture vapours to migrate more freely through the plaster, while a higher value limits such migration.
- It is important to carefully balance moisture permeability with the needs for thermal insulation and moisture control within rooms.

In sum, Sd is a key technical parameter to be considered when designing plasters as it directly affects how moisture behaves within the walls and is crucial to preserving building durability and quality in time.

**Objective of the NOBILIUM® Solution**

The main objective of our innovative solution — with a Sd that is significantly lower than conventional plasters — is to provide a coating system that meets the growing demand for moisture management and energy performance in modern construction. This goal is driven by a number of key considerations:

**1. Moisture Control:** One of the key aspects in building design is the control of moisture. Our solution is designed to boost moisture permeability through the plaster, allowing water vapour to migrate freely through the walls. This helps prevent internal condensation, reducing the risk of structural damage and the growth of mould and mildew.

**2. Energy Efficiency:** Energy management is crucial for any modern building. Lowering the Sd value enables better control of thermal performance, reducing thermal loads and contributing to a more comfortable, more energy efficient environment. This is also particularly relevant in regions subject to extreme temperatures.

**3. Environmental Adaptability:** We recognize that, in construction, there is no "one-size-fits-all" solution. Therefore, we have designed the NOBILIUM® plaster system with the flexibility needed to adapt to the specific needs of different climatic conditions, different building types and breathability requirements. Thus we can offer a versatile option for a wide range of applications.

**4. Heritage Preservation:** For historic or protected buildings, our solution can help preserve the original appearance while providing the performance needed for long-term preservation. The high pH value of our plaster also helps prevent damage and deterioration over time.

**5.Environmental Health:** With its extremely high pH (pH 13), the NOBILIUM® plaster system provides additional benefits as it prevents the growth of mould and mildew, improves indoor air quality and contributes to environmental health over the years.

In sum, our innovative plaster solution is designed as a comprehensive response to the challenges of modern construction, promoting effective moisture management, energy efficiency, application flexibility and heritage preservation, all while contributing to an indoor environment that is both healthy and sustainable.

**Our NOBILIUM® solution for Innovative Plaster with a pH of 13 and Sd ≤ of 0.02**

The heart of our innovative solution is the plaster system that uses a layering of high-quality mineral materials to ensure outstanding performance. This layering consists of:

1. **Pure Basalt Layer:** Our plaster solution starts with a layer of pure basalt a few millimetres thick (Nobilium®Thermalpanel). Basalt is known for its strength and durability, an ideal choice for providing a solid, thermally uniform, insulating base for our system.

2. **Reinforced Skim Coat of Natural Hydraulic Lime:** Next, a 2mm/3mm-thick reinforced skim coat layer of natural hydraulic lime, NHL 5, is applied. Natural hydraulic lime is a traditional material that offers excellent breathability and durability, contributing to our goal of moisture regulation and energy control.

3. **Finishing coat with Pure Lime Putty Plaster/Paint:** The layering is completed with a finish of pure lime putty plaster/paint. This thin layer of plaster/paint is not only pleasing to the eye but also boosts breathability and moisture control.

**Advantages of Using a Skim Coat and Painting Cycle with a pH of 13:**

- **Prevention of Mould Formation:** The 13 pH skim coat and paint cycle creates a highly alkaline environment, making the substrate less subject to mould and mildew. This helps maintain a healthy, dry, mould-free interior environment over time.

**Total Thickness of the Innovative Layering:** The entire thickness of the innovative plaster layering system is between 6/8mm and 10/12mm. This fine-tuned design achieves superior performance in terms of moisture management, thermal insulation, uniformity, durability and mould prevention, all in a thin but highly effective layer.

**Advantages of Low Sd Plaster:**

- **Increased breathability**: The plaster makes the wall more permeable to moisture vapour, thus helping improve indoor air quality.
- **Reduced risk of condensation**: Lower risk of condensation forming inside the walls.
- **Suitable for specific climates:** Ideal for warm or humid climates, where the rapid release of moisture can be an advantage.

**Applications**

**Specific Benefits by Application:**

- **Old or Historic Homes**: Plaster with a lower Sd value can better preserve the aesthetics of historic buildings, reducing the risk of damage from moisture.
- **Buildings with Active Climate Control**: In environments with active climate control — such as those with central air conditioning — a lower Sd value can boost the dissipation of excess heat.
- **Hot, High Humidity Regions**: In hot and humid climes, our Nobilium® plaster solution can help prevent condensation inside the walls, thus improving structure durability.

**Materials and Processes**

**Specific Advantages of the Materials and Processes:**

- **Breathable Materials:** The materials used allow breathability, helping to regulate internal moisture and maintain a healthy environment.
- **Ease of Application:** Our application process is efficient and reduces labour, thus helping to save time and money, without the need for mechanical dowelling.

**Important Considerations**

**Specific Benefits of the Important Considerations:**

- **System Customization**: A lower Sd value allows for greater customization of thermal insulation solutions, adapting them to the building's specific needs.
- **Improved Energy Efficiency**: Together with other insulation, our Nobilium® plaster solution can help bring an overall improvement in the building's energy efficiency.

**Ph 13 to prevent mould**

A plaster with an extremely high pH (pH 13) can offer various benefits in terms of preventing the growth of mould and mildew and promoting environmental health. Here are some ways in which such a plaster can be effective:

**Prevention of Mould Formation:**

1. **Environment Hostile to Micro-organisms:** A high pH creates an alkaline environment that is hostile to the growth of many types of micro-organisms, including mould-causing fungi. This reduces the likelihood that mould can form and proliferate.

2. **Inhibition of Bacterial Growth:** In addition to mould, an alkaline environment can also inhibit the growth of bacteria, further contributing to a healthy environment.

3. **Reduced risk of moisture:** Although a high pH does not directly affect moisture, reducing the growth of mould and bacteria can decrease the amount of moisture a wall is able to retain since such organisms often draw water from the materials they grow on.

**Promotion of a Healthy Environment:**

1. **Improved Air Quality:** By preventing mould and bacterial growth, an alkaline plaster can help improve indoor air quality.

2. **Durability:** A high pH plaster may also better resist degradation in time, especially in environments subject to fluctuations in humidity and temperature. This can help maintain its effectiveness in preventing mould for a longer period of time.

3. **Fewer Chemicals:** The use of an alkaline plaster can reduce the need to use disinfectants and other chemicals to control the growth of mould and bacteria, thus offering a "greener" approach to building maintenance.

In sum, a plaster with an extremely high pH can offer an effective, long-lasting way to prevent mould and promote a healthy environment over time.

**Benefits for Interior Use even in New Buildings**

**Specific Benefits:**

- **Increased Comfort:** The building interior maintains a more comfortable environment with greater humidity regulation.
- **Building Enhancement:** The choice of an innovative plaster can help boost the building's market value thanks to its positive effects on air quality and the prevention of damage due to moisture.
- **pH (pH 13):** our innovative Nobilium® plaster solution has an extremely high pH, thus rendering the substrate less susceptible to mould and mildew, making a significant contribution to environmental health over time, even in new buildings.

**Conclusions**

**Summary of the General Benefits:**

- **Improved Breathability:** Reduces the risk of condensation and promotes a healthier environment.
- **Adaptability:** Adapts to specific building and climatic requirements.
- **Energy Efficiency**: Together with other insulation, improves energy efficiency.