

# DIATHONITE<sup>®</sup> DEUMIX<sup>+</sup>

ECO-FRIENDLY CORK-BASED  
DEHUMIDIFICATION THERMAL PLASTER



**DIASEN**<sup>®</sup>  
GREEN BUILDING FUTURE



Argatherm

Diathonite Deumix<sup>+</sup>

# THE CORK:

RESISTANCE TO HUMIDITY  
AND THERMAL COMFORT



## A SINGLE PRODUCT AGAINST SALINITY, TO RESTORE THERMAL INSULATION AGAINST DAMPNESS

With a single breathable product perfect dehumidification is guaranteed, also in presence of salt efflorescence, increasing comfort and thermal wellbeing thanks to the presence of cork.



## Uneven masonry? Diathonite Rinzafo

WATstop creates a thickness of about 2-3 mm, and is applied on a surface as even as possible. To even out uneven masonry, before applying WATstop, it is possible to use Diathonite Rinzafo. This way, the WATstop layer can be applied easily and with the indicated yield.

1. Uneven masonry 2. Diathonite Rinzafo 3. WATstop 4. Diathonite Deumix+



# ANCHE SOTTO TERRA NESSUNA UMIDITÀ



## + BREATHABILITY $\mu = 4$

The NHL 5 clay gives Diathonite Deumix+ greater breathability, balances the humidity in environments, prevents the creation of moulds and condensation, contributing to a healthy living environment.



## + THERMAL INSULATION $\lambda = 0,080 \text{ W/mK}$

The low thermal conductivity of Diathonite Deumix+ limits superficial and interstitial condensation, contributing to thermal insulation of the walls.



## + ECO-FRIENDLY, EPD certified

Diathonite Deumix+ is a completely natural product, its use contributes to obtaining LEED credits and respects the Minimum Environmental Criteria (CAM).

- DEHUMIDIFICATION AND THERMAL INSULATION
- RESOLVES HUMIDITY AND CONDENSATION
- THERMAL WELLBEING AND ENVIRONMENTALLY HEALTHY
- MECHANICAL STRENGTH
- IDEAL FOR RESTORATION AND BIO-BUILDING
- EC CERTIFIED

# CHARACTERISTICS AND ADVANTAGES

## Efficient against all types of humidity

Diathonite Deumix\* does not only solve the problem of capillary rising dampness: its thermal properties **avoid the formation of interstitial condensation and in doing so, limit the overall humidity to be removed.**

## Thermal insulation and energy savings

The high thermal performance of Diathonite Deumix\* increases the energy savings: it efficiently insulates both the from heat and cold, **requalifying the aesthetic appearance and functionality walls.**

## Natural and eco-friendly solution

Diathonite Deumix\* contains **100% natural materials** like cork, clay and natural hydraulic lime NHL 5. **It grants LEED credits, does not emit VOCs**, its use is safe for people and the environment, and **respects the Minimum Environmental Criteria (CAM).**

## EC safety certificate

Diathonite Deumix\* and WATstop are products that have earned the **CE mark** based on the UNI EN 998-1 and UNI EN1504-2 regulations.



## Resistance and stability

Diathonite Deumix\* is **strong and flexible**: it does not form cracks, can be used both indoors and outdoors, does not require reinforcing mesh, is non-combustible, does not burn or emit smoke

## Indoor wellness

Diathonite Deumix\* guarantees **maximum living comfort: warmer and dryer spaces**, with the regulation of the environmental humidity levels thanks to its **hygroscopic properties** and the **elimination** of surface and interstitial **condensation**.

## Healthy environments

Diathonite Deumix\* makes environments healthier: improves the **air quality** to reduce allergies and respiratory illnesses, eliminates odours caused by damp walls, prevents mould formation thanks to its **bacteriostatic and anti-mould properties**.

## Ideal for restorations and bio-building

Diathonite Deumix\* is based on **natural hydraulic lime NHL 5**, and for this reason is ideal for all historical restoration interventions regulated by heritage authorities. In the same way, it can be used in the bio-building construction and restorations.

## Lightweight solution

Diathonite Deumix\* is **3 times lighter** in comparison to traditional dehumidifying plasters. Also in the case of thick layers, its use does not weigh down the existing structures. The transport, stocking and movement result easier and faster.

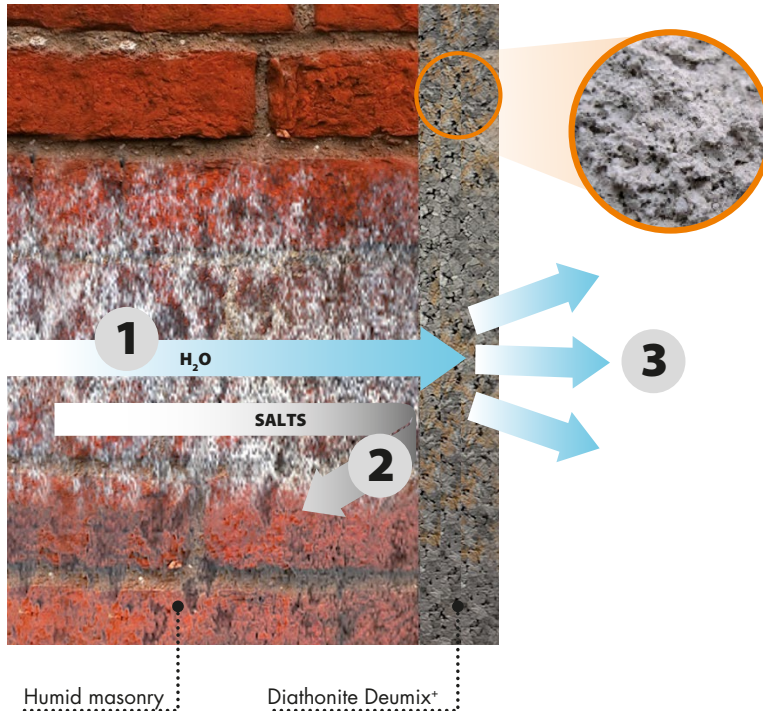
## Efficient and long-lasting dehumidification

Diathonite Deumix\* makes it possible to **dehumidify in a final manner any masonry** affected by capillary rising dampness, requalifying the appearance of facades and walls.



# HOW IT WORKS

Diasen's dehumidifying system, thanks to the unique characteristics of its materials, is capable of resolving any problem related to the presence of humidity inside masonry, allow the rapid removal of vapour and protecting the system and the masonry from salt damage. **All this in a single product, Diathonite Deumix<sup>+</sup>.**



## 1 Dehumidification of the masonry

The dampness present inside the walls, coming in contact with the dehumidifying system, is rapidly **absorbed and transported outwards**, allowing for complete drying of the wall. Even in the case of new dampness, the drying action of the system remains unchanged, thanks to the unique porous structure of the material.

## 2 Saline protection

In the case salts are dissolved in the water inside the masonry the special natural active ingredient present inside **Diathonite Deumix<sup>+</sup>** makes it possible to **efficiently block the passage of salts, allowing only the penetration of moisture**. As a result of osmosis, the salts are reabsorbed by the masonry, thus preventing the saturation of the porosity of the plaster.

## 3 Moisture evaporation

Once purified from the salts, the moisture enters in contact with Diathonite **Deumix<sup>+</sup> dehumidification plaster**. The porous structure of the material grants the plaster great breathability, and the water spreads through the capillary absorbency of the **Diathonite Deumix<sup>+</sup>**, making possible a **rapid transformation into water vapour** and thus, resulting in fast drying.

# PHYSICAL-TECHNICAL DATA

$\mu = 4$

## BREATHABILITY

Walls free to breathe ensure an always dry masonry.

**71,64%**

## POROSITY

The micro and macro holes of the plaster makes it possible to absorb and rapidly removal of the humidity and condensation.

**R**  
**0,125**  
**m<sup>2</sup>K/W**

## THERMAL RESISTANCE

Elevated thermal comfort that guarantees an always dry wall.

**Class**  
**A1**

## REACTION TO FIRE

It does not burn and does not emit smoke

**3,11**  
**N/mm<sup>2</sup>**

## COMPRESSION RESISTANCE

Elevated resistance, durability and stability over time.

**0,63**  
**Kg/m<sup>2</sup>min<sup>0,5</sup>**

## CAPILLARY WATER ABSORPTION

Category W0.  
Quick moisture removal.

$\lambda$   
**0,080**  
**W/mK**

## THERMAL INSULATION

Limits the formation of interstitial condensation and contributes to energy savings.

**CONFERS**  
**LEED**  
**CREDITS**

## ECOFRIENDLY

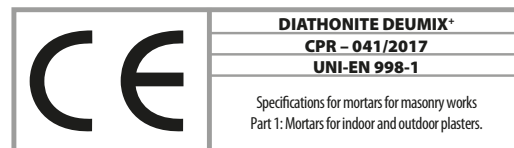
100% natural materials. Confers LEED credits Ideal for historical restoration and bio-building.

## LEED® - LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

Diathonite Deumix+ is an eco-friendly product since it is formulated with non-hazardous materials for the environment and safe for human usage both during application and after full curing. For this reason, its use contributes to obtaining **LEED credits in Green Building Council** certification protocols and to meet the requirements established by **Minimum Environmental Criteria (CAM)**.

### LEED Standard Italy for New Constructions & Renovations, v. 2009

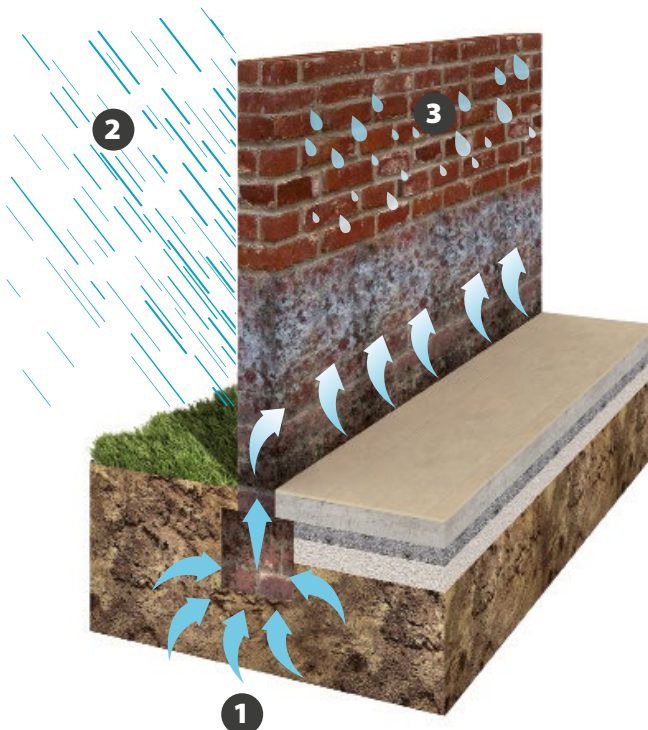
| Thematic Area                | Credit   | Point score  |
|------------------------------|--|--------------|
| Energy and Atmosphere        | EAp2 - Minimum energy performance  | Compulsory   |
|                              | EAc1 - Optimization of energy performance  | From 1 to 19 |
| Materials and Resources      | MRC2 - Construction waste management   | From 1 to 2  |
|                              | MRC4 - Recycled content  | From 1 to 2  |
|                              | MRC5 - Materials obtained, processed and manufactured locally (regional materials) | From 1 to 2  |
|                              | MRC6 - Rapidly renewable materials   | 1            |
| Indoor environmental quality | QlC3.2 - Management plan IAQ: Before occupancy                                     | 1            |
|                              | QlC4.2 - Low emitting materials - paints and coatings                              | 1            |



# RISING DAMP

## THE CAUSES

Humidity represents one of the major issues in the construction sector. The presence of humidity in walls can have multiple causes, but the most common is undoubtedly rising damp, which is absorbed by the walls from the ground by capillarity.



### 1 Capillary rising damp

Humidity naturally present in the soil rises within the walls by capillarity. It is the most insidious type of humidity because it carries with it dissolved salts that trigger salt infiltration processes in the walls.

### 2 Meteoric water

If not adequately protected through water-proofing finishes, external facades may absorb rain water, which, once in the walls contributes to the decay of materials, heat losses and the appearance of stains and mould.

### 3 Humidity form condensation

Water steam naturally present in indoor environments, when transferring to the walls, may turn into interstitial condensation if the walls are not adequately insulated, thus increasing the presence of humidity.





## THE ISSUES

The presence of humidity in the walls does not only represent an "aesthetic inconvenience" but may also cause issues that, if not correctly approached, over time risk to compromise the sealing of walls.

### Static damages

- Freezing of humidity, in winter months, may lead to the appearance of damages.
- Crystallisation of salts saturates the porosity of construction materials, thus leading to their disgregation.
- Disgregation of materials, over time, risks to compromise the static seal of the entire wall.

### Financial damages

- A damp wall is an uninsulated one thus leading to an increase in heat losses.
- Increase in interstitial condensation phenomena due to cold walls.
- Increase in winter heating costs for buildings.

### Aesthetic damages

- Plaster detachment, erosion of connecting mortars, swelling of coloured finishes.
- Disgregation and pulverisation of the surface layer of materials by effect of salt crystallisation.
- Appearance of salt infiltration, moulds and efflorescences.

### Health Damages

- Formation of moulds that create an unhealthy environment.
- Increase in allergic reactions and respiratory problems.
- The high level of humidity combined with cold walls increases a feeling of discomfort in the premises.



# THE DEHUMIDIFICATION SYSTEM

The dehumidifying system created by Diasen allows using products that can resolve issues of wall dampness completely and permanently based on the level and type of humidity and the type of intervention to implement.

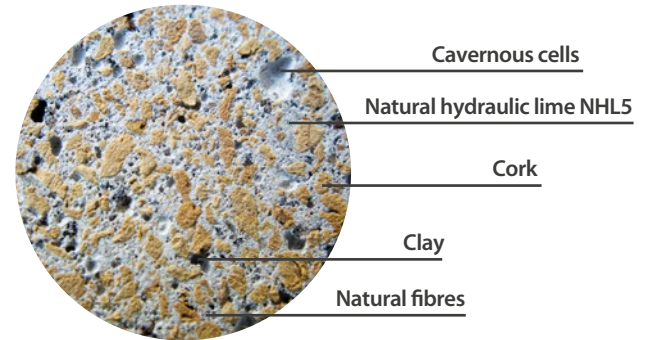


## Diathonite Deumix+

Pure natural dehumidifying plaster featuring NHL 5 lime, cork, clay and diathomeic powders. It dehumidifies the wall by removing capillary rising damp. Diathonite Deumix+ is the only dehumidifying plaster that combines excellent thermal insulation to its dehumidifying action, avoiding the formation of interstitial condensation and limiting the quantity of humidity to remove.

## WATstop

Reinforcing product for walls deteriorated by the disgregating action of counter-thrust damp, used to prepare the support for the application of Diathonite Rinzaffo or Diathonite Deumix+, completing the dehumidification cycle in those cases in which it is necessary to intervene on underground walls or semi-underground walls.



## ECO-FRIENDLY RAW MATERIALS

**Cork** ensures thermal stability also in the case of humidity. The raw materials chosen, all eco-friendly, create a perfect mix that contributes to **thermal comfort** of the home

## 3 TIMES LIGHTER 3 TIMES SMARTER

Diathonite Deumix+ is a plaster formulated with pure cork of selected and verified granulometry. For this reason, differently from traditional de-humidifiers, Diathonite Deumix+ offers a density, and thus a yield, that is 3 times lower, which makes it a solution 3 times smarter.

## THAT MAKES YOU SAVE



### LESS TRANSPORTATION COSTS AND LESS GREENHOUSE GAS EMISSIONS

A bag of Diathonite Deumix+ allows de-humidifying 2.5 m<sup>2</sup> of wall. Transportation costs are lower respect to a traditional de-humidifier. Less shipping costs for the materials and less greenhouse gas emissions caused by transportation.



### LESS STORAGE SPACE

Diathonite Deumix+ takes three times **less storage space**, optimising handling, lifting and storing. In addition, Diathonite Deumix+ is **easy to choose**: just one product for any type of wall and a yield that is easy to calculate.



### LESS WASTE AT THE JOB SITE

De-humidifying using Diathonite Deumix+ requires **3 times less material**. Its use simplifies all the job site activities: handling, lifting and storing. Diathonite Deumix+ allows **reducing job site waste**, thanks to its bag, which is fully recyclable.

**LIGHT AND  
DEHUMIDIFYING  
THERMAL PLASTER**

DENSITY:  
**450 Kg/m<sup>3</sup>**

YIELD:  
**4,4 Kg/m<sup>2</sup> x 1 cm**

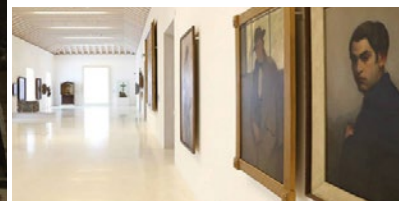
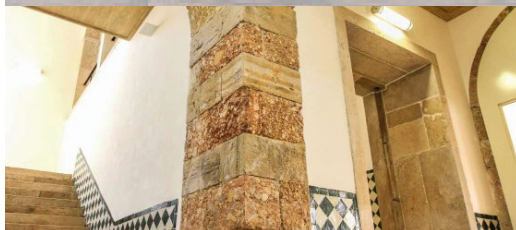
**1 BAG\* DE-HUMIDIFIES  
APPROXIMATELY  
2.5 m<sup>2</sup>**

\* VALUE CALCULATED ON THE MINIMUM  
APPLICABLE THICKNESS OF 2 CM

# SUCCESS STORIES

## CONVENTO DE JESUS - SETÚBAL - PORTOGALLO

Founded in 1490, the Monastery of Jesus is the most renowned example of “Manueline” style, a Portuguese variant of the more popularly known Gothic style. The structure, in advance state of decay, was subjected to a complex structural and architectural recovery project started in 2012. In 2013, Diasen's de-humidifying system was approved to restore the interior walls of the structure, heavily affected by capillary rising damp phenomena. The light weight of Diathonite Deumix<sup>+</sup> allowed intervening with greater thicknesses without weighing down on the structure. The first rehabilitation stage ended in 2015, when a wing of the former Monastery was converted into a National Museum. UNESCO listed the Monastery of Jesus as a monument of interest and the European Delegation "Case Storiche" has unanimously approved the project and the materials used to recover the structure.



# SUCCESS STORIES

## "PALAZZO TIBERTELLI" - FERRARA

Diathonite Deumix\* has been used for the restoration works at the "Palazzo Tibertelli", a palace located in the historical center of Ferrara, turned from a monastery into a residential building. Diathonite Deumix\* was applied as the exterior and interior plaster on all walls of the structure. Its used allowed performing an effective correction on the wall energy performance in addition to resolving rising damp issues.



# SUCCESS STORIES

## RELAIS "BORGO TORALE" - PERUGIA

The historical building "Relais Borgo Torale" is a spectacular tourist resort located in Passignano sul Trasimeno, a charming town on the lake. An ancient village dating back to the mid-seventeenth century, it was owned by the Ranieri marquis of Sorbello, and today is a unique tourism resort. Diathonite Deumix\* was applied on the exterior and all the interior walls of the structure.



# SUCCESS STORIES

## “MADRAS CLUB” - CHENNAI - INDIA -

The Madras Club of Chennai - India, is a “gentleman’s club” founded in 1832, and it is the second oldest across India. Over the course of the renovation works, Dياسen materials were used to de-humidify and remediate the walls of the ground floor, affected by capillary rising damp issues.





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