

## **31087 Ledan<sup>®</sup> ADRANAL**

Special permeable mortar for the protection of walls against rain and snow.

### **Special properties:**

This ready-to-use mortar, which has an excellent adhesion to the underground, consolidates to a certain degree crumbly brickwork and avoids the penetration of humidity in the masonry underneath.

### **Application:**

Ledan<sup>®</sup> ADRANAL is a special versatile material, it can for example be applied to reconstruct the plaster and the fundamental layer of moist wall paintings, both inside as well as outside. The application of a thin layer of Ledan<sup>®</sup> ADRANAL can protect the masonry against the penetration of further humidity. Ledan<sup>®</sup> ADRANAL is very suitable to protect the copings of ruins.

### **Composition of the mortar:**

Special chemically stable hydraulic binding agent components with minor amounts of salts, silical powder, very fine Terra Pozzuoli which contains a special additive mixture to improve the fluidity, water containment and pore formation. This mixture is finely grounded and mixed. Ledan<sup>®</sup> ADRANAL is white.

### **Mixture:**

Mix Ledan<sup>®</sup> ADRANAL thoroughly with demineralized water for about 10 minutes. It is recommended to use an electric mixer with a good raking mechanism.

### **Mixing recommendation:**

Application	Ledan <sup>®</sup> ADRANAL	Water
Mortar, 1st application	10 kg	2,5 liter
Mortar, 2nd application	10 kg	2 liter

### **Recommended applications:**

1. Remove possible coatings and remove all loose brickwork until reaching the undamaged layer. Wash surface thoroughly.
2. Apply Ledan<sup>®</sup> ADRANAL with a brush until the surface is covered with an evenly distributed thin layer.
3. Repeat this process again after 4-5 hours, this time with a spatula to apply a layer of approximately 3 mm.
4. One surface must be completed in one process.
5. Should the Ledan<sup>®</sup> ADRANAL layer be appropriate to walk on, an additional layer of 3 cm of normal plaster has to be applied.

### **Restrictions of application:**

Ledan<sup>®</sup> TA 1 is a binding agent on the basis of lime, thus it should be applied at temperatures between 5°C and 35°C.

**Physical Properties:**

Specification	Value	Evaluation
Specific weight:	3-4 kg/dm <sup>3</sup>	good
Start of binding	8 hours	medium
End of binding	10 hours	medium
Processability:	2.5 hours	medium
Compressive strength:	45 N/mm <sup>2</sup>	good
Bending strength:	7.1 N/mm <sup>2</sup>	good
Adhesive strength:	20 N/mm <sup>2</sup>	very good
Weeping:	insignificant	very good
Vapor permeability:	9 micron	good
Modulus of elasticity	180/250 x 1000 N/mm <sup>2</sup>	medium
Retention of water:	98.7 %	very good
Absorption capacity:	3,6 % weight	very good

**Blooming:**

Ledan<sup>®</sup> ADRANAL does not cause blooming according to the Italian Standard RAL 544/3.

**Stability:**

Stability tests have been carried out with samples of Ledan<sup>®</sup> ADRANAL which correspond to an aging process of about 20 years. These tests showed a change of properties of less than 5 %.

**References:**

The injection mortar Ledan<sup>®</sup> ADRANAL has been successfully used for the conservation of the vertical and horizontal walls in the restoration of the ruins of the Nekropolis of Tarquinia (VT) and the walls of the medieval city of Bassiano (LT), Italy.