

# A01

PROTECTION OF PLASTER IN EXTERIOR ENVIRONMENTS



**ARREGHINI**<sup>®</sup>

ITALIAN PAINTS SINCE 1950



# AAAAAA 01

## PROTECTION OF PLASTER IN EXTERIOR ENVIRONMENTS

*The protection of building materials from atmospheric agents is of fundamental importance. The main cause of the corrosion and deterioration of structures is the extreme aggressiveness of air pollution, chiefly caused by carbon dioxide and sulphur dioxide, combined with moisture.*



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## DIAGNOSTICS OF THE PROBLEM

*The evaluation factor to be considered in order to guarantee effective and durable protection of the structures is the reaction to moisture of coatings and building materials.*

*First and foremost, we shall endeavour to identify the various causes leading to the formation of moisture, and then to explain the various degrees of damage that these can create. In fact, moisture is always present - either in its liquid state or in the form of vapour – due to microcracking, to the capillarity of the ground and of structures with rising damp, or to condensation. While vapour enters and escapes freely through the layer of the materials, water - once it has entered -can only escape in the form of vapour. Additionally, there is also the phenomenon of condensation, the result of the accumulation of vapour on the interface between the various layers of material, which contributes to increasing the content of water in the liquid state within the structure itself. The presence of moisture in masonry is not a threat to the structure if present in small quantities. High quantities, on the other hand, can prove to be extremely damaging as they convey polluting gases from the atmosphere or salts from the material or from the soil, generating a series of problems, many of which can be very serious.*

### **THE DEGRADATION CAN BE EITHER:**

- CHEMICAL
- PHYSICAL
- BIOLOGICAL
- LOSS OF THERMAL INSULATION



## CHEMICAL DEGRADATION

*Excessive internal moisture also brings about a deterioration in the consistency of the masonry. The water present, in fact, acts as a vehicle for all the soluble salts existing in the substrate or in the soil, causing remarkably destructive effects.*

*In the presence of moisture, acidic gases such as carbon or sulphur dioxide and salts (sulphates, chlorides and nitrates) interact with calcareous binders, lime and calcium carbonate, making them soluble, leading to the deterioration of the texture of the masonry as a result. After saturation or evaporation of the water, the crystallizing of the salts brings about an increase in volume which exerts such a strong pressure that it causes splitting of the structure.*

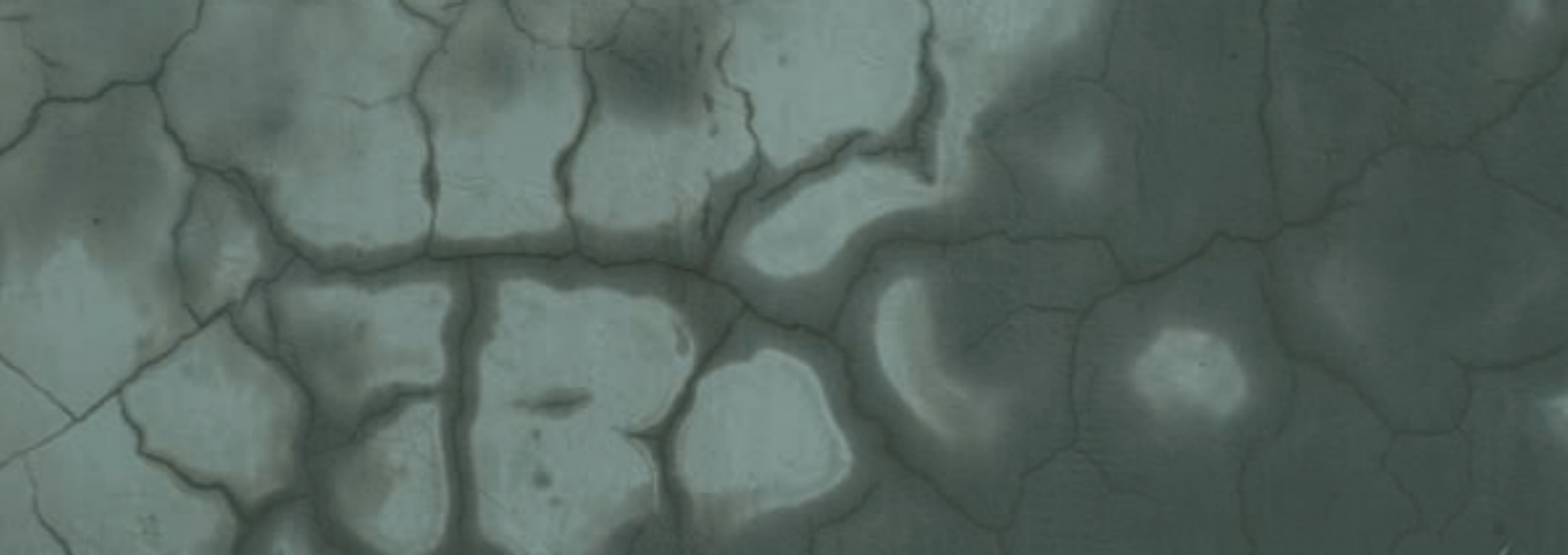


## PHYSICAL DETERIORATION

*The presence of water can change, and in extreme cases, destroy the properties of the building materials. Freezing, for example, increases the volume of water by approx. 10%. Under certain conditions, this expansion in the capillary structure causes cracking and splitting of the masonry.*

## BIOLOGICAL DEGRADATION

*Another type of damage caused by persistent moisture inside the masonry is the onset and the proliferation of plant microorganisms, mould, lichens, algae, fungi and moss. The propagation of these microorganisms can lead to the disintegration of the building material and to a reduction in living comfort, if this phenomenon were to emerge in interior environments.*



## LOSS OF THERMAL INSULATION

*An excessively damp wall can lose up to 50% of its insulating power compared to a dry wall. In addition to reducing living comfort, this considerable heat dispersion also generates higher energy costs.*

# SOLUTIONS AND TREATMENTS

The ideal protective coating reduces the penetration of water and ensures breathability, while at the same time guaranteeing water permeability and the lowest possible vapour diffusion resistance.

It must therefore be able to discharge the moisture in the form of water vapour in higher or at least equal quantities to those produced and released by the substrate.

In order to evaluate and measure the water vapour diffusion through the walls and the films of paint covering them, a number of formulas have been adopted. The values used are the vapour diffusion resistance index and the equivalent air layer thickness "Sd".

The diffusion resistance index is expressed with the letter "i" and indicates the extent to which the resistance to vapour diffusion of a building material is greater than that of a layer of stagnant air of the same thickness which, by convention, is assigned  $i = 1$ .

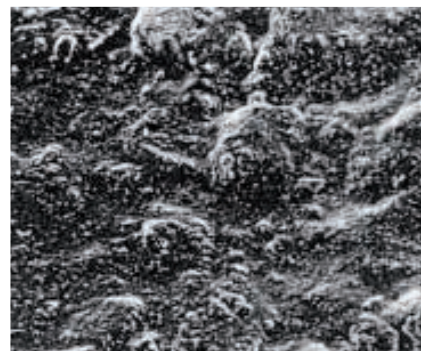
"i" is a number that represents a constant of each material.

This formula, theorized by Künzel, expresses in scientific terms the fundamental concept that water should not enter masonry work, and if it does, it must be able to escape.

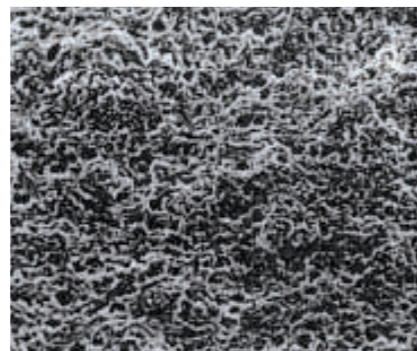
The suitability of a protective coating for exteriors applied to plasters must satisfy the following conditions:

$Sd \leq s$  must be less than or equal to  $s$  m, where "s" is the thickness of the coating (in metres) and "Sd" is the resistance to vapour diffusion. This value indicates how thick, in linear metres, an air layer must be in order for it to have the same resistance to diffusion as the material in question of the thickness "s" of the material considered.

The Sd of a wall is obtained from the sum of the Sds of its components.



Acrylic Emulsion



Emulsion Acrylic-Siloxane



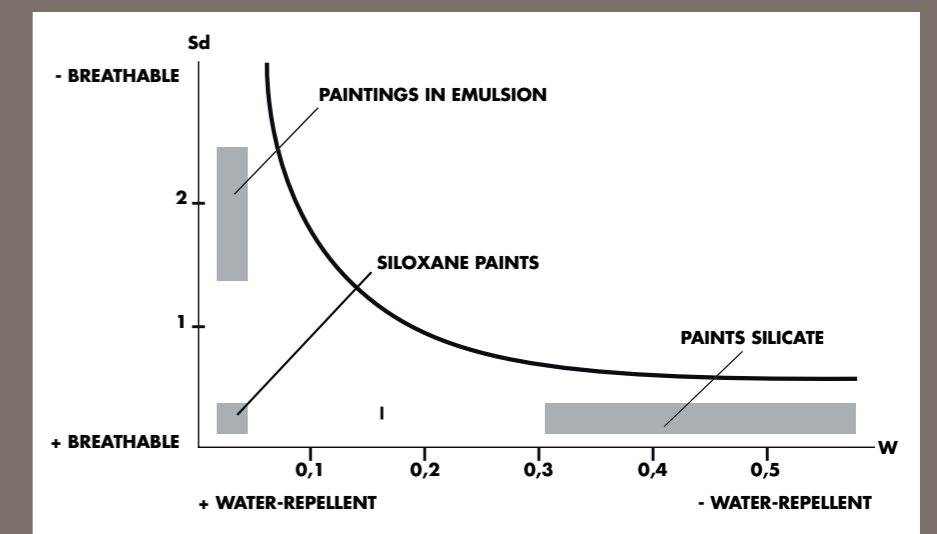
# THE THEORY OF KÜNZEL

Künzel's theory is based on the observation that a building material for facades is not subject to damage over time if its capacity to discharge water, through the process of diffusion, is greater than its capacity to absorb water by capillarity. The yielding of water is expressed in terms of vapour permeability or resistance to diffusion, in practical terms as an equivalent layer of air "Sd" in linear metres, and the absorption of water with water absorption coefficient "w". For a facade protection system to be efficient and functional, the "Sd" and the "w" values must be as low as possible.

The water absorption coefficient "w" must be lower than  $0.5 \text{ kg/m}^2 \cdot \text{h}^{0.5}$ .

It represents the resistance to the penetration of water, where h is the time expressed in hours.

The product of the two values,  $Sd \cdot w$ , must be lower than  $0.2 \text{ kg/m}^2 \cdot \text{h}^{0.5}$ , i.e. when the water permeability of a coating is close to its maximum value, its resistance to the passage of vapour must be close to its minimum.



Sd = Equivalent air thickness (m). Resistance to vapor diffusion.

W = Water permeability Kg / sqm x √ h

This formula, theorized by Künzel, expresses in scientific terms the fundamental concept that water should not enter masonry work, and if it does, it must be able to escape.

# BREATHABILITY AND PAINTING SYSTEMS

The different degree of breathability may be selected on the basis of the chemical/physical nature of the substrate on which the protective system is to be applied.

## LIME PLASTER BASE

For example, on a dehumidifying or lime-based plaster, the vapour diffusion of which is equivalent to approx.  $140 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$ , the application of a paint cycle with water vapour diffusion speed values of at least  $150 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$  is recommended.

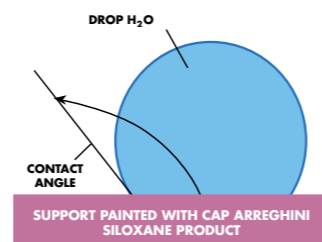
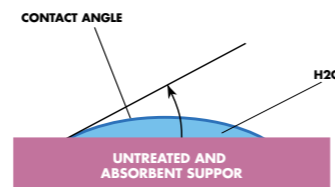
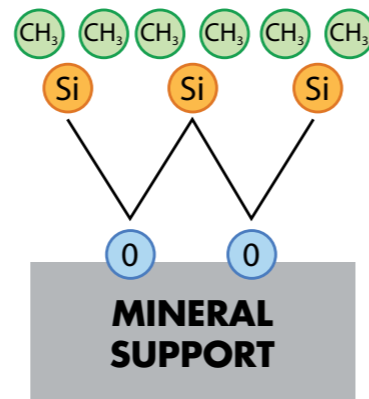
Paint cycles able to meet these requirements are those containing mineral binders such as potassium silicate and lime, or those containing siloxane resins.

The water vapour transmission values of the aforementioned products range from  $279 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$  for acrylic-siloxane paint to  $705 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$  for potassium silicate based paint.

## NATURE OF CEMENT PLASTERS

The same breathability values are not required for colour washes to be applied on cement-based plaster, since they are characterized by water vapour transmission speed of approx.  $11 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$ . On substrates of this type, it is also possible to apply as a finish, in addition to the above-mentioned products, acrylic paints with the capacity to guarantee permeability values ranging from 15 to  $200 \text{ g/m}^2 \cdot (24\text{h})^{0.5}$ .

The permeability of the vapour of a wall should increase proceeding in the direction of the vapour flow. Normal wall paints reduce the vapour permeability of a plaster by a small degree and that of the wall by an even smaller degree, and their vapour diffusion resistance for the thickness applied generally permits the normal flow of water vapour.



# CLASSIFICATION OF SYSTEMS

The systems suitable for the protection of exterior facades are classified according to the rule EN 1062: EN 7783.

## EN 1062-1

The standard specifies a general system for the description of products and paint systems for the conservation, decoration and protection of exterior masonry and concrete works, old and new, previously painted or not. It also includes a classification system based on specific physical properties. It is applicable to all products and coating systems for exterior masonry and concrete works including those to be used in external thermal insulation systems.

## EN 1062-3

The standard specifies a method for determining the water permeability of liquid paints, paint systems and related products, intended for the outer walls and classified according to the UNI EN 1062- 1. The method is applicable to paints and paint systems applied on porous substrates such as brick, concrete and plaster.

## EN 7783-2

Water vapour permeability.

## EN 1062-6

The standard specifies two methods to determine the permeability to carbon dioxide of products and coating cycles intended for exterior masonry and concrete, to be applied on porous supports, such as plaster or concrete.

## EN 1062-7

The standard specifies two methods to determine the properties of resistance to cracking of products, paint systems and related products, used for exterior masonry and concrete works. The rule should be read in conjunction with UNI EN 1062-1 and UNI EN 1504-2. It also provides a classification of the coatings based on their properties to resist cracking.



## RESISTANCE OF EXTERIOR PAINTS

Cap Arreghini paint products offer a wide range of solutions which effectively meet protection requirements for all types of substrates.

The paints applied on the external facades of a building meet the fundamental demands for:

- a. **Protection of the substrate** in order to avoid damage due to water infiltration and damp stains, chemical corrosion, the spalling of plaster due to freezing, the growth of moss and formation of dirt, loss of thermal insulation.
- b. **Decoration** to guarantee to the building features such as image, aesthetic beauty and impact, identification with its own style and taste.

The requirements needed in order to satisfy these demands depend, first and foremost, on the product and, in particular, on:

- **The type of binder**, which should guarantee chemical resistance and adhesion
- **The correct binder/pigment ratio**
- **The type of pigment**, which guarantees coverage and the durability of the colour tone.

Pigments can be inorganic or organic.

### INORGANIC PIGMENTS

Offer greater resistance to light and to alkalis, and have higher covering powers.

### ORGANIC PIGMENTS

May have good, moderate or poor resistance depending on the type.

The attainment of the above-listed objectives also depends on environmental factors, such as:

- **the conditions and type of substrate which should be well-seasoned and prepared**
- **application conditions**
- **exposure conditions and the designated use of the structure.**





## PROTECTIVE SYSTEMS

*Cap Arreghini protective systems have the capacity to create a water-resistant barrier which is, at the same time, breathable, i.e. permeable to vapour, unsaponifiable, i.e. with high resistance to alkalinity in the case of masonry work, and chemically inert in order to combat acidic condensate.*

### **FOR BEST RESULTS**

*In order for this barrier to function effectively, it is necessary, in addition to a careful choice of product, to proceed with a rational application on a surface that has been carefully prepared beforehand.*

*Appropriate preparation of the substrate and correct application are two fundamental factors which if not carried out properly can compromise the results of the work and its durability.*

### **IMPORTANT**

*Therefore, to control the conditions of the structure to be protected and its surrounding environment to perform the necessary maintenance, to eliminate degradation agents such as efflorescence, mould and old paint.*

*When preparing the surfaces of substrates made of building aggregates of any kind, both natural such as marble and stone, and artificial such as cement-based or lime-based plaster, concrete and plaster skims, it is important to check whether the surface to be treated is new or old.*

## PROTECTION SYSTEMS ON NEW SURFACE

Only the phenomena relating to the substrate and the coating (presence of water and alkalinity) need to be taken into account, as chemical and biological attacks have not yet had time to develop and degrade the substrate

### IMPACTS TO BE ADDRESSED

#### WATER

May be present either in the mixing liquid applied to the structures, in which case it should evaporate naturally and drop to levels below 8% in order to be considered acceptable, or through infiltration due to construction defects, in which case it is of crucial importance to resolve the problem before proceeding with the painting work.

#### THE ALKALINITY

Of the substrate, on the other hand, is due to the free hydraulic binder - lime and/or cement - due to incomplete carbonation. On the fresh substrate, the alkalinity values are high and drop to the acceptable pH 8-9 value gradually as the lime carbonates.

### SOURCE IMPACTS TO BE ADDRESSED

Pre-mixed plasters and skim coat plasters commonly used for exterior insulation coatings are formulated with hydraulic binders such as Portland cement, selected silica aggregates and specific additives with hydraulic properties and complete their setting and hardening action within approx. 25-30 days from application at  $20 \pm 2$  °C and  $65 \pm 5\%$  of relative humidity.

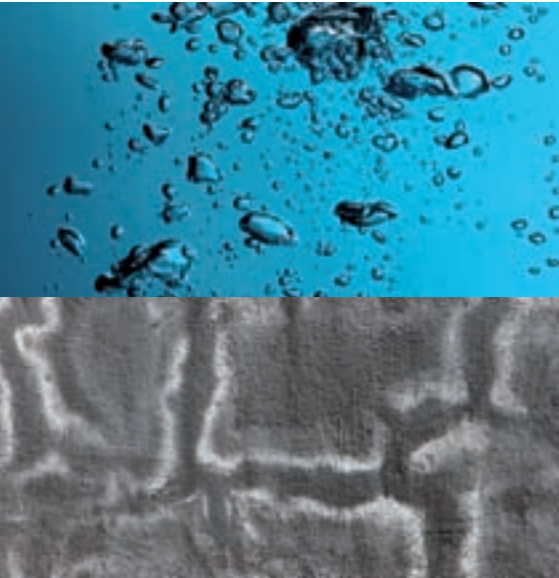
If these conditions vary (higher or lower temperature and humidity), the hydraulic binders may slow down their setting and hardening action; alternatively, if there is insufficient water, due to over-rapid evaporation or high absorption, a partial reaction takes place, leaving soluble salts that are not fixed and crystallized.

In this case, both on new plaster and on painted plaster – even after 30 days -, with the presence of high humidity levels due to rain or fog condensate on the walls, the salts that have not completed their setting reaction and are still present in the plaster dissolve.

This phenomenon causes an increase in the pH which can damage the pigment contained in the colour and which, crystallizing on the surface, forms a whitish patina after the evaporation of the water. The more breathable the film of paint, the more obvious the defect.

Clearly, in order to avoid the appearance of efflorescence or discoloured marks, the hardening reaction of the skim plaster has to be allowed to come to completion. Ensure, therefore, that the setting and hardening reactions of the skim plaster have been completed before applying the finishing cycles.

In the event of resurfacing due to the emergence of this defect, wash the surface with plenty of water in order to extract all the salts present in the skim coat and, after the surface has dried, proceed to apply a new paint cycle.



## PROTECTION SYSTEMS ON OLD SURFACE

If the surface to be treated is old, prepare it, first of all by checking the residues of the reaction products, the alterations and polluting agents present and deriving from chemical and biological attack. Their presence, in fact, can thwart all the efforts made to achieve a good painting result.

### SURFACE PREPARATION

One of the main methods for preparing a substrate involves vigorous mechanical brushing and/or power washing in order to eliminate old flaking paint, dirt, dust, efflorescence and any other residue. This fundamental operation must be carried out scrupulously, taking care not to limit it, as is often the case, to a cursory brushing in the hope that the paint will "fix it all".

It is extremely important to eliminate any dust and material which is crumbling or loose.



## PREPARATION OF EXTERIOR NEW MASONRY SUPPORTS

**LIME-BASED PLASTERS, CEMENT PLASTERS, PREMIXED PLASTERS, PLASTERS MADE OF LIME MORTAR, PLASTERS FOR RESTORATION.**

Wait at least 1 month for proper carbonation and aging. Perform a thorough brushing or pressure washing to remove any inconsistencies such as dirt, smog and other pollutants.

On dry surface, in the case of organic finishes of various nature, acrylic, siloxane, and other minerals, apply as described in the relative system.

## PREPARATION OF EXTERIOR SUPPORTS WITH OLD PAINTS

Remove the loose parts by scraping or brushing and remove dirt, smog and other pollutants with a pressure washer. Repair any loose or damaged plaster with Rasacap 50 or 400 and, on a dry surface, proceed as described in relevant system.



## PROBLEMS OF THE SUPPORT

### PRESENCE OF HUMIDITY AND SALT EFFLORESCENCE

Eliminate the causes of water leakage. In the case of rising damp, remove the old plaster deteriorated over the visible limit to about 70 cm.

Then wash with water by repeating the pressure washing for three or four times waiting 4-5 days between one wash and the other to remove salts. See the book "The treatment of damp walls."

### PRESENCE OF MOSS AND MOULD

Refer to the book "Phenomenon of mould and algae."

### CRACKING

Refer to the book "Protection and rehabilitation of concrete."

### DETERIORATION OF CONCRETE

Refer to the book "Protection and rehabilitation of concrete."

Both in the case of new structures or old ones, after having checked that the surface is homogeneous and that the alkalinity and water content are within acceptable values, the insulation can be made choosing the primer depending on the treatment system identified.

CAP Arreghini offers a wide range of primers, unsaponifiables with high penetration such as Murisol, Murisol W, Silofix, Silicapfix, Acrilifix Special, which have multiple functions.

1. They avoid the instantaneous absorption of most of the water present in the water-based paint. A too high absorption would undermine the normal film formation and therefore the emulsion paints applied would lose much of their features, such as the resistance to washing and chalking, and the maintenance of tone colour as well.

2. They strengthen the surface in case of crumble, thus avoiding the formation of cracks and flaking of the water-based paint.

During the applying, the quantity of insulating product varies depending on the construction material (cement, plaster, lime plaster, or other) taking care not to exceed, since the useful part is only that one which penetrates into the substrate and blocks chalking. It is essential that the insulation does not create a glossy surface, as this would strongly decrease the breathability of the building and compromise the adhesion of subsequent coats of water-based paint.

The choice goes to the CAP Arreghini pigmented products Murisol or Murisol W, since they allow to carry out the painting work with one less layer, and at the same time improve the coverage of the paint.



## SYSTEMS APPROPRIATE TO THE SUBSTRATE

*The finishing products allow to choose systems:*

- SILOXANE WATER REPELLENT AND HIGHLY BREATHABLE
- ACRYLIC
- ELASTOMERIC ANTI-CRACKING
- MINERALS

*and other systems such as*

- **UNIKOCAP**, made with raw materials of the latest generation which, thanks to their specific nanotechnologies and resins, guarantee excellent performance.

*All of the water paints are dry to recoat in 4-6 hours, but the polymerization and hardening process takes over 10 days in optimal conditions (15-30°C with substrate moisture <10% and relative air humidity < 65%. At lower temperatures and higher humidity levels the drying time increases and, if the air humidity is >85%, the product does not dry at all).*

*If, before it has dried completely, the paint were to be subjected to the action of rainwater or condensate (in the case of fog or humidity superior to 85%), it might run, creating extended semigloss or streaky areas like "snail trails".*

*This phenomenon, which is of a temporary nature, does not affect the resistance of the product and is eliminated by power washing or naturally, by the action of the rain and sun.*



*Do not repaint immediately as the phenomenon can easily recur.*

# SILOXANE SYSTEM




## DIFFERENT PLASTERS, NEW OR PREVIOUSLY TREATED WITH PAINT

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
MURISOL W MURISOL SILOFIX	5/8h	Not necessary	<b>SIL2000 ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+180		Higher elasticity Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <100 micron-fine <b>Vapour permeability:</b> sd<0,14 m - high <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low
MURISOL W MURISOL SILOFIX	5/8h	Not necessary	<b>SIL96 ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+200		Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <100 micron-fine <b>Vapour permeability:</b> sd < 0,14 m - high <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low
MURISOL W MURISOL SILOFIX	5/8h	Not necessary	<b>SIL96 QUARZO ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+220		Higher coverage Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <300 micron-medium <b>Vapour permeability:</b> sd < 0,14 m - high <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low

## DIFFERENT PLASTERS, NEW OR ALREADY TREATED, RESTORED, TO BE UNIFORMED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
THERMOCAP PRIMER MURISOL W	5/8h	Not necessary	<b>SILOXCAP ACTIVE</b>	Tucano	1000-1,8 kg/m <sup>2</sup> 1200-2,3 kg/m <sup>2</sup> 1500-2,8 kg/m <sup>2</sup>		Thick coating Classes EN 1062-1 <b>Vapour permeability:</b> sd>0,14m <1.4- medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h-low (recommended 1500)
THERMOCAP PRIMER MURISOL W	5/8h	Not necessary	<b>SILINTONACHINO ACTIVE</b>	Tucano	1000-1,8 kg/m <sup>2</sup> 1200-2,3 kg/m <sup>2</sup> 1500-2,8 kg/m <sup>2</sup>		Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <100 micron-fine <b>Vapour permeability:</b> sd < 0,14 m - high <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low

## DIFFERENT PLASTERS, NEW OR ALREADY TREATED, TO BE UNIFORMED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
SILOFIX	5/8h	UNIFIX	<b>SIL2000 ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+150+180		Uniforms the appearance of different plasters
SILOFIX	5/8h	UNIFIX	<b>SIL96 ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+150+200		Uniforms the appearance of different plasters
SILOFIX	5/8h	UNIFIX	<b>SIL96 QUARZO ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+150+220		Uniforms the appearance of different plasters

## DEHUMIDIFYING PLASTERS

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
SILOFIX	5/8h	Not necessary	<b>SIL96 QUARZO ACTIVE</b> 2S	Tucano Spazio 100 Area 115	110+220		High breathability

# CAP ARREGHINI PRODUCTS PERFORMANCE DATA

## PRIMER



### **MURISOL W** Waterborne masonry undercoat

Wall primer formulated with synthetic resins dispersed in water with special technology that ensures secure adhesion on different types of surfaces, it has insulating and consolidating capacities. It ensures uniformity of absorption and therefore uniform finishes and excellent adhesion for later coatings. According to the type of resin and the particular lamellar pigments contained within them, it ensures high breathability, improves colour resistance and a saves up on subsequent layers in the coating system.



### **MURISOL** Solventborne masonry undercoat

Consolidating pigmented solvent-based primer with special technology that ensures secure adhesion on different types of surfaces, it has insulating and consolidating capacities. It ensures uniformity of absorption, hence uniform finishes and excellent adhesion for later coatings. According to the type of resin and the particular lamellar pigments contained within them, it ensures high breathability, improves colour resistance and a saves up on subsequent layers in the coating system.



### **SILOFIX** Siloxane masonry primer

This is a primer for walls, formulated with synthetic resins dispersed in water using a particular technology that ensures secure adhesion on different types of surfaces as well as insulating capacity. It ensures uniformity of absorption and therefore, a uniform finish and excellent adhesion for later coatings. It is formulated primarily for siloxane processing.



### **PRIMER** Waterborne masonry undercoat

Primer for external insulation layer, formulated with an aqueous dispersion of synthetic resins, which exploit a particular technology capable of guaranteeing secure adhesion on different types of surfaces. It has insulating and consolidating capacities. It ensures homogeneity of absorptions and hence a uniform finish thereby providing a suitable condition for the successive layers of paint.

## UNDERCOAT



### **UNIFIX FINE** Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.



### **UNIFIX GROSSO** Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.

## FINISHING



### **SIL2000 ACTIVE** Siloxane elastic paint for exteriors

Siloxane resin-based, water-soluble paint, that ensures excellent water repellence providing a barrier against mould and dirt over long periods of time. It is waterproof and breathable, easy to apply, and ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage of different types of surfaces. It is a high quality paint with a high level of siloxane resins finish, which provides exceptional protection and resistance of colour outdoors.



### **SIL96 ACTIVE** Siloxane matt paint for exteriors

Siloxane resin-based water-soluble paint that ensures excellent water repellence providing a barrier against mould and dirt over long periods of time. It is waterproof and breathable, easy to apply, and ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage of different types of surfaces.



### **SIL96 QUARZO ACTIVE** Acrylic-siloxane matt quartz paint for exteriors

Water-soluble paint, it is waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage of different types of surfaces.

## FINISHING



### **SILINTONACHINO ACTIVE** Siloxane texture covering

Coating based on Siloxane resin supplemented with anti mould- anti algae which is composed of selected quartz grain. The Siloxane resin guarantees water repellence and hence a barrier against mould and dirt over long periods of time. The finish, which is compact and homogeneous, ensures a high masking of imperfections in the plaster and therefore of the product, in the colours with a value of light reflectance of > 25, it is especially suitable for the application on external thermal insulation systems.




### **SILOXCAP ACTIVE** Acrylic-siloxane texture covering



Wall coating based on acrylic siloxane resins, supplemented with anti mould, anti algae. It is waterproof, breathable and easy to apply. The acrylic siloxane resin ensures a barrier against mould and dirt over long periods of time. The finish, which is compact and homogeneous, ensures a high masking of imperfections in the plaster and therefore of the product, in the colours with a value of light reflectance of > 25, it is especially suitable for the application on external thermal insulation systems.

# ACRYLIC SYSTEM


## DIFFERENT PLASTERS, NEW OR ALREADY PAINTED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
MURISOL W MURISOL ACRILIFIX SPECIAL	5/8h	Not necessary	<b>K81 PROFESSIONALE O K81 TOPCAP</b>	Tucano Spazio 100 Area 115	110+200		Waterbased enamel meets the criteria of Regulation CE 852 for rooms used for storage and / or processing of food.
MURISOL W MURISOL ACRILIFIX SPECIAL	5/8h	Not necessary	<b>K81 UNIVERSALE</b>	Tucano Spazio 100 Area 115	110+180		Higher colour resistance Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <100 micron-fine <b>Vapour permeability:</b> sd>0,14m<1,4 -medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low
MURISOL W MURISOL ACRILIFIX SPECIAL	5/8h	Not necessary	<b>K81 QUARZO ACTIVE</b>	Tucano Spazio 100 Area 115	110+200		Higher coverage power and opacity Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> >100 <300 micron-medium <b>Vapour permeability:</b> sd>0,14m<1,4 -medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h -low
MURISOL W MURISOL ACRILIFIX SPECIAL	5/8h	Not necessary	<b>ESTERNO</b>	Tucano Spazio 100 Area 115	110+200		Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> <100 micron-fine <b>Vapour permeability:</b> sd>0,14m<1,4 -medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low
MURISOL W MURISOL ACRILIFIX SPECIAL	5/8h	Not necessary	<b>ESTERNO QUARZO</b>	Tucano Spazio 100 Area 115	110+220		Classes EN 1062-1 <b>Gloss:</b> <10 - matt <b>Fineness:</b> >100 <300micron-medium <b>Vapour permeability:</b> sd>0,14m<1,4 -medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h -low

## DIFFERENT PLASTERS, NEW OR ALREADY TREATED, RESTORED, TO BE UNIFORMED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
ACRILIFIX SPECIAL	5/8h	UNIFIX	<b>K81 QUARZO ACTIVE</b>	Tucano Spazio 100 Area 115	110+150+200		Uniforms the appearance of different plasters
ACRILIFIX SPECIAL	5/8h	UNIFIX	<b>SIL96 ACTIVE</b>	Tucano Spazio 100 Area 115	110+150+200		Uniforms the appearance of different plasters

## DIFFERENT PLASTERS, NEW OR ALREADY TREATED, RESTORED, TO BE UNIFORMED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
THERMOCAP PRIMER MURISOL W	5/8h	Not necessary	<b>MURIPLAST ACTIVE</b> (ADVISED 1500)	Tucano	1000-1,8 kg/m <sup>2</sup> 1200-2,3 kg/m <sup>2</sup> 1500-2,8 kg/m <sup>2</sup>		Thick coating Classes EN 1062-1 <b>Vapour permeability:</b> sd>0,14m<1,4 -medium <b>Water permeability:</b> W<0.1 kg/mq*0,5h - low

# CAP ARREGHINI PRODUCTS PERFORMANCE DATA

## PRIMER



### **MURISOL W** Waterborne masonry undercoat

Wall primer formulated with synthetic resins dispersed in water with special technology that ensures secure adhesion on different types of surfaces, it has insulating and consolidating capacities. It ensures uniformity of absorption and therefore uniform finishes and excellent adhesion for later coatings. According to the type of resin and the particular lamellar pigments contained within them, it ensures high breathability, improves colour resistance and saves up on subsequent layers in the coating system.



### **MURISOL** Solventborne masonry undercoat

Consolidating pigmented solvent-based primer with special technology that ensures secure adhesion on different types of surfaces, it has insulating and consolidating capacities. It ensures uniformity of absorption, hence uniform finishes and excellent adhesion for later coatings. According to the type of resin and the particular lamellar pigments contained within them, it ensures high breathability, improves colour resistance and saves up on subsequent layers in the coating system.



### **SILOFIX** Siloxane masonry primer

This is a primer for walls, formulated with synthetic resins dispersed in water using a particular technology that ensures secure adhesion on different types of surfaces as well as insulating capacity. It ensures uniformity of absorption and therefore, a uniform finish and excellent adhesion for later coatings. It is formulated primarily for siloxane processing.



### **PRIMER** Waterborne masonry undercoat

Primer for external insulation layer, formulated with an aqueous dispersion of synthetic resins, which exploit a particular technology capable of guaranteeing secure adhesion on different types of surfaces. It has insulating and consolidating capacities. It ensures homogeneity of absorptions and hence a uniform finish thereby providing a suitable condition for the successive layers of paint.

## UNDERCOAT



### **UNIFIX FINE** Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.



### **UNIFIX GROSSO** Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.

## FINISHING



### **K81 PROFESSIONALE** Waterborne masonry enamel glossy/satin

Enamel that is suitable for indoor and outdoor painting of artefacts, it is waterproof, easy to apply, ideal for professional use as it has high compatibility and adhesion, filling power and coverage on different types of base coats. It ensures a finish characterized by high uniformity and by formidable resistance to both mechanical stress and weathering, which are indispensable elements for the duration of applications and useful for protecting the artefact over time.



### **K81 TOPCAP** Water-based matt enamel for walls

Enamel for walls with matt finish, suitable for interior and exterior, with high covering power and a very solid and resistant finish. It can be washed with ordinary detergents and antibacterial disinfectants, satisfying the requirements of Reg. 852/2004/CE for the application in all those places where it is necessary to maintain high standards of hygiene, such as warehouses for storage and/or processing of foods, hospitals, public places, and so on. This product can be tinted with the AC16 tintometric system.



### **K81 UNIVERSALE** Universal super acrylic paints

Indoor and outdoor water-soluble paint, it is waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage on different types of surfaces. Its high quality ensures maximum protection and durability of colour outdoors with a good level of finishing.

## FINISHING



### **K81 QUARZO ACTIVE** Matt quartz anti-mould anti-algae paint

Water-soluble paint, it is waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage on different types of surfaces. Its high quality, with a high level of finishing, ensures maximum protection and durability of colour outdoors. The quartz powder contained in it allows it to fill the surface, obtaining a compact and homogeneous finish.



### **ESTERNO** Matt paint for exteriors

Water-soluble paint, waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage on different types of surfaces. Its quality ensures good protection and colour resistance outdoors. For the presence of inert lamellar material, it ensures a good leveling capacity. For the presence of inert lamellar material, it ensures a discrete levelling capacity.



### **ESTERNO QUARZO** Matt quartz paint for exteriors

Water-soluble paint, waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage on different types of surfaces. Its quality ensures good protection and colour resistance outdoors. The quartz powder contained in it allows it to fill the surface, obtaining a homogeneous and compact finish.




### **MURIPLAST ACTIVE** Rivestimento a spessore acrilico

Acrylic wall coating supplemented with anti-mold-anti algae for outdoor use. It is composed of selected quartz grain dispersed in resins in aqueous emulsion. It is waterproof and adequately breathable, as well as easy to apply. It is ideal for professional use as it has high compatibility and adhesion, filling power and rapid application on different types of surfaces. Its quality guarantees excellent protection against atmospheric agents.




# HYDROPLIOLITE SYSTEM

## VARIOUS NEW COATINGS AND OLD PAINTS

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/l	APPLICATION	PERFORMANCES
Not necessary	n.a	Not necessary	<b>UNIKOCAP</b>	Tucano Spazio 100 Area 115	100+100 2S		<ul style="list-style-type: none"> <li>- High breathability</li> <li>- Very matt</li> <li>- Only one product</li> <li>- Applicable at low temperatures</li> <li>- Water resistant after a short time from application</li> <li>- Long lasting and protective from water</li> <li>- High colour resistance</li> <li>Classes EN 1062-1</li> <li>- <b>Gloss:</b> &lt;10 - matt</li> <li>- <b>Fineness:</b> &gt;100 &lt;300 micron-medium</li> <li>- <b>Vapour permeability:</b> sd&lt;0,14m-high</li> <li>- <b>Water permeability:</b> W&lt;0.1 kg/mq*0,5h - low</li> </ul>

## VARIOUS NEW PLASTERS, OLD SYNTHETIC PAINTS AND RESTORED PLASTER TO BE SMOOTHED

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/l	APPLICATION	PERFORMANCES
Not necessary	n.a	UNIFIX	<b>UNIKOCAP</b>	Tucano Spazio 100 Area 115	150+100+100 3S		<ul style="list-style-type: none"> <li>- High breathability</li> <li>- Very matt</li> <li>- Only one product</li> <li>- Applicable at low temperatures</li> <li>- Water resistant after a short time from application</li> <li>- Long lasting and protective from water</li> <li>- High colour resistance</li> <li>Classes EN 1062-1</li> <li>- <b>Gloss:</b> &lt;10 - matt</li> <li>- <b>Fineness:</b> &gt;100 &lt;300 micron-medium</li> <li>- <b>Vapour permeability:</b> sd&lt;0,14m-high</li> <li>- <b>Water permeability:</b> W&lt;0.1 kg/mq*0,5h - low</li> </ul>

# CAP ARREGHINI PRODUCTS PERFORMANCE DATA

## UNDERCOAT



### UNIFIX FINE

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.



### UNIFIX GROSSO

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.

## FINISHING




### UNIKOCAP

High-performance masonry paint

Water-soluble paint, waterproof and adequately breathable, easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage on different types of surfaces. Its high quality with a high level of finish, based on "Hydropliolite" ensures maximum protection and durability of colour outdoors and exceptional adhesion, making it suitable for the application without a base coat.

# ELASTOMERIC SYSTEM

## VARIOUS NEW PLASTERS AND OLD PAINTS

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
MURISOL W ACRILIFIX SPECIAL PRIMER	5/8h	Not necessary	<b>ELASTO ACTIVE</b>	Tucano Spazio 100 Area 115	110+330		Compliant to EN 1062-7 for cracks <250 micron

## OLD PAINTS AND RESTORED PLASTERS TO SMOOTH

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
ACRILIFIX SPECIAL	5/8h	UNIFIX	<b>ELASTO ACTIVE</b>	Tucano Spazio 100 Area 115	110+150+330		Compliant to EN 1062-7 for cracks <250 micron

# CAP ARREGHINI PRODUCTS PERFORMANCE DATA

## PRIMER



### MURISOL W

Waterborne masonry undercoat

Wall primer formulated with synthetic resins dispersed in water with special technology that ensures secure adhesion on different types of surfaces, it has insulating and consolidating capacities. It ensures uniformity of absorption and therefore uniform finishes and excellent adhesion for later coatings. According to the type of resin and the particular lamellar pigments contained within them, it ensures high breathability, improves colour resistance and a saves up on subsequent layers in the coating system.



### ACRILIFIX SPECIAL

Waterborne masonry primer for exteriors

This is a primer for walls, formulated with colloidal resins in water dispersion using a special technology that ensures a secure adhesion on different types of surfaces, as well as insulating and consolidating capacities. It ensures uniformity of absorption and therefore, a uniform finish and excellent adhesion for later coatings. It is mainly formulated for outdoor processing that uses acrylic systems.



### PRIMER

Waterborne masonry undercoat

Primer for external insulation layer, formulated with an aqueous dispersion of synthetic resins, which exploit a particular technology capable of guaranteeing secure adhesion on different types of surfaces. It has insulating and consolidating capacities. It ensures homogeneity of absorptions and hence a uniform finish thereby providing a suitable condition for the successive layers of paint.

## UNDERCOAT



### UNIFIX FINE

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.



### UNIFIX GROSSO

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.

## FINISHING



### ELASTO ACTIVE

Elastomeric anti-mould anti-algae fibered paint



Acrylic copolymer formulated paint with elastic fibres of polyethylene in aqueous dispersion, free from plasticizers, which form a suitable coating that resists micro cracking. It is waterproof and adequately breathable, it is easy to apply, ideal for professional use as it is extremely compatible and has excellent adhesion, filling power and coverage of different types of surfaces.

# MINERAL SYSTEM

## VARIOUS PLASTERS AND DEHUMIDIFIED NEW PLASTERS

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
SILICAP bianco diluted to 30-40% with SILICAP FIX	5/8h	Not necessary	SILICAP diluted to 15-20% with SILICAP FIX	Tucano Spazio 100 Area 115	110+220		High breathability Classes EN 1062-1 Gloss: <10 - matt Fineness: <100 micron-fine Vapour permeability: sd<0,14m -high Water permeability: W>0,1 <0,5kg/mq* 0,5h-medium

## VARIOUS PLASTERS AND DEHUMIDIFIED NEW PLASTERS

PRIMER	DRYING	UNDERCOAT	FINISHING	COLOURS	SYSTEM CONSUMPTION ml/m <sup>2</sup>	APPLICATION	PERFORMANCES
Not necessary	5/8h	UNIFIX	SILICAP diluted to 15-20% with SILICAP FIX	Tucano Spazio 100 Area 115	150+220		High breathability Classes EN 1062-1 Gloss: <10 - matt Fineness: <100 micron-fine Vapour permeability: sd<0,14m -high Water permeability: W>0,1 <0,5kg/mq* 0,5h-medium
Not necessary	5/8h	UNIFIX	SILOXSIL ACTIVE Advised 1500	Tucano	1000-1,8 kg/m <sup>2</sup> 1200-2,3 kg/m <sup>2</sup> 1500-2,8 kg/m <sup>2</sup>		High breathability Classes EN 1062-1 Vapour permeability: sd<0,14m -high Water permeability: W>0,1 <0,5kg/mq* 0,5h-medium

# CAP ARREGHINI PRODUCTS PERFORMANCE DATA

## PRIMER



### SILICAP

Silicate mineral paint for exteriors

Paint with mineral binders based on potassium silicate. Does not form a film due to its chemical nature, but hardens by reacting chemically with the surface. It is characterized by a high diffusion of water vapour such so as to ensure the transpiration that is required to obtain dry walls, making it suitable for finishing of dehumidifying systems.



### SILICAP FIX

Silicate masonry primer

This is a water-soluble primer with mineral binders based on potassium silicate. Due to its chemical nature, it does not form a film, but hardens by chemically reacting with the surface. It ensures a secure adhesion and consolidating capacity on mineral surfaces.

## UNDERCOAT



### UNIFIX FINE

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.



### UNIFIX GROSSO

Waterborne uniforming undercoat

Rough formulated wall base coat with resins in dispersion and aggregates of various sizes for indoor and outdoor use. It is suitable both to give uniformity to different surfaces, or as a base that is used to connect surfaces with old synthetic paint and silicate-based mineral paints.

## FINISHING



### SILICAP

Silicate mineral paint for exteriors

Paint with mineral binders based on potassium silicate. Does not form a film due to its chemical nature, but hardens by reacting chemically with the surface. It is characterized by a high diffusion of water vapour such so as to ensure the transpiration that is required to obtain dry walls, making it suitable for finishing of dehumidifying systems.



### SILOXSIL ACTIVE

Silicate-based texture covering

Wall coating, supplemented with anti mould- anti algae, consisting of crushed marble and selected quartz grain dispersed in acrylic resin emulsion and aqueous potassium silicate. Due to its chemical nature, it hardens by reacting chemically with the surface. It is characterized by high vapour diffusion, such as to ensure the breathability required to guarantee dry walls, making it suitable for finishing dehumidifying systems.

## SEE ALSO THE OTHER CAP ARREGHINI BOOKS



PROCESS OF CRACKING



TYPES OF PLASTER: PREPARATION AND RESTORATION WORKS



MOULD AND ALGAE



ASBESTOS ENCAPSULATION TECHNIQUE



PROTECTION AND REHABILITATION OF CONCRETE



THERMAL INSULATION WITH THERMOCAP THICK COATING SYSTEM



TREATMENT OF DAMP WALLS



TREATMENT OF METALS



TREATMENT OF WOOD





**CAP ARREGHINI SpA** - ITALIAN PAINTS SINCE 1950

V.le Pordenone, 80 - 30026 PORTOGRUARO (VE) - Tel. +39 0421 278111 - Fax +39 0421 75498  
info@caparreghini.it - www.caparreghini.it - Azienda con Sistema Certificato UNI EN ISO 9001