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MOULD AND ALGAE

ARREGHINI®
ITALIAN PAINTS SINCE 1950

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MOULD AND ALGAE

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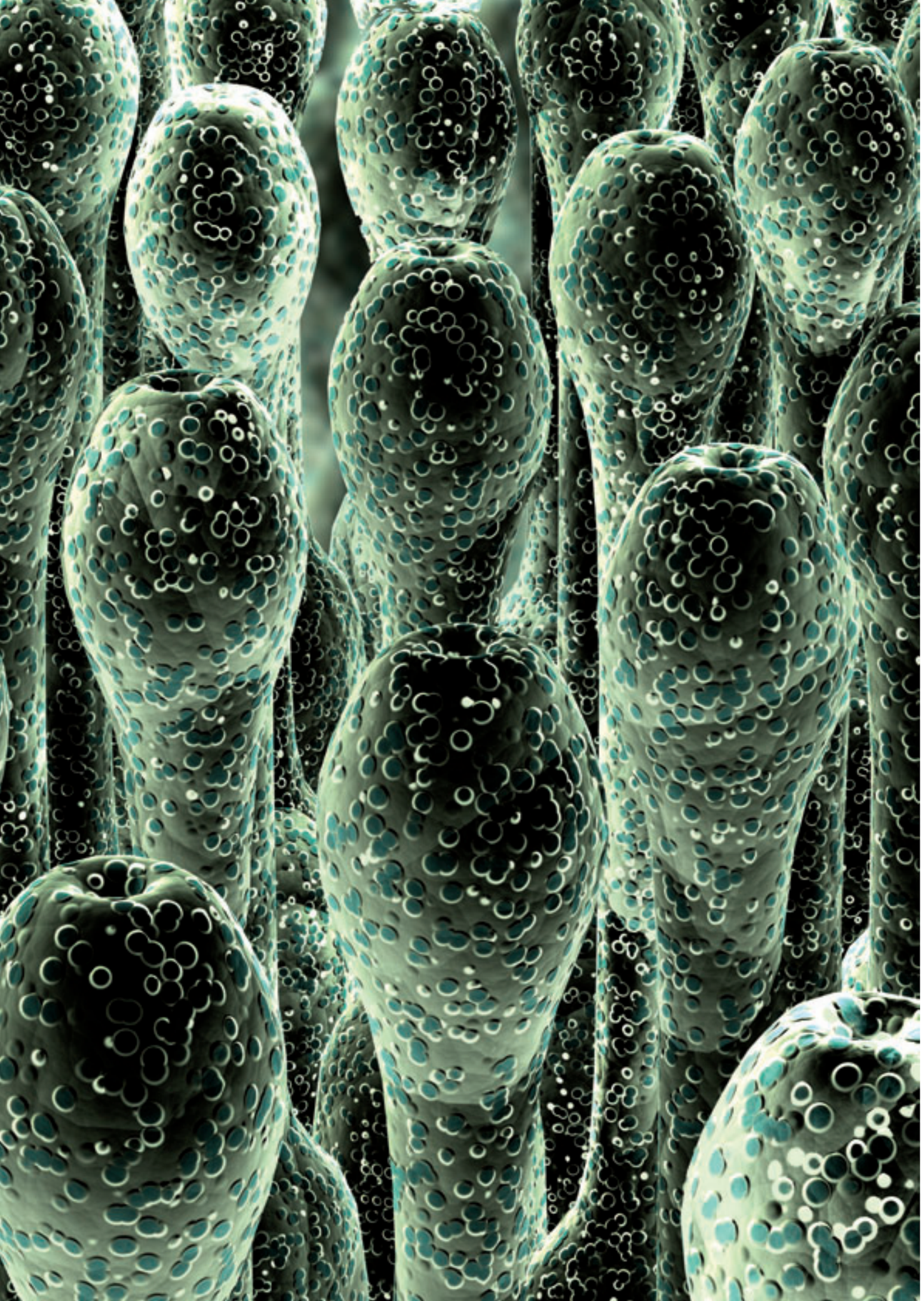

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DIAGNOSTICS OF THE PROBLEM

Mould and algae are biological degradation agents of wall surfaces. They are reproduced through"spores", microorganisms which are always present in the air in numerous species, as well as in large quantities. Mould, fungi and algae obtain their nutrition from all the organic impurities deposited on the film of paint.

On any structure, the quantity of these impurities may be sufficient to nourish a colony of fungi, mould and moss, particularly in corners and less ventilated areas. Moreover, biological pollution on the walls both indoors and outdoors is promoted by temperature and humidity conditions, which create the ideal environment for the propagation of microorganisms. Colonization can develop to the extent of deteriorating and destroying the paint and the substrate.

In addition to the obvious aesthetic problem, biological pollution also has a negative effect on the quality of living comfort. Mould, in fact, has an unpleasant smell and, if it is present in large quantities in the rooms, it can also become a potential allergenic agent for the persons living in them.

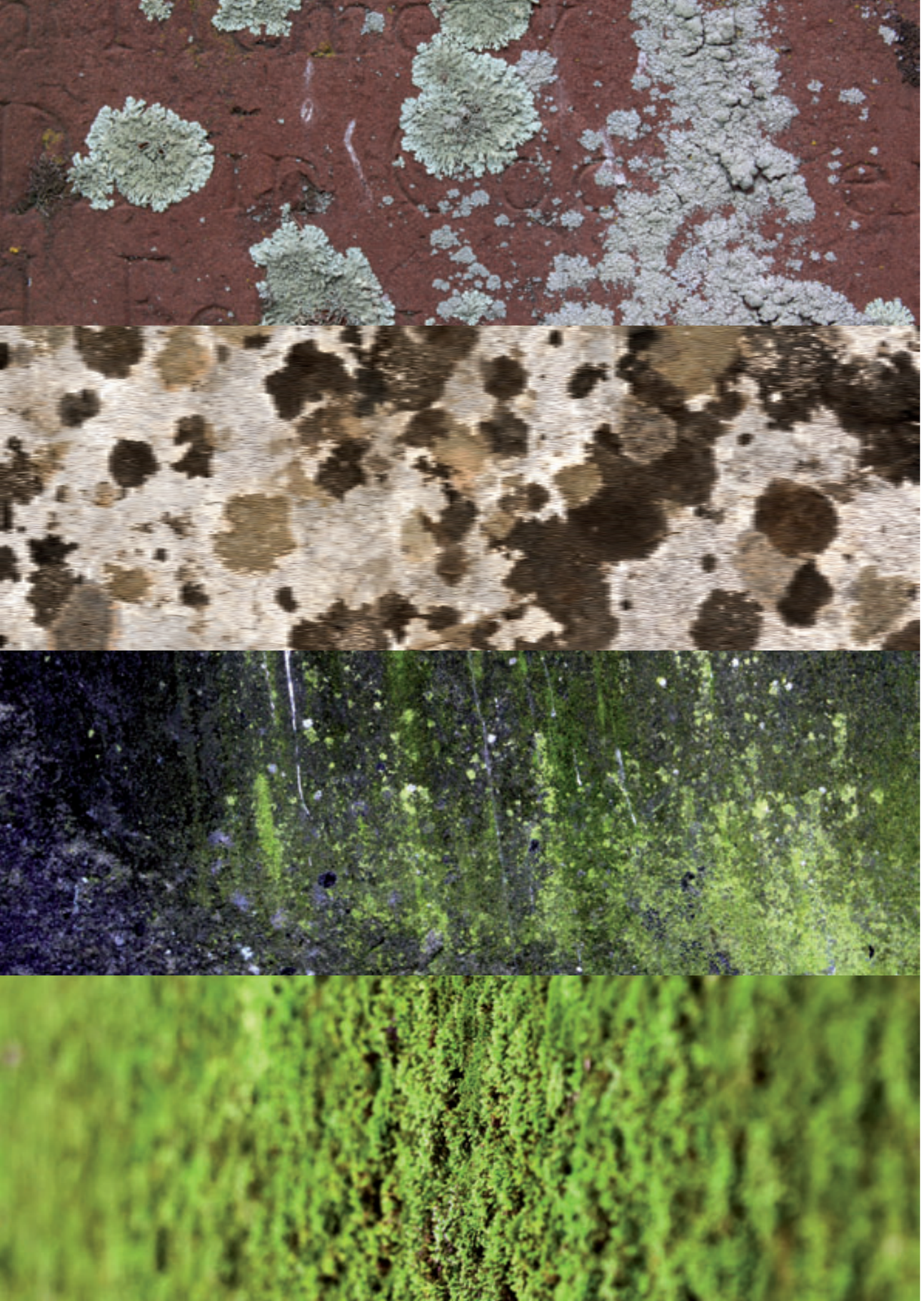
TYPES:

- MOULD
- LICHENS
- ALGAE
- MOSS

In order to prevent the development of biological organisms, it is important to avoid the accumulation of moisture on surfaces, limiting condensation and water absorption by the materials.

The choice of building materials and the type of conditioning used in the various seasons determine whether, in the course of time, the ideal conditions for the proliferation of mould are likely to be produced.

In critical conditions, in which it is not possible to intervene at a constructive level, specific types of paint with an anti-mould action and a low conductivity coefficient have to be used, in order to reduce the temperature difference between the air and the wall and thus reduce the likelihood of condensation forming on the walls.



MOULD

Colonies of fungal organisms that lack chlorophyll, which grow and develop with specific colours. Mould lives on organic substances from which it obtains nourishment.

LICHENS

A group of colonies composed of moulds and algae. This symbiosis increases their resistance and enables them to survive in difficult conditions.

ALGAE

Plant-like organisms with chlorophyll which proliferate almost exclusively outside and are forerunners to the formation of moss and lichens.

MOSS

Extremely resistant plant-like organism similar to lichen. The substances commonly used against mould and algae are not normally efficacious. To combat this organism, specific substances containing specific active ingredients are required.

MOULD IN INTERIOR

The inside of rooms is the ideal environment for the formation of mould, due to condensation on the walls, which is caused by a variety of factors such as insufficient heating, poor ventilation or inadequate thermal insulation. In order to identify the maximum quantity of water vapour that can be contained in the air without generating condensation, it is important to consider the temperature of the environment: the higher the temperature, the more the vapour the air can contain. In contrast, the lower the temperature, the greater the surplus of vapour that the air, already saturated, will not be able to absorb and which, as a result, will deposit in liquid form on the walls.

The formation of condensation, therefore, depends on the difference in temperature between the air and the surface of the walls and ceiling, and on the moisture content of the air.

In a closed room, however, moisture is inevitably generated as it is the result of all the daily human activities use of hot water for bathing, prolonged cooking of food, combustion of gas, washing and drying of clothes, use of steam irons and presence of house plants and many other factors.

In general, in a room of average dimensions, depending on the number of persons, a quantity of 10-40 litres of vapour per day are produced.

So condensation forms on walls for a variety of reasons, such as lack of fresh air exchange in rooms with respect to the quantity of water vapour produced, poor circulation of the air in the corners or next to furniture placed next to the walls, insufficient thermal insulation of the walls and ceilings, or the presence of thermal bridges caused by different materials used in the masonry work such as concrete pillars and beams, iron girders underneath plaster and water pipes.

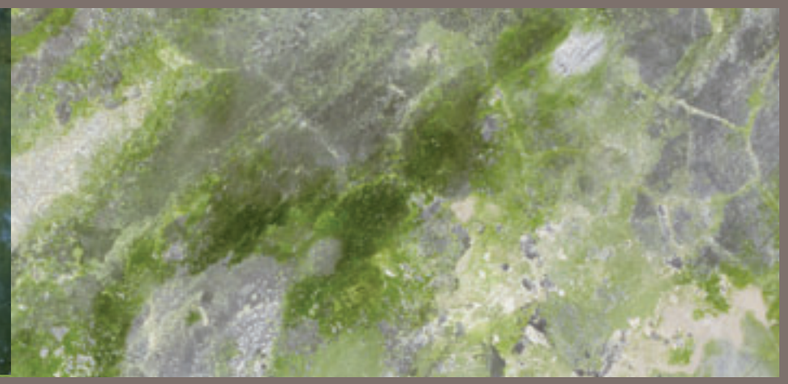
MOULD IN EXTERIOR

The causes for the propagation of mould and algae on the external walls are many and varied. Outside, it is possible for the spores of mould and algae to take root. The algae are distinguished by their green colour, due to the chlorophyll, when this is not hidden by other pigments (light blue, red and brown algae). Sometimes fungi develop in combination with the algae, giving rise to lichens, which are particularly resistant to biocidal products.

The ideal conditions for the development of algae are created by walls subject to the frequent dampness of atmospheric condensation or highly exposed to atmospheric agents, with very little sun or ventilation, capillary rise from the ground, infiltration of water through joints, cracks or crazing, the proximity of spore-carrying plants and repeated contact with plant watering systems.

It is crucial to pay great attention to the type of coating used, ensuring that it is not absorbent and that it does not encourage the stagnation of water. First and foremost, suitable building methods and materials, able to guarantee impermeability and allow internal moisture to escape, should be used.

In external areas presenting the ideal conditions for the colonization of spores, it is of fundamental importance to choose suitable types of paint, characterized by low water absorption and good water permeability, both to prevent the wall from absorbing water and in order to allow any water absorbed to escape through the film of paint; they should also have properties that inhibit and combat the development of the spores.



RECOMMENDATIONS TO LIMIT MOULD GROWTH

Allow ventilation and air exchange in the winter season by opening windows, even if for a short time.
Bring into the house the most outside light possible, while avoiding to keep the shutters closed.
Do not dry the laundry in the house. Regularly clean the seals of refrigerators and drain pans, do not let the water evaporate.
Use exhaust fans in case of high production of steam (bathrooms and kitchens) and use air cleaners fitted with appropriate filters.
Dehumidificate to maintain the relative humidity above 50% for the health of the respiratory system, but less than 65% to avoid condensation on the coldest areas.
Do not exaggerate with the quantity of indoor plants and, in any case, avoid spraying water on the leaves.
If possible, place the furniture at a certain distance from the walls in order to allow air circulation.
Perform routine maintenance of air conditioners, often colonized by fungi, whose spores are dispersed in the air.
Plan an advanced localized pest control with antibacterials such as B1, in areas of higher risk.

SOLUTIONS FOR PREVENTION AND RESTORATION

For some years now, CAP Arreghini has been involved in in-depth research which has led to the development of products able to resolve the problems related to the emergence of mould in living environments.

Proven laboratory tests and a careful choice of raw materials contributed to the formulation of products such as:

- ***Antimould system for interiors***
  with B1, A10, 2000 Tix Active, Sana Active and Gradiente Active for the realization of mould-resistant systems for interiors.

Antimould antialgae system for exteriors

- *with B25, K81 Quarzo Active, Sil2000 Active, Elasto Active for the realization of systems resistant to mould and algae, for exteriors.*

The fungicides used are characterized by absence of residual odour which enables them to be used in any living environment and by insolubility in water which guarantees a prolonged anti-mould effect and an efficacious action against various types of fungal species

Considerable savings can be derived from these protective systems as maintenance will be required less frequently.

ANTIMOULD SYSTEM FOR INTERIORS

REINFORCED CONCRETE, PRECAST CONCRETE, CEMENT PLASTERS, MORTARS, HYDRAULIC LIME PLASTER, SMOOTHING PLASTER AND PUTTY, DRYWALL, PRECAST CONCRETE, OLD PAINT.

DISINFECTANT	DRYING	PRIMER	FINISHING	COLOURS	CONSUMPTION OF THE SYSTEM ml/mq	APPLICATION	PERFORMANCE
B1	5/8 hours	Not necessary	**GRADIENTE ACTIVE**	White + Pastel shades P	80/100 +120/140 +120/140		Washable class 1 Covering power class 3 Anticondensation
B1	5/8 hours	Not necessary	**SANA ACTIVE**	White + Pastel shades P	80/100 +120/140 +120/140		Washable class 3 Covering power class 2
B1	5/8 hours	ACRILIFIX or COPRISOL	**2000 TIX ACTIVE**	White + Pastel shades P	80/100 +120/140 +120/140		Washable class 4 Covering power class 3

Before painting, the plaster and concrete substrates must be completely carbonated and this occurs in about 15 days for the plaster and 90 days for reinforced concrete; it is also necessary to remove any traces of dust, stop up any imperfections using Stucco light filler and, in the case of old paintings, assess the degree of absorption.

The degree of absorption of a painting can be estimated by applying the first coat of paint.

If lots of air bubbles appear, it means that absorption is excessive and, in this case, it is necessary to proceed as for smoothing plaster or, in alternative, totally remove the previous paint by wetting with plenty of water and scraping it with a spatula.

The application of the described products can be made with the different methods indicated on the corresponding data sheets.

The waterborne paints for interiors Active can be applied ready to use (2000 tix Active, Sana Active, Gradiente Active) or can be diluted by adding 10% of A10 on 14 lt of paint.

Maintenance on substrates with mould easily noticeable:

- *apply B1 on the affected area;*
- *after 3-5 hours wipe with a cloth or brush the area attacked by mould and reapply B1 on the whole surface to be treated;*
- *proceed, then, with the mould treatment described.*

IMPORTANT

The system described was positively tested to +23°C with 60% relative humidity in the environment.

In different conditions, drying times may vary and, consequently, also the time between one operation and the other.

All waterborne products, during drying, are very sensitive to low temperatures, which may adversely affect the results. They must therefore be applied at temperatures above + 5°C and on dry surfaces. In the event that, due to special conditions, there will be recurrence of traces of mould, disinfect with B1 and touch up immediately the interested part with the Active paint.

INFORMATION DATA OF CAP ARREGHINI PRODUCTS

DISINFECTANT

B1
Anti-mould masonry disinfestant
Aqueous solution of a fungicidal agent, chosen due to the wide range of action against different species of moulds and for its very low toxicity.

PRIMER

ACRILIFIX
Waterborne wall primer
This is a primer for walls, formulated with acrylic resins in aqueous dispersion. It is suitable for securing the adhesion on different types of surfaces, as well as insulating and consolidating capacities.

COPRISOL
Waterborne undercoat for chalk, plasterboard and plasters
Base coat for indoor walls, it is opaque and covering with an insulating function. It promotes adhesion, coverage and uniformity in the application of subsequent layers.

FINISHING

GRADIENTE ACTIVE
Anti-condensation anti-mould washable paint
Indoor water based wall paint, it is highly breathable, easy to apply, with drying times that enable rapid use of the living area, ideal for professional use as it is extremely compatible and has excellent adhesion, filling and covering capacities on different types of surfaces.

SANA ACTIVE
Special anti-mould washable paint
Indoor water based wall paint, it is highly breathable, easy to apply, with drying times that enable rapid use of the living area, ideal for professional use as it is extremely compatible and has excellent adhesion, filling and covering capacities on different types of surfaces.

2000 TIX ACTIVE
High quality breathable anti-mould paint
Indoor water based wall paint; it is highly breathable, easy to apply, with drying times that enable rapid use of the living area.

ANTIMOULD ANTIALGAE SYSTEM FOR EXTERIORS

CEMENT PLASTERS, MORTAR, CONCRETE, PRECAST CONCRETE, OLD PAINTS

DISINFECTANT	DRYING	PRIMER	FINISHING	COLOURS	CONSUMPTION OF THE SYSTEM ml/mq	APPLICATION	PERFORMANCE
B1	5/8 hours	MURISOL MURISOL W ACRILIFIX SPECIAL SILOFIX	**K81 QUARZO ACTIVE**	Tucano Area 115 Spazio 100	80/100 +110/130 +110/130		Acrylic, Higher coverage and opacity Classes EN 1062-1 ***Gloss:*** <10 - matt ***Fineness:*** >100 <300 micron-medium ***Vapour permeability:*** sd > 0,14 m <1,4 - medium ***Water permeability:*** W<0.1 kg/m²*0,5h - low
B1	5/8 hours	MURISOL MURISOL W ACRILIFIX SPECIAL SILOFIX	**ELASTO ACTIVE**	Tucano Area 115 Spazio 100	80/100 +110/130 +110/130		Acrylic elastomeric suitable for anticracking systems
B1	5/8 hours	MURISOL MURISOL W ACRILIFIX SPECIAL SILOFIX	**SIL2000 ACTIVE**	Tucano Area 115 Spazio 100	80/100 +110/130 +110/130		Siloxane Classes EN 1062-1 ***Gloss:*** <10 - matt ***Fineness:*** <100 micron - fine ***Vapour permeability:*** sd<0,14m - high W***ater permeability:*** W<0.1 kg/m2*0,5h - low

The following system is suitable for the protection of construction subjected to weathering. It is necessary to clean with high-pressure washing any impurities such as dirt, moss, mould, cast mould release.

Maintenance on old paints:

- *remove with brushes and scraper any old paint flaking, efflorescence or other loose materials in process of disintegration and perform cleaning with a pressure washer;*
- *restore any missing pieces of plaster with K29 putty if the repairs are minor; otherwise, for large thicknesses, use Rasacap 50 or Rasacap 501;*
- *after 4-5 days proceed with the antimould anti algae treatment.*

Maintenance on thick coatings based on quartz:

- *Remove with brushes and scraper any old paint flaking, efflorescence or other loose materials in process of disintegration and perform cleaning with a pressure washer;*
- *restore any missing part of thick coating missing and apply two layers of Active paint as indicated on point 3.*

The Active paints for exterior can be applied ready to use (K81 Quarzo Active, Elasto Active, Sil2000 Active) or they can be diluted by adding 350 ml of B25 on any 14 lt of paint.

INFORMATION DATA OF CAP ARREGHINI PRODUCTS

DISINFECTANT

B1
Anti-mould masonry disinfestant
Aqueous solution of a fungicidal agent, chosen due to the wide range of action against different species of moulds and for its very low toxicity.

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.

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.

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.

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.

FINISHING

K81 QUARZO ACTIVE
Matt quartz anti-mould anti-algae paint
Water-based 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.

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.

SIL2000 ACTIVE
Siloxane elastic paint for exteriors
Siloxane resin-based, water-based 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 extremelycompatible and has excellent adhesion, filling power and coverage of different types of sur faces.

SEE ALSO THE OTHER CAP ARREGHINI BOOKS

PROTECTION OF PLASTER IN EXTERIOR ENVIRONMENTS

PROCESS OF CRACKING

TYPES OF PLASTER: PREPARATION AND RESTORATION WORKS

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

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