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Kimistone®

SOLUTIONS TO CLEAN, CONSOLIDATE AND PROTECT STONE MATERIALS. ANTI-GRAFFITI PRODUCTS

Atmospheric pollution triggers chemical processes that can alter the surface of natural stone materials used in historic buildings.

STONE MATERIALS AND RESTORATION

Sandstone, natural limestone, marble and granite have all been widely used in Italy and around the world as a building material for load-bearing and decorative purposes, depending on how easy it is to obtain, extract and process, but almost never considering how long it will actually last. There was no way to quantify this or any related scientific enquiry and, up to the advent of the industrial revolution, the environment had a much more modest impact that it does today. As early as 1861 however, as a result of the levels of pollution caused by the industrial development underway in England, a commission was formed to study the deterioration of the Houses of Parliament. It was not long before the damage caused was associated with acid rain, and with atmospheric pollution in general which, in just over 100 years, had caused irreparable damage to buildings of historic value and had led to the development of systems and technologies to restore.

Nevertheless, until the early 70's, the technologies used to restore stone surfaces were already hugely obsolete. Scraping, mechanical brushes, and "washing" were used on a huge number of monuments to remove the damaged layer of stone and "replenish" it. In doing so however, many of the characteristic decorations and carvings on the surface of the stone were lost.

Luckily, by the end of the 70's experts in the sector had realized the damage the methods being used to remove the surface of the stone were doing and less invasive techniques were adopted as a result using dedicated materials, borrowing from the techniques used to restore paintings. A distinction was drawn between the patinas formed through natural weathering of the stone, and the dust and dirt layers created by pollutants and human neglect. As a result, we tend to clean stone nowadays with systems that remove the dirt and dust without damaging the patina. The concept of conservation has also been introduced, bringing with it a number of techniques to limit detrimental effects over time.

DETERIORATION FACTORS

In general terms, stone and all stone materials are considered to be porous means, i.e. systems that contain pores filled wilth fluids (air and/or water). Being porous, they can be penetrated and act as a vehicle for a number of molecules such as oxygen, carbon dioxide, water, acetone and other organic solvents by way of diffusion mechanisms. This kind of penetration and the fact that stone is not compact, being formed of interconnected grains with air cavities between them, makes stone materials subject to various forms of alteration that can often act simultaneously and synergically.

One of the main causes of deterioration is atmospheric pollution which puts carbon dioxide, sulphur and nitrogen compounds into the air. In turn, these compounds cause deposits to build up on and alter the surface of stone materials. One of the most widely recognized and studied phenomenon are the "black crusts" seen on almost all monuments in urban areas.

Whatever the kind of deterioration, water in its various forms is considered to be the prime cause given that it generally acts as the vehicle for almost all deterioration processes.
Water reacts with the sulphur and nitrogen compounds that enter the atmosphere through combustion to form acid compounds.These then attack and erase carbonate-matrix materials.
Macromolecular chemistry has attempted to address these problems by providing tools and sophisticated products to preserve stone materials in safety: cleaning, consolidation, protection.

Table 1

AVERAGE COMPOSITION OF NORMAL ATMOSPHERIC AIR (in ppm)	
nitrogen	780,840
oxygen	209,460
argon	9,340
helium	5.24
krypton	1.14
xenon	0.087
hydrogen	0.5
carbon monoxide	0.1
carbon dioxide	330
methane	1.5
nitrous oxide	0.5
ozone	0.01
nitrogen dioxide	0.02
ammonia	0.01

Table 2

MAXIMUM ATMOSPHERIC CONTENT OF POLLUTANTS TOLERATED BEFORE STONE BEGINS TO SERIOUSLY DETERIORATE (in mg/m^3)		
SO_2	sulphur dioxide	26
CO	carbon monoxide	120
SO_3	sulphur trioxide	3
NH_3	ammonia	60
HCl	hydrochloric acid	15
HFl	hydrofluoric acid	2
H_2SO_4	sulphuric acid	28

Effect of atmospheric pollution (top) and after cleaning (bottom).

Palazzo della Civiltà Italiana (EUR-Rome). This building was cleaned, protected and consolidated with Kimia products.

CONSOLIDATION AND PROTECTION

Treating consolidation and protection as two separate processes is not always a very practical distinction as the two treatments often overlap, having the shared objective of helping materials "withstand" attack from various directions.
The main purpose of the consolidation process is to improve the mechanical properties of stone materials. This is necessary when stone loses cohesion both on the surface and internally, and the resulting deterioration has progressed to the stage that the physical integrity of the object to be consolidated is in danger. The aim is obviously to restore the stone to its original state. Creating mechanical properties that are superior than the original ones would leave the surface layer with a very different degree of elasticity than that of "healthy" stone, with the resulting risk of micro-fractures between consolidated and non-consolidated sections.
The primary objective of a protective coating is to prevent water from entering the material. This would slow down or even prevent the majority of deterioration processes and also reduce the amount of particles produced by atmospheric pollutants absorbed.
Both consolidants and protective coatings are part of the more general family of adhesives, i.e. compounds consisting of a polymeric binder and various fillers which form different kinds of bonds with the grains in the stone material. With consolidants, internal bridges are formed which restore cohesion to the stone, whilst with protective coatings, a sufficiently hydrophobic layer is created which stops water from penetrating the material.

In order to address the various problems discussed, the Kimistone range includes consolidants and protective coatings for a wide range of applications.
Kimia consolidants have been designed to strengthen a wide range of stone materials.

Kimistone KSF is a powerful, ethyl silicate-based consolidant containing an active ingredient that is well-known in the trade for its reliability when used with various different types of substrate. The product is able to consolidate whatever stone material it is applied to thanks to the reaction that takes place between the ethyl silicates and water contained in the substrate. In contact with water in a neutral environment, ethyl silicates slowly hydrolyse to form amorphous silica. The solvent ensures the ethyl silicates penetrate the stone before this reaction takes place. Consolidation then takes place gradually over the next 2-3 weeks thanks to selected catalysts that control the speed of the reaction, ensuring it doesn't take place too quickly. This would result in a somewhat unsolid gel whilst if the reaction is too slow, part of the ethylsilicate would be lost through evaporation. Since the ethyl silicates need water for the reaction to take place, when the substrate contains hydroxyl groups (such as sandstone and claystone), the resulting reaction also creates bonds between weathered grains in the stone as the ethyl silicates react with the hydroxyl groups. When the substrate does not contain hydroxyl groups (such as marble and natural limestone), the amorphous silica is deposited in the porous structure, which will still effectively consolidate the structure.

Kimistone K55 is Kimia's answer to the combined need for protection and consolidation. It combines the consolidant effect of ethyl silicates with the protection provided by the silicon compounds contained in the product. Comprising alkyl groups, the latter introduce a substantial variation in the angle of contact in the material they are applied to giving the stone surfaces a marked degree of water-repellency as a result.

Kimistone K10 consists of acrylate siloxane copolymers which intensify protection rather than consolidation. As well as protecting materials by limiting water absorption, the product also improves surface cohesion of the stone thanks to the additional consolidation effect. This makes the stone materials more resistant to frost, to exposure in coastal/sea areas, and to all deterioration processes in which water is the main catalyst.
All three products contain an alcohol-based solvent which, on account of its low surface tension, quickly pilots the active ingredients towards the inside of the porous structure. In addition, being much less toxic than other types of solvents, it is much safer to use for restoration professionals.

The Kimistone ANTISMOG, IBASIL and IDROREP ranges feature 100% protective coatings.

The first two, Kimistone ANTISMOG and IBASIL, are Kimia's eco-friendly answer to any protection requirements, given that they are totally solvent-free.
The active ingredient in Kimistone ANTISMOG (based on acrylic, fluoride copolymers and biocides contained in the formulation), ensures the product confers a high degree of water-repellency to the stone surface without forming films or changing the original colour of the support. In addition, thanks to the effect of the biocides, it prevents any subsequent formation of mould and/or lichen on the surface of the support it is applied to. The underlying formulation gives the product the extreme stability required to withstand temperature change and the oxidative effect of UV rays.

Kimistone IDROREP is also a protective coating, but in an alcohol-based solvent. The solvent ensures the product is carried quicker within the stone and therefore effectively protects it by reducing the water absorption capacity of the material itself.

All Kimia products in the protective and consolidant ranges have been lab-tested on various types of stone materials to obtain specific formulations that will guarantee no colour changes following application of the product and that there is no significant reduction in the diffusive properties of the stone material (water vapour permeability).

CLEANING OF STONE MATERIALS

As part of the masonry conservation process, the purpose of cleaning is to remove crusts that have formed as a result of dirt and neglect, without altering the naturally weathered patina of the stone.
An effective cleaner must therefore be able to selectively solubilize organic compounds without altering the original colour of the stone that it is applied to.
Each type of stone and each type of "dirt" needs a specific cleaner, which is why the Kimistone range features four different cleaners and a biocide.
Kimistone C957 is a cleaner for frescoes and painted surfaces. It consists of a mixture of salts, complexing agents, thixotropic and absorbent elements in a formulation prescribed by the Italian Central Institute for Restoration (ICR).
It is suitable for delicate carbonate-based stone materials and/or silicate-matrix stone, such as: marble statues, veined marble, soft limestone, and fine granite. It can also be applied to imitation stone and plaster.
Kimistone C905 is an ammonium bifluoride-based cleaner for delicate natural and/or imitation stone. It is especially recommended to clean gneiss, peperino, trachyte, sandstone, granite, breccia (brech), limestone brick and porphyry.
Kimistone C902 is a powerful, acid-based cleaner for natural and/or imitation silicate stone such as: compact sandstone, beole, basalt, ceppo (log), porphyry, ghiandone (granite), serizzo (gneiss/beole), limestone brick, brick, porcelain stoneware, clinker, concrete.
Kimistone C10.10 is a powerful, alkaline-based cleaner for compact, carbonate stone such as: travertine, Istria marble, Trani marble, Pietra di Finale (marble), Paesina stone (Rouin marble).
Kimia's range of cleaners also includes Kimistone BIOCIDA.
This biocide product is suitable for wide-ranging use in eliminating autotrophic and heterotrophic microflora from the surface of stone. Kimistone BIOCIDA removes algae, lichen, mould, yeast, mildew, fungi, bacteria and some higher plants. The product is suitable for natural stone, marble and granite, sandstone and soft limestone, limestone brick and compact limestone, brick, wood.
Kimia cleaners have all been lab-tested on various different types of stone in order to create specific formulations that will not alter the original colour of the support after application of the product.

GRAFFITI AND HOW TO REMOVE IT

One of the more recent forms of deterioration is the widespread use of spray cans and marker pens to write on the external walls of stone buildings. The materials used to write on these surfaces are highly adhesive, having been designed to leave a permanent mark on the external surfaces to which they are applied.
Spray cans contain high-penetration solvents which means that once an external stone surface has been stained, it is extremely difficult to clean without permanently altering the surface of the stone support. To address this problem, which is an increasing concern in the historic centres of today's big cities, Kimia has added specific "anti-graffiti" products to its Kimistone range.

Kimistone DEFENDER is a water-based protective coating that can be used to prevent spray paint graffiti from adhering to stone walls. Featuring a special mixture of organic silicon compounds and microcrystalline waxes in a water solution, the product acts by covering the pores on the surface of the stone with a thin, non-permanent (sacrificial) particle layer. The particles of the paints used for graffiti then stick to this layer, which is invisible to the naked eye, instead of adhering directly to the stone material. Hence the product creates a protective layer that can then be easily removed with hot water.
Kimistone GRAFIXMOOVE can be used to remove graffiti when no prior protective coatings have been applied. The product solubilises stains created by spray cans, ink and marker pens without altering the surface of the stone or underlying the stone structure.

HEALTH AND SAFETY OF CONTRACTORS

Kimistone products are designed with the health and safety of restoration professionals in mind. The Kimistone range features water-based products and only when strictly necessary, solvents of extremely low toxicity are used. For example, ethyl alcohol is used as a solvent on account of its more favourable toxicity rating, as shown in the table on the right. The values in the table have the following significance: LLT indicates maximum long-term exposure, i.e. the maximum concentration that workers can be continually exposed to over time; LTB indicates maximum short-term exposure, i.e. the maximum concentration that workers can be continually exposed to for short periods during a day; CIN indicates maximum air content in ppm of the product beyond which it would become lethal after a 30-minute exposure.
This means that solvents with very low LLT, LTB and CIN values are extremely hazardous to the health of people applying them, even in very small concentrations (ppm). Very high LLT, LTB and CIN values on the other hand, are indicative of very low product toxicity.

The Kimistone range is therefore a group of products that tackle masonry preservation while protecting the health and safety of the professionals using them. The reliablity of the range has been proved not only in numerous onsite experiences, but also in regular checks carried out to assess compatibility with different types of support. Kimia laboratories conduct regular spectrophotometric anaylsis to check the total abscence of any colour changes after application of the product.

SOLVENT	LLT	LTB	CIN
Less toxic			
Ethyl Alcohol	1,000		3,300
Chlorotene	350		700
Cyclohexane	300		1,300
Acetone	250	150	2,500
Xylol	100	150	900
Toluolo	100	150	500
Toxic			
Mineral spirits	85		1,100
n-hexane	50		1,100
Ammonia (gas)	25	35	300
Highly toxic			
Acetic Acid	10	15	50
Formic Acid	5		30
Butyl cellosolve	5ac		700
Methyl cellosolve	0.1ac		
Carcinogenic			
Trichloroethylene	1,000		
1,1,2 Trichloroethane	10ac		100
Benzene	0.1	1	500

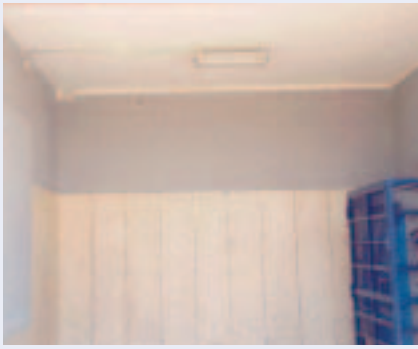
Areas of use

CONSOLIDANTS	
Strong consolidation for mainly silicate materials	Kimistone KSF
Delicate consolidation and surface protection. Suitable for soft or compact limestone, marble, brick and plaster.	Kimistone K55
Protection with a simple consolidation effect (dustproofing). Suitable for silicate and carbonate materials.	Kimistone K10
PROTECTIVE COATINGS	
Eco-friendly, water and oil-repellent protective coating for natural and imitation stone.	Kimistone ANTISMOG
Surface coating with marked hydrophobic effect for natural stone, marble, granite, soft and compact limestone, sandstone and concrete.	Kimistone IBASIL
High penetration protection, creating a water-repellent coating for natural stone, marble, granite, soft and compact limestone, sandstone, concrete and brick.	Kimistone IDROREP
CLEANERS	
Powerful cleaner for silicate-matrix stone materials, sandstone, basalt, porphyry, serizzo (gneiss/beole), limestone brick, brick, porcelain stoneware, clinker and concrete.	Kimistone C 902
Cleaner for delicate natural and/or imitation stone.	Kimistone C 905
Delicate, ammonium bicarbonate-based cleaner for delicate natural stone materials.	Kimistone C 957
Powerful cleaner for carbonate-matrix materials, compact limestone, travertine, Istria and Trani marble.	Kimistone C10.10
Biocide	Kimistone BIOCIDA
ANTI-GRAFFITI PRODUCTS	
Anti-graffiti coatings	Kimistone DEFENDER
Graffiti removal	Kimistone GRAFIXMOOVE

Graffiti that was easy to remove with Kimistone products.

On walls

Before



After

On metal surfaces

Before

After

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Kimistone KSF

Description

Powerful consolidant based on silicic acid ethyl esters in an alcohol solvent.

Benefits

- Powerful consolidant
- More than 75% ethyl silicate content
- Deep penetrating product thanks to the type of solvent used
- Contains low toxicity solvent
- Contains catalysts that control the reaction speed
- Will not alter the original colour of the support after application
- Non film-forming
- Minor reduction of water vapour permeability

On application, the product penetrates deep into the porous structure of the material to be consolidated, on account of the low surface tension of the solvent. Under normal environmental conditions (+20 °C; 50% RH), the final degree of consolidation is reached after approximately 2 weeks. Kimistone KSF has been tested on a wide range of (natural and imitation) stone supports and will not alter the original substrate colour. It will also make no significant difference to the water vapour permeability of the support when applied.

The product is able to consolidate whatever stone material it is applied to thanks to the reaction that takes place between the ethyl silicates and water contained in the substrate. In contact with water in a neutral environment, ethyl silicates slowly hydrolyse to form amorphous silica. The solvent ensures the ethyl silicates penetrate the stone before this reaction takes place. Consolidation then takes place gradually over the next 2-3 weeks thanks to selected catalysts that control the speed of the reaction, ensuring it doesn't take place too quickly. This would result in a somewhat unsolid gel whilst if the reaction is too slow, part of the ethylsilicate would be lost through evaporation. When the substrate contains hydroxyl groups (such as sandstone and claystone), the resulting reaction also creates bonds between weathered grains in the stone as the ethyl silicates react with the hydroxyl groups themselves. When the substrate does not contain hydroxyl groups (such as marble and natural limestone), the amorphous silica is deposited in the porous structure, consolidating the structure but not creating any bonds with the stone.

Uses

The product should be applied primarily to silicate-matrix stone materials such as Pietra Serena (limestone), Pietra Simona, Pietra Dorata (sandstone), Pietra Forte, Pietra Macigno, Pietra Piasentina (sandstone), ceppo (log), limestone brick, gneiss, trachyte, serizzo (gneiss/beole), ghiandone (granite), slate, beole and quarzite. It can also be used on imitation stone materials such as brick, terracotta, lean, fragmenting plasters, and on carbonate supports. Before applying the consolidant, always clean the support and test the product first.

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Kimistone KSF

Application

Kimistone KSF should be applied with a low-pressure spray gun, brush or by immersion. Apply to perfectly dry, clean surfaces until fully saturated. Second coats of the product must be applied within no more than 4 hours from the first. Before applying the product, a patch test should be carried out to check the amount of product required in relation to the microstructure of the material to be consolidated.

Dilution ratios

The product does not require dilution. When total open porosity of a substrate is less than 12-15%, Kimistone KSF should be diluted with an ethyl solvent in a ratio of 1 part product to 2 parts solvent.

Technical specifications	Average value
Physical state	Liquid
Solvent	Ethyl alcohol
Active ingredient	> 75%
Viscosity	1-20 mPa·s
Density	0.95 g/cm^3
Pot-life	24 hours at +20°C
Recommended application temperature range	+5°C/+30°C

Packaging

Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage

0.2 - 0.8 l/m^2 depending on the porosity of the support.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning

Product for professional use. Always carry out a patch test before beginning. Do not apply when it is about to rain, or to surfaces on which mist or condensation has settled. Do not apply at temperatures under +5 °C or above +30 °C, nor on cold and wet supports.
Do not apply to walls exposed to sunlight.
Depending on the support, before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are wider/deeper than 1 mm. Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas. Operators should be equipped with gloves, masks, safety glasses and any other items of protection prescribed in safety regulations for the use of solvents. Do not smoke during use and keep the product away from heat sources or

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Kimistone KSF

electrical devices that could create sparks. In case of eye contact, flush eyes with plenty of water and consult a doctor. Equipment must be cleaned with EPOX solvent after use.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

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Kimistone K55

Description

Delicate, protective consolidant based on silicic acid ethyl esters and silane/siloxane compounds in an alcohol solvent.

Benefits

- Powerful water-repellent
- High performing consolidant
- Deep penetrating product
- Contains low toxicity solvent
- Contains catalysts that control the reaction speed
- Will not alter the original colour of the support after application
- Non film-forming
- Minor reduction of water vapour permeability

On application, the product penetrates into the porous structure of the material to be consolidated, on account of the low surface tension of the solvent. Under normal environmental conditions (+20 °C; 50% RH), the final degree of consolidation is reached after approximately 2 weeks. Kimistone K55 also performs a protective function through the silane/siloxane compounds which ensure the water-repellency of the surface. Kimistone K55 has been tested on a wide range of stone supports (natural and imitation) and will not alter the original substrate colour. It will also make no significant difference to the water vapour permeability of the support when applied. The product will consolidate stone surfaces and make them impervious to water. The protective function is given by the silicon compounds which significantly alter the angle of contact in the support, giving the stone surfaces a marked degree of water-repellency as a result. Consolidation is given by the ethyl silicates which, in contact with water in a neutral environment, slowly hydrolyse to form amorphous silica. The solvent ensures the ethyl silicates penetrate the stone before this reaction takes place. Consolidation then takes place gradually over the next 2-3 weeks thanks to selected catalysts that control the speed of the reaction, ensuring it doesn't take place too quickly. This would result in a somewhat unsolid gel whilst if the reaction is too slow, part of the ethylsilicate would be lost through evaporation. When the substrate contains hydroxyl groups (such as sandstone and claystone), the resulting reaction also creates bonds between weathered grains in the stone as the ethyl silicates react with the hydroxyl groups themselves. When the substrate does not contain hydroxyl groups (such as marble and natural limestone), the amorphous silica is deposited in the porous structure, which will still effectively consolidate the structure.

Uses

Suitable for the consolidation and protection of carbonate-matrix stone materials such as soft or compact limestone, marble and plasters. The product can also be used with silicate-matrix supports such as sandstone and brick.

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Kimistone K55

Application

Kimistone K55 is ready-to-use and can be applied to clean, dry surfaces with a low-pressure spray gun, a brush or by immersion. The support must be compact, and free of any dust, grease or efflorescences. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. Allow the rendering mortar to dry fully before treating walls of new construction. Apply to perfectly dry, clean surfaces until fully saturated. Second coats of the product must be applied within no more than 4 hours from the first. Before applying the product, a patch test should be carried out to check the amount of product required in relation to the microstructure of the material to be consolidated.

Dilution ratios

The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Ethyl alcohol
Viscosity	1-20 mPa·s
Density	0.96 g/cm^3
Pot-life	24 hours at +20°C
Recommended application temperature range	+5°C/+30°C

Packaging

Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage

0.2 - 0.8 l/m^2 depending on the porosity of the support.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

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Kimistone K55

Warning

Product for professional use.
Always carry out a patch test before beginning. Do not apply to gypsum. Do not apply when it is about to rain, or to surfaces on which mist or condensation has settled. Do not apply at temperatures under +5 °C or above +30 °C, nor on cold and wet supports. Do not apply to walls exposed to sunlight. Do not apply to painted plasterwork and to non-absorbent substrates.
Depending on the support, before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are wider/deeper than 1 mm.
Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas.
Operators should be equipped with gloves, masks, safety glasses and any other items of protection prescribed in safety regulations for the use of solvents. Do not smoke during use and keep the product away from heat sources or electrical devices that could create sparks. In case of eye contact, flush eyes with plenty of water and consult a doctor. Equipment must be cleaned with EPOX solvent after use.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

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Kimistone K10

Description

Protective, consolidant product based on acrylate siloxane copolymers.

Benefits

- Powerful water-repellent
- Consolidant action
- Deep penetrating product thanks to the type of solvent used
- Contains low toxicity solvent
- Will not alter the original colour of the support after application
- Non film-forming
- Minor reduction of water vapour permeability

The product protects materials effectively by limiting water absorption, and also improves surface cohesion of the stone thanks to the additional consolidation effect. This makes the stone materials more resistant to frost, to exposure in coastal/sea areas, and to all deterioration processes in which water is the main catalyst. The product also prevents biodeteriorating agents such as moss and lichen from taking root; it is an extremely effective means of protection against acid rain and other pollutants, and stops porous materials from trapping dirt thereby keeping the surface clean. The product is breathable and reversible, it will not alter the appearance of the support, and it is not film-forming.
The product will make stone surfaces considerably water-repellent as well as offering some consolidation as well. The protective function is given by the silicon compounds which significantly alter the angle of contact in the support, giving the stone surfaces a marked degree of water-repellency as a result. The special formulation also provides a small degree of consolidation which can counter any surface dusting.

Uses

Suitable for medium intensity consolidation and to protect the surface of both silicate-matrix and carbonate-matrix stone materials, such as: sandstone, clay brick, brick, soft or compact limestone, marble, plaster, terracotta.

Application

Kimistone K10 is ready-to-use and should be applied to clean, dry surfaces with a low-pressure spray gun, brush or by immersion, making sure there is no excessive build up of the product. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. When treating walls of new construction, or walls that have been restored using the break-fill technique, wait for the rendering mortar to dry fully before applying the product. Apply the product until the surface is fully saturated. The double protective/consolidant action is exerted gradually over the next 7 days at a temperature of +20 °C. Always carry out a patch test before beginning.

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Kimistone K10

Dilution ratios
The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Ethyl alcohol
Viscosity	1-20 mPa·s
Density	0.81 g/cm^3
Pot-life	24 hours at +20°C
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
0.2 - 0.8 l/m^2 depending on the porosity of the support.

Storage
Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning
Product for professional use.
Protect all supports that are not to be treated. Keep the area clear of vehicles and unauthorised personnel. Do not apply when it is about to rain or when it is misty, or to surfaces that are damp with condensation or dew. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Do not apply to painted plasterwork and to non-absorbent substrates.
Depending on the support, before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are wider/deeper than 1 mm.
Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas.
Equipment must be cleaned with EPOX solvent after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

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Kimistone ANTISMOG

Description

Eco-friendly, water and oil-repellent protective coating with biocidal function. The product consists of acrylic, fluoride copolymers in a water-based solvent and additives that guarantee the wide-ranging, biocidal action.

Benefits

- Creates an effective water and oil-repellent coating, protecting supports from atmospheric agents, acid rain, salt-laden air, and reducing the build-up of atmospheric particulate on external surfaces
- Effective biocidal action preventing the growth of organic matter such as algae, moss and lichen
- Extremely UV stable
- Will not alter the original colour of the support after application
- Non film-forming
- Very little reduction of water vapour permeability
- Solvent-free product
- Easily reversible

Kimistone ANTISMOG makes materials impervious to water and oil without forming films or altering the colour of the support. In addition, thanks to the biocidal effect, it prevents any subsequent formation of mould and/or lichen on the surface of the support it is applied to. The underlying formulation gives the product the extreme stability required to withstand temperature change and the oxidative effect of UV rays.

Uses

Ideal for natural and imitation stone, marble and granite, limestone brick, Carparo stone, Lecce stone, Istria marble, brick, terracotta and clay brick. The product is also recommended as a way of limiting the effects of carbonation on concrete.

Application

The product is ready-to-use and should be applied to clean, dry surfaces using a low-pressure spray gun or natural fibre brush. The support must be compact, and free of any dust, grease or efflorescences. Eliminate and/or restore any separating or flaking parts before application. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. When the product is used to make the surfaces of walls of new construction or walls that have been restored using the break-fill technique impervious to water, wait for the rendering mortar to fully dry before applying the product. The number of coats required will depend on substrate absorption: at least two coats are recommended, to be applied wet on wet while the previous coat is still fresh. Do not allow excess product to build up on the surface, and do not apply at high temperatures, in direct sunlight, during frost or strong wind. Bear in mind that the water-repellency provided by the product will be less effective in areas where there are cracks or macroporosity wider/deeper than one millimetre in size. If necessary, fill where required before beginning. Do not apply Kimistone ANTISMOG when it is about to rain. Always carry out a patch test before beginning.

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Kimistone ANTISMOG

Dilution ratios
The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Acqua
Viscosity	1-20 mPa·s
Density	1,01 g/cm^3
pH	4.8
Pot-life	12-24 hours at +20°C
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
0.1 -0.6 l/m^2 depending on the porosity of the support.

Storage
Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning
Product for professional use.
Protect all supports that are not to be treated. Keep the area clear of vehicles and unauthorised personnel. Do not apply when it is about to rain or when it is misty, or to surfaces that are damp with condensation or dew. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C.
Depending on the support, before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are wider/deeper than 1 mm.
Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas.
Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

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Kimistone IBASIL

Description

Protective, water-based hydrophobic product.

Benefits

- Powerful water-repellent
- Will not alter the original colour of the support after application
- Solvent-free, eco-friendly product
- Minor reduction of water vapour permeability

Kimistone IBASIL protects materials from frost, salt-laden air and condensation. Creates an effective layer of protection, thereby reducing the ability of the external surfaces to trap atmospheric particulate. It does not alter the appearance or permeability of the support it is applied to, and it is totally reversible.

Uses

It is ideal for waterproofing natural stone, marble, granite, soft limestone, compact limestone, sandstone, Lecce stone, Carparo stone, concrete.

Application

The product is ready-to-use and should be applied to clean, dry surfaces using a low-pressure spray gun or natural fibre brush. The support must be compact, and free of any dust, grease or efflorescences. Eliminate and/or restore any separating or flaking parts before application. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. When the product is used to make the surfaces of walls of new construction or walls that have been restored using the break-fill technique impervious to water, wait for the rendering mortar to fully dry before applying the product. The number of coats required will depend on the absorption of the substrate: at least two coats are recommended, to be applied wet on wet while the previous coat is still fresh. Do not allow excess product to build up on the surface, and do not apply at high temperatures, in direct sunlight, during frost or strong wind. Bear in mind that the water-repellency provided by the product will be less effective in areas where there are cracks or macroporosity wider/deeper than one millimetre in size. If necessary, fill where required before beginning. Do not apply Kimistone IBASIL when it is about to rain. Always carry out a patch test before beginning.

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Kimistone IBASIL

Dilution ratios
The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa•s
Density	0.98 g/cm^3
pH	6.3
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
0.1 -0.4 l/m^2 depending on the porosity of the support.

Storage
Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning
Product for professional use.
Do not apply to substrates that are not indicated as compatible. Always carry out a patch test on unusual surfaces. Do not apply when it is about to rain, or to surfaces on which mist or condensation has settled. Do not apply at temperatures under +5 °C or above +30 °C, nor on cold and wet supports. Do not apply to walls exposed to sunlight. Do not apply to painted plasterwork and to non-absorbent substrates.
Before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are deeper/wider than 1 mm.
Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas.
In case of eye contact, flush eyes with plenty of water and consult a doctor. Clean equipment with water after use.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

ST3-306

Kimistone IDROREP

Description

Protective, hydrophobic coating in an alcohol solution.

Benefits

- Contains low toxicity solvent
- Powerful water-repellent
- Deep penetrating product
- Non film-forming
- Will not alter the original colour of the support after application
- Minor reduction of water vapour permeability

Kimistone IDROREP protects materials effectively by reducing their ability to absorb water. This makes the stone materials more resistant to frost, to exposure in coastal/sea areas, and to all deterioration processes in which water is the main catalyst. The product also prevents biodeteriorating agents such as moss and lichen from taking root; it is an extremely effective means of protection against acid rain and other pollutants, and stops porous materials from trapping dirt thereby keeping the surface clean. The product is breathable and reversible, it will not alter the appearance of the support, and it is not film-forming.

Uses

It is ideal for waterproofing delicate stone materials such as: natural stone, marble, granite, soft and compact limestone, sandstone, Lecce stone and Carparo stone. It is also suitable for waterproofing natural and artificial silicate materials such as: brick, concrete, plaster, roof tiles, terracotta and clay brick.

Application

The product is ready-to-use and should be applied to clean, dry surfaces using a low-pressure spray gun or natural fibre brush. Two coats should be applied to saturation point and in accordance with the porosity of the support. Treat the support prior to application in order to eliminate and/or restore any separating or flaking parts. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. When the product is used to make the surfaces of walls of new construction or walls that have been restored using the break-fill technique impervious to water, wait for the rendering mortar to fully dry before applying the product. Do not allow the product to build up and/or run, and protect all surfaces not to be treated. Do not apply Kimistone IDROREP during mist, in the presence of condensation or when it is about to rain. Always carry out a patch test before beginning. Kimistone IDROREP is not chemically reactive with rocks of igneous, sedimentary, or metamorphic origin, bricks, or cement, and is 100% compatible with stone materials and constructions.

Dilution ratios

The product does not require dilution.

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Technical specifications	Average value
Physical state	Liquid
Solvent	Ethyl alcohol
Viscosity	1-20 mPa·s
Density	0.80 g/cm^3
Pot-life	24 hours at +20°C
Recommended application temperature range	+5°C/+30°C

Packaging

Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage

0.1 - 0.8 l/m^2 depending on the porosity of the support.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning

Product for professional use.
Always carry out a patch test before beginning. Do not apply when it is about to rain, or to surfaces on which mist or condensation has settled. Do not apply at temperatures under +5 °C or above +30 °C, nor on cold and wet supports. Do not apply to walls exposed to sunlight. Do not apply to painted plasterwork and to non-absorbent substrates.
Depending on the support, before applying the product, remove and/or restore all areas that are separating or flaking and fill any openings or cracks that are wider/deeper than 1 mm.
Any excess product should be removed immediately (before it dries) to prevent surface sheen in less porous areas.
Operators should be equipped with gloves, masks, safety glasses and any other items of protection prescribed in safety regulations for the use of solvents. Do not smoke during use. In case of eye contact, flush eyes with plenty of water and consult a doctor. Equipment must be cleaned with EPOX solvent after use.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

Kimistone IDROREP

ST3-306

Kimistone C902

Description
Powerful, acid-based cleaner for natural and/or imitation silicate stone.

Benefits
- Extremely powerful cleaner
- Will not alter the original colour of the support after application

The product can be used to solubilise the inorganic part of atmospheric dirt making it possible to remove the signs of smog, soot, guano, and hard water percolation.

Uses
Suitable for cleaning: compact sandstone, beole, basalt, ceppo (log), porphyry, ghiandone (granite), serizzo (gneiss/beole), limestone brick, brick, porcelain stoneware, clinker, concrete. Is it not recommended for lead-polished or vitrified surfaces.

Application
Mix up the solution in accordance with the amount of dirt and the type of support to be treated, and apply it to dry surfaces only with a brush or low pressure spray gun, being careful to soak the support thoroughly. Scrub vigorously until a foam forms then leave to take effect. Reaction time usually varies from 10 to 30 minutes. On completion, rinse thoroughly with a high-pressure washer (60-120 bar), if suitable for the type of support. otherwise run water over the surface until all residues have been removed. Always carry out a patch test before cleaning the whole surface.

Dilution ratios
Light dirt: 1 part product and 4 parts water (20% solution);
Mild dirt: 1 part product and 1 part water (50% solution);
Stubborn dirt: use the product undiluted.

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	1.08 g/cm^3
pH	1.5
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
0.1 - 0.3 l/m^2 depending on the substrate type and amount of dirt.

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Kimistone C902

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product will remain stable indefinitely.

Warning

Product for professional use.

Do not apply the product to supports that are not resistant to acids such as carbonate stone, and glazed or vitrified surfaces. The product will corrode glass. Keep the area clear of vehicles and unauthorised personnel. Operators should be equipped with gloves, overalls, safety glasses, and any other items of protection required when using acids. Protect all parts that are not to be treated. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.

The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

ST3-306

Kimistone C905

Description
Cleaner for delicate natural and/or imitation stone.

Benefits
- Delicate cleaner
- Will not alter the original colour of the support after application

Selectively removes atmospheric dirt by solubilizing the organic and inorganic parts. Removes rust and hard water stains. Does not alter the original stone patina.

Uses
Suitable for cleaning delicate natural stone such as gneiss, peperino, trachyte, sandstone, granite, breccia (brech), limestone brick and porphyry. Suitable for cleaning imitation stone such as brick and concrete. Not recommended for vitrified surfaces.

Application
Mix up the solution in accordance with the amount of dirt and the type of support to be treated, and apply it to dry surfaces only with a brush or low pressure spray gun until the surface is fully saturated. Scrub gently with a broomcorn brush until a foam forms then leave to take effect. Reaction time usually varies from 10 to 30 minutes. On completion, rinse thoroughly with a low pressure washer provided it will not damage the support. otherwise run water over the surface until all residues have been removed. When working with delicate supports, two coats of a more diluted solution and shorter contact times are recommended rather than one longer, more concentrated application. Always carry out a patch test before cleaning the whole surface.

Dilution ratios
Light dirt: 1 part product and 4 parts water (20% solution);
Mild dirt: 1 part product and 1 part water (50% solution);
Stubborn dirt: use the product undiluted.

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	1.06 g/cm^3
pH	4.7
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

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Kimistone C905

Coverage

0.1 - 0.3 l/m^2 depending on the substrate type and amount of dirt.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product will remain stable indefinitely.

Warning

Product for professional use.
Do not apply the product to supports that are not resistant to acids such as carbonate stone, and glazed or vitrified surfaces. The product will corrode glass. Keep the area clear of vehicles and unauthorised personnel. Operators should be equipped with gloves, overalls, safety glasses, and any other items of protection required when using acids. Protect all parts that are not to be treated. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

ST3-306

Kimistone C957

Description

Delicate ammonium bicarbonate-based cleaner for painted surfaces.

Benefits

- Effective cleaner for stone surfaces and plasters, even painted ones
- Formulated according to ICR provisions
- Recommended specially for removing "black crusts"
- Will not alter the original colour of the support after application

The product (created from a specific recipe used to clean stone monuments) slowly solubilises coherent atmospheric dirt and softens black crusts without altering the stone's original patina.
The alkalising effect helps to remove the black crusts. The complexing agents form chemical complexes with the calcium in the black crusts, solubilising it.

Uses

It is suitable for delicate carbonate-based stone materials and/or silicate-matrix stone, such as: marble statues, veined marble, soft limestone, and fine granite. It can also be applied to imitation stone and plaster.

Application

The product can be applied using a brush or using pads moistened with the product. When applying with a brush, the support should be dry and dirty areas saturated properly. Scrub gently until a foam forms. Leave to take effect for 15 to 45 minutes, being careful that the surface to be cleaned doesn't dry out. Rinse with a very low pressure washer and repeat as necessary. Perform preliminary patch tests to work out the correct contact time. When surfaces are to be treated with pads moistened with the product, mix the undiluted product with cellulose pulp or sepiolite in a suitable container until a plastic mixture forms. Apply this padded mixture evenly after soaking the surface to be cleaned with the product. Cover with nylon film and leave to take effect. On completion, remove the padded mixture and rinse with running water. Deionized water is always recommended for the best result. When using this technique, contact time should be checked in a patch test before beginning on a small area of the surface to be treated.

Dilution ratios

Do not dilute. Ammonia can be added to remove stains caused by greasy substances.

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Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	1.07 g/cm^3
pH	3.75
Recommended application temperature range	+5°C/+30°C

Packaging

Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage

0.2 -0.4 l/m^2 depending on the substrate type and amount of dirt.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product will remain stable indefinitely.

Warning

Product for professional use.
Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

Kimistone C957

ST3-306

Kimistone C10.10

Description

Powerful, alkaline cleaner for compact, carbonate stone.

Benefits

- Extremely powerful cleaner
- Removes grease and oily substances effectively
- Also suitable for highly porous surfaces

The product can also be used to remove the surface patina caused by pollution on carbonate-matrix materials. The product solubilises grease and is also effective on cellular, vuggy stones such as "unfilled" travertine.

Uses

Suitable for cleaning compact, carbonate materials, travertine, Istria marble, Trani marble, Pietra di Finale (marble), and Pietra Paesina (Rouin marble). Do not use on silicate or lead-polished stone.

Application

Mix up the solution in accordance with the amount of dirt and the type of support to be treated, and apply it to dry surfaces only working from the bottom up with a synthetic fibre brush until the surface is fully saturated. Scrub vigorously with a broomcorn or nylon brush until a foam forms. Leave to take effect for 10 to 30 minutes depending on the amount of dirt and thickness of the crust. Rinse with a pressure washer until all residues have been removed. When working with cellular, vuggy stones such as "unfilled" travertine, rinse very carefully. In such cases, the pH should be neutralized with a 1 part Kimistone C905 and 10 parts water solution. This solution should be applied to the stone using a low pressure spray gun then left for 10 to 15 minutes before rinsing with clean water. Always carry out a patch test before beginning.

Dilution ratios

Light dirt: 1 part product and 4 parts water (20% solution);
Mild dirt: 1 part product and 3 part water (25% solution);
Stubborn dirt: 1 part product and 1 part water (50% solution).

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	1.19 g/cm^3
pH	13.5
Recommended application temperature range	+5°C/+30°C

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Kimistone C10.10

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
0.1 - 0.3 l/m^2 depending on the substrate type and amount of dirt.

Storage
Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product will remain stable indefinitely.

Warning
Product for professional use.
Highly alkaline product, do not use on silicate or lead-polished stone. Protect all parts that are not to be treated. It will corrode aluminium and cause paint to dull and discolour. Keep the area clear of vehicles and unauthorised personnel. Operators should be equipped with gloves, overalls, safety glasses, and any other items of protection required when using alkaline substances. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

ST3-306

Kimistone BIOCIDA

Description

Biocide suitable for wide-ranging use in eliminating autotrophic and heterotrophic microflora from the surface of stone.

Benefits

- Powerful biocidal action, removing moss, algae and bacteria
- Will not alter the original colour of the support after application
- Non film-forming
- Will not alter the support

Kimistone BIOCIDA is recommended to remove algae, lichen, mould, yeast, fungi, moss, bacteria and some higher plants. In particular, it inhibits the growth of several different species of fungi, such as: aspergillus niger, aeureobasidum pullulans, candida albicans, chaertomium globosum, fusarium oxysporum, penicillum funiculosum, saccaromyces cerevisiae. These species permanently alter the colour of the stone and also alter the physical structure, thereby contributing to the overall deterioration of the surface. It can also be used in internal applications as it will prevent the growth of many bacteria, such as: achromobacter parvulus, alcaligenes faecalis, bacillus cereus, escherichia coli, flavobacterum suaveolens, proteus vulgaris, pseudomonas aeruginosa.

Uses

Suitable for natural stone, marble and granite, sandstone and soft limestone, limestone brick and compact limestone, brick, wood.

Application

Kimistone BIOCIDA is ready-to-use and should be applied to dry surfaces using a low pressure spray gun, a brush or a roller, being careful to soak the surface to be treated well and not allowing the product to build up or run. To extend the action of the biocide over time, after the first application of disinfectant and subsequent rinsing with an appropriate cleaner from the Kimistone range, clean and dry the surface then reapply the product, being careful to use the most appropriate protective coating for the particular application, especially when working with very exposed external surfaces.

Dilution ratios

The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	1.00 g/cm^3
pH	7.1
Recommended application temperature range	+5°C/+30°C

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Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage
To be established in a patch test before beginning (approximately 0.1 - 0.4 l/m^2).

Storage
Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 24 months.

Warning
Product for professional use.
Do not apply when it is about to rain, or to surfaces on which mist or condensation has settled. Do not apply to walls exposed to sunlight or at temperatures above 30 °C or below +5 °C. Operators should be equipped with gloves, masks, safety glasses and any other items of protection prescribed in safety regulations. In case of eye contact, flush eyes with plenty of water and consult a doctor. If swallowed, do not induce vomiting and seek medical help. Clean equipment with water after use.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

Kimistone BIOCIDA

ST3-306

Kimistone DEFENDER

Description

Protective, water-based, anti-graffiti coating. The product consists of a selected mixture of organic silicon compounds and microcrystalline waxes in a water solution.

Benefits

- It is effective on many different types of stone
- Effective water-repellency
- Extremely UV stable
- Will not alter the original colour of the support after application
- Non film-forming
- Very little reduction of water vapour permeability
- Solvent-free, eco-friendly product
- Neutral product
- Can be removed with water

The product protects stone materials and structures from the spray paint used in graffiti, preventing it from penetrating deep into the material. Graffiti can be easily removed with a warm water/steam jet washer (max. +80-90 °C). The product will not alter the original colour of the support, it withstands UV rays, is breathable, neutral and totally reversible.

Uses

Suitable for use on delicate stone materials such as: natural stone, marble, travertine, granite, soft limestone, compact limestone, and sandstone. Suitable to protect brick, concrete, porcelain stoneware, clinker, plaster.

Application

The product is ready-to-use and should be applied to clean, dry surfaces using a low-pressure spray gun or natural fibre brush. The support must be compact, and free of any dust, grease or efflorescences. Treat the support prior to application in order to eliminate and/or restore any separating or flaking parts. Efflorescences should be removed with the appropriate Kimistone cleaner prior to application. When the product is used to treat the surfaces of walls of new construction or walls that have been restored using the break-fill technique, wait for the rendering mortar to dry fully before applying the product. The number of coats required will depend on the absorption of the substrate: at least two coats are recommended, to be applied wet on wet while the previous coat is still fresh. Do not allow excess product to build up on the surface, and do not apply at high temperatures, in direct sunlight, during frost or strong wind. Bear in mind that the water-repellency provided by the product will be less effective in areas where there are cracks or macroporosity greater than one millimetre in size. If possible, fill cracks deeper/wider than 1 mm in size before beginning. Always carry out a patch test before beginning.

Dilution ratios

The product does not require dilution.

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Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	1-20 mPa·s
Density	0.99 g/cm^3
pH	7
Pot-life	72 hours
Recommended application temperature range	+5°C/+30°C

Packaging

Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Coverage

0.1-0.3 l/m^2 depending on the porosity and roughness of the surface.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 12 months.

Warning

Product for professional use.
Always carry out a patch test before beginning. Protect all supports that are not to be treated. Keep the area clear of vehicles and unauthorised personnel. Do not apply when it is about to rain or when it is misty, or to surfaces that are damp with condensation or dew. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C.
Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

Kimistone DEFENDER

ST3-306

Kimistone GRAFIXMOOVE

Description
Graffiti-removing cleaner.

Benefits
- Removes spray paint, ink and marker pen effectively
- 90% biodegradable
- Neutral formulation

The product solubilises stains made by spray paint, ink and marker pens without altering the surface of the stone or underlying stone structure. The product also removes glue left behind by adhesive tape and cleans graffiti from glass and steel panels.

Uses
Ideal for removing graffiti from delicate stone materials, brick, fine marble, natural stone, lead-polished stone, imitation stone, concrete, metal and glass.

Application
The product is ready-to-use, and should only be applied to completely dry surfaces as water will impede its action. Apply the product with a brush or roller working from the bottom up, covering dirty and surrounding areas forcefully and thoroughly. The product must also be applied to the area surrounding the soiled part, if possible covering the same surface area again: this ensures that when the paint starts to dissolve and run, it will not damage any surrounding clean areas. Leave to take effect for 20 to 30 minutes then scrub vigorously and rinse with a pressure washer as appropriate. Reaction time will be longer when more than one layer of graffiti needs to be removed, if it has penetrated deep within the structure or if it has been there for longer. In these cases, as the dissolved paint starts to run, remove it with absorbent paper then add more product to the remaining paint. On completion when all paint has been dissolved, rinse with a pressure washer.

Dilution ratios
The product does not require dilution.

Technical specifications	Average value
Physical state	Liquid
Solvent	Water
Viscosity	40-50 mPa·s
Density	1.00 g/cm^3
pH	7
Recommended application temperature range	+5°C/+30°C

Packaging
Plastic, 5-litre cans, 480 l pallets (96x5).
Plastic, 25-litre cans, 600 l pallets (24x25).

Kimia S.p.A. - Via del Rame, 73 - 06134 P.te Felcino PG - Tel (+39) 075.591.80.71 - Fax (+39) 075.591.33.78 www.kimia.it info@kimia.it

ST3-306

Coverage

0.1-0.3 l/m^2 depending on the porosity and roughness of the surface.

Storage

Protect from frost. Store the product in a dry, sheltered place at tempertures of +5 °C and above. In these conditions and in unopened containers, the product remains stable for 36 months.

Warning

Product for professional use. Always carry out a patch test before beginning.
Protect from humidity during use. Do not apply when it is about to rain or when it is misty, or to surfaces that are damp with condensation or dew. Do not apply to surfaces exposed to sunlight or at temperatures above 30 °C or below +5 °C. Do not apply the product to any material other than those indicated, especially polyester, polyurethane, PVC and ABS. In any case, do not apply to painted metal that has not been thermally treated in an oven. Clean equipment with water after use. In case of eye contact, flush eyes with plenty of water and consult a doctor.
The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product. It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version, and that the product is suitable for the intended use.

Kimistone GRAFIXMOOVE