

AlgoClear Pro: The high purity biocide for the rapid eradication of surface biofilms

We offer a range of products formulated for the maintenance of buildings external envelope and surrounding amenities. At the core of the range, **AlgoClear Pro** carries out the essential work of eradicating live contaminants.

Other specific marks are identified and treated using the appropriate formulation.

1 AlgoClear Pro

1.1 Description:

AlgoClear Pro is a high purity quaternary ammonium. It is a biocide working by contact with microbial life. It will act on small organisms by puncturing their cell walls. Its concentration is 40%.

High Purity means the product does not contain solvents and will not affect silicone additives / sealants / coatings found in modern construction products. **AlgoClear Pro** is recommended by **K Rend**.

AlgoClear Pro is surfactant: It is a powerful soap. The product foams on impact at low concentration. It will, when brushed and rinsed, remove grime from a surface as well as sanitising it.

Biocides and oxidising agents: A biocide interacts with the living: Only with the living*. Compounds like bleach and hydrogen peroxide also used as disinfectants interact with the material they come into contact with. We categorise them as oxidising agents.

In the environment: DDAC – the acronym for Didecyl Dimethyl Ammonium Chloride – breaks down in contact with biomass. It is the mechanism of its environmental acceptability. A spill cannot migrate into the soil and will be de-activated by the septic environment of a drain.

On jetties and in tidal areas: **AlgoClear Pro** will kill the remnants of encroaching algae after removing the main biomass. As the tide returns, the biocide breaks down in contact with the salt and does not pollute the shore.

Pets and children: **AlgoClear Pro** is accredited for children's play areas under category PT2 of the EU nomenclature of biocidal usage. A no access area should be indicated during wet work. If domestic animals are on the premises, rinse the ground before leaving site.

**The living is killed only once on a surface. A second application is ineffective: If the results are not showing, the problem is elsewhere.*



Before AlgoClear Pro



After AlgoClear Pro

Wikipedia: In chemistry, an oxidising agent (oxidant, oxidiser) is a substance that has the ability to oxidise other substances (cause them to lose electrons). Common oxidising agents are oxygen, hydrogen peroxide and the halogens (chlorine).

Simply: A pure biocide does not affect materials, an oxidising agent does.



1.2 Concentrations and application rates:

Both are adjustable: The potency of a treatment depends on the dry mass of DDAC dispensed per m². This can be applied with a thin application of a strong mix, or a liberal application of a weak one. Non porous substrates will benefit from a thin application, whilst porous ones have the ability to store some product.

A biocide can be allowed to dry in situ without risk for the host material. This property is put to good use on renders and masonry. It is the only mechanism for a latency in the treatment beyond one or a few rainfalls. The rate of leaching out will vary considerably, but the return of the biofilm can be delayed by 2 to 4 years.

If the porous surface is treated to be painted, a thin application is sufficient.

AlgoClear Pro dilution: 1/18 or 2.2 % w/w , 1/20 or 2% w/w is the standard dilution for render.

Application rates: About 1/2 litre per m² on silicone render. A nozzle size of 5 litres/mn at 3 bars gives good application comfort. This is sometimes increased one size up to 7.8 litres/minute.

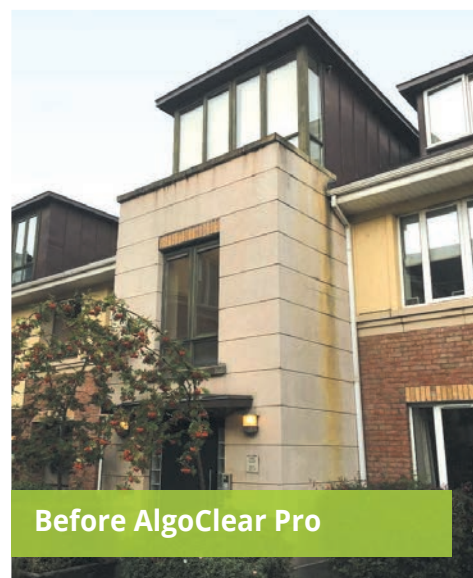
At this rate, 1 litre of **AlgoClear Pro** treats 40m².

On acrylic render and painted masonry walls: The application is from drip edge up and the rate is closer to 1/4 litre per m² or 4m² per litre of mix.

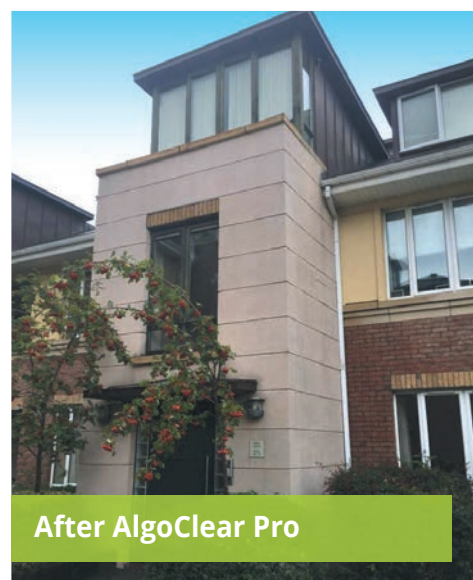
At this rate, 1 litre of **AlgoClear Pro** treats 80m²

Flow and nozzles: At the conventional low pressure of 3 bars we adjust the nozzle size to control the flow.

The low flow nozzles are primarily for applying a gel. They have a 60° fan angle and sizes equivalent to the grey and white colours on the Pentair catalogue.



Before AlgoClear Pro



After AlgoClear Pro

AlgoClear Pro	Fan angle	Litres/minute at 3 bars	PNR reference
High flow: Concrete tiles and dry render	40	7.8	1780
Medium flow: Render and less porous substrates: Soft brick, block work	40	4.9	1490
Low flow: Render when a slower impregnation is wanted. Painted surfaces, stone and non absorbent roofing materials at steep pitches	40	3.8	1385
MetaClear	60	2.3	1233 - Grey
	60	3.1	1310 - White

1.3 Application techniques:

AlgoClear is usually sprayed: The external conditions require coarse and fast droplets. If too fine, the spray drifts into the wind. As we recommend to leave as much biocide as possible onto the surface, rinsing would be counterproductive.

If there is water on site, the mains pressure is often sufficient to run the dosing unit and provide a satisfactory spray fan. If the water supply is too weak, a pump is connected upstream to the injection box. If the contractor operates a van fitted out for high pressure, there is no need for extra equipment: The HP machine can be regulated down by means of a 6 bars by pass easy to fit and remove.

Application by brush: There can be some advantages in brushing: Textured surfaces like sprayed render, sometimes pebble dash, tend to retain grime and host pinhead black dots. Brushing will create a dark foam: It needs rinsing with a quid dosing of **AlgoClear Pro** mix.

The condition is sometimes found under soffits/balconies, where there is no rain washing, behind leaky pipes, flues etc. A soft brush is easier to use, but a stiff brush is sometimes necessary to soften a thick biofilm.

Application by roller: In dense urban environments and windy conditions a self feeding paint roller attached to a telescopic pole gives good results. On less absorbent surfaces, a roller helps control of the application rate and limit wastage at drip edge.

Jetting: High pressure is controversial in many situations. However on hard portland cement renders, painted or not, the application of biocide will soften the biofilm sufficiently to enable removal of the discolourations by carefully jetting it down a few hours later.

Warm water speeds up the cleansing at the beginning. The effects of warm water disappear within a few weeks at most and does not justify the effort. It enables work in less clement weather.

Purified water is not justified. Once mixed, it is not pure anymore. Water with a high TDS from filtration can be advantageously used for the purpose of decontaminating render and generally hard surfaces. The higher level of water impurities does not hinder the treatment. TVSP and Varitech are in collaboration for such a system.

Application times: Spraying is fast with high flow. At 6 litres per minute we treat 12m² of render per minute of continuous spraying. It does not account for setting up, but with an injection box non productive time is reduced. Spaying a house can be done in two hours.

Brushing takes longer: On pebble dash, from ground level, we average 1m² per minute. A bungalow gable wall will take half an hour. From the ground on large walls, a operator can brush 800m² in a day. Brushing from a platform takes about half a m² per minute.

There is no substitute to estimating the overall time on site, including all the factors affecting productivity: M² rates are interesting as a computation of past work, and we encourage keeping a site log.

Protection: Plants at risk of spray drift need protecting: A light geotextile fleece is thin enough to avoid plant damage, and will protect against accidental spray. If a spray drift is noticed, rinsing the plant will solve the problem.



Injection box



A pump connects upstream to the injection box



Valve regulator



1.4 Dispersion of the biofilm:

Green algae: Dies within minutes: “before it has dried” according to Dr Simpson. Death by cell wall puncture. If the algae film is thick, the dead cells display milky sheen for a few hours.

Trentepohlia: This is a green algae giving away a red dye. The dye washes away readily under the rain.

We sometimes find some grey under the darker red cones: It comes from a fungi taking advantage of the light filter provided by the beta carotene. Sometimes, after a prolonged period there is an accumulation of decayed organic material behind the red, revealed only after the stain has washed. **It does not react to additional biocidal treatment.** The marks stay a year with little changes, then vanish in 3 months.

The grey marks are dissolved with **MetaClear**.

Filamentous fungi: Characteristic black inverted cones under stone joints, or thinly spread over flat surfaces. The black is metabolised by the hypae in the porosity of the render to protect it from the UV light. The paste is water soluble to be excreted. The substance is decayed by UV light.

First the hypae is killed with a dose of biocide. The black washes away when brushed: The foam takes the colour and needs rinsing with a sprinkle of mix. A smear mark can stay.

If the black marks are relatively thinly spread over a large surface, it is worth a brush test. If successful, there will be no need for **MetaClear**.

Spores: Quaternary ammoniums do not kill them. They will however fail if some product is left around them at the time of development. See the Moss & Lichen page at softwashireland.ie.

The influence of UV on metabolites is common to all natural polymers. The phenomenon is called photo oxidation or photolysis. It is the phenomenon turning a freshly sawn timber into a silver grey appearance. The grey is bare cellulose after the binder has broken down and washed away.

Detailing of the facade: Detailing is often at the root of maintenance issues on render. When it can be fixed it is ethical to indicate it to the occupier. Parapet copings in zinc are usually simple to retrofit.

Trentepohlia: a green algae giving away a red dye.



1.5 Treatment periodicity:

There is no fixed rule.

There is some latency in the effects, arising from saturation of the render and storage of biocide in the porosity. A period of 2 to 4 years extra clean time has been observed, but the exposure to rain will affect the rate at which the biocide leaches out. After the initial protection has weakened, the bio colonisation should return at the same rate as it did the first time around. Sealing does not protect against the return of the biofilm nearly as much as could be imagined when a surface remains drier.

1.6 Equipment:

Bespoke equipment is designed to improve productivity. The work can be carried out with ordinary garden equipment and this is often the option taken by newcomers taking a prudent view on the commercial reality. Standard window cleaning equipment is undersized for applications requiring high flow: Roofing, amenity spraying, but not when brushing or applying the treatment to a non porous surface. On porous render a medium flow rate enables a good impregnation.

Broadly, an in-line dosing unit and a good telescopic pole are the main items. A booster centrifugal pump is often a good option, even with an adequate water supply : A healthy flow is always appreciated by the man with the pole.

Pole body: High flow can be fitted to all poles. The body needs to be extra rigid, particularly for brushing. The tool heads have a 22mm finger and tubing connector, fitting neatly into the second element of a Gardiner 27 body – in the circumstance reduced to 21 feet, or 6.5 metres.

The pole can be fitted with a 1/4 turn valve, or a poppet trigger. A poppet trigger is easier in use when brushing, where small amounts are injected frequently. For continuous spraying – as for roof cleaning – the valve is preferred.

All tools are fitted onto a bespoke flow through angle adaptor: This arrangement allows a short gooseneck and no external tubing.

At the pole end a set of tools allows work in all situations.

- **Nozzles:** A good set comprises 3 sizes with a 40° fan, a high flow narrow fan and a high flow pencil jet.
- **Brushes:** A large soft brush, a narrow one optionally, and also a stiff one.
- **Paint roller:** A roller of the self feeding kind is affixed to the flowthrough angle adaptor. Good models are available as accessories to airless paint systems.

Hose connectors: To be of certified pressure rating.

Bespoke equipment is designed to improve productivity



An in-line dosing unit and good telescopic pole are the main items





2 MetaClear

2.1 MetaClear is a gel designed to remove black metabolites:

The black discolourations found on render are not alive. They are often mistaken for the fungi itself or called "black algae".

The substance is a natural melamine excreted out of the render by a filamentous fungi living within the porosity. The fungi does all this work for UV protection depleting the render from the carbon and other constituents of the paste.

MetaClear contains sodium hypochlorite. It is an oxidising agent: Not a biocide, even if the active ingredient is used as disinfectant in other walks of life.

2.2 Gels have the advantage to:

- 1 Stay at the surface instead of soaking in, and do not dribble on vertical surfaces. **MetaClear** and **OxiClear** are formulated with a negative charge, enhancing adhesion and controlling back splash.
- 2 The concentration of active ingredient at the surface is stable during the whole process. Water soluble chemicals can be applied at relatively low concentration, but as the water evaporates, the concentration increases until the active ingredient is pure at the surface. **AlgoClear Pro** is mild enough not to interact with the substrate, but acids and oxidising agents do.
- 3 The man on the tools has a large degree of flexibility and control: The dwell time and agitation of the gel can be tuned to the task at hand. With gels the first layer works its way through the first layer of film and weakens. They need agitating to rejuvenate the active ingredient at the interface. Dwell time is adjusted to the amount of work the gel needs to do: However it can be left longer to suit the best sequence of work, particularly if working from an aerial platform. Agitating maintains the detergency of **MetaClear**. There is from time to time a possible trade off between a longer/shorter dwell time and less/more agitating.
- 4 Dry or wet render: The gels will work on both. Apply on dry render if possible to maintain the poultice effect limiting intimate contact. Wetting the render may draw some sodium hypochlorite out of the gel and into the surface. This would enhance the result when this is clearly required, but allow a small amount of transfer of active ingredient into the porosity.
- 5 Both our gels are low odour.





Technical Guide to Render Cleaning



2.3 Application rate and times:

Broadly the application rate of **MetaClear** is comparable to that of an emulsion paint: 4m² per litre.

The overall time will by and large depend on the number of times the operative rejuvenates the active surface and – from time to time – the number of applications. A starting point would be to double the times quoted for brushing **AlgoClear**.

With good access a **MetaClear** application by brush would take 2 minutes/m² or 250m² per man per day. This is not precise – given the wide variety of conditions – and no substitute for an overall estimate of time on site. It is recommended to keep a detailed log of all render cleaning jobs for future reference.

2.4 Application techniques:

Spraying and rolling are fast techniques for the application itself. It suits a site with 2 operatives: One applies the gel, whilst a little later, another agitates.

Applying by brush requires controlling the amount of gel into the brush, or face dribbles. It also agitates the gel right at the beginning and is often sufficient to remove the metabolites at once.

2.5 Equipment:

Spray: Depending on equipment available. **MetaClear** will spray from a telescopic pole. The gel is contained in a hand or electric sprayer near the operator. A cordless unit is the easy way of storing and pumping **MetaClear** up a pole.

Nozzle Sizes for MetaClear

Fan Angle	Litres/Minute at 3 Bars	PNR Reference	Pentair Colour
60	2.3	1233	Grey
60	3.1	1310	White

Cordless electric units or back pack sprayers: Bearing in mind the nature of the active ingredient, a unit carried with a handle should be easier to maintain. They must be good quality and fitted with a pressure switch.

The standard dispensing lance provided with the unit should be satisfactory in most circumstances for spraying. The unit is also used when brushing or rolling and is then connected to a short garden hose to the pole.



Metakit



Render brush



MetaClear being applied



Technical Guide to Render Cleaning

The Metapole: For proximity application the Metapole is a carbon fibre short telescopic pole. The body is a custom Gardiner taking all the tool heads in use for the standard long pole. The pole is 850 mm long with a brush, extendable to 1.6 metre.

The Metapole and electric units are suited to working from an aerial platform.

A hand sprayer will be sufficient to spray **MetaClear**. A high end hand sprayer will have a pressure of 4 bars: More than enough to move **MetaClear** up a pole. The Ecojet Spray Gun gives an excellent easy to control spray.

Brush: Using a water fed pole and a good quality soft brush: Avoid long bristles. They become heavy and flick some product in the air. On smaller / accessible areas, a wide paint brush or wall paper brush.

Roller: A self feeding roller head is available for the telescopic pole. This technique is quite productive.

Airless: For the lucky owner of a good airless unit. Airless systems can spray or roll **MetaClear**.



3 Acidic Gel OxiClear

The concentration is about 40%. Phosphoric acid has a comparatively low bite and is safe to use with gloves. It dissolves all metallic oxides. If the film of metal oxide is thick, several applications are required. The acid is not strong enough to bite into building materials if removed rapidly. **OxiClear** will remove rust marks on render, clean leadwork and carbonation marks leaching down on slates, glazing etc.

When cleaning whitened leadwork, it is important to wear a good dust mask: The powder is toxic. The used gel should be collected and disposed as toxic waste.

4 From Render to Roof

Roof cleaning is in essence roofing work. Working at height is a skill. Minor repairs are often needed. Only **AlgoClear Pro** is used on roofs. The metabolites receive enough rain to wash away in a few weeks. The full cleansing takes longer, but progress is conspicuous.

The application rates on concrete tiles are doubled: Approximately 1litre of mix per m² of tile. On less absorbent roof materials, the coverage increases rapidly. The times will vary with the amount of moss to collect first: A mossy roof can easily take 2 men days to clear and 20 minutes to treat. **AlgoClear Pro** is used in other walks of property maintenance: Most notably on timber and artificial grass.

Metapole



A hand sprayer will be sufficient to spray MetaClear



Airless systems can spray or roll MetaClear



OxiClear before and after



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