



Technical Bulletin

Ultimate Products (Aust) Pty Ltd
13 Olive Grove, Keysborough,
Victoria, 3173, Australia
P: 03 9798 3544
F: 03 9798 3655
E: admin@ultimateagri.com.au
W: www.ultimateagri.com.au



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Background:

The emergence of blue-green algae, particularly during the warmer months, is a major problem in many countries.

Algae can be harmful to humans and possibly fatal to livestock and aquatic life, as well as causing unsightly blooms in recreational lakes and ponds.

Methods Of Treating Algae:

There are several chemical products (algaecides) available to kill algae, but these chemicals can have their own toxic effects. In addition, algae releases phosphorous when it dies, thereby encouraging the growth of more algae.

Aluminium sulphate (alum) can also be used to treat algae. This product does not kill the algae: it reduces the availability of phosphorous, which is a necessary food source for algae. The algae will settle to the bottom of the water body after an alum treatment, but the process is very slow (perhaps weeks).



Triple Strike – The New Alternative

Triple Strike is a simple but revolutionary way to target algal blooms. It's is a concentrated liquid suspension of superfine gypsum, enhanced with alum and an inert mineral. It has a 3-way action for highly effective results:

Strike 1:

When Triple Strike is applied to the water, the alum reacts to form cloudy 'flocs' of aluminium hydroxide. The aluminium hydroxide is negatively charged, so it attracts the algae, which is positively charged.

Ordinarily, this would result in floating particles of algae attached to the aluminium hydroxide. However, the key element to Triple Strike's effectiveness is that the finely milled gypsum and the inert mineral are also attracted to the aluminium hydroxide... .

Strike 2:

With the added weight, the aluminium hydroxide and algae fall to the bottom. This process starts occurring immediately.

The algae remains on the bottom and is 'quarantined'.



Triple Strike – The New Alternative

Strike 3:

The excess gypsum forms a blanket over the algae. As well as keeping the algae on the bottom, the gypsum also reacts with any phosphorous which may flow into the water body.

The reaction takes the phosphorous out of the water, helping to discourage future algae growth. This phosphorus inactivation can last for many years, as opposed to the very short term effectiveness of an algaecide.

It is a very neat system which is very effective.

Triple Strike is not an algaecide, as it does not kill the algae at the time of application. It's classified as an algistat, which inhibits the growth of algae.



Visual Demonstration

The photos show the rapid impact of Triple Strike on blue-green algae in a laboratory jar.



Pre-Treatment



Post-Treatment (5 minutes)

Application

Application Methods:

For maximum effectiveness, Triple Strike should be dispersed as widely as possible through the water column. This enables it to attach to all of the algae. We recommend that Triple Strike is diluted at least 1 :1 with water and applied as a spray over the water surface. It can also be applied directly to the water from a boat powered by an outboard motor to dispense the product.

Application Rates:

Depending on the severity of the algal bloom, Triple Strike should be applied at the rate of 10 - 20 litres per 100 square metres of water surface area. A second application will not be necessary in most cases.

Impact of pH of the Water:

The alum in Triple Strike is acidic, and the pH of the water will normally be reduced by 0.5-1.0 pH units after an application. This is not a problem in most cases, as the algae tends to raise the pH of the water during its life cycle. Triple Strike therefore brings the pH back towards its pre-algae level.



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Application

Impact on pH of the Water (cont'd):

However, an overdose of Triple Strike could result in a greater drop in pH, which could cause problems for some aquatic life, and we recommend starting at the lower end of the dosage rates.

Environmental Aspects:

Triple Strike does not contain any components which have a negative environmental impact. The only 'chemical' component is alum, which is widely used in water treatment.

Salty Water:

Triple Strike will have an impact on algae in salty or brackish water, but the effect is not as dramatic as in fresh water. Two or more applications may be required for effective treatment, depending on the salt level.



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Is The Aluminium Safe in Triple Strike

The aluminium sulphate in Triple Strike is rapidly converted to aluminium hydroxide, which binds up the aluminium into a floc. It's then carried to the bottom of the water body, where it remains. There is no 'free' aluminium arising from the Triple Strike application, and therefore there are no concerns about aluminium getting into the water supply.

Alum is widely used in water treatment applications. Some examples:

"Aluminium sulphate (alum) is a general purpose coagulant that is used in water treatment to remove turbidity, natural organic matter, microorganisms and many inorganic chemicals."(Australian Drinking Water Guidelines, National Health And Medical Research Council 2006)

"Flocculation refers to water treatment processes that combine or coagulate small particles into larger particles, which settle out of the water as sediment. Alum and iron salts are generally used to promote coagulation." (Safe Drinking Water Act, US Environment Protection Authority 2004)



Is The Aluminium Safe in Triple Strike

Examples Cont'd:

"Alum treatments will provide safe and effective control of the amount of algae in our lakes. Alum is used extensively in lake restoration and water/waste water treatment processes. Water treatment plants throughout the United States use hundreds of thousands of tons of alum annually." (Minneapolis Park And Recreation Board)

"...aluminium sulphate (alum) is added as a coagulant to ensure our treated drinking water is clean and clear."(Treating Water, Ipswich City Council 2007)

"Farm dams can be protected from blue-green algae by dosing with alum and gypsum."
(Prime Facts, NSW Department of Primary Industries Q0A7)

"To settle muddy water in most cases, add alum at the rate of 50 to 75 grams per 1000 litres." (Livestock Water Supplies Fact Sheet, Government of South Australia Primary Industries And Resources 2007).



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