



Ultrasonic treatment FAQ

Which are the effects of DUMO Algacleaner on algae?

- Ultrasound produces pressure variations that affect algae in several ways:
 - Rupture of gas vacuole.
 - Effects on cell membrane and/or wall.
 - Free-radical reactions.
 - Effects on photosynthesis.

- These effects cause important damages to algae.
- Finally, algae die and fall down to bottom.



Untreated pond water

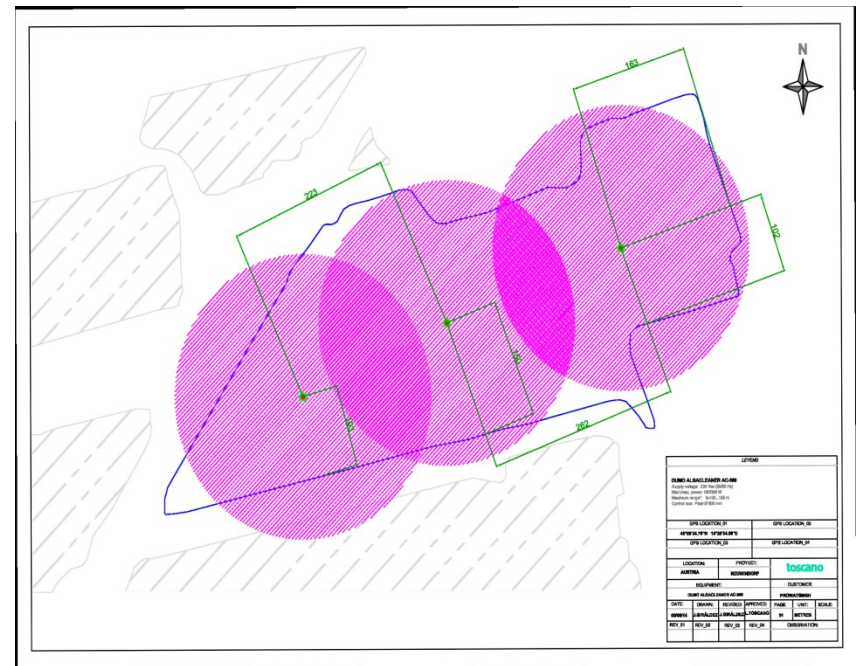


Treated pond water

Does DUMO Algacleaner cause the same effects in all the aquatic ecosystems?

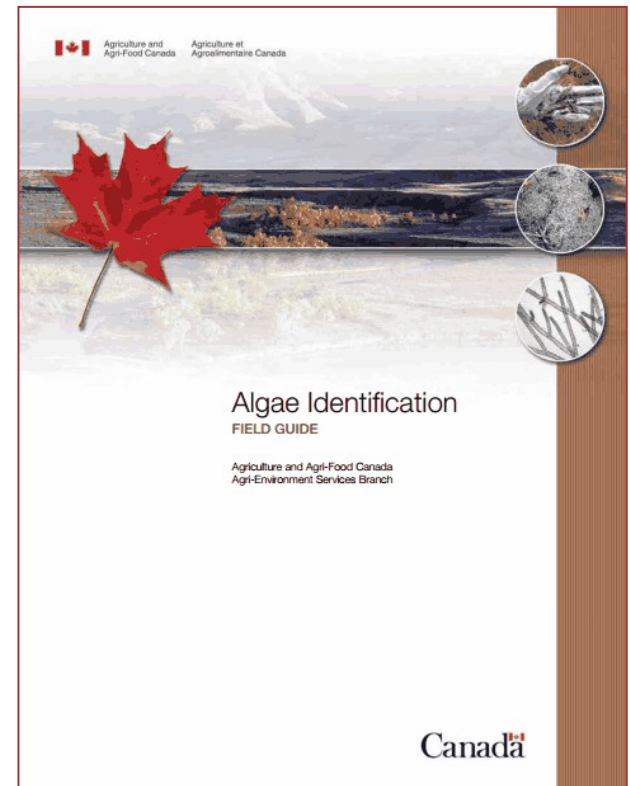
The effects depend on several factors:

- 1) Shape, dimensions and use.



2) Qualitative and quantitative composition of phytoplankton community:

- Cyanobacteria (green-blue algae)
- Diatoms
- Chlorophyta (green algae)
- Chrysophyta (golden-brown algae)
- Dinoflagellates
- Euglenophyta



3) Algae growth stage

- Lag phase
- Exponential growth rate
- Decreasing growth rate
- Stationary phase
- Death

The key factor is to carry out the ultrasonic treatment early in the bloom life cycle, preferably during exponential growth phase (Purcell, 2009)².

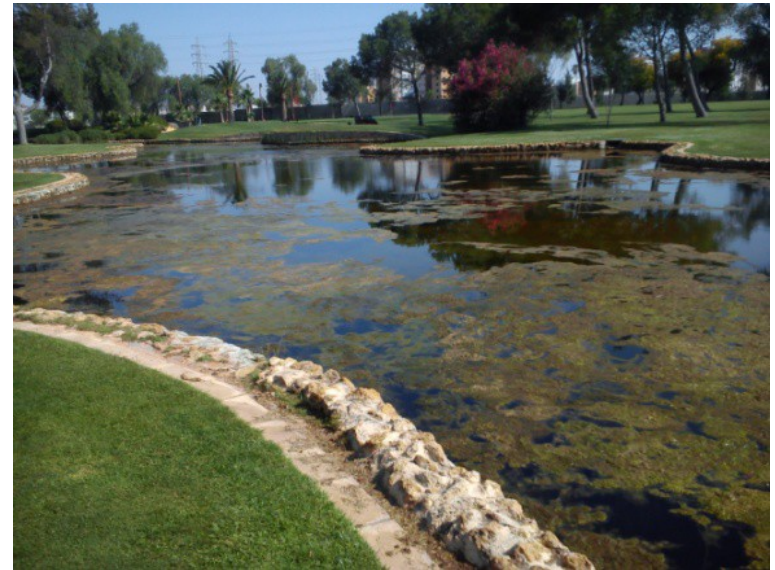
2) Purcell, D. 2009. Control of algal growth in reservoirs with ultrasound. PhD thesis. Department of sustainable systems. Cranfield University. UK. 227 pp.

How much time is necessary to notice the effects?

- Reaction time depends heavily on many factors of the aquatic ecosystem dynamics.
- Usually, 2-3 weeks are enough.

After treatment, there are lots of algae on the surface...

- Sometimes algae is dead, but gas vacuoles are not completely damaged so algae float.
- The best solution is to remove algae from the surface.
- This reduces eutrophication levels.



Algae floating on the surface of a pond

Is DUMO Algacleaner enough to solve the problem with algae?

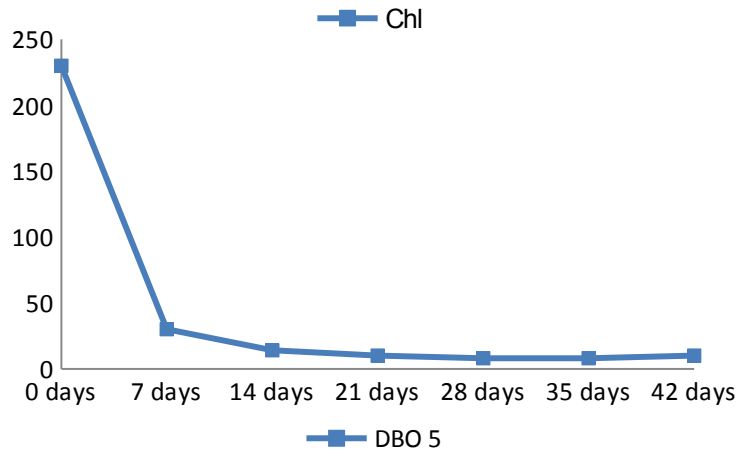
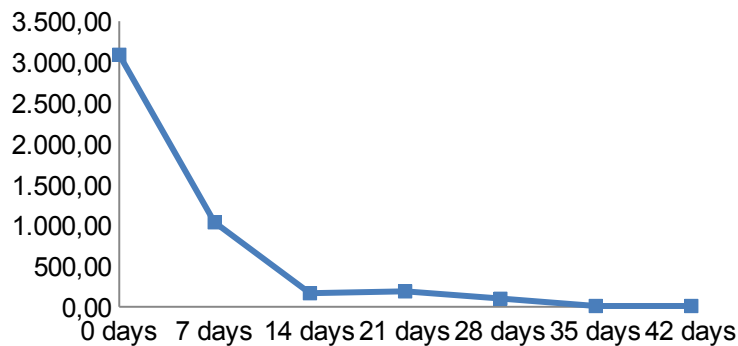
- DUMO Algacleaner is normally enough.
- However, sometimes it's necessary additional actions to increase its efficiency.

When is it appropriate to install DUMO Algacleaner?

- As soon as possible, as it's:
 - ecological.
 - avoids the use of anti-algae chemicals.
 - a middle/long-term treatment.

Case study

Irrigation pond with cyanophyte *Microcystis aeruginosa* bloom in Seville (Southern Spain).



- DUMo Algacleaner can reduce algal biomass in 42 days.
- Effects become evident in just 2 weeks.
- DUMO Algacleaner contribute to water quality improvement (decrease of DBO_5 parameter)

Test carried out by the Experimental Centre of New Technologies of Water (CENTA) in 2014 (www.centa.es)

DUMO Algacleaner benefits



Ecological



Non harmful



Clean



Minimal maintenance



Easy to install



24/7 Service



**Low power
consumption**