



LIQUID OXYGEN

INSTRUCTIONS FOR USE

Liquid Oxygen contains 17.5% hydrogen peroxide H_2O_2 .

Hydrogen Peroxide is a molecule which is fundamental to life itself, participating in all the metabolic processes in plants and animals. When added to the nutrient tank it will quickly break down into pure water, releasing the extra oxygen atom into the solution where it can be taken up by the roots in much the same way as nutrient ions.



Liquid Oxygen – the well known cleansing and oxygenating agent for hydroponic systems



Attention

Liquid Oxygen is highly concentrated.

The active ingredient is a volatile and aggressive chemical.

Treat Liquid Oxygen with great caution and handle with due care.

KEEP OUT OF REACH OF CHILDREN

Liquid Oxygen Test Strips

Used to monitor levels of Liquid Oxygen in nutrient solutions. Strips are easy to use and show a wide range from 1–100 ppm H_2O_2 . These readings will allow the easy monitoring and maintenance of effective levels of H_2O_2 in the nutrient tank. Optimum level for hydroponic systems is 30–100 ppm H_2O_2 .

| |
|--------|
| 1 mg/l |
| 3 |
| 10 |
| 30 |
| 100 |

Liquid Oxygen is available in the following sizes:

250 ml 1 litre 5 litre

The Oxydator

The problem with Liquid Oxygen, if it has one, is that it is so volatile. It can be added to the tank daily but it only remains active for quite a short time – a few hours at most. This is because it is unstable, and this is why it works so well of course. However growers have always dreamed of being able to maintain a constant level in the tank for this would be the only way to ensure against pathogenic intrusions over the life of the crop.

Oxydator is a self-regulating Liquid Oxygen doser; with a constant slow release, meaning no more wastage of the product and optimum



levels maintained continuously in the tank. This compact unit just sits in the tank and, when filled with Liquid Oxygen, delivers a continual stream of pure oxygen into the tank.

- Continuous delivery of unstable oxygen ions which will destroy fungal spores and disease organisms. More units can be simply added for extra protection or for larger tanks.
 - Allows the full use of GreenFuse and other organic additives without any problems.
 - Increases in activity as tank temperature rises – thus delivering the maximum oxygen when it is most needed.

Designed by professionals ... fine-tuned by experience

Instructions for use

LIQUID OXYGEN

It is highly recommended to wear gloves and safety glasses when handling Liquid Oxygen. If it gets onto the skin it will sting for a few minutes and white patches will appear. These white patches are very short lived however and will have disappeared in a few minutes.

Hydroponic Systems – normal operation

Liquid Oxygen can be added to nutrient tanks on a regular – even daily – basis. The purpose of this would be to provide extra oxygen to the roots and to keep the solution free of pathogens and disease. If the system is healthy to begin with then Liquid Oxygen should help to keep it that way.

- Add to tank daily at the rate of **5 ml per 10 litres of tank volume**.
- If it is not possible to add it so regularly it can be added two to three times per week at the rate of 1 ml per litre.
- Stir thoroughly before circulating to plants.
- It will be best to mix the required amount of Liquid Oxygen with a litre of lukewarm water before adding to tank.

Hydroponic Systems – with disease problems

Liquid Oxygen can be helpful in clearing up root diseases, such as *Pythium*, and in eliminating the conditions in which such problems can flourish. Sometimes the same problems can be caused by simple over watering – not enough oxygen at the root interface. In either case the treatment is essentially the same. The following procedure will often solve the problem but no guarantees can be given.

Condition: root disease

Symptom: soft brown roots and wilting plants.

1. Try to act early before the problem becomes too entrenched. If the roots are soft and weak try and remove as much dead root material from the system as possible by hand. Clean up trays and gulleys as much as possible.
2. Empty the nutrient tank and clean thoroughly.
3. Circulate fresh water through the system to help remove debris. Discard the water.
4. Begin to fill the tank with fresh clean water and add Liquid Oxygen at 2 ml per litre of tank volume. It is a good idea to add the full amount of Liquid Oxygen right at the beginning of the filling process. This makes an extremely strong solution to help sterilise the pump and pipe work as the tank fills. Some growers have reported using Liquid Oxygen at twice this recommended concentration – and even higher – with good results. However this should only be attempted as a last resort – if plants will be lost otherwise. There is a ceiling – too much Liquid Oxygen will obviously damage the roots.
5. Circulate water for three days – adding Liquid Oxygen every day at the above rate.
6. Then empty tank and clean it again. Make up fresh nutrient and add Liquid Oxygen at the rate of 1 ml per litre – set system running again.
7. Add Liquid Oxygen daily for the life of the crop.

If the problem is corrected there will be new white roots appearing very quickly. If this does not happen the treatment should be repeated.

Cleanup

Liquid Oxygen can be used to clean and sterilise the hydroponic system and growing medium. It is a powerful and very aggressive liquid and it will effectively kill all pathogens and harmful bacteria. If using a medium such as Perlite or expanded clay, remove as many of the old roots as possible. Then soak the medium in a concentrated solution of Liquid Oxygen. This will oxidise organic matter in the medium and assist in its rapid decomposition. Remember to flush medium thoroughly with fresh water before re-use. To sterilise a hydroponic system make up Liquid Oxygen in the tank and circulate it around the system to sterilise all the pipe work, drippers etc. Once again remember to flush the system thoroughly with fresh water, or wait a few days, before installing new plants.

For cleanup solution: to each 10 litres of water add 100 ml Liquid Oxygen.



Liquid Oxygen Health & Safety Information

Growth Technology LIQUID OXYGEN contains hydrogen peroxide at 17.5%

Personal Protection

Safety glasses, rubber or plastic gloves. Suitable ventilation.

First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation (eye baths) is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. Allow the victim to rinse his mouth and then to drink 2–4 cupfuls of water, and seek medical advice.

Inhalation: Get medical aid immediately. Remove from exposure area to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth respiration.

Notes to Physician:

Treat symptomatically and supportively.