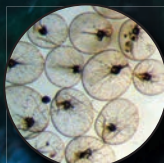
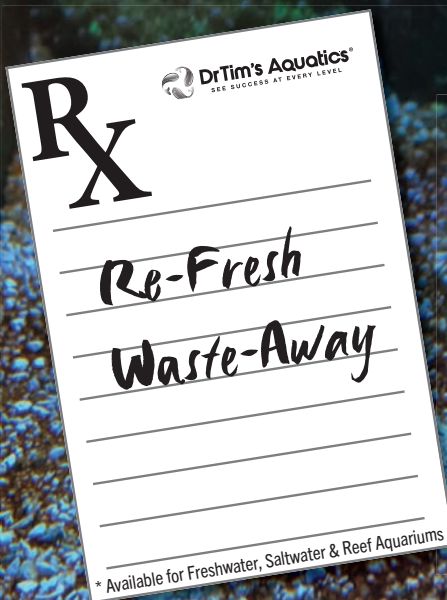


CONTROLLING DINOFLAGELLATES



With DrTim's Aquatics
Re-Fresh & Waste-Away



www.drTIMSAQUATICS.com



DrTim's Aquatics
SEE SUCCESS AT EVERY LEVEL



PRESCRIPTION FOR GETTING RID OF DINOFLAGELLATES

DrTim's Aquatics Re-Fresh and Waste-Away

Discussion and Directions

Dinoflagellates are a diverse group of single-celled eukaryotic organisms that can quickly take over a marine aquarium. Technically, they are not an algae or an invertebrate but protists. Protists are a catch-all group of organisms that don't fit into the normal groups of animal, bacteria, plant or fungus. The most important thing to know about dinoflagellates, when trying to eradicate them, is that most are photosynthetic.

This process, in a nutshell, involves covering the entire tank with black plastic and turning off all the lights (what is called a dark phase) for 3 days while dosing Re-Fresh each day. The lack of light and Re-Fresh will stress/kill the dinoflagellates. Then you start adding Waste-Away to breakdown the organic matter from the dead dinoflagellates turning it into more bacteria which are removed by your protein skimmer.

Some general questions are: Will the dark phase kill my corals? In 99% of the cases, no. If you are worried about a specific coral you should remove that particular coral to another tank. Will the dosing of Re-Fresh kill my shrimp and snails? This is a slight possibility, if concerned, best to remove those animals to another tank.

CAUTION: for best results you need a skimmer to remove the bacteria that will be produced and to help prevent bacterial blooms that may result in loss of livestock. A filter sock can help but may need to be cleaned daily.

So let's start - Wrap your tank with the plastic black. The goal is to prevent ANY lights from getting into the tank. Also disable the lights so they are off during the entire 3 days. Add Re-Fresh to your tank at a rate of 5 ml per 10 gallons (see back of bottle). Turn off your UV and skimmer (plus ozone if you have it) for a few hours BUT observe your tank with a flashlight. **NOTE -** if the water starts to turn cloudy turn these back on ASAP*.

*Precautions - If at anytime the water turns cloudy **TURN ON YOUR SKIMMER**. DO NOT add more Re-Fresh or Waste-Away until the water clears. Do not dose both on the same day. Proceed slowly with dosing Waste-Away if the tank becomes cloudy do not increase the amount of Waste-Away. A little bit each day or twice a day is better than a big dose at one time.

**For more information go to www.drtimeaquatics.com, watch our videos on our YouTube channel & scan the QR code above.



DrTim's Aquatics
SEE SUCCESS AT EVERY LEVEL

1 roll of black plastic wrap

1 bottle of DrTim's Re-Fresh sized to Your Tank

1 bottle of DrTim's Waste-Away sized to Your Tank

Note: For best results a Protein Skimmer or Filter Sock

Dr Tim

Day 2 and 3 : Treat with a full dose of Re-Fresh leaving the skimmer, UV off for a few hours each time.

Day 4: Unwrap the tank, start a normal light cycle. You may not see much of the dinoflagellates but still start dosing with Waste-Away*. **Start with a small dose.** The bacteria will break down the dead organic matter producing more bacteria and if you add too much bacteria they can reproduce out of control (called a bacterial bloom) which can remove all the oxygen from the water harming your fish and corals.

We STRONGLY suggest you start with 1/4 of the normal dose (or less). Read the back label of your bottle for dosing directions. Turn the skimmer, UV and ozone off for 2-4 hours. But if the water starts to turn cloudy turn these back on ASAP. Do not dose and leave the tank unobserved at first! Every tank reacts differently - watch your's closely.

Days 5 - 8: Continue adding Waste-Away slowly increasing the dosage amount. You can even consider adding a few small daily doses leaving the skimmer off for a little while allowing the bacteria to consume the organic matter then turning the skimmer on to remove the bacteria. You alternate between adding bacteria and removing the bacteria with the skimmer instead of one larger dose a day.

Day 9: Do a partial water change. Your tank should be looking better but in hard cases you may have to repeat the process. **To maintain a clean tank we suggest you start using our Waste-Away Time Release Gels.**



Scan to Learn More

Checklist for the Dosing of Re-Fresh & Waste-Away

| Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|--|---------------------------|---------------|---|-----------------------------------|-----------------------------------|-----------------------------------|
| Wrap tank in black plastic. Turn lights off. Dose Re-Fresh | Dose Re-Fresh | Dose Re-Fresh | Remove black plastic. Start normal light cycle. Manually remove any organic material. Add 1/4 dose Waste-Away | Add 1/4 dose (or more) Waste-Away | Add 1/4 dose (or more) Waste-Away | Add 1/4 dose (or more) Waste-Away |
| Day 8 | Day 9 | Day 10 | Day 11 | Day 12 | Day 13 | Day 14 |
| Add 1/4 dose (or more) Waste-Away | Do a partial water change | Do nothing | Do nothing | Repeat if needed | | |