Fractionator Follies

Fine-tuning the fractionator you may have built.

By Stephen M. Meyer

Q. After reading your article on foam fractionation I decided to build one for my pond. I followed the instructions carefully, but even after it was running for a while, no foam was being produced. In experimenting, I found that by increasing the air pressure in the intake tube — with an extension from my fish room air compressor — foaming increased dramatically.

The water pump in my pond is a submersible type that moves about 700 gallons (2650 liters) per hour. In looking at the photos in your article, I'd guess you use a much larger pump — maybe ¾ horsepower. My fish room air compressor is about 1/12 horsepower and runs 24 hours a day supplying air to about 1200 gallons (4550 liters) of aquariums and, now, my 1500-gallon (5675-liter) pond. Anyway, I thought that my solution might be of interest to pondkeepers who have a smaller-volume pond with a light-duty submersible pump and would like to employ foam fractionation. Mine is working very well, with lots of foam being produced.

A. I have received lots of letters from readers who have constructed pond foam fractionators with the use of the directions in my article. Almost all of them report excellent results. Most of those who do not, however, are running water pumps that are not strong enough to power the foam fractionator. I have been recommending that these folks go out and purchase a stronger pump. This writer's solution is truly ingenious, and economical as well.

You are absolutely right, I do use a ¾-horsepower pump to drive my pond system. This is necessary because I have to turn over about 2500 gallons (9450 liters) every hour and the water has to move through pipes about 100 feet (30 meters) long and up a 5-foot (1.5-meter) incline. Most hobbyist ponds are significantly smaller and it would be wasteful to operate high-capacity pumps.

If you do not hear gurgling sounds inside the fractionator column, the pump flow is too weak to produce the jet stream inside the venturi that causes air to be sucked down the air tube. This writer's approach forces pressurized air down the tube into the water stream.

The top of the air tube must be sealed. A good silicone caulk will do the trick, although I am sure that many readers will find their own solution.

Thanks for the tip on the supplemental air source for low-flow pumps. This suggests the possibility for indoor pool foam fractionators using low-power pumps. Stay tuned!

Some readers have reported water gushing out of the air tube or the foam exit tube. In this case, the problem is due to a pump that is too strong. There are four possible solutions: 1) install a valve at the pump outlet to regulate the flow, 2) install a valve and "T" coupling to divert part of the flow away from the foam fractionator and into your filter, 3) install additional foam fractionators in parallel, or 4) lengthen the foam exit and air inlet tubes. I strongly recommend either of the last two solutions.

I am extremely gratified that so many of you have built the foam fractionator. Please keep in mind that "tuning" the fractionator to your particular setup requires some experimentation. Many of you have been kind enough to share your modifications with me. I will continue to respond to queries on the foam fractionator and pass on suggestions in the months ahead. Thanks!