

Bakki Shower & Bacteria House Filter Media

reprinted from www.yumekoi.com

'Bacteria House' is the filter media that is taking Japan and other Asian countries by storm. Trickle towers of various forms have been in use for many years, but 'Bacteria House' is a media that has been designed and refined to give optimum results in 'Bakki Showers', with no need for any other form of filtration.

This wonderful filter media was originally conceived by MTK in Japan, for treating effluent water, some 8 years ago, and went on to win an International award in Germany, as "Best filtration media in the World." Mr. Mannami of MTK is a close friend of President Maeda of Momotaro Koi Farm. Mr. Maeda has long been fascinated by the way that water becomes 'alive' as it tumbles over rocks in the Asahi River outside his Koi Farm. As such, he was convinced that it would be possible to make much better water for koi, just by recreating the effects of the tumbling river.

So, with this fascination, he set about having the stainless steel shower trays made, in order that he could try out 10 test ponds with every kind of media that was available, in both showered form, and submerged form. First tests with the original form of 'Bacteria House' were very good, but Mr. Maeda wanted more from the media! Research was carried out into the effect of 'Far-infrared radiation' because of a famous Japanese spring, which was said to have healing effects. The key to this spring's wonderful water was the Bakuhenseki stone, through which the water permeated. The Bakuhenseki stone emitted these 'Far-infrared rays' which had an effect of refreshing, or activating the water. In short, Mr. Maeda wanted to achieve the same effect as this spring, but on a higher level.

Further research and development between Mr. Mannami, and Mr. Maeda, led on to a second, and then third generation of Bacteria House. This third (and final) generation encompassed Mr. Maeda's aims. It created a higher intensity of 'Far-infrared', and was significantly more robust than the first and second generations. Momotaro Koi Farm carried out extensive 'real world' testing of Bacteria House, in both submerged and showered filtration, while MTK carried out all of the scientific



Demonstration Bakki Shower at Koi by Keirin.

research, using their three showered test ponds. Testing at Momotaro Koi farm was carried out in order to find out which media created the best water for the growth and development of koi. On the 10 test ponds, they tried every single type of media that was available, and compared the results that were achieved with the koi in each system. It was found that 'Bacteria House' performed better than any other media in submerged use, but in the Bakki Showers, it was the only media

that worked, and that it far outperformed any other configuration.

MTK researched which strains of bacteria colonized on each material, and also paid particular attention to bacterial counts, and colonization times. Periodically, a sample of each media was sent to the lab to analyze its cross-section. It was essential that Bacteria House encouraged the right strains of bacteria, and in desirable ratios. It was also essential to make sure that it colonized very quickly, and recovered quickly from chemical treatments and power failures. In addition to every available type of filter material, they also tried many different blends and forms of Bacteria House. This testing spanned not weeks or months, but several years!

One testament to Bacteria House is the famous 101cm Sanke that won the 2002 Combined All Japan Show. This Sakai (Matsunosuke) bred koi had virtually stopped growing at 80cm. In the three years prior to the show, the Koi grew more each year, than it ever had at any time during its life. Here are the growth statistics:

2yrs - 46 cm

3yrs - 50 cm

8yrs - 82 cm (Momotaro buys her as a potential parent)

9yrs - 90 cm

10yrs - 95 cm

11yrs - 101cm

'Bacteria House' is a carefully blended man made ceramic material—not extruded—which is then kiln fired at 1300c for some 60 hours! This product does NOT contain calcium, and hence, will not become eroded by water.

Bacteria House doesn't only work in Bakki Showers, it also works superbly in submerged filtration. This media bay on the right has been running since August 2002 on our own 4400 gallon pond, long before we started selling it. When running Bacteria House in a submerged filter, it is important to place heavy aeration beneath it. The benefits are several: 1) with the airstones at the very bottom of the bay, no waste is allowed to settle beneath the media, where it can't be seen; 2) all of the waste is forced up through the media, where the bacteria can quickly get to work; 3) the media is kept spotlessly clean. One of the many strongpoints with Bacteria House, is that the water doesn't get discoloured (brown), as is commonly seen nowadays. Of course, Bacteria House can't work miracles if a miniscule amount is placed into the filter of a pond that has been poorly designed. We feel that Bacteria House will perform at least as well as any other media in submerged filtration.

Using Bakki Showers

Momotaro's standard shower size is 2 metres long, by 60cm wide (media area width), but their ponds are usually extremely big, and powered by three phase submersible pumps that thread directly onto 4" pipe.

Our standard size showers are 1 metre long, by 30cm wide, and made in the UK with the kind permission, and approval of Momotaro Koi Farm. The 1 metre system has been adopted primarily because people in the UK don't generally have ponds as big as Momotaro, and because we are very fortunate to have the Sequence 1/4+ pumps, which are very efficient, and easily capable of pushing 2900 gallons per hour over the Showers. Bigger systems are available to order.

The general rule for running a Bakki Showered pond (without any settlement or additional filtration), is to have a turn over rate of at least 150% per hour. When the flow rate per set of 3000gph is taken into account, it becomes easy to calculate how to build a Bakki Showered pond. Basically, a 2000 gallon pond will need one set, a 4000 gallon pond will need two sets, and so on. The faster you turn the pond over, the better however. 200% is the optimum. Biologically, you could easily run a pond at 50% per hour, but such a turnover rate will leave the pond suffering with very fine suspended debris. Turnover is the key. Despite the recommended turnover rate, most of the ponds in the UK have been built with less than 150% turnover, and are running just fine. The clarity limitations of 'under-running' the showers will only be seen if a pond becomes overstocked.

A standard set of Showers is 4 tiers high, and will hold 50kgs of media as a 'starter' system. However, it is possible to fit 60kgs of media into a set.

The Advantages of Bakki Showers

- maintenance free
- complete bio-filtration, including nitrates
- extremely fast to mature
- excellent water clarity
- huge oxygenation
- 'far infra-red' rays have an effect of freshening water, and deodorizing
- space saving design means that [the filtration for] a pond of 10,000 gallons can occupy the space of a conventional 6000 gallon pond
- most Bakki Showered ponds will run without the need for a U/V
- fast recovery following power cuts. Won't become oxygen starved like a conventional filter
- Bacteria House won't wear away, block, or need replacing

Bakki Shower & Bacteria House Filter Media, continued on page 12



FAQ's

Q: Will Bacteria House buffer my pH?

A: No, contrary to some peoples belief, Bacteria House isn't made from any calcium products. It is a careful blend of ceramics.

Q: Can it be used in my existing filter bays?

A: Yes, it works extremely well in submerged bays, but it is essential to aerate the media heavily to get best results.

Q: Will Bacteria House decompose or wear out?

A: No, Bacteria House is a ceramic. Although fragile, it is extremely hard, and will not decompose, erode, or wear out.

Q: I suffer from frequent power cuts. Will the bio-mass die off if the system shuts down?

A: No, Bacteria House is extremely porous, and has many crevices. Even if shut down for 24 hours, the media will still retain a lot of water, and will stay wet to the touch. A conventional submerged filter will die off in the event of a

power cut, but Bakki Showers are exposed to air, and as such, will survive long durations of shut down. One of the biggest benefits of Bacteria House, is its extremely fast recovery rate after pond treatments have been administered, or new koi have been added.

Q: Will Bakki Showers chill my water?

A: Yes, but if you build an enclosure around them, the chill effects will be minimal. It is not recommended, however, to use them on an entirely un-heated pond. This is simply because many people that have unheated ponds let them fall to as low as 3 Centigrade, and turn off aeration. Compared with these circumstances, Bakki Showers will slowly pull a pond down to ambient temperatures.

Q: How does a Bakki Shower differ from a trickle filter?

A: A Bakki Shower isn't just a trickle filter. It is a complete 'stand-alone' filtration system that deals with the entire biological and mechanical filtration process, including nitrates, and fine water polishing. In a properly designed pond, there is no need for any other filtration, or settlement.

Q: I am concerned that putting fish waste over the showers will discolour the water. Will this happen?

A: No. Many filter media, even submerged, will turn the water slightly brown. A properly designed Bakki Shower pond will result in water that is remarkably 'color-free', and 'fresh'.

Q: I am worried that Bacteria House will trap water and cause the water to become anaerobic?

A: This simply won't happen. Bacteria House has been very carefully designed and researched in Japan, to make sure that it encourages a predominance of healthy bacteria. Also, any anaerobic bacteria produced is vastly outnumbered by aerobic bacteria. ❖



Bakki Shower installed at a pond in England.