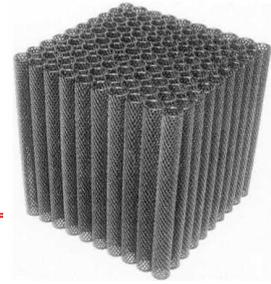


BNA Bio-Tube

High Performance Biological Treatment and Filtration Media



BNA Bio-Tube® Provides a Versatile High-Performance Solution for Aquaculture Applications

Since its introduction into the Australian marketplace some seven years ago, BNA's remarkable *Bio-Tube*® biological filtration media has developed an enviable reputation for performance throughout the aquaculture and water treatment industries – both in Australia and internationally.

Manufactured in Australia by world-renowned plastics manufacturers BNA Pty Ltd, *Bio-Tube* biological filtration media's unique high-performance design has helped to revolutionize biological filtration and treatment systems for the aquaculture industry. Considered to be 'the filtration media of choice' by several of Australia's largest and most respected aquaculture system designers and developers, BNA *Bio-Tube* biological filtration media plays a key role in many of the country's largest and most complex aquaculture systems, including Sea World's massive 'Shark Bay' development on the Queensland Gold Coast.

Manufactured from 100% High Density Polyethylene (HDPE) the BNA *Bio-Tube* modules are chemically inert, making them ideal for use in a wide range of applications. BNA *Bio-Tube* modules are available in a variety of standard tube dimensions (ranging from 42mm through to 70mm) and module sizes, and feature a choice of either a smooth or course textured surface finish. BNA *Bio-Tube*'s lightweight, yet extremely robust, modular design not only makes them easy to lift transport and install, it's also enables them to withstand significant compressive forces.

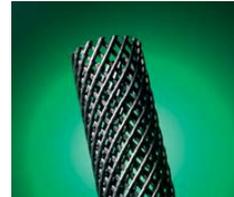
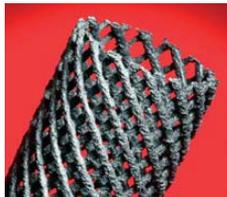
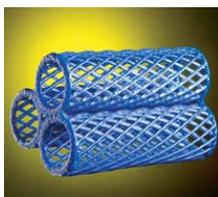
Importantly, the key to BNA *Bio-Tube*'s outstanding performance in the field undoubtedly lies within its unique woven/welded construction which delivers the ideal combination of voidage and surface area. As well as providing an extremely high level of active available surface area per cubic metre, BNA *Bio-Tube*'s design helps to eliminate problems such as clogging caused by contaminants.

Rod Missen, Managing Director of Queensland-based intensive aquaculture system specialists R.A.D. Aqua Pty Ltd, commented: "When it comes to re-circulated aquaculture systems such as ours, choosing an appropriate filtration media can quite literally mean the difference between success and failure. After all, if the water filtration system isn't functioning correctly, the entire system will be out of balance, and if left to deteriorate, will fail completely. With that in mind, not surprisingly, our initial system design and development process incorporated an extensive program of testing and analysis of all of the available water treatment and filtration options, including extensive testing of a wide range of filtration media."

"Needless to say, the Tapex (Now BNA) *Bio-Tube* filtration media performed extremely well on all counts. In addition to the fact that it holds good bacterial growth and doesn't clog, it's lightweight, modular design also provides us with the flexibility that we need to meet the needs of our numerous different system designs and capacities," he added.

Recognized both nationally and internationally as a leader in the field of intensive aquaculture, R.A.D. Aqua Pty Ltd has developed and installed a range of self-contained re-circulated aquaculture systems for both government and private sector clients in Queensland, Victoria, New South Wales and South Australia, including a major system for the South Australian Department of Education. Each of the R.A.D. Aqua systems features a fully-integrated water treatment plant utilizing the BNA *Bio-Tube* biological filtration media.

"We use the Tapex (Now BNA) *Bio-Tube* biological filtration media in all of our systems and we're extremely happy with the results. From the smallest 1-tonne pilot systems, through to our largest 100-tonne+ per annum commercial product facilities, BNA *Bio-Tube* provides us with a cost-effective, versatile biological filtration media that performs extremely well," Rod Missen added.





This outstanding performance in the field has also seen BNA *Bio-Tube* biological filtration media selected by leading Western Australian-based aquaculture specialists Cell Aquaculture Limited for use in its unique Eco-Cell land-based seafood production systems.

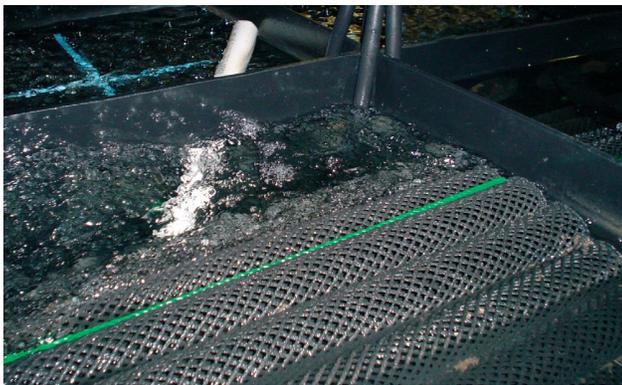
Speaking about the use of the BNA *Bio-Tube* modules, Cell Aquaculture Ltd's Operations Manager, Quenton Leach, commented:

"We first trailed the Tapex (Now BNA) *Bio-Tube* filtration media some three years ago as part of an extensive testing regimen involving an array of different filtration systems and media for our Eco-Cell system."

"Right from the initial trials, the Tapex (Now BNA) *Bio-Tube* has delivered outstanding results on all fronts. It's unique woven design provides an extremely high level of active surface area per square metre, thereby enabling it to maintain high levels of good quality bacterial colonies, while still eliminating problems of clogging," he said.

"What's more, Tapex (Now BNA) *Bio-Tube*'s modular design is ideally suited to our system's modular format. It provides us with the versatility that we need to incorporate it easily into all system formats and sizes - from the smallest through to the largest," he added.

Building on the success of the company's Australian facilities, Cell Aquaculture Ltd is also currently



developing a number of international joint-venture projects for the Eco-Cell system in Poland, Ireland, Japan and the United States. The Eco-Cell system is the result of over seven years of intensive research and development and has been designed as a fully-enclosed and sealed land-based aquaculture environment.

The Eco-Cell system features a patented three-stage water treatment and filtration system incorporating the BNA *Bio-Tube* biological filtration media. The Eco-Cell's modular design incorporates a network of separate tanks or 'cells', each of which features its own modular water recirculation and treatment system. Solid waste from each of these systems is sent to a central waste management/recovery system, which enables the organic solids to be recycled and on-sold as high quality organic soil fertilizer.

"Right from the outset, our major focus has been on developing a 'closed-loop' seafood production system that didn't rely on chemicals, antibiotics or genetic modifications, and didn't produce harmful waste or bi-products."



"By using the Tapex (Now BNA) *Bio-Tube* biological filtration media, we have been able to develop a water treatment system that delivers the required water quality while still fitting in with our focus on ecological sustainability and zero waste," Quenton Leach added.

"We're very happy with the performance of the Tapex (Now BNA) *Bio-Tube* media. The product works extremely well, and the service and support from BNA has also been excellent," he concluded.

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