

Hi Arthur,

Carbon nanotube water filters pop up every few years as a potential application of carbon nanotubes. The reality is that as an academic piece of science such filters always look attractive, the reality however is far from the truth.

The filter may or may not remove certain BETX chemicals and pollutants however their efficiency still is below that obtainable with conventional systems. In addition carbon nanotubes cost anything from a couple of hundred dollars to a thousand dollar per gram depending on purity. The impurities associated with carbon nanotubes tend to be metal catalysts which include many heavy metals which are a serious health hazard in water supplies. If you go for carbon nanotubes with a high purity then you tend to sacrifice the integrity of the tube and you get lots of dangling bonds which are highly reactive and the potential toxicity of the tube itself can increase. Indeed the toxicity both mammalian and environmental of carbon nanotubes (and therefore derived filters) are untested and are somewhat of an unknown. There is strong evidence to suggest that these are precisely the type of material we should not be using in water filters. Despite this every year we get academics trying to justify their existence and appease funders by proposing a technological environmental application of these materials which in itself is poorly informed and bad science. The article you supplied for excludes any toxicological or environmental impacts of carbon nanotubes...why? cause one simple experiment would invalidate the findings as having real commercial potential. This doesn't take away from the academic aspects of the work just means it isn't real world? They also make reference to the use of adding silver as an antimicrobial agent to increase the functionality of the filter however despite masses of 'mis'-information in Literature Nano silver is not antimicrobial... this is another red herring by industry and bad science done to add value/cost to the products by using the term nanotechnology? In the future we may evolve a better understanding of these materials in the environment and their health impacts on humans but for now such devices belong in the research lab and not domestic or otherwise water supplies.

I am afraid therefore that safety, cost, and actually performance simply make these filters unsuitable for any commercial application at this stage.

Regards

Gordon