



Biodegradable breakthrough in Water Treatment Additives

BIODEGRADABLE ANTISCALANTS ARE SET TO REVOLUTIONISE DESALINATION IN THE REGION, BY IMPROVING ENERGY EFFICIENCY WHILE REDUCING THE IMPACT OF THE PROCESS ON MARINE LIFE, *BGREEN* SPEAKS WITH DR DAVID CARTMELL, CEO AND CHAIRMAN OF BWA ADDITIVES

Since the company's inception in 1973, scientists at BWA Water Additives in Manchester, UK, have been developing sustainable technologies for water treatment. These solutions have included desalination technology, which is arguably a life-saver in the water-scarce Middle East.

Most recently, BWA has discovered a way to create biodegradable antiscalants, which are now available in over 80 countries.

"When you boil sea water, calcium and magnesium forms a hard scale that acts as an absolute insulator that won't allow heat through. If you have a deposit of a fingernail thickness, it will reduce efficiency by 10 per cent, which means 10 per cent more energy will be needed for the process. Our products keep metal surfaces clean, optimising energy efficiency, and subsequently lowering the carbon footprint

of the desalination process," Dr David Cartmell, Executive Chairman and CEO of BWA Water Additives, told *BGreen*.

The new biodegradable additives are also used to improve the efficient flow of agricultural water and in the separation of oil from water in oil and gas exploration, in addition to its role in desalination.

BWA has also solved the historic 'trade-off' between biodegradability and performance. Creating the most biodegradable antiscalants ever by a factor of 4 to 5 times, BWA's newest solution is reportedly the most effective, according to Dr Cartmell. As a PhD scientist, Dr Cartmell joined the business in 1985 and has been leading the Company and driving its technology innovation since 1997.

Dr. Cartmell explained that before a product can be introduced as a product from BWA Water Additives, it must pass two tests: it must first be more environmentally acceptable than any other



The Biodegradability vs. Performance Trade-off of Common Scale Inhibitors

Type of Scale Inhibitor	Acronym	Inherent Biodegradability Result ¹	Performance, as measured by CaCO ₃ Inhibition ²
Polyaspartate	PASP	83-87% in 28 days	83%
Maleic Acid Polymer	MAP	55% in 35 days	100%
Terpolymaleic	MAT	35% in 35 days	100%
Polymaleic	PMA	18% in 35 days	100%
Phosphonates	HEDP	33% in 28 days	100%
	ATMP	23% in 28 days	95%
	PBTC	17% in 28 days	100%
Polyacrylates	PAA	10% in 35 days	81%

¹ As represented by the Organization for Economic Cooperation and Development's (OECD's) biodegradability tests, the most commonly accepted globally
² Based on CaCO₃ jar test that measures ability of an additive to inhibit CaCO₃ in simulated cooling water conditions close to a heat exchange surface.

product alternative; and it must deliver the same or better performance than any product alternative.

"Just being biodegradable is not enough. Products must also deliver superior performance over the market alternatives, which is why I am so proud of what our scientists have achieved with our new Belclene 810 biodegradable antiscalants, as well as the other sustainable technologies from BWA Water Additives."

Dr Cartmell also highlighted the role of biodegradable antiscalants in the marine environment. "Most chemicals used in the desalination process eventually end up back into the sea. One of the big themes we have in our business is biodegradability, so that when the chemicals do reach the sea, they break down quickly into their basic elements of water, carbon dioxide, and oxygen." 