



27 June 2008

Alfa Laval's PureBallast receives full Ballast Water Type Approval

PureBallast, Alfa Laval's unique and chemical-free system for ballast water treatment, has now received full Ballast Water Type Approval from DNV on behalf of Norwegian authorities. The certification, which was issued on June 27th, confirms that PureBallast complies in full with pending ballast water treatment legislation from the International Maritime Organization (IMO).

Alfa Laval's PureBallast system, which has been purchased for installation aboard more than 25 vessels since its launch in 2006, has rapidly established itself as the commercial leader in ballast water treatment. Now, having received full Ballast Water Type Approval on June 27th, it is also the only solution without chemical treatment processes to be certified IMO-compliant.

The certificate of full Ballast Water Type Approval, which was presented to Alfa Laval by DNV, Det Norske Veritas, on behalf of Norwegian authorities, is based on PureBallast's performance in rigorous IMO-defined tests. The test results, confirm that PureBallast's biological efficiency is well within the IMO specifications.

"Because the official results for PureBallast are in line with those of our own pilot tests on land and at sea, they reaffirm the promises Alfa Laval has made all along," says Peter Carlberg, General Manager of Alfa Laval Marine & Diesel. "The announcement that PureBallast has received full Ballast Water Type Approval feels like a natural close to a very successful development process."

The complicated path to approval

The receipt of full Ballast Water Type Approval for PureBallast marks the end of a long and difficult process defined in the International Convention for the Control and Management of Ships' Ballast Water and Sediments. This legislation, adopted by IMO in February of 2004, is intended to halt the introduction of invasive marine species into new environments via ships' ballast water. Though still not fully ratified, the convention in its current form would begin phasing in ballast water treatment requirements already in 2010.

The IMO convention establishes a set of guidelines for Ballast Water Type Approval. These are to be implemented by national authorities, such as the Norwegian Maritime Administration, which handled the PureBallast approval. In fulfilling the requirements, a ballast water treatment system must receive two types of approval, each of which involves three components.

The first type of approval is Active Substance Approval, which signifies that the system has no negative impact on the water treated or on the ship's crew. This is in turn divided into a Basic Approval and a Final Approval, which PureBallast was the first to receive.

The second type of approval is Biological Performance Approval, which signifies that the system reduces the number of viable organisms in ballast water to a maximum number per



unit of volume. This approval is time consuming to obtain, as it comprises first land-based and then onboard tests, performed at full scale and with a minimum ballast water capacity of 200 m³/h. The land-based tests involve extreme and varying levels of salinity, turbidity and microorganisms, while the onboard tests are conducted in real-life conditions during six months at sea.

The last component is Marine Approval which is similar to other major marine components placed in for example engine room.

In PureBallast's case, the onboard tests were conducted aboard an ocean-going car carrier vessel with a ballast water capacity of 1000 m³/h.

The first truly green solution with IMO approval

Having completed the lengthy test procedures and received full Ballast Water Type Approval, PureBallast has become the first solution to be certified IMO-compliant while completely avoiding the use of chemicals. No chemical additives are required to achieve the necessary biological efficiency, and no chemicals are generated during the actual treatment process.

“Finding a truly chemical-free solution was a must in designing PureBallast, because we didn't want to solve one problem while creating another,” says Peter Carlberg. “While a number of treatment systems are chemical-free in the sense that they have no additives, only PureBallast utilizes a process where not a single chemical is generated.”

PureBallast, developed in cooperation between Alfa Laval and Wallenius Water, uses a patented type of advanced oxidation technology Wallenius AOT™. Occurring within a self-contained AOT reactor, it involves the generation of radicals that instantaneously react with microorganisms and other organic contaminants. These short-lived radicals exist only for a few milliseconds, which means they neutralize the microorganisms but have no chance of leaving the reactor.

In fact, the process is similar to the technology used in many of today's smart products. The self-cleaning windows of skyscrapers and cars, for example, prevent the growth of organisms through an AOT reaction that occurs when sunlight strikes titanium dioxide.

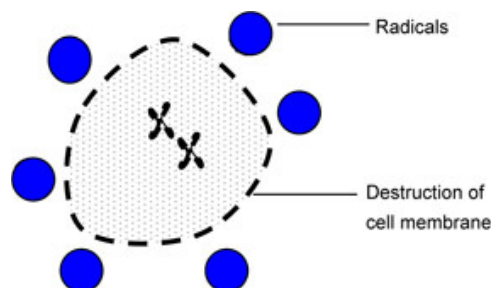
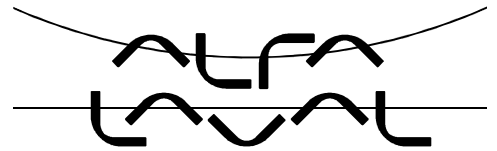


Illustration:

In the PureBallast process, radicals are used to neutralize microorganisms in a self-contained reactor. No chemicals are added or generated, and the short-lived radicals never leave the reactor chamber.

Commercial success and global readiness

PureBallast is a trademark owned by Alfa Laval Corporate AB.
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Alfa Laval reserves the right to change specifications without prior notification.



For Alfa Laval, the announcement of full Ballast Water Type Approval for PureBallast follows closely on other exciting news. The German ship owner E.R. Schiffahrt has ordered a total of eight PureBallast systems, each with a ballast water capacity of 500 m³/h. These systems will be delivered in 2009, when they will be installed aboard multifunctional anchor-handling / tug / supply / service vessels to be constructed at a Korean shipyard.

For Peter Carlberg, the fact that a Korean shipyard will handle the installations is significant. "Our goal in developing PureBallast has been to balance effective treatment with the needs of ship owners, ship operators and shipyards worldwide," he says. "So we are happy that Asian shipyards have been so quick to embrace the system's compact design and flexible installation possibilities."

As orders for PureBallast continue to come in, Carlberg is confident that customers will be satisfied not only with the system itself, but also with Alfa Laval's delivery capabilities. Alfa Laval has proven itself over the course of many decades as a marine supplier, and boasts a complete worldwide organization that is prepared to handle sales, after sales and ongoing support.

"Alfa Laval is a truly global company and therefore ready to handle a world-reaching issue like ballast water treatment," says Carlberg. "With our extensive production facilities and accessible support in harbours worldwide, we are well prepared to meet a growing demand."
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Editor's Notes:

Alfa Laval is a leading global provider of specialized products and engineering solutions based on its key technologies of heat transfer, separation and fluid handling.

The company's equipment, systems and services are dedicated to assisting customers in optimizing the performance of their processes. The solutions help them to heat, cool, separate and transport products in industries that produce food and beverages, chemicals and petrochemicals, pharmaceuticals, starch, sugar and ethanol.

Alfa Laval's products are also used in power plants, aboard ships, in the mechanical engineering industry, in the mining industry and for wastewater treatment, as well as for comfort climate and refrigeration applications.

Alfa Laval's worldwide organization works closely with customers in nearly 100 countries to help them stay ahead in the global arena.

For further information and digital images, please refer to the press pages on www.alfalaval.com

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