Press release

Effective Protection Against "Stowaways"

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Ballast Water Management System of Hamann and Evonik Receives Final Approval

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The final hurdle has been overcome for the SEDNA® ballast water treatment system using PERACLEAN® Ocean. The system, which was developed jointly by the German companies Hamann AG (Hollenstedt near Hamburg) and Evonik Industries AG (Essen), has now also been granted Type Approval by the relevant national regulatory authority, the Federal Maritime and Hydrographic Agency (BSH, Hamburg). In April 2008 the system had already received Final Approval from the London-based International Maritime Organization (IMO), the UN agency responsible for all maritime traffic. The system provides global shipping with an effective and environmentally sound process for preventing non-indigenous organisms from being introduced with the ballast water of ships.

Type Approval was preceded by an extensive testing and trial program, which involved external experts such as Dr. Stephan Gollasch from GoConsult in Hamburg. During the tests, the entire system was operated at length in fully automatic operating mode: on land and on a test ship. The tests focused particularly on efficiency, reliability, and safety. Experts from NIOZ, the Royal Netherlands Institute for Sea Research, documented the test results in a detailed report that formed the basis for the approval of the German administration (BSH).

The world's first operational system with Final Approval and Type Approval

With certification by the IMO and the national administration, this is the world's first system that complies with the IMO Convention on Ballast Water Management of 2004 and has obtained both, Basic and Final Approval for its active substance as well as for the entire system. The Convention stipulates that new small ships should be fitted with appropriate systems from the year 2010 onwards, and larger ships from 2012; older ships should be retrofitted by 2016 at the latest. This is no trivial undertaking: about 40,000 cargo ships currently sail the world's

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seas, and about 800 new ships are put into service every year. Evonik has been active for many years in this new application area for active oxygen products. “The Type Approval is an important milestone and a great success for all the members of our project team,” says Dr. Thomas Haeberle, head of Evonik’s Industrial Chemicals Business Unit.

The SEDNA® (Safe, Effective Deactivation of Non-Indigenous Aliens) system developed by Hamann treats the water in several steps during the intake only. Initially, hydro cyclones are used to separate out the solid material by application of centrifugal forces. This eliminates large species and significantly reduces sediments, to which living organisms often attach themselves. A filter then removes all remaining particles larger than 50 micrometers (A micrometer is one millionth of a meter.). “This two-stage physical process ensures that the various types of solids in the water and a wide range of living organisms are effectively separated out,” says Dr. Matthias Voigt, an executive board member responsible for research and development at Hamann.

This cleaned water is then disinfected with PERACLEAN® Ocean, a special formulation of peracetic acid and hydrogen peroxide from Evonik, which is easily biodegradable. “Even at very low concentrations, our product shows excellent biocidal and fungicidal properties and is also effective over a wide range of temperature and pH,” says Bernd Hopf, project manager at Evonik’s Global Competence Center Active Oxygens. In practice no more than 150 liters of PERACLEAN® Ocean are needed for 1,000 metric tons of ballast water. Whatever the number and type of organisms, the ballast water satisfies the IMO Convention’s strict requirements after only 24 hours retention time in the tank.

Great advantages from linking mechanical treatment and chemistry

The combined process by Hamann and Evonik offers considerable advantages. The SEDNA® system is suitable for a particularly wide range of ships. Thanks to its modular concept, it can be adapted to various capacities of ballast water pumps ranging from 50 to 2,000 cubic meters per hour. The mechanical pretreatment separates out all of the larger components and significantly reduces the sediment load that would otherwise have entered the ballast water tanks. “Low energy consumption and the low level of wear and tear are further important

advantages for the operation of the SEDNA® system on a ship," underlines Mathias Schmidt, sales manager at Hamann.

PERACLEAN® Ocean is highly effective against all the remaining organisms. It is compatible with all the commonly used ballast water tank coatings and can be used in salt water, freshwater or brackish water. It has a long shelf life, is easily dosed, economical to use, and—most importantly—it is environmentally compatible.

The extend of the "stowaway" problem in ballast water is often underestimated. Experts regard it as one of the most important environmental topics, on par with global warming. The destruction of ecosystems by foreign invaders—whether viruses and bacteria, fungi, algae, or plankton—costs the U.S. alone approximately $138 billion every year. About 20 systems for treatment of ballast water are currently being developed worldwide, including those using physical methods such as UV-radiation, oxygen deprivation, or heating. So far, however, no other process has proved to be as effective and environmentally sound as the SEDNA® system using PERACLEAN® Ocean.

Company information

Evonik Industries is the creative industrial group from Germany which operates in three business areas: Chemicals, Energy and Real Estate. Evonik is a global leader in specialty chemicals, an expert in power generation from hard coal and renewable energies, and one of the largest private residential real estate companies in Germany. Our strengths are creativity, specialization, continuous self-renewal, and reliability. Evonik is active in over 100 countries around the world. In its fiscal year 2007 about 43,000 employees generated sales of about €14.4 billion and an operating profit (EBIT) of more than €1.3 billion.

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Hamman AG is a long-running family company that can look back on 80 years of maritime experience. The company has been operating under the name Hamann Wassertechnik GmbH since 1972, and specialized in the production and marketing of wastewater treatment systems for the maritime industry. Moreover, Hamman AG offers products such as freshwater production and exhaust-gas cleaning systems. In 2001 Hamann began developing the future-oriented SEDNA® ballast water treatment systems. Hamann AG is represented worldwide with more than 35 service stations and an agency network.