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Technical Information

(2012) Technical Information No.8 Total No.8

August 20, 2012

(Total pages: 6)

To relevant shipping companies,

Safety Tips for Machinery & Sea Damage Incident Investigation

For the purpose of improving ship safety and protecting marine environment, results of some machinery & sea damage incident investigations, considered as necessary to draw relevant shipping companies' attention to, have been gathered in by the Society and provided to ship safety management for reference.

Details as follows:

No.	Type of ship	Gross tonnage	Year of build	Incident resume	Major cause	Safety tips
1	Bulk carrier	Any	Any	The bulk carrier was carrying a wheat cargo during the voyage. The cargo was fumigated with phosphine gas to protect it from insects and rodents. The gas somehow reached the crew's cabins and a crewmember died from	Phosphine gas is dangerous to man and may cause coughing, nausea, headaches, pain and tightness in the chest, shortness of breath, vomiting and convulsions. The symptoms of lung oedema often do not become	1.Aluminium phosphide tablets, which react with moisture in the air, are often used to fumigate grain cargo. The reaction liberates phosphine (PH ₃) as the active gas to protect the cargo from insects and rodents. Exposure to large concentrations of phosphine gas can be lethal to human beings. 2.Data sheets for phosphine show that the gas is heavier

				exposure to the gas.	manifest until a few hours have passed and they are aggravated by physical effort. Exposure may also be fatal.	than air (by about a factor of 1.17) but the cases indicate that the gas has risen into the accommodation, probably due to over-pressure in the cargo holds. Phosphine has been described as having a fishy smell and sometimes as smelling of garlic. 3. A copy of the IMO's "Recommendations on the safe use of pesticides in ships" should be kept on board vessels which may be required to fumigate cargo holds, and the contents should be well understood by the Master and key officers. 4. Procedures for gas concentration safety checks during a voyage with fumigated cargo should be established and should include all appropriate locations (that share boundaries with the cargo holds), like the accommodation, engine room and frequently visited working areas and
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						stores, such as the forecastle headspaces. 5.The Safety Management System required in the ISM Code should address shipboard operations and emergency preparedness. For vessels whose cargo is fumigated, there must be well established (implemented) procedures that are at least in accordance with the IMO recommendations. This probably includes responsibilities, procedures before/during/after fumigation, gas sampling during the voyage and safety briefings to the crew members.
2	Bulk carrier	31000	2005	A total of 19 air vent heads were found to be defective when the vessel was undergoing a periodical survey.	The most probable cause of defective vent heads is the daily exposure to the outdoor environment on deck, occasional sprays from green seas	1. Malfunctioning air vent heads are a common finding, for both the Class surveyor and the Port State Control inspector. Each vent head is an essential safety feature on board and should be kept in good condition. A broken air vent head will

					and ballast water being pushed through the vent head during heavy rolling.	most probably result in a PSC deficiency which must be rectified before leaving port. 2. The ship manager should ensure that there is a regular inspection and maintenance programme in place for the air vent heads on board its vessels. Since we see vent heads broken after only a few years in operation, we recommend inspecting each vent head annually. Such a programme should include the general condition (rust, dirt, functionality) and especially the condition of the float/ball/disc, guiding pin, seat and wire mesh (if installed). A vent head replacement shall be of an approved type and any replacement parts shall be of the original or an equivalent quality. 3. Special attention shall be paid to air pipes and air vent heads located in the fore deck (1/4 L) due to green seas and the ship's
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						movement. 4. A cheap air vent head can become an expensive experience. The trend seems to be to buy the least expensive vent heads for newbuildings. This often means stainless steel type 304 as an accepted material quality for the floats according to present requirements (Load Line and IACS UR P3). However, this does not mean that such stainless steel is maintenance free. Manufacturers, ship designers, yards and ship managers are encouraged to consider the implications for air vent heads during a ship's life of maybe 20 years. 5. Air vent heads made out of aluminium or other grades of stainless steel have become increasingly popular in the last few years. Such materials are options to be considered in order to achieve a more maintenance-free vent head.
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Relevant shipping companies are advised to pay attention to the information and take necessary actions.

Hereby notify the above.

Please contact *Ship Business Operation Dept.* of the Headquarters in case of any query during the implementation of the Technical Information.

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(Rev. 1.0 20120110-1/1)