



MARINE ENVIRONMENT PROTECTION  
COMMITTEE  
58th session  
Agenda item 10

MEPC 58/10/9  
15 August 2008  
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## REPORTS OF SUB-COMMITTEES

### Comments on the outcome of DE 51

Submitted by the United Kingdom and the Institute of  
Marine Engineering, Science and Technology (IMarEST)

#### SUMMARY

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|-----------------------------|--|
| <i>Executive summary:</i>   | This document provides information on a machinery space bilge oily water separation system utilizing a chemical separation process and the potential need for the development of a suitable test procedure |
| <i>Strategic direction:</i> | 7  |
| <i>High-level action:</i>   | 7.1.2  |
| <i>Planned output:</i>      | 7.1.2.2  |
| <i>Action to be taken:</i>  | Paragraph 11   |
| <i>Related documents:</i>   | MEPC 58/10/1, DE 51/28 and annex 13  |

#### Background

1 This document provides comments on document MEPC 58/10/1 (Outcome of DE 51) in accordance with paragraph 4.10.5 of the Committees' Guidelines (MSC-MEPC.1/Circ.2) and is intended to introduce the concept of a bilge water treatment system operating on a chemical separation process. Noting the important work undertaken at DE 51 on developing a draft MEPC circular providing for Harmonized implementation of the revised Guidelines and specifications for pollution prevention equipment for machinery spaces of ships during the type approval process, the sponsors of this document would like to highlight the potential need to develop in the future a suitable test procedure for chemical separation systems. This document is not calling for any amendment to the output of DE 51 but providing commentary on an issue that arises from the current type approval process.

2 The test methods in resolution MEPC.107(49) consider conventional gravity oily water separation equipment where there is a continuous flow of fluid passing through the separator.

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3 The co-sponsors are aware that at least one bilge water treatment system has been developed that operates on a chemical separation process which does not have a continuous flow through the system. It adopts a method whereby the unit treatment tank is filled with bilge water which is isolated from the bilge discharge/oil content meter system as it is filling. The contents of the tank are then treated with chemicals to separate the carbon particles and heavy metals from the water and the mixture is then neutralized. The treatment tank is then discharged overboard with the effluent being sampled through the oil content meter.

4 The time period of the tests in resolution MEPC.107(49) are not applicable to this equipment as it works on a cyclic process rather than continuous flow. Furthermore, other test requirements such as pre-filling the equipment with water and oil prior to the test, sampling times, 2 hour tests, opening of air cocks are not considered applicable or appropriate to this equipment. Accordingly, to obtain approval of the system an additional test procedure for chemical separation type oily water separators is required.

### **Brief system description**

5 The system consists of an eccentric screw feed pump, pre-filter, treatment tank with agitator, three chemical dosing pumps, tank discharge valve, an eccentric screw discharge pump, an automatic filter, a fine filter, oil content measuring device and a three-way discharge valve (see annex).

6 The bilge water is pumped with the eccentric screw feed pump via the pre-filter into the treatment tank. The pre-filter removes free floating oil and solid material from the bilge water. The feed pump automatically shuts down when the treatment tank reaches a predetermined level at which point the chemical treatment begins. The contents of said tank are then treated with three chemicals to separate the carbon particles and heavy metals from the water for a period of time which is dependent on the amount of oil contamination. When the chemical process is complete, the tank contents have been neutralized and a stable condition has been achieved. The treatment tank discharge valve opens and the integral discharge pump starts. The sludge and heavy metals are removed by the automatic filter and fine filter and the clean water is discharged via the three-way valve following sampling by the oil content meter.

### **Discussion**

7 It has been confirmed by workshop tests using the test fluids A, B and C in resolution MEPC.107(49) and trial operations on a vessel (which discharges the resultant effluent to a technical water tank) that the equipment is achieving water with an oil content of less than 1 ppm. The test plant is set up to recirculate all discharge effluent with an oil content of greater than 1 ppm back to the bilge holding tank.

8 Chemical analysis of the effluent has shown that the heavy metals contained in the bilge water have been reduced.

9 Analysis of the effluent has shown that there are no traces of the chemicals used in the process when treatment is complete.

10 The system in question allows for treated bilge water to be retained onboard and used as technical water for ship operations in which case no discharge overboard would be necessary.

**Action requested of the Committee**

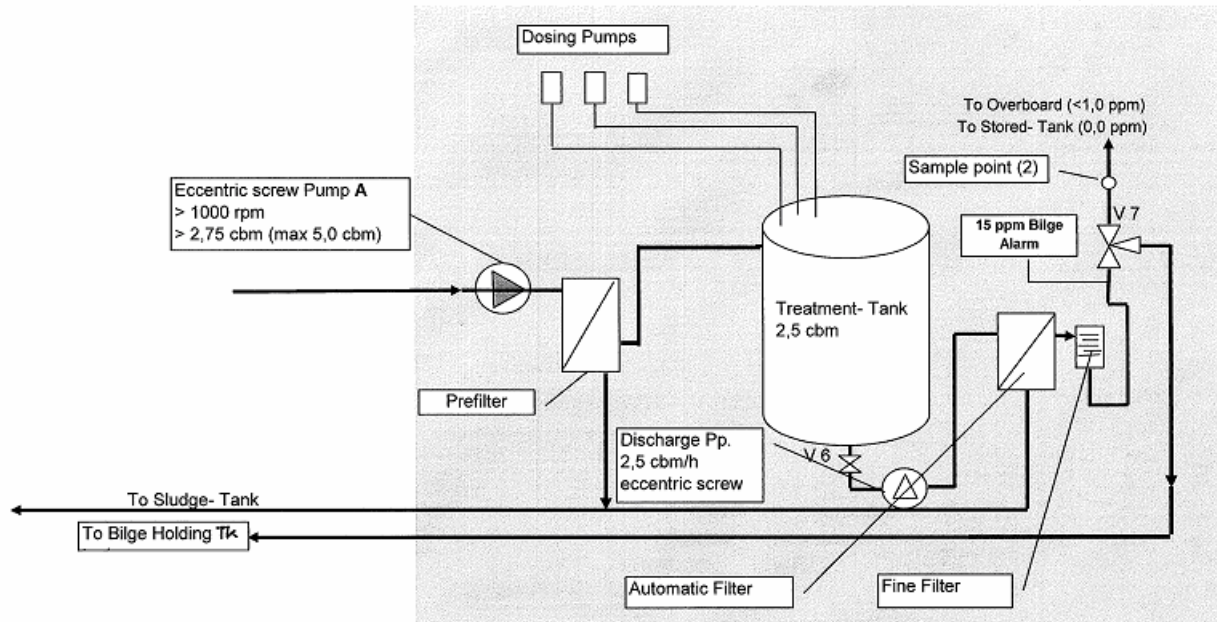
11 The Committee is invited to note the information contained in this document and consider if there is a need to explore the development of an annex to resolution MEPC.107(49) for the testing of oily water separators using a chemical separation process that do not have a continuous flow through. If the Committee is content that such a need exists, the co-sponsors will develop a request for a new work programme item to be submitted to the next MEPC in accordance with the Guidelines on the organization and method of work of the MSC and the MEPC and their subsidiary bodies (MSC-MEPC.1/Circ.2).

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ANNEX

**SCHEMATIC OF A BILGE OILY WATER SEPARATION SYSTEM UTILIZING A CHEMICAL SEPARATION PROCESS**



Schematic of Oily Water Separation System