



GESAMP

Joint Group of Experts on the
Scientific Aspects of Marine
Environmental Protection

GESAMP 52/4/1

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Agenda item 4

PLANNING OF GESAMP ACTIVITIES

Review of applications for 'active substances' to be used in Ballast Water Management Systems

Report of the Chair of Working Group 34

Background and introduction

1 The International Convention for the Control and Management of Ships' Ballast Water and Sediments (hereafter referred to as the BWM Convention) was adopted by IMO on 13 February 2004 in response to the increasing concern of the international community with regard to the transfer of invasive aquatic species in ships' ballast water. On 8 September 2017, the Ballast Water Management Convention entered into force. Currently, the ratification status is that the combined tonnage of contracting States to the treaty adds up to 93.73% with 97 contracting Parties (status as of 1 July 2024).

2 Within this framework, an approval procedure has been set up for those ballast water management systems that make use of an Active Substance or Preparation to comply with the Convention. The procedure consists of a two-step approach for granting Basic Approval and Final Approval. The approval is granted by the Marine Environment Protection Committee (MEPC) based on the advice provided by the GESAMP Ballast Water Working Group (WG 34). There is a third step, the type approval, but this is outside the remit of WG 34.

3 The more general outline, scope and aim of the BWM Convention have been addressed in the report to the GESAMP 35 (see document GESAMP 35/5/1) and will only be referred to here. The Terms of Reference of WG 34 have been added as Annex 1 to this report. As the terms of reference of WG 34 have not changed, several parts of this report have been kept unchanged. For the readability of the report these sections are kept in the report with apologies to the experienced reader. The membership of WG 34 is given in Annex 2.

4 This report focuses on the main activities of WG 34, which consist of the evaluation of several ballast water management systems (BWMS) and the further development of the Methodology of the Group, which has been accepted as a 'living' document. This means that the Methodology will be a discussion item at (almost) every meeting of the Group and changes and improvements are made, as appropriate (see further below).

Ballast water management systems

5 'Active Substances' are defined by the Convention as "substances or organisms, including a virus or a fungus, that have a general or specific action on or against harmful aquatic organisms and pathogens" and the approval of BWMS using such substances is described in resolution MEPC.169(57) adopted in 2008. However, not only 'Active Substances' are evaluated by the WG 34. Also, all other substances considered relevant are taken into account in the evaluation report.

The Procedure for approval of ballast water management systems that make use of Active Substances (G9) contained in resolution MEPC.169(57) under the BWM Convention distinguishes also 'Relevant Chemicals' and 'Other Chemicals'.

6 Therefore, the task of WG 34 is to evaluate the risks of the BWMS for the crew, the ship's safety, the risk for the public at large and the environment. It is, furthermore, the intention of WG 34 to perform these evaluations in a consequent, consistent and transparent manner, which helps Administrations to prepare a concise dossier, containing all the necessary data. The Methodology, as developed by WG 34 in the course of its work process, serves as guidance in the evaluation. GESAMP may recall that the Methodology of WG 34 (GESAMP R&S report No. 101) was presented at the 50th anniversary of GESAMP during its 46th annual session in 2019.

7 WG 34 had one regular meeting since GESAMP 51 to evaluate proposed BWMS; with GESAMP-BWWG 46 held from 11 to 15 November 2024 at IMO headquarters. At this meeting one BWMS at Basic Approval level and two BWMS for Final Approval were evaluated. All three BWMS submissions evaluated were recommended to receive their appropriate approval at MEPC 83.

8 At its 83rd session, held from 7 to 11 April 2025, MEPC endorsed the recommendations of WG 34 for the BWMS evaluated during GESAMP-BWWG 46 and granted Basic Approval for one system and Final Approval for two systems.

9 An overview of the BWMS evaluated at this meeting is also presented in annex 3 to this report.

10 WG 34 was able to clear the whole stock of BWMS submitted for evaluation before MEPC 83, for which the evaluation was requested. WG 34 does expect that more BWMS will have to be evaluated for extension of Final Approval for use in fresh water, as there are still several BWMS that received only Final Approval for marine and brackish water.

11 In addition, WG 34 acknowledged that the number of BWMS that presently have a Basic Approval may suggest that more submissions will come to the WG's evaluation for Final Approval.

12 The Chair of WG 34 took part in the intersessional Correspondence Group (CG) of the Ballast Water Review Group (BWRG) in the period between MEPC 82 and MEPC 83. The task of the CG is to prepare proposals for the planned review of the Ballast Water Management Convention in one of the coming years. Also, in the present intersessional period, the Chair of WG 34 will participate in this CG. It is expected that in the CG, the procedure (G9) related issues will be discussed, since the BWRG has decided that Maximum Allowable Discharge Concentration (MADC) should be classified as the mandate parameters specified in the Convention itself.

13 At MEPC 83, several Member States, including Australia and Denmark, prepared submissions with proposals to pay special attention to the Disinfection By-Products (DBP) formed during the treatment processes of the ballast water in operational periods of some vessels. The proposals presented the wish of the submitting Member States to explore the possibilities to determine a Maximum Allowable Discharge Concentration (MADC) for individual DBP generated or for groups of DBP, like trihalomethanes, haloacetic acids and haloacetonitrils.

14 These proposals were discussed during the BWRG. The Chair of WG 34, in consultation with its members, presented an intervention with the message that such MADCs were in the first place not necessary as the results of the whole effluent tests were not taken into account in the submissions and in the second place, since there is no possible feedback control mechanism to influence the formation of the DBP as there is for the Active Substance due to the neutralization process that is part of the ballast water management system.

15 Finally, it was decided that Member States would continue voluntary monitoring the DBP and gather more information on the levels of DBP during ballast water operations.

Methodology for information gathering and the conduct of work of WG 34

16 The evaluation Methodology of WG 34 has been determined to be a living document based on increasing experience in the evaluation of BWMS and international developments in risk assessment of chemicals. GESAMP-BWWG used to develop its Methodology using the instrument of stocktaking workshops in which specific topics could be discussed without the pressure of the delivery of BWMS evaluations as well.

17 During the reporting period no stocktaking workshop was held by WG 34.

Planning ahead

18 The report of WG 34 to MEPC 83 as peer-reviewed by several GESAMP members included also a proposal for the 10th stock-taking workshop with a wide variety of agenda points to be discussed. MEPC 83 approved this meeting in conjunction with a regular meeting of the Group and it should be held later this year, probably during or close to the week of 8 December.

19 The next regular meeting of WG 34 is scheduled from 8 to 12 December 2025, preparing for MEPC 84, scheduled from 27 April to 1 May 2026. The number of days of the meeting will depend on the number of submissions. In case there is only one submission the applicant may decide to postpone its submission and in case of no submissions the meeting will be cancelled. WG 34 considers, in consultation with the Secretariat, to hold also the stock-taking workshop during that week, if feasible. The proposed agenda is attached to this report as annex 4.

Acknowledgement

20 WG 34 is thankful to all members of GESAMP that took the time to critically review the work of WG 34. The quality of the work has improved as a result of the peer-review process and the comments made were brought to the attention of the consultant involved in the drafting of the reports for future use.

Action requested of GESAMP

21 GESAMP is invited to consider the information provided and to comment as it deems appropriate, in particular on the proposal for the agenda of the 10th stocktaking workshop as set out at annex 4.

ANNEX 1

TERMS OF REFERENCE FOR THE TECHNICAL GROUP (GESAMP-BWWG/ WG 34)

1 Consideration of development of necessary methodologies and information requirements in accordance with the "Procedure for approval of ballast water management systems that make use of Active Substances (G9)" (adopted by resolution MEPC 169(57)).

2 For Basic Approval, the Group should review the comprehensive proposal submitted by the Member of the Organization along with any additional data submitted as well as other relevant information available to the Group and report to the Organization.

In particular, the Group should undertake:

- .1 scientific evaluation of the data set in the proposal for approval (see paragraphs 4.2, 6.1, 8.1.2.3, 8.1.2.4 of Procedure (G9));
- .2 scientific evaluation of the assessment report contained in the proposal for approval (see paragraph 4.3.1 of Procedure (G9));
- .3 scientific evaluation of the risks to the ship and personnel to include consideration of the storage, handling and application of the Active Substance (see paragraph 6.3 of Procedure (G9));
- .4 scientific evaluation of any further information submitted (see paragraph 8.1.2.6 of Procedure (G9));
- .5 scientific review of the risk characterization and analysis contained in the proposal for approval (see paragraph 5.3 of Procedure (G9));
- .6 scientific recommendations on whether the proposal has demonstrated a potential for unreasonable risk to the environment, human health, property or resources (see paragraph 8.1.2.8 of Procedure (G9)); and
- .7 preparation of a report addressing the above-mentioned aspects for consideration by MEPC (see paragraph 8.1.2.10 of Procedure (G9)).

3 For Final Approval, the Group should review the discharge testing (field) data and confirm that the residual toxicity of the discharge conforms to the evaluation undertaken for Basic Approval and that the previous evaluation of the risks to the ship and personnel including consideration of the storage, handling and application of the Active Substance remains valid. The evaluation will be reported to the MEPC (see paragraph 8.2 of Procedure (G9)).

4 The Group should keep confidential all data, the disclosure of which would undermine protection of the commercial interests of the applicant, including intellectual property.

ANNEX 2

CURRENT MEMBERSHIP OF WG 34

Name	Affiliation	Country
Annette Dock (Vice Chair)	Adalia AB	Sweden
Assad Ahmed Al-Thukair	King Fahd University	Saudi Arabia
Barbara Werschkun	Wissenschaftsbüro	Germany
Claude Rouleau	Retired, Department of Fisheries and Oceans, Government of Canada	Canada
David Smith	Retired, Fellow at Plymouth Marine Laboratory	United Kingdom
Gregory Ziegler	Smithsonian Environmental Research Center	United States
Kitae Rhie	Retired, Kyung Hee University	Republic of Korea
Jan Linders (Chair)	Retired, National Institute for Public Health and the Environment	Kingdom of the Netherlands
Shinichi Hanayama	Planning & Design Center for Greener Ships	Japan
Teresa Borges	General Directorate of Health	Portugal

ANNEX 3

LIST OF BALLAST WATER MANAGEMENT SYSTEMS THAT MAKE USE OF ACTIVE SUBSTANCES IN ACCORDANCE WITH PROCEDURE (G9) SINCE GESAMP 51

Name of the System/Manufacturer	Brief description of the System	Date of Approval	Specifications
GESAMP-BWWG 44			
<p>1. Erma First Flow BWMS</p> <p>ERMA First ESK Engineering Solution SA in Greece, submitted by Greece.</p>	<p>Disinfection with Active Substance sodium hypochlorite by <i>in situ</i> electrolysis. Filtration is not used as pre-treatment. Neutralization is used as post-treatment. This system requires the storage of the neutralizer sodium thiosulfate on board.</p>	<p>Final Approval granted by MEPC 83.</p>	<p>MEPC 83 would invite the Administration to ensure that the recommendations provided in annex 4 of the report of the GESAMP-BWWG 46 meeting were fully addressed prior to issuing the type approval certificate. The recommendations mainly relate to the adequate monitoring of the MAD at all times.</p>
GESAMP-BWWG 45			
<p>2. Ocean Guard Sim BWMS</p> <p>Headway Technology Group Co. Ltd., China, submitted by Denmark.</p>	<p>Disinfection with Active Substance sodium hypochlorite. The Active Substance is added from a storage tank on board. The system is designed without filtration as pre-treatment but with neutralization as post-treatment. This system requires the storage of the Active Substance and the neutralizer sodium thiosulfate on board.</p>	<p>Final Approval granted by MEPC 83.</p>	<p>MEPC 83 would invite the Administration to ensure that the recommendations provided in annex 5 of the report of the GESAMP-BWWG 46 meeting are fully addressed before issuing the type approval certificate. The recommendations mainly relate to the MAD which should be effectively controlled in the full scale BWMS at all times.</p>
<p>3. Blue Ocean Shield Electrolytic chlorination BWMS</p> <p>COSCO Shipping Heavy Industry Technology Co., Ltd, China, submitted by Denmark.</p>	<p>Disinfection with Active Substance sodium hypochlorite by <i>in situ</i> electrolysis. Filtration is not used as pre-treatment. Neutralization is used as post-treatment. This system requires the storage of the</p>	<p>Basic Approval granted by MEPC 83.</p>	<p>MEPC 83 would invite the Administration to ensure that the recommendations provided in annex 6 of the report of the GESAMP-BWWG 46 meeting are fully addressed before any application for Final Approval. The recommendations</p>

Name of the System/Manufacturer	Brief description of the System	Date of Approval	Specifications
	neutralizer sodium thiosulfate on board.		mainly relate to the installation of two TRO sensors to monitor the MADC and that the control scheme should be able to monitor the MAD and MADC at all times.

ANNEX 4

**DRAFT AGENDA TENTH STOCKTAKING WORKSHOP ON THE ACTIVITY OF THE
GESAMP-BALLAST WATER WORKING GROUP**

(dates to be determined)

- 1 Adoption of the agenda
 - 2 Introduction and ways of working during the Workshop, housekeeping, timetable
 - 3 GESAMP presentation, if appropriate
 - 4 Terminology and effective control of dose
 - 5 Human health and environmental data update for the database
 - 6 Revision of human health risk assessment – need for a Tier 3
 - 7 Developments in TRO monitoring and measured TRO concentrations online versus the actual concentrations in the tank
 - 8 Specific Ultraviolet Absorbance (SUVA)
 - 9 List of documents for Basic Approval and Final Approval
 - 10 Ecotoxicity Tests of the Procedures in consideration of Omission and Animal Welfare
 - 11 Application of species sensitivity distributions (SSD) for DBPs
 - 12 Any other business
 - 13 Closure
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