



GESAMP

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

GESAMP 43/4
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Agenda item 4

**PLANNING OF GESAMP ACTIVITIES:
EVALUATION OF THE HAZARDS OF HARMFUL SUBSTANCES
CARRIED BY SHIPS**

Report of the Chairman of Working Group 1

1 Since the last meeting of GESAMP, Working Group 1 has met once. The 53rd session (EHS 53) was held in Berlin (Germany) from 23 to 27 May 2016. The full report has been circulated as IMO circular PPR.1/Circ.3.

Main use of GESAMP/EHS outputs

2 As outlined in the previous report to GESAMP, the GESAMP Hazard Profiles (GHP) developed by Working Group 1:

- .1 contain a unique fingerprint for each substance, providing information on fourteen separate human health, environmental and physico-chemical hazard criteria and consist of an alphanumeric notation designed to communicate the hazards;
- .2 are published by IMO annually as the GESAMP Composite List (circulated together with the meeting report as a PPR.1/Circular), which are placed on the IMO website for the use of maritime Administrations, the shipping industry and chemical manufacturers; and
- .3 provide the basis for the pollution categorization of over 900 substances. MARPOL Annex II and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) utilise these profiles to determine the pollution category, ship type and carriage conditions for each chemical, for the purposes of bulk carriage in ships.

3 Member State Administrations and IMO bodies assign carriage requirements for the transport of bulk liquids based on these GESAMP hazard ratings. The use of the GESAMP Hazard Profiles (GHP) has increased. This is not limited to pollution hazards, but now also covers ship safety and occupational health aspects. It should be noted that historically there has been no direct reference to GHP ratings in Chapter 21 of the IBC Code, which sets out the criteria for assigning carriage conditions for bulk liquid transport. However, the latest draft version of the Chapter 21 of the IBC Code makes direct reference to GHP ratings for all carriage conditions requiring an evaluation of hazards to human and environmental health. It is expected that the amendments to the IBC Code, with these new references to the hazard ratings, will be adopted next year and will enter into force by 2020.

Guidance on evaluation and hazard rating

4 The updated criteria and guidance for undertaking the hazard evaluations and assigning hazard profiles was published in 2015 as the 2nd Edition of *GESAMP Reports and Studies No.64 "Revised GESAMP Hazard Evaluation Procedure for Chemical Substances Carried by Ships"*. This is now used globally for assigning carriage requirements for bulk liquid cargoes transported by ship.

5 The ongoing work on revising Chapter 21 of the IBC Code, which updates the hazard classification criteria used for assigning carriage requirements, presents new challenges for the GESAMP Hazard Evaluation Procedure. The new Code of Safe Practice for the Carriage of Cargoes and Persons by Offshore Supply Vessels (OSV Code), which is currently under review and will become a mandatory requirement, once finalized, includes direct reference to the IBC Code, including the GESAMP Hazard Profile. Whereas the IBC Code asks for a more sophisticated evaluation of the inhalation hazard, the offshore supply regulation relies heavily on a realistic scientific evaluation of mineral slurries.

6 It was noted that a scientific evaluation of the flammability and explosion hazard within the GESAMP Hazard Profile would be a useful addition, for use by the IMO Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH). Although the GESAMP/EHS Working Group evaluates the scientific data, no flammability rating is included as part of the GHP.

7 Similar challenges resulting from the use of the GESAMP Hazard Profile for spill response were already noted in recent years and were reported to GESAMP 42 in document GESAMP 42/4.

8 Taking these issues into account, the group therefore initiated discussions on possible future amendments to the existing guidance to cover these issues:

- .1 Inhalation toxicity: In essence, the future IBC Code will ask for separate evaluations and ratings for aerosols/mists and vapours/gases. One option considered was to divide the existing C3 column, which at present only covers aerosol toxicity, into sub-categories to provide ratings for exposure to both vapours and mists. The criteria for assessing such hazards would have to be in line with the revised IBC Code criteria and the criteria set out in the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
- .2 Flammability hazard: The group considered the possibility of adding a hazard rating column to capture information on flammability. In discussing a possible way forward, the group noted that there were a number of properties associated with flammability, such as flashpoint, auto-ignition temperature and explosive/flammability range, and agreed that more dialogue was needed to determine the most suitable way to include such information in the hazard profile.
- .3 Inorganic substances and slurries: Today, there is no standardized international approach for the classification of minerals with respect to bioaccumulation/biomagnification nor any substitute defined for biodegradation. This type of evaluation is particularly challenging for the aquatic marine environment. The group noted that any amendment in this area will need more discussion to scope out the issue.

9 The group agreed to consider the first two matters in more detail intersessionally via correspondence and to revisit the topic at EHS 54. The group agreed to place the third matter in abeyance for the time being and revisit the topic at a future meeting.

Evaluation of new substances

10 As part of the routine work of Working Group 1, fourteen new substances were reviewed and full GESAMP Hazard Profiles assigned, accordingly. Based on correspondence with industry, 21 additional substances were re-evaluated, with either modification or reconfirmation of the existing GHPs, based on consideration of new data.

Mineral oils

11 The group recalled that, in general, it does not evaluate products that are covered under MARPOL Annex I, notably petroleum products. However, it has, on occasion, generated GESAMP Hazard Profiles for some petroleum products, at the request of the ESPH working group, in particular for *Gasoline/Petrol* and *Diesel* (automotive). These were published in the report of GESAMP/EHS 47 (BLG.1/Circ.30), but were not included in the GESAMP Composite List. The group noted, however, that the GESAMP Composite List did contain GESAMP Hazard Profiles for some petroleum products, such as *Pyrolysis gasoline* and *White Spirit*, which are oil distillation fractions, like gasoline and diesel oil.

12 The group, having noted the request made by ESPH at PPR 3 to review the mineral oils for the purposes of the mixture calculation, considered how to undertake this work. Mineral oils are often included as a component in mixtures that are classified and shipped under MARPOL Annex II, which regulates the transport of bulk liquid chemicals. Currently, the assignment of carriage requirements for mixtures is determined using a mixture calculation and, when these include mineral oil, a set component factor (according to guidance by MEPC.1/Circ.512) is assigned to the mineral oil component for the purposes of the calculation under the IMO regulation. This factor, however, is not based on a scientific evaluation of the specific type of "mineral oil".

13 In considering the request by ESPH to review mineral oils for the purposes of the mixture calculation, the group noted that "mineral oils" represented a large number of substances with widely differing characteristics (variable toxicity, properties and behavior) and that a review of such substances would require significant time and effort. Based on an informal thought starter paper by the chairman, the group suggested that the CONCAWE categorization of mineral oils may be a helpful reference for identifying the specific mineral oils to be considered.

Paraffins

14 Because of the high number of routine evaluations of new products, the group could only discuss some fundamental issues concerning the review of the family of alkanes which had been started during EHS 52 (see GESAMP 42/4). The group had already noted that in particular high-viscosity paraffins transported as pure chemicals and as crude products from the mineral oil refinery process will need detailed hazard assessments.

15 Having considered the information on various paraffins, the group noted that the naming of the paraffin products set out in the Composite List and in the IBC Code were not consistent with the names used by the industry. In addition, it was observed that the technical data available from industry for paraffins were not always consistent with the ratings assigned by the group, set out in the Composite List. Based on the information considered, the group concluded that there were four possible groupings for paraffins that could be correlated with the CONCAWE categories.

16 Having concurred that further work was needed, the group agreed to revisit the topic at EHS 54 in 2017. The group also instructed the Chairman to prepare a paper for submission to ESPH 22 clarifying the issue, noting the work of ESPH on amendments to MARPOL Annex II related to the discharge of high-viscosity solidifying and persistent floating products. This paper has already been published by the IMO secretariat as ESPH 22/2.

Membership issues

17 The group welcomed an additional toxicologist as a guest with a view to joining the group.

Funding issues

18 The funding of Working Group 1 is based on a fixed fee which is charged for each new product evaluation. It was noted, however, that to date no additional fees were applied for cases

where some follow-up action was needed on a specific issue, for example, to clarify study methodology details or where the GESAMP/EHS experts had questioned particular test results.

19 Following discussion at GESAMP 42, GESAMP noted that it was important that the WG remains on a solid and self-sustaining financial footing in order to ensure no interruptions in the regulatory flow of which GESAMP/EHS is a pivotal part, and that IMO may wish to consider that the system of fees is kept under review to reflect the workload.

20 The Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH 21) was of the view that it was premature to initiate any action and therefore agreed to request the GESAMP/EHS Working Group to continue monitoring this issue and report back to ESPH, as appropriate. The Sub-Committee on Pollution Prevention and Response (PPR 3) noted this outcome.

Action requested of GESAMP

21 GESAMP is invited to consider the information provided and take action as appropriate.
