



SUB-COMMITTEE ON BULK LIQUIDS  
AND GASES  
12th session  
Agenda item 6

BLG 12/6/32  
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## REVIEW OF MARPOL ANNEX VI AND THE NO<sub>x</sub> TECHNICAL CODE

Comments related to the advantages in use of marine distillate fuels on a global basis

Submitted by INTERTANKO

### SUMMARY

**Executive summary:** This document presents the advantages for use of marine distillate fuels by all ships on a global basis as suggested in the INTERTANKO document BLG-WGAP 1/2/5. It presents the advantages as compared to current practices and to the alternative measures presented under the revision of MARPOL Annex VI.

**Action to be taken:** Paragraph 11

**Related documents:** BLG-WGAP 1/2/5; BLG 11/16 and MEPC 56/23

1 This document is submitted in accordance with paragraph 4.10.5 of the Guidelines on the organization and method of work (MSC/Circ.1099-MEPC/Circ.405) and comments on document BLG 12/6/2 (BIMCO). It presents the advantages as compared to current practices and to the alternative measures presented under the revision of MARPOL Annex VI. In summary, the original proposal by INTERTANKO was as follows:

- .1 mandate use of marine distillate fuels for all ships;
- .2 mandate a global sulphur cap in two tiers: tier I of 1.0% and tier II of 0.5%; and
- .3 include the specification of the mandated fuel oil into the MARPOL Annex VI; the proposal is to mandate the use of marine heavy distillate fuels, namely a DMB grade as defined in ISO 8217 but modified to cap the sulphur content to lower limits.

2 The wide debate on the INTERTANKO proposal has, unfortunately, not taken into account the numerous advantages that such measures will bring to shipping operations and to the environment.

3 **Environmental advantages** in using low sulphur marine distillate fuels/DMB grade globally:

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- .1 Reduces SO<sub>x</sub> (70% to 80%), PM emissions (> 80%) and NO<sub>x</sub> emissions (10 to 15%) with no other measures required;
- .2 It is applicable to all existing engines, with no, or only minor, modification, which means immediate global reduction of emissions as presented above; and
- .3 A global reduction of SO<sub>x</sub> emissions from ships by approximately 67% (Tier II) and 83% (Tier III) compared with alternative measures to apply a lower sulphur cap to the few SECAs. The assessed SO<sub>x</sub> emission reduction from the current two SECAs is estimated of less than 5% of the total. Research has demonstrated that sulphur reacting with sea water generates CO<sub>2</sub> emissions (buffering) and thus SO<sub>x</sub> emissions (either falling from air to seawater or released directly into the seawater) have a significant greenhouse gas emission impact:
  - Some 82% reduction of sulphur release into the air and/or into the marine environment. Global scrubbing will take the sulphur out of the air but will still release the entire amount of sulphur into the marine environment;
  - Increases the NO<sub>x</sub> reduction level in existing engines and facilitates further NO<sub>x</sub> reductions by in-engine modifications for compliance with Tier II and Tier III limits;
  - Reduces fuel consumption through its higher calorific value and thus reduces the CO<sub>2</sub> emissions from ALL ships by some 5%;
  - Engines designed to use only marine distillate fuels will be well suited for further emissions reductions over their entire life time of 25 years or more. They will also have higher energy efficiency and thus even lower CO<sub>2</sub> emissions;
  - Therefore, further regulatory reduction of air emissions from ships will be a function of better quality fuels and not limited by the engine functional parameters;
  - A very significant reduction of onboard fuel-generated waste. The result is that there is much less sludge to incinerate which provides another means to reduce CO<sub>2</sub> emissions from ships. The little amount of generated waste will be free of the toxic elements contained in residual fuels, such as heavy metals;
  - Further reduction of CO<sub>2</sub> emissions because there is no need for heating and pre-treatment as required by residual fuels. (i.e., three step heating of residuals: a) raise the temperature (80°C) while the fuel is in the settling tank - during this process, decanting for water and impurities separation takes place; b) heating to a higher temperature (95°C) before entry into the purifier/clarifier; c) further heating to 130°C in the service tank to reduce the viscosity to 12 – 15 cSt for efficient combustion);
  - Avoids need for abatement technologies which, if used, would increase onboard waste and the need for disposal of toxic wastes, adding to the current problems of waste disposal. The operation of scrubbers requires additional energy use and a switch to distillates would avoid this additional air pollution from ship;
  - Significant reduction of harm to the marine environment from accidental spills involving residual fuels; and

- Low sulphur marine distillate fuel offers therefore the best net environmental impact compared with any of the current alternative measures proposed for the revision of MARPOL Annex VI.

4 **Safety advantages** in using low sulphur marine distillate fuel/DMB grade only:

- .1 Improves safety of ship operations due to its higher quality. Currently, some 30% to 35% of the ship incidents are related to engine problems some of which are also related to fuel quality problems;
- .2 No incompatibility problems as experienced by ships using residual fuels in SECAs;
- .3 No need of fuel switch over and thus no exposure to human error and engine failure; and
- .4 Reduced maintenance and reduced risks of breakdowns.

5 **Advantages for rule enforcement and rule monitoring** when using low sulphur marine distillate fuel/DMB grade globally:

- .1 It applies immediately to virtually all existing engines, since only a very few existing engines may be not able to fully comply;
- .2 The burden on administrations would be simplified. It will remove the drive for fragmented legislation for “open sea”, SECA regions and “in port”, with differing requirements and limitations and with a cumbersome and expensive monitoring system;
- .3 One mandatory fuel specification would make for easier control on the supply side rather than on the buyer side, as in case of all other modes of transportation which are obliged to buy and use clean fuels. It would increase responsibility and thus reliability of proper supply;
- .4 Further regulatory reductions of air emissions from ships will be a function of better quality fuels and not limited by engine functional parameters;
- .5 It is a very simple and straightforward solution which ensures a stable and predictable regulatory environment. This is an important factor to ship owners when investing in new buildings with a operational life of 25 years; and
- .6 It is the only solution for simpler (and workable) monitoring and control procedures.

6 **Technical aspects** with use of low sulphur marine distillate fuel/DMB grade only:

- .1 All existing engines can safely use low sulphur distillate fuel/DMB grade;
- .2 There could be a need only for minor modifications, all manageable. In principle, the main changes would be on the fuel pumps and fuel injection system;

- .3 Boilers can use marine distillate fuel/DMB grade fuel but would need to change injection pumps and burner nozzles; and
- .4 These measures for existing engines will add up to a cost but this is absolutely minimal when compared with the retrofitting of abatement technologies, or compared with compliance through use of multiple fuels - which would require an increase and diversification of bunker storage capacity with a complete segregation of high sulphur & low sulphur content fuels, a 3rd/4th storage tank for 0.1% and 0.5% sulphur content S fuels, additional storage for lower BN number lube/cylinder oil, manifold modifications and segregation for bunkering and fuel sampling, etc.

7 **Operational aspects** with use of low sulphur marine distillate fuel/DMB grade only:

- .1 There are only benefits from a simpler and more efficient operation;
- .2 Crews will work in a better, cleaner and safer environment;
- .3 Reduced repair and maintenance loads. A ship which has used marine distillate fuel only for 3 years, has reported that the workload of the engine crew has decreased by 70%;
- .4 A global use of low sulphur distillate fuel/DMB grade fuel would eliminate the necessity for complex fuel change-over before entrance to SECAs. If still required, a change-over to a DMB grade with a 0.1% sulphur fuel at berth (as already legislated for in Europe) is much simpler and easier; and
- .5 There would be no heating for the initial decanting, no heating for purification and no heating before combustion (e.g. the DMB grade maximum viscosity is 15 cSt at 32°C).

8 **Marine fuel quality** – Main quality problems reported with residual fuels are:

- .1 high abrasive materials;
- .2 high ash;
- .3 low flash point;
- .4 high sediments;
- .5 high density;
- .6 containing used lube oils;
- .7 polyethylene contamination;
- .8 polystyrene contamination;
- .9 high calcium & high sodium; and
- .10 incompatibility of blends.

The fuel specification proposed by INTERTANKO removes all these problems.

## **Conclusion**

9 A mandatory global use of a low sulphur distillate fuel/DMB grade is a simple, straightforward and realistic requirement which would ensure:

- .1 A solid platform of requirements through international IMO standards;
- .2 Long term and positive reduction of air emissions (SO<sub>x</sub>, PM, NO<sub>x</sub>) from ships;
- .3 A long-term and predictable regulatory regime with simpler and workable monitoring and control procedures;
- .4 Safer and simpler ship operations with few and manageable technical modifications;
- .5 Better work environment for crews;
- .6 The prevention of fragmented regulations (a global standard for deep sea, coastal and at berth);
- .7 The overall environmental impact for across-the-board emissions reductions is better than any of the current alternative measures; and
- .8 Coast/sea pollution from bunker spills significantly less harmful and easier to clean up.

10 Based on all the advantages presented, INTERTANKO cannot see any better solution than a global mandate for a specifically defined low sulphur marine distillate fuel to achieve significant reductions in air emissions, which will at the same time open up opportunities for engine manufacturers to find innovative, simple and efficient solutions for further reductions of air emissions from ships, including CO<sub>2</sub> emissions.

## **Action requested of the Sub-Committee**

11 INTERTANKO would therefore strongly recommend that the Sub-Committee takes into account all these advantages mentioned above and decides as appropriate with the view of mandating a global use of the low sulphur marine distillate fuel/DMB grade as defined in BLG-WGAP 1/2/5.

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