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CIMAC WG 5 Exhaust Emission Control 62nd Meeting, 25 April 2018



CIMAC WG 5 Exhaust Emission Control 62nd Meeting, 25 April 2018 Rostock IMO MEPC 72 and IMO PPR 5 Ralf Oldenburg, MAN Diesel & Turbo



IMO PPR 5	5 – 9 February 2018
IMO Intersessional WG on GHG-Emissions	3 – 6 April 2018
IMO MEPC 72	9 – 13 April 2018
CIMAC WG 5	25 April 2018
IMO Intersessional Meeting 2020 Fuel Cap	9 – 13 July 2018
IMO MEPC 73	22 – 26 October 2018
IMO PPR 6	18 – 22 February 2019



1.1	MEPC 72 – Greenhouse Gas Emissions (GHG)
1.2	MEPC 72 – Fuel Quality and Fuel Availability
2.1	PPR 5 – Use of more than one Engine Operational Profile
2.2	PPR 5 – Black Carbon Emissions / BC Control Measures
2.3	PPR 5 – EGR Bleed-off Water Guidelines
2.4	PPR 5 – Unified Interpretation to Engine Test Cycles in NTC 2008
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CIMAC WG 5, 62nd Meeting, 25 April 2018

Input to MEPC 72

IMOの中間ワーキングでGHGのGHGニュートラル、実現的な目標値、達成時期のビジョ ンと方針が協議された。

Three IMO Intersessional WGs on GHG-Emissions have been working on a vision and a strategy which move between a GHG neutral maritime transport and a more realistic GHG reduction target and the date until such target can be achieved

MEPC72でGHGを協議する第3回の中間ワーキンググループが開催の提案がされた

- A proposal for a vision and a draft initial IMO GHG strategy developed in the 3rd Intersessional Working Group on GHG as basis for the discussion at MEPC 72
 全てが協議中でエンジンからのメタン、バンカリング、ローディングオペレーション、非常時の範囲
- In all ongoing discussions methane emissions from engines, bunkering, loading operations and emergency situations are within scope

ブラックカーボンもGHGと同様に検討されると事になり、CO2への換算係数は未だ、決定されていない。

Black Carbon could be considered as GHG, however a CO2-equivalence factor is not developed yet

CIMAC WG 5, 62nd Meeting, 25 April 2018

Outcome of MEPC 72 (1/2)

IMOのGHGの初期方針が採択され産業界と船舶団体の可なりの反対があったが

- Initial IMO GHG strategy has been adopted with considerable opposition of major industrial and shipping Member States MEPC73前に第4回の中間会合が予定される
- 4th Intersessional Working Group on GHG is planned to be convened before MEPC 73
 今世紀中に速やかにGHGの段階的なビジョンを行う
- Vision: Phase out GHG emissions as soon as possible in this century

野望

- Levels of ambition:
 - Carbon intensity of shipping to decline by improving energy efficiency of ships (further development of EEDI)
 - To reduce CO2 emissions per transport work as an average by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008
 - To peak GHG emissions of shipping as soon as possible and to reduce total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts for phasing them out

< 6 >

CIMAC WG 5, 62nd Meeting, 25 April 2018

Outcome of MEPC 72 (2/2)

- Candidate measures in short-term (to be agreed between 2018 2023), in mid-term (to be agreed between 2023 2030) and in long-term (to be agreed beyond 2030)
- Short-term and medium-term: EEDI and SEEMP with technology development related to energy efficiency, speed-optimization and -reduction, control of methane and VOC, shoreside/onshore power supply, low-carbon and zero-carbon fuels, (excerpt)
- Long-term: low-carbon and zero-carbon fuels, new and innovative emission reduction mechanisms, (excerpt)
- Impact on States to be considered, such as to economy, competitiveness, supply security, dependency on transport, remote location, managing of catastrophes
- Review of the strategy in spring 2023



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> CG on fuel oil quality chaired by Wayne Lundy (MEPC 69/5/3)

- CG finalized the work, the report was submitted by MEPC 71/5/3 and MEPC 71/INF.8
- EUROMOT has participated in the first round
- Discussion was concentrated to best practice for Member States/Coastal States and Fuel Purchaser/User and how to identify a reputable supplier
- Best practice for **Fuel Purchaser/User** and how to identify a reputable supplier was further considered in the WG of MEPC 72 and was finally approved

Re-establish the CG chaired by Wayne Lundy

- Finalize draft guidance on best practice for **Member States/Coastal States** and submit a report to MEPC 73

> The Committee invited Member States and organizations

- Develop draft best practice for **fuel oil providers** under consideration of document MEPC72/INF.13 and to submit proposals to MEPC 73



- > Ban of HFO when no equivalent method is installed on board
 - Regulation 14 Sulphur oxides (SOX) and particulate matter

General requirements

Paragraph 1 is amended as follows:

"1 The sulphur content of fuel oil used or carried for use on board a ship shall not exceed 0.50% m/m."

- Requirements within emission control areas

Paragraph 4 is amended as follows:

"4 While a ship is operating within an emission control area, the sulphur content of fuel oil used on board that ship shall not exceed 0.10% m/m."

3 Paragraphs 8, 9 and 10 are deleted.



> Ban of HFO when no equivalent method is installed on board

Appendix I

Form of International Air Pollution Prevention (IAPP) Certificate (Regulation 8)

Supplement to the International Air Pollution Prevention Certificate (IAPP Certificate)

- Paragraphs 2.3.1 and 2.3.2 are amended and a new paragraph 2.3.3 is added as follows:

"2.3 Sulphur oxides (SOx) and particulate matter (regulation 14)

2.3.1 When the ship operates outside of an emission control area specified in regulation 14.3, the ship uses:

- .1 fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value of 0.50% m/m, and/or
- .2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in paragraph 2.6 that is at least as effective in terms of SOx emission reductions as compared to using a fuel oil with a sulphur content limit value of 0.50% m/m

MAN Diesel & Turbo



> Discussion about a representative fuel oil sampling point

- 4.7.6 A representative fuel oil sample should be collected during the bunkering process.
 Guidelines for collecting the MARPOL sample are provided in resolution MEPC.182(59) on
 2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised
 MARPOL Annex VI.



< 13 >

Development of measures to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters

MEPC 72 approved the PPR-work item with following ToR

- .1 develop a definition of HFO taking into account regulation 43 of MARPOL Annex I;
- .2 prepare a set of Guidelines on mitigation measures to reduce risks of use and carriage of heavy fuel oil as fuel by ships in Arctic waters
- .3 on the basis of an assessment of the impacts, develop a ban on HFO for use and carriage as fuel by ships in Arctic waters, on an appropriate timescale.

11.10 Consequently, the Committee agreed to retain this agenda item for MEPC 73, and urged Member Governments and international organizations to submit concrete proposals to MEPC 73 on an appropriate impact assessment methodology process.



Sulphur monitoring for 2017

5.22 In this regard, the Committee, having considered document MEPC 72/5/3 (Secretariat), noted the outcome of the monitoring of the worldwide average sulphur content of marine fuel oils supplied for use on board ship for 2017, based on information provided by three sampling and testing service providers, which identified the worldwide average sulphur content (i.e. three-year rolling average) of residual fuel oil as 2.54% and of distillate fuel oil as 0.08%; and requested the Secretariat to continue providing information on this matter annually to it.



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2.3	PPR 5 – EGR Bleed-off Water Guidelines
2.4	DDD 5 Unified Interpretation to Engine Test Cycles in NTC 2009
2.4	PPR 5 – Onlined Interpretation to Engine Test Cycles In NTC 2008
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- No agreement to the terms "map" and "emission control strategy". "Engine operational profile" was considered as compromise.
- > No definition was developed agreement to "description"
- > As urgent item forwarded to MEPC 72 (April 2018)

Title of the proposed new output

Development of amendments to MARPOL Annex VI and the NOx Technical Code on the use of multiple engine operational profiles for a marine diesel engine



< 17 >

Associated scope of work

Clarify whether multiple engine operational profiles are allowed, and if so, what regulatory controls should be applied, noting these may also need to include amendments to MARPOL Annex VI and the NOx Technical Code 2008, and if not allowed, then what amendments would be necessary to MARPOL Annex VI and the NOx Technical Code 2008 to explicitly prohibit multiple engine operational profiles."

Description of "Engine Operational Profile"

Engine Operational Profile is a particular set of NOx influencing settings applied in an electronic engine management system which influences the NOx emission performance. Those settings may relate to, but are not limited to, fuel injection, inlet and exhaust valve operation, charge air, exhaust bypass/waste gate or exhaust after treatment controls and auxiliary control devices.

PPR 5 - Black Carbon Emissions / BC Control Measures CIMAC WG 5, 62nd Meeting, 25 April 2018

1.1	MEPC 72 – Greenhouse Gas Emissions (GHG)
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PPR 5 - Black Carbon Emissions / BC Control Measures CIMAC WG 5, 62nd Meeting, 25 April 2018

- BC reporting protocol was approved. Note: Measurement protocol was not accepted with the possibility that an additional measurement protocol could be developed
- FSN, PAS and LII are considered as the most appropriate measurement methods, more may be added
- > A Correspondence Group has been established with following ToR and **report to PPR 6**:

Identify candidate control measures to reduce the impact of Black Carbon emissions from international shipping, taking into account documents PPR 5/7/5, PPR 5/7/7, PPR 5/INF.7 and PPR 5/INF.16;

Assess the feasibility and appropriateness of the identified candidate control measures, with a view to finalization of the investigation of appropriate control measures at PPR 6

EUROMOT is participating

< 19 >

PPR 5 – EGR Bleed-off Water Guidelines CIMAC WG 5, 62nd Meeting, 25 April 2018



1.1	MEPC 72 – Greenhouse Gas Emissions (GHG)
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2.32.42.5	PPR 5 – EGR Bleed-off Water Guidelines PPR 5 – Unified Interpretation to Engine Test Cycles in NTC 2008 PPR 5 – Certification of Engine/SCR

PPR 5 – EGR Bleed-off Water Guidelines CIMAC WG 5, 62nd Meeting, 25 April 2018



- Draft guidelines have been finalized, subject to approval at MEPC 73
- A separate type approved equipment in accordance with MEPC.107(49)* to be used for bleed-off water discharge when compliant fuel is used

*RESOLUTION MEPC.107(49) . REVISED GUIDELINES AND SPECIFICATIONS FOR POLLUTION PREVENTION EQUIPMENT FOR MACHINERY SPACE BILGES OF SHIPS

PPR 5 - UI to Engine Test Cycles in NTC 2008 CIMAC WG 5, 62nd Meeting, 25 April 2018



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PPR 5 - UI to Engine Test Cycles in NTC 2008

CIMAC WG 5, 62nd Meeting, 25 April 2018



MARINE ENVIRONMENT PROTECTION COMMITTEE 71st session Agenda item 5 MEPC 71/5/4 18 April 2017 Original: ENGLISH

AIR POLLUTION AND ENERGY EFFICIENCY

Unified Interpretation on engine test cycles required by the NOx Technical Code 2008

Submitted by IACS

- > The draft UI was not approved. The existing UI MPC 51 remains applicable for the time being.
- > Amendments to NTC 2008 are required?

PPR 5 – Certification of Engine/SCR



CIMAC WG 5, 62nd Meeting, 25 April 2018

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PPR 5 – Certification of Engine/SCR CIMAC WG 5, 62nd Meeting, 25 April 2018



< 25 >

Amendments to NTC 2008

2.2.5 NOx reducing devices

.1 Where a NOx-reducing device is to be included within the EIAPP certification, it must be recognized as a component of the engine, and its presence shall be recorded in the engine's Technical File. The applicable test procedure shall be performed and the combined engine/NOx-reducing device shall be approved and pre-certified by the Administration taking into account Guidelines developed by the Organization*. However, the pre-certification in accordance with Scheme B as given by the Guidelines developed by the Organization* is subject to the <u>limitations given in paragraph 2.2.4.2</u>.

* Refer to the 2017 Guidelines addressing additional aspects to the NOx Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reduction (SCR) systems adopted by resolution MEPC.291(71). "

PPR 5 – Certification of Engine/SCR CIMAC WG 5, 62nd Meeting, 25 April 2018



Amendments to 2017 SCR guidelines in MEPC.291(71)

1 Paragraph 1.3 is replaced with the following:

"1.3 According to paragraph 2.2.5.1 of the NTC 2008, where a NOx-reducing device is to be included within the EIAPP certification, it must be recognized as a component of the engine, and its presence shall be recorded in the engine's Technical File. "

2 Paragraph 3.1.1 is replaced with the following:

"3.1.1 Engine systems fitted with SCR should be certified in accordance with chapter 2 of the NTC 2008. The procedures provided by Scheme A or Scheme B of these Guidelines should be applied. "

PPR 5 – Certification of Engine/SCR CIMAC WG 5, 62nd Meeting, 25 April 2018



Proposal for a new work item (Certification of engines with SCR-systems)

A proposal contained in document PPR 5/10/1 would constitute a new output and Member Governments wishing to pursue this further should submit a proposal for a new output to the Committee.

Proposal for a new output maybe to MEPC 73

CIMAC WG 5, 62nd Meeting, 25 April 2018



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CIMAC WG 5, 62nd Meeting, 25 April 2018



< 29 >

IMO PPR 5 established a Correspondence Group with ToR

- Develop full revision of the 2015 Guidelines for exhaust gas cleaning systems (resolution MEPC.259(68)), including clarification of the terms "EGC system" and "EGC unit"; PAH (polycyclic aromatic hydrocarbons) monitoring; emission testing; approval of scrubbers in accordance with Schemes A and B
- Develop specific guidance on accidental breakdown, instrument malfunction and perceived temporary non-compliance and transient performance of EGCS
- Develop consequential amendments to the 2009 Guidelines for port State control under the revised MARPOL Annex VI (resolution MEPC.181(59))
- Identify any outstanding issues need to be resolved by the Sub-Committee

and

> Submit a report to PPR 6

CIMAC WG 5, 62nd Meeting, 25 April 2018



MARINE ENVIRONMENT PROTECTION COMMITTEE 71st session Agenda item 9 MEPC 71/9/1 31 March 2017 Original: ENGLISH

POLLUTION PREVENTION AND RESPONSE

Proposals for amendments to the 2015 Guidelines for exhaust gas cleaning systems (resolution MEPC.259(68))

Submitted by Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and European Commission

CIMAC WG 5, 62nd Meeting, 25 April 2018



MARINE ENVIRONMENT PROTECTION COMMITTEE 71st session Agenda item 9 MEPC 71/INF.19 27 April 2017 ENGLISH ONLY

< 31 >

POLLUTION PREVENTION AND RESPONSE

Review of the 2015 Guidelines for exhaust gas cleaning systems (resolution MEPC.259(68)) The need for improved washwater data collection

Submitted by Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and the European Commission

CIMAC WG 5, 62nd Meeting, 25 April 2018



The Committee noted both documents and forwarded them to PPR for further consideration in the next review of the "2015 Guidelines for Exhaust Gas Cleaning Systems" (Resolution MEPC.259(68))



CIMAC WG 5 Exhaust Emission Control

CIMAC WG 5, 62nd Meeting, 25 April 2018



Thank you for your kind attention! Ralf Oldenburg, MAN Diesel & Turbo

