

Subject

Beginning of NOx Appraisal Service in accordance with Amendments to MARPOL Annex VI and NOx Technical Code

ClassNK

Technical Information

No. TEC-0771
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To whom it may concern

Amendments to MARPOL Annex VI [Resolution MEPC.176(58)] and amendments to the NOx Technical Code [Resolution MEPC.177(58)] were adopted at IMO MEPC 58 on 10 October 2008. ClassNK will begin NOx appraisal service relevant to NOx Tier II requirement on 13 May 2009 prior to the amendments effective date of 1 July 2010.

Upon confirmation of compliance with NOx Tier II requirements by ClassNK, a Statement of Compliance for Engine Air Pollution Prevention may be issued for marine diesel engines. If you wish to obtain this Statement of Compliance, please contact Machinery Department, ClassNK.

For your reference, an outline of the principal amendments to Regulation 13 Nitrogen Oxides (NOx) and Regulation 14 Sulphur Oxides (SOx) and Particulate Matters would be informed as follows:

1. Outline of the amendments to Regulation 13 Nitrogen Oxides (NOx)

- (1) For marine diesel engines (excluding engines to be used solely in case of emergency) with a power output of more than 130kW installed on ships constructed on or after 1 January 2000, or which undergo a major conversion on or after 1 January 2000, the following regulations are to be applied in a 3 tier process. Tier II and Tier III are newly required in addition to the present requirements of Tier I as follows:

(i) Tier I

The following NOx emission limits are to be applied to all marine diesel engines installed on ships constructed on or after 1 January 2000 and prior to 1 January 2011, or which undergo a major conversion on or after 1 January 2000 and prior to 1 January 2011. [Hereinafter, n = rated engine speed. (crankshaft revolution per minute)]

1. 17.0 g/kWh: When n is less than 130 rpm.
2. $45 \cdot n^{(-0.2)}$ g/kWh: When n is 130 or more but less than 2000.
3. 9.8 g/kWh: When n is 2000 rpm or more.

(To be continued)

NOTES:

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(ii) Tier II

The following NO_x emission limits are to be applied to all marine diesel engines installed on ships constructed on or after 1 January 2011, or which undergo a major conversion on or after 1 January 2011.

1. 14.4 g/kWh: When n is less than 130 rpm.
2. $44 \cdot n^{(-0.23)}$ g/kWh: When n is 130 or more but less than 2000.
3. 7.7 g/kWh: When n is 2000 rpm or more.

(iii) Tier III

When the ship is operating in Emission Control Areas for NO_x (ECA for NO_x), the following Tier III NO_x emission limits are to be applied to all marine diesel engines installed on ships constructed on or after 1 January 2016, or which undergo a major conversion on or after 1 January 2016.

1. 3.4 g/kWh: When n is less than 130 rpm.
2. $9 \cdot n^{(-0.2)}$ g/kWh: When n is 130 or more but less than 2000.
3. 2.0 g/kWh: When n is 2000 rpm or more.

When the ship is operating outside of an ECA for NO_x, Tier II regulations are to be applied. The ECA for NO_x will be designated by IMO at a later date.

(2) Marine diesel engines installed on ships constructed prior to 1 January 2000

Marine diesel engines with a power output of more than 5,000 kW and a per cylinder displacement at or above 90 litres installed ships constructed on or after 1 January 1990 but prior to 1 January 2000 shall comply with the emission limits of Tier I using an Approved Method for the engine. The Approved Method shall be applied no later than the first renewal survey that occurs 12 months or more after the submission of an Approved Method that has been certified by an Administration to IMO. However, in cases where an Approved Method does not yet exist or is not yet commercially available, this regulation is omitted.

Note: An Approved Method is a modification unit designed to make engines without NO_x certification compliant with the Tier I regulations that has been approved by the Administration.

(3) Principal revised points of the NO_x Technical Code 2008 are as follows:

- (i) Addition of the regulation for NO_x reduction system
- (ii) Addition of the direct measurement and monitoring method for NO_x emission
- (iii) Change of the criterion for selecting the Parent Engine of an Engine Family / Engine Group
- (iv) Simplification of NO_x calculation formula
- (v) Addition of the regulation for details of measurement method

(To be continued)

2. Outline of the amendments to Regulation 14 Sulphur Oxides(SO_x)and Particulate Matters

In addition to the requirements for Sulphur Oxides(SO_x), requirements for Particulate Matters have been added. In order to control emission of Sulphur Oxides(SO_x)and Particulate Matters, it is now required that the sulphur content of any fuel oil used onboard ships does not exceed the limits shown in the below table.

Implementation Date	General Requirements	Requirements within ECA for SO _x *
(Existing)	4.50 % m/m	1.50 % m/m
On and after 1 July 2010		1.00 % m/m
On and after 1 January 2012	3.50 % m/m	0.10 % m/m
On and after 1 January 2015		
On and after 1 January 2020 *	0.50 % m/m	

(Notes) * In addition to current SECA (SO_x Emission Control Areas), ECA for SO_x will be designated by IMO hereafter.

** At 2018, if it is not possible for ships to comply with the requirement from 2020 as a result of a review about the global market supply and demand for fuel oil to comply with the requirement, the requirement shall become effective on 1 January 2025.

For any questions about the above, please contact:

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