

MARPOL Annex VI – Prevention of air pollution from ships

The New Zealand Government will become party to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL) by late 2021.

MARPOL Annex VI seeks to address:

- the impact of air pollution from shipping activities on human health and environments, and
- the impacts of emissions from shipping activities on climate change and ozone layer depletion.

There are eight key regulations relating to emission controls.

Nitrogen oxides

What are Nitrogen oxides?

Nitrogen oxides are harmful pollutants that have negative health and environmental impacts. They are created from the combustion of fuel from diesel engines.

Which ships and engines does this apply to?

Annex VI NO_x requirements apply to ships regardless of their gross tonnage or whether they are used for commercial or recreational purposes.

The requirements apply to:

- all marine diesel engines of over 130 kW output power installed on ships constructed on or after 1 January 2000
- marine diesel engines when the engine undergoes a major conversion or replacement on or after 1 January 2000 (except identical replacement engines).

In addition, marine diesel engines >5000 kW on ships constructed from 1 January 1990 to 31 December 1999 must comply with an Approved Method that reduces NO_x emissions to Tier I levels, if one is available. Approved Methods are approved by maritime administrations and notified to IMO.

The requirements do not apply to marine diesel engines used solely for emergency purposes.

What does Annex VI require?

Annex VI sets out requirements for testing, survey and certification of marine diesel engines in compliance with the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines. New or converted engines must be designed and approved to meet emissions standards.

Three levels (tiers) of control apply based on the ship construction date (see table on next page). Within any particular tier the NO_x limit value is determined by the engine's rated speed.

Tier III controls apply only to specified ships while operating in Emission Control Areas (ECA). Outside the ECA the Tier II controls apply to those ships. Certain small ships would not be required to meet Tier III requirements.

What is an Emission Control Area (ECA)?

ECAs under Regulation 13 are, broadly:

For ships constructed on or after 1 January 2016 – the North American and the United States Caribbean ECAs.

For ships constructed on or after 1 January 2021 – the Baltic Sea and the North Sea ECAs.

What discretions may be applied?

The Flag State may establish alternative NO_x control measures for ships that only voyage domestically.

Engines on ships that only voyage domestically may be excluded from NO_x control measures if the engine was installed or underwent a major conversion before 19 May 2005.

What are your views?

What would be the impact of including or excluding ships on domestic voyages constructed before 2005 (or where the engine has undergone a major conversion before 2005)?

Where can I get more info?

Search for "Nitrogen oxides" on the IMO website.

www.imo.govt.nz

Contact us

You can contact us with any comments or questions at MARPOLAnnexVIProject@maritimenz.govt.nz

Refer to the Maritime NZ website for further information: www.maritimenz.govt.nz/marpol
 Refer to the IMO website for information about Annex VI: www.imo.org

Tier I, II and III NO_x emission limits

Tier	Ship construction date	Total weighted cycle emission limit (g/kWh) n = engine's rated speed (rpm)		
		n < 130	n = 130 to 1999	n ≥ 2000
I	On or after 1/1/2000 OR 1/1/1990 to 31/12/1999 if Approved Method available	17.0	$45.n^{(-0.2)}$ eg 720 rpm = 12.1	9.8
II	On or after 1/1/2011	14.4	$44.n^{(-0.23)}$ eg 720 rpm = 9.7	7.7
III	On or after 1/1/2016 AND Voyaging in ECA	3.4	$9.n^{(-0.2)}$ eg 720 rpm = 2.4	2.0