



MARITIME INDUSTRY AUTHORITY
Overseas Shipping Service



FREQUENTLY ASKED QUESTIONS ON **MARPOL ANNEX VI**

MARPOL Annex VI and its Entry into Force

The MARPOL Annex VI is intended to prevent pollution of the air by seagoing ships. The said Annex that entered into force internationally on 19 May 2005 determines, inter alia, limit values for nitrogen oxide and sulphur oxide.



Adoption of **MARPOL Annex VI**

The International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted on 02 November 1973 by the International Conference on Marine Pollution convened by the International Maritime Organization (IMO).

In response to a spate of tanker accidents in 1976-1977, the Protocol of 1978 relating to MARPOL was adopted in February 1978. As the 1973 MARPOL had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument, referred to as MARPOL 73/78, entered into force on 02 October 1983.

MARPOL 73/78, with its Annexes, contains regulations covering different sources of ship-generated pollution, aimed at preventing and minimizing pollutions from ships – both accidental pollution and that from routine operations.

In September 1997, the Protocol of 1997 was adopted to amend MARPOL 73/78 and to add the sixth Annex to address air pollution from ships. MARPOL Annex VI entered into force on 19 May 2005.

Coverage of **MARPOL Annex VI**

The MARPOL Annex VI has four (4) Chapters with a total of 23 Regulations.

The MARPOL Annex VI provides requirements for the control of emissions from ships such as ozone depleting substances (ODS), nitrogen oxides (NO_x), sulphur oxides (SO_x) and particulate matter (PM), volatile organic compounds (VOCs), greenhouse gases (GHG) and other pollutants.

Further, it provides criteria and procedures in determining NO_x, SO_x and particulate matter (PM) emission control area to any sea area as well as to any port area as designated by IMO.

Control of Ozone Depleting Substances on Board Ship

In Regulation 12, deliberate emissions of ODS, which include halons and chlorofluorocarbons (CFCs), are prohibited. Also, new installations containing ODS are prohibited on all ships. But new installations containing hydro-chlorofluorocarbons (HCFCs) are permitted until 01 January 2020.


Ozone layer depletion causes increased UV radiation levels at the Earth's surface, which is damaging to human health. Negative effects include increases in certain types of skin cancers, eye cataracts and immune deficiency disorders.

NOx Reduction

In Regulation 13, NOx emission limits from diesel engines have been determined. The NOx Technical Code has been adopted to specify the requirements for the testing, survey and certification of marine diesel engines in order to comply with the NOx emission limits of the aforementioned Regulation.

NOx emission from ships is formed from the reaction of nitrogen and oxygen gases in the air during combustion, especially at high temperatures. NOx can cause breathing problems, headaches, chronically reduced lung function, irritation and other health problems; contributes ocean acidification.

NOx emission can be reduced by primary methods such as retard injection, fuel nozzle modification, change of compression ratio, water direct injection, water emulsification, exhaust gas recirculation (EGR) and secondary method such as selective catalytic reduction (SCR).

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SO_x Reduction

In Regulation 14, the sulphur content of any fuel oil used on board ship shall not exceed to 4.5% m/m prior to 01 January 2012; 3.5% m/m on and after 01 January 2012; and 0.5% m/m on and after 01 January 2020.

In emission control areas such as the Baltic sea and the North Sea, sulphur content of any fuel oil shall not exceed the stringent measures of 1.5% m/m prior to 01 July 2010; 1.0% m/m on and after 01 July 2010; and 0.10% m/m on and after 01 January 2015.

SO_x are formed during combustion process in the engine of the ship due to the presence of sulphur in the fuel. SO_x can harm human respiratory system and make breathing difficult.

Reduction of SO_x can be achieved by using fuels with low sulphur content; installation of exhaust gas cleaning system (EGCS) or scrubbers; and use of alternative fuels such as LNG.





VOCs from Tankers

In Regulation 15, provisions on emissions of VOCs from a tanker vessel may be applied if a Party intended to regulate such emissions on its ports or terminals.

There are several commercially available technologies for treating VOC emissions from ship loading. These include thermal oxidation, absorption, membrane separation and cryogenic condensation.

Ship Board Incineration

In Regulation 16, shipboard incineration is controlled; prohibiting burning on board such as contaminated packing materials, polychlorinated biphenyls (PCBs) and exhaust gas cleaning system residues, among others.



Control of Ship Waste on Board Ships

In Regulation 17, ship wastes, particularly equipment containing ODS when removed from ships and exhaust cleaning system residues, must be properly discharged to a reception facility.

Application and Exceptions of **MARPOL Annex VI**

The MARPOL Annex VI applies to ships of 400 gross tonnage and above with certain exceptions as stipulated in Regulation 3.

Under Regulation 3, MARPOL Annex VI shall not apply to:

- Any emissions necessary for the purpose of securing the safety of a ship or saving life at sea; or
- Any emissions resulting from damage to a ship or its equipment:
 - Provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the emission for the purpose of preventing or minimizing the emission; and
 - Except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result.

Particular exceptions would be ships with diesel electric propulsion, turbine propulsion or hybrid propulsion systems, in applying the provisions of Regulation 20 and 21 on the Energy Efficiency Design Index (EEDI) requirements.

Under Regulation 19, the Administration may waive the requirement for ships of 400 gross tonnage and above from complying with Regulation 20 and 21. This waiver may not be applied to ships 400 gross tonnage and above:

- For which the building contract is placed on or after 01 January 2017;
- In the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 01 July 2017;
- The delivery of which is on or after 01 July 2019; or
- In case of the major conversion of a new or existing ship, four (4) years after the date of its entry into force.

The Administration who chose to waive or to comply with the EEDI requirements to a ship entitled to fly its flag shall communicate to the IMO for circulation to the Parties to the present Protocol particulars thereof, for their information.



Certificates Issued under **MARPOL Annex VI**

The **International Air Pollution Prevention (IAPP) Certificate** shall be issued after an initial or renewal survey in accordance with the provisions of Regulation 5 of this Annex, to:

- Any ship of 400 gross tonnage and above engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties; and
- Platforms and drilling rigs engaged in voyages to waters under the sovereignty or jurisdiction of other Parties.

Ships constructed before the date of entry into force of the Protocol of 1997 shall be issued with an IAPP Certificate, as above mentioned, no later than the first scheduled dry-docking after the date of such entry into force, but in no case later than three years after this date.

The **International Energy Efficiency (IEE) Certificate** shall be issued after an initial survey verifying that the ship's attained EEDI is in accordance with the requirements in Chapter 4, and that the SEEMP required by Regulation 22 is on board.

These IAPP and IEE Certificates shall be issued or endorsed whether by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for these certificates.

Validity of IAPP and IEE Certificates

The IAPP Certificate is valid for 5 years. On the other hand, the IEE Certificate shall be valid throughout the life of the ship.

Circumstances that the IAPP and IEE Certificates Cease to be Valid

The IAPP Certificate shall cease to be valid in any of the following cases:

- If the relevant surveys are not completed within the period specified;
- If the relevant surveys, such as intermediated and annual surveys have not endorsed on the Certificate; and
- Upon transfer of the ship to the flag of another State.

The IEE Certificate shall cease to be valid in any of the following cases:

- If the ship is withdrawn from the service; or
- If a new certificate issued following major conversion of the ship; or
- Upon transfer of the ship to the flag of another State.

States that are currently parties to **MARPOL Annex VI**

As of December 2019, there are 96 Contracting States to MARPOL Annex VI.

Philippines' Accession to **MARPOL Annex VI**

The Instrument of Accession was signed by President Rodrigo Roa Duterte and transmitted to the Office of the Senate President on 09 August 2017.

The Philippines has acceded to the Protocol on 24 April 2018 and this has entered into force on 24 July 2018.

The Philippine Government Agencies or Other Related Bodies Involved in the Consultation Process for the Accession

The following agencies have been consulted and have concurred in the proposed accession: Department of Trade and Industry (DTI), Department of Environment and Natural Resources (DENR), Department of Science and Technology (DOST), Maritime Industry Authority (MARINA), Philippine Coast Guard (PCG), Philippine Ports Authority (PPA), Bureau of Fisheries and Aquatic Resources (BFAR), Filipino Shipowners Association (FSA), International Maritime Association of the Philippines (INTERMAP), University of the Philippines – Marine Science Institute (UP-MSI), and Metro Manila Shipyard Association, Inc. (MMSAI).

Benefits that the Philippines can Derive Out of Acceding to **MARPOL Annex VI**

- The Philippines can implement MARPOL Annex VI on all foreign ships calling at Philippine ports;
- The Philippine can use MARPOL Annex VI as a basis for promulgation of local / domestic rules to cover domestic ships;
- It accords the status of a country as a responsible Flag State;
- It shall strengthen the country's performance as a Flag State; and;
- The Philippines, after issuing national law/rules now have legal means to penalize foreign vessels visiting our ports or navigating our territorial waters which may cause air pollution.

MARINA Issuances Relative to **MARPOL Annex VI**

On 14 February 2019, the MARINA issued the MARINA Flag Advisory 2019-01 providing updates on the International Convention for the Prevention of Pollution from Ships, 1973/1978, Regulations for the Prevention of Air Pollution from Ships (MARPOL Annex VI).

The said advisory contains the provisions regarding the amendment and guidance to support and develop the consistent implementation of the 0.50% limit on sulphur in ships fuel.

References:

International Maritime Organization (2006) MARPOL Consolidated 2006. London: IMO Publication

International Maritime Organization (2009) Revised MARPOL Annex VI Regulations for the Prevention of Air Pollution from Ships and NOx Technical Code 2008 Edition 2009. London: IMO Publication

International Maritime Organization. "MARPOL – 25 Years" imo.org, October 1998. Web.20 September 2017.

International Maritime Organization. Status of Conventions. <http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx>

Resolution MEPC.203(62) Amendments to the Annex of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (Inclusion of regulations on energy efficiency for ships in MARPOL Annex VI). Retrieved from [www.imo.org/en/KnowledgeCenter/IndesofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.203\(62\).pdf](http://www.imo.org/en/KnowledgeCenter/IndesofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.203(62).pdf)

National Interest Analysis on Protocol 1997 of MARPOL 73/78

Briefer on Protocol 1997 of MARPOL 73/78

MARINA Flag Advisory No. 2019-01, series of 2019

iHow to Reduce Emission of Nitrogen Oxides [NOx] from Marine Diesel Engines in Relation to Annex VI

World Maritime University (WMU) publication

https://commons.wmu.se/cgi/viewcontent.cgi?article=1297&context=all_dissertations

Measures to Reduce Emissions of VOCs during Loading and Unloading of Ships in the EU; AEA Technologies



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