

**B-1: INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION
FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO**

Name of the Convention: International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 relating thereto.

Acronym or short name: MARPOL 73/78

International organisation in charge: International Maritime Organization (IMO)

Summary description : MARPOL is the main international Convention covering the prevention of pollution of the marine environment by ships from operational or accidental causes. It consists of the International Convention for the Prevention of Pollution from Ships (**MARPOL**) adopted on 2 November 1973 and **the Protocol of 1978** which was adopted at a Conference on Tanker Safety and Pollution Prevention in February 1978. Because at the time the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument is referred to as **the International Convention for the Prevention of Marine Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78)**, and it entered into force on 2 October 1983 (Annexes I and II).

The Convention includes regulations aimed at preventing and minimizing pollution from ships and currently includes following **six(6) technical Annexes**. States Parties must accept Annexes I and II mandatory, but the other Annexes are voluntary.

Annex I : Prevention of Pollution by Oil (Entry into force 2 October 1983)

-The 1973 Convention required tankers to record the movement of cargo oil and its residues from loading to discharging in an oil record book on a tank-to-tank basis.

A new and important feature of the 1973 Convention was the concept of "**special areas**", where oil discharges in the sea were completely prohibited. The 1973 Convention identified **the Mediterranean Sea, the Black Sea, the Baltic Sea, the Red Sea and the Gulfs** area as special areas. **The Southern Africa waters** are additionally designated as special area in 2006. (Entry into force 1 March 2008). All oil-carrying ships are required to retain oily wastes on board or to discharge to shore reception facilities in special areas.

-**The Protocol of 1978** (Entry into force 2 Oct. 1983) made a number of changes to Annex I of the parent Convention. Segregated Ballast Tanks (**SBT**) are required on all new tankers of 20,000 dwt and above. Crude Oil Washing (**COW**), under which tanks are washed with crude oil, was accepted as an alternative to SBTs on existing tankers and is an additional requirement on new tankers.

-**The 1992 amendments** (entry into force on 6 July 1993) to Annex I made it mandatory for new oil tankers to have **double hulls** – and it brought in a phase-in schedule for existing tankers to fit double hulls.

-**The 2007 Amendments** (Entry into force 1 Dec. 2008) stipulate rules on **Reception facilities outside Special Areas**, mentioning the obligation of contracting States to provide facilities in respect of oily mixtures from cargo areas of oil tankers, by referencing regulation 34 on discharge requirements from those cargo areas.

Annex II :Control of Pollution by Noxious Liquid Substances (Entry into force 6 April 1987)

The Annex II details the discharge criteria and measures for the control of pollution by **Noxious Liquid Substances (NLS) carried in bulk**. Some 250 substances were evaluated and categorized into four-category (category X, Y, Z and other) according to their degree of hazard.

The discharge of their residues is allowed only to reception facilities until certain conditions are

complied.

Category X: NLS to be prohibited of the discharge into the marine environment.

Category Y: NLS to be limited on the quality and quantity of the discharge into the marine environment.

Category Z: NLS to be restricted less stringent on the quality and quantity of the discharge into the marine environment.

Other: Substances outside Category X,Y or Z, which being considered harmless to marine environment and human health, and discharge of bilge or other residues are not subject to any requirements of the Annex II.

Annex III : Prevention of Pollution by Harmful Substances in Packaged Form (Entry into force 1 July 1992)

Annex III contains general requirements for the issuing of detailed standards on packing, marking, labeling, documentation, stowage, quantity limitations, exceptions and notifications for preventing pollution by Harmful Substances. The International Maritime Dangerous Goods (IMDG) Code has, since 1991, included marine pollutants as Harmful Substances.

Annex IV : Prevention of Pollution by Sewage from Ships (Entry into force 27 September 2003)

The Annex IV contains a set of regulations regarding the discharge of sewage into the sea. The Annex was revised on 1 April 2004, with an entry into force on 1 August 2005, requiring ships to be equipped with either a sewage treatment plant or a sewage tank. The discharge of sewage into the sea will be prohibited, except when the ship has an approved sewage treatment plant in operation at a distance of more than 3 nautical miles from the nearest land; or is discharging

sewage which is not comminuted or disinfected at a distance of more than 12 nautical miles from the nearest land.

The Annex was amended in March 2006 adding a new regulation 13 on Port State Control on operational requirements, which require ships to be subject to inspection by officers duly authorized by such State Party. In July 2011, the Annex IV was amended with its entry into force on 1 January 2013, which appoints **Baltic Sea** as a special area and requiring passenger ships to fulfill new standards of discharge in the area.

Annex V : Prevention of Pollution by Garbage from Ships (Entry into force 31 December 1988)

The Annex V deals with different types of garbage including all kinds of food, excluding fresh fish, generated during the normal operation of the vessel. The Annex specifies the distances from land and the manner in which they may be disposed of. The requirements are much stricter in **"Special Areas" (the Mediterranean Sea, the Baltic Sea Area, the Black Sea Area, the Red Sea Area, the Gulfs Area, the North Sea, the Wider Caribbean Region, and Antarctic Area).**

The most important feature of the Annex is the complete ban of dumping of all forms of plastic into the sea. The Annex also requires governments to ensure the provision of the reception facilities at ports for garbage from ships.

Regulation 9 of the Annex requires all ships of 400 gross tonnage and above and every ship certified to carry 15 persons or more to provide a **Garbage Record Book** to record all disposal and incineration operations.

The 1994 amendments to new regulation 8 make it clear that Port State Control (**PSC**) officers can inspect a foreign-flagged vessel. In July 2011, the most recent amendments to the Annex V was adopted with its entry into force on 1 January 2013, which prohibits the discharge of all

garbage into the sea except provided otherwise.

Annex VI: Prevention of Air Pollution from Ships (Entry into Force 19 May 2005)

The **Protocol of 1997** was adopted in September 1997 and added a new Annex VI on Regulations for the Prevention of Air Pollution from Ships to the Convention. The rules set limits on Sulphur Oxide (SO_x) and Nitrogen Oxide (NO_x) emissions from ship exhausts and prohibit deliberate emissions of Ozone Depleting Substances.

Revised Annex VI and the associated **NO_x Technical Code 2008** was adopted in October 2008 and entered into force on 1 July 2010. Under the revised rule, **the Global Sulphur Cap** of fuel oil is reduced in phase from original 4.5% to 3.5%(from 1 January 2012) and ultimately to 0.5%(from 1 January 2020).. The limit of sulphur content of fuel oil in "**Emission Control Areas (ECA)**" is also decreased from original 1.5% to 1.0%(from 1 July 2010) and further to 0.1%(from 1 January 2015).

NO_x emissions from marine diesel engines are also regulated to be reduced with a "**Tier II**" emission limit for engines installed on or after 1 January 2011, then with stricter "**Tier III**" limit for engines installed on or after 1 January 2016 operating in ECA.

As of 1 January 2014, **the Baltic Sea, the North Sea, the North American Sea** and **the United States Caribbean Sea** are designated and effective as **Emission Control Area(ECA)** for No_x, So_x and Particulate Matters.

GHG Emissions

In July 2011, the IMO adopted mandatory measures to reduce GHG emissions from international shipping. A **new Chapter 4** titled as "Regulations on energy efficiency for ships" is added to MARPOL Annex VI, which makes mandatory **the Energy Efficiency Design Index(EEDI)** for

new ships and **the Ship Energy Efficiency Plan(SEEMP)** for all ships with its entering into force on 1 January 2013.

Special Areas under MARPOL:

Details of Special Areas with date of entry into force (as at 1 January 2014)

Annex I: Oil

Entry into force Date : Special Areas (Effective Date)

- 2 Oct 1983: Mediterranean Sea, Baltic Sea, Black Sea (Effective from 1 Aug.2008)
"Gulfs" area (Effective from 1 Aug.2008)
Red Sea,
- 1 Apr. 1989: Gulf of Aden
- 17 Mar 1992: Antarctic area (Effective from 17 Mar 1992)
- 1 Feb 1999: North West European Waters(Effective from 1 Aug 1999)
- 1 Jan 2007: Oman area of the Arabian Sea
- 1 Mar 2008: Southern South African waters(Effective from 1 Aug 2008)

Annex II: Noxious Liquid Substances

- 1 Jul 1994: Antarctic area (Effective from 1 Jul 1994)

Annex IV: Sewage

- 1 Jan. 2013: Baltic sea (Effective from 1 Jan. 2013)

Annex V: Garbage

- 31 Dec 1988: Mediterranean Sea(Effective from 1 May 2009),
Baltic Sea (Effective from 1 Oct 1989), Black Sea, Red Sea,
"Gulfs" area (Effective from 1 Aug. 2008)
- 18 Feb 1991: North Sea (Effective from 18 Feb 1991)
- 17 Mar 1992: Antarctic area (south of latitude 60 degrees south) (Effective from 17 Mar 1992)
- 4 Apr 1993: Wider Caribbean region including Gulf of Mexico and Caribbean Sea

Annex VI: Prevention of air pollution by ships (Emission Control Areas)

- 19 May 2005: Baltic Sea (Effective from 19 May 2006)
- 22 Nov 2006: North Sea (Effective from 22 Nov 2007)
- 1 Aug 2011: North American Sea (Effective from 1 Aug 2012)
- 1 Jan. 2013: United States Caribbean Sea (Effective from 1 Jan 2014)

Date of first approval: 2 November 1973 (Convention) and 17 February 1978 (Protocol)

Date of coming into force: 2 October 1983 (for Annex I & II)

Major Revisions or Amendments:

The 1994 amendments: (Adoption 13 November 1994, Entry into force 3 March 1996)

The amendments regarding the five technical annexes (**II, III, V, and I**), make it possible for ships to be inspected when in the ports of other Parties to the Convention to ensure that crews are able to carry out essential shipboard procedures relating to marine pollution prevention.

The Protocol of 1997(Annex VI Regulations for the Prevention of Air Pollution from Ships) : (Adoption 26 September 1997, Entry into force 19 May 2005)

The new **Annex VI** sets limits on sulphur oxide (SO_x) and nitrogen oxide (NO_x) emissions from ship exhausts and prohibit deliberate emissions of ozone depleting substances as stated above.

The 2008 Amendments: (Adoption 10 October 2008, Entry into force 1 July 2010)

The Marine Environment Protection Committee (MEPC) at its 58th session adopted amendments to the MARPOL **Annex VI** to regulate air emission from ships more severely.

Sulphur Oxide (SOX) emissions Control (Sulphur content in fuel oil):

* **Global Cap;**

4.5% (~1 January 2012), 3.5% (1 January 2012~), 0.5% (1 January 2020~)

* **Emission Control Area(ECA);**

1.5% (~1 July 2010), 1.0% (1 July 2010~), 0.1% (1 January 2015~)

Nitrogen Oxide (NOX) Emissions Control

* **For New Engines**

Tier I Engine (installed on a ship constructed during 1 January 2000 to 31 December 2010);

---to be maintained existing NOX standard 17g/kwh.

Tier II Engine (installed on a ship constructed on or after 1 January 2011);

---to be reduced to 14.4g/kwh, which is about 15~20 % lower from current NOX standard.

Tier III Engine (installed on a ship constructed on or after 1 January 2016);

---to be reduced to 3.4g/kwh in a designated Emission Control Area(ECA), which level is about 80% lower from current NOX standard.

* **For Existing Engines**

For existing engine with power output more than 5000 kw and cylinder capacity 90 L or more installed on a ship constructed from 1 January 1990 to 31 December 1999, NOX emission level 17g/kwh is agreed.

* **NOX Technical Code** was also amended including provisions for direct measurement and monitoring methods, a certification procedure for existing engines, and test cycles to be applied to Tier II & III engines.

The 2010 (May) Amendments: (Entry into force 1 August 2011)

The amendments cover establishing **North America Emission Control Area(ECA)** in Annex VI, which becomes effective on 1 August 2012.

The 2011 (July) Amendments: (Entry into force 1 January 2013)

The amendments of Annex VI (Air pollution):

To add new chapter 4 to make **EEDI** mandatory for new ships, and **SEEMP** for all ships to address to global warming.

To establish new **ECAs** for control of Nox, Sox and particulate matter emission from ships in waters of coastal Puerto Rico(USA) and the Virgin Islands(USA). The new ECA of **US Caribbean Sea** becomes effective on 1 January 2014.

The 2012 (March) Amendments: (Entry into force 1 August 2013)

To amend the Annexes I,II,IV, V and VI for small island developing States to enable to comply with requirements for port States to provide reception facilities for ship waste through regional

arrangements.

Applicability (situation of ratification):

- **The Convention** and **The Protocol** shall enter into force 12 months after the date on which not less than 15 States, the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping, have become parties to it in accordance with article 13 of the present Convention (art.15) and article IV of the present Protocol (art.V).

Ratification situation (as at 3 December 2013)

MARPOL 73/78(Annex I/II); 152 states, 99% of world tonnage

MARPOL 73/78(Annex III); 138 states, 98% of world tonnage

MARPOL 73/78(Annex IV); 131 states, 90% of world tonnage

MARPOL 73/78(Annex V); 144 states, 98% of world tonnage

MARPOL Protocol 1997(Annex VI); 75 states, 95% of world tonnage

Stakes for ports: Port State Authorities have the right to control and survey ships registered to other contracting Parties while ships are in their ports or offshore terminals (Annex I, regulation 4; Annex II, regulation 10). Ships must hold a certificate in accordance with the provisions of the Convention. If there are clear grounds that a ship does not carry a valid certificate, Port State Authority shall take measures to ensure that the ship shall not sail until it can proceed to sea without an unreasonable threat of harm to the marine environment (art.5).

Port State Authority can inspect ships when ships are in the ports of the Parties to the Convention in order to ensure that crews are able to carry out essential shipboard procedures relating to marine pollution prevention (Annex I, II, III, V).

In the same way, Port State Authority have to ensure that no more favourable treatment (NFT) is given to ship of non-party to the Convention (art.5 al.3).

Also, Port State Control Officers verify whether a ship has discharged any harmful substances while in any ports or offshore terminal of a Party. In case of violation of the Convention, a report shall be forwarded to the Administration (art.6).

Since the 2001 amendments, Port State Authority can deny the entry of single hull tankers which are allowed to operate until their 25th anniversary of their delivery.

Ports have to take care for the reception facilities (Annex I, regulation 12; Annex II , regulation 7) that they have to provide for ships which have oily residues to discharge or other substances containing in the Annex I-VI (oil, noxious and liquid substances, harmful substances in packaged form, sewage, garbage and air pollution).

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Links with other conventions: [SOLAS](#), [HSSC](#)

Key-words: pollution from ships, prevention, marine environment, special areas, certification, technical co-operation, discharge, incident

Internet hyperlink with other website:

<http://www.imo.org/>

<http://www.comitemaritime.org/>

(full text) <http://www.austlii.edu.au/au/other/dfat/treaties/1988/29.html>

(1978 Protocol)

<http://www.imo.org/KnowledgeCentre/ReferencesAndArchives/HistoryofMARPOL/Documents/MARPOL%20-%201978%20Protocol.pdf>