

# MARPOL Annex VI and sulphur regulations

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Mediterranean  
Action Plan  
Barcelona  
Convention



INTERNATIONAL  
MARITIME  
ORGANIZATION

# Content

- Certification
- Exemptions
- Equivalents
- Enforcement
- Fuel availability and quality
- Abatement systems



# MARPOL International Convention International Convention for the Prevention of Pollution from Ships

Annex I	Annex II	Annex III	Annex IV	Annex V	Annex VI
Oil	Noxious Liquid Substances carried in bulk	Harmful Substances carried in Packaged Form	Sewage	Garbage	Air Pollution and Energy Efficiency

# Annex VI Regulations

## **Chapter 1 General**

## **Chapter 2 Survey, Certification and Means of Control**

## **Chapter 3 -Requirements for Control of Emissions**

- Sulphur oxides (SO<sub>x</sub>) and Particulate Matter (PM) Reg.14
- Fuel oil availability and quality Reg.18

## **Chapter 4 -Energy Efficiency Regulations**

- Collection and reporting of ship fuel oil consumption data Reg.27

# Annex VI Chapter I

## Reg 1

Application → All ships

Definition according to the International convention for the prevention of pollution from ships 1973 (MARPOL) Article 2 (4)

Ship means a vessel of any type whatsoever operating in the marine environment and includes hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms.

Except where expressly provided otherwise

# Reg 2 Definitions > 60

Examples are:

- Emission control area
- Fuel oil
- In use sample
- On board sample
- Low flashpoint fuel
- MARPOL delivered sample
- Sulphur content of fuel
- Etc

# Reg 3 Exceptions and exemptions

Regulations of this Annex shall not apply:

- When saving life at sea
- When securing safety of ship
- When suffering damage to ship or equipment
- **Ship trials for research**
- Emissions from sea bed activities (for marine platforms)
- Unmanned non-self-propelled barges



# Reg 4 Equivalents

1. The Administration of a Party may allow any apparatus or compliance methods used as an alternative if such appliances or compliance methods are at least as effective as that required by this Annex
2. The Administration of a Party which allows such an alternative shall communicate to the Organization for circulation to the Parties the particulars thereof, for their information and appropriate action if any

## **Example SOx Scrubbers**

**Notifications from parties are available through the IMO Global Integrated Shipping Information System GISIS**



# Annex VI Chapter II

- Surveys
- Issue or endorsement of Certificates or Statements of Compliance related to fuel oil consumption reporting (SOC)
- Duration and validity of Certificates
- PSC on operational requirements
- Detection of violations and enforcement

# Reg 5 Surveys and Inspections

Every ship of 400 gross tonnage or above shall be subject to the surveys specified below:

- a) An initial survey before the ship is put into service or
- b) A renewal survey at intervals specified by the Administration, but not exceeding five years,
- c) An intermediate survey within 3 months before or after the second or third anniversary date of the certificate
- d) An annual survey within 3 months before or after each anniversary date of the certificate

Surveys of ships shall be carried out by officers of the Administration or RO (Recognised Organisation)

In the case of ships of less than 400 gross tonnage, the Administration may establish appropriate measures in order to ensure that the applicable provisions of this Annex are complied with.

# Reg 6 Issue or endorsement of certificates

1. An International Air Pollution Prevention (IAPP) Certificate shall be issued, after an initial or renewal survey etc (Every 5 years)
2. An International Energy Efficiency (IEE) Certificate shall be issued, after a survey etc (For the life of the ship)
3. A Statement of Compliance (SOC) related to fuel oil consumption reporting and operational carbon intensity rating shall be issued to the ship (Reg 27 >5000GT) (One year + 5 months)
4. A Ship Energy Efficiency Management Plan (SEEMP) (For the life of the ship subject to reviews)

Regulation 7:

Allows the Issue of a Certificate by another Party

Prohibits issue of certificates to non parties.

# Reg 8 Form of certificates

In English, French or Spanish

- IAPP → Appendix I
- IEEC → Appendix VIII
- SOC related to Fuel oil consumption and operational carbon intensity rating → Appendix X
- IAPP exemption cert (barges) → Appendix XI

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

### INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

Issued under the provisions of the Protocol of 1997, as amended by resolution MEPC.176(58) in 2008, to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

*(full designation of the country)*

by

*(full designation of the competent person or organization  
authorized under the provisions of the Convention)*

#### Particulars of ship\*

Name of ship

Distinctive number or letters

Port of registry

Gross tonnage

IMO Number\*\*

# Reg 10 PSC on operational requirements

A ship, when in a port or an offshore terminal under the jurisdiction of another Party, is subject to inspection by officers duly authorized by such Party

The Party shall take such steps as to ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Annex.

# Reg 11 Detection of Violations and enforcement

- Parties shall co-operate in the detection of violations and the enforcement of the provisions of this Annex using ...
- Any Party shall furnish to the Administration evidence, if any, that the ship has emitted any of the substances in violation of the provisions of this Annex.
- Upon receiving such evidence, the Administration shall investigate the matter..... and when sufficient evidence is available..., it shall act against the ship in accordance with its law as soon as possible.

# Reg 14 Sulphur oxides and Particulate Matter

- 1) The sulphur content of fuel oil used or carried for use on board a ship shall not exceed 0,50% m/m (from 2020)
- 2) The worldwide average sulphur content of residual fuel oil supplied for use on board ships shall be monitored taking into account the guidelines developed by the Organization



# Requirements within emission control areas

3. Any area designated by the organization
  - Baltic Sea, North Sea, North American Emission Control Area and United States Caribbean Sea Emission Control Area and the **Mediterranean Sea Emission Control Area for SO<sub>x</sub> and PM**
4. When a ship is operating within an emission control area the sulphur content of the fuel oil used on board shall not exceed 0,10 % m/m
5. Sulphur content of the fuel to be documented by its supplier (Reg 18)
6. By entering or leaving an SECA → a written procedure how the fuel change over is to be done prior to entry into a SECA.
7. First 12 months after entry into force of an amendment designating a SECA ships are exempted from reg 4, 5 and 6.

**In accordance with Regulation 14.7, ships operating in the Med SO<sub>x</sub> ECA need to comply from 1 May 2025.**



# Reg 14 Fuel oil sampling and testing

8. Samples in use and on board to be taken in accordance with the verification procedure → Appendix VI to this Annex (Verification in Laboratories)

In use fuel oil sampling point

10. Sampling points shall be fitted or designated ... taking into account guideline MEPC.1/Circ.864/Rev.1 (Sampling location and Sample handling)



# Reg 18 Fuel oil availability

- Parties to promote availability of compliant fuel oils (Reg.18.1)
- Ships found not to be in compliance (Reg.18.2.1)
  - Record of actions taken to achieve compliance
  - Need to demonstrate “best efforts” to obtain compliant fuel
- Ship should not be required to deviate or delay unduly the voyage in order to achieve compliance (Reg.18.2.2).
- Party required to take into account all relevant circumstances to determine action (Reg.18.2.3).
- Ship required to notify Administration and port of destination when unable to purchase compliant fuel (Reg.18.2.4).
- Party to notify the Organization when ship presents evidence of non-availability (Reg.18.2.5)<sub>8</sub>  
→ (<https://gis.imo.org/Public>)

# SOx Compliance options

- Single fuel only LS of 0,10 % S
- Multi fuel option HS and LS fuel 0,50% and 0,10% S
- Alternative fuels LNG, Methanol, Hydrogen, Electricity etc
- SOx scrubber systems (MEPC.340(77) 2021 Guidelines for exhaust gas systems.)

# Demonstrating compliance for a two fuel option

1. Fuel Changeover Plan : For ships using separate fuel oils and entering or leaving an emission control area
2. Logbook/Record Book: Record all the details of switching fuels including:
  - Volume of low sulphur fuel oils in each tank
  - Date,
  - Time
  - Position of the ship
  - Etc.

Sulphur content of fuel used or carried for use shall not exceed 0,50%

Carriage ban of carrying any fuel with sulphur > 0.50% from 2020

Unless scrubber is used and

Unless the fuel is carried as cargo



# FONAR (Fuel Oil Non-Availability Reporting)

If not in compliance, operators must:

Submit a FONAR / Notify Flag State / Notify Port State (Reg 18.2.5 notifications)

**A fuel oil non-availability report is not an exemption.**

The FONAR means to capture information on:

Attempt to obtain compliant fuel

Non-availability of fuel

Attempt to find alternative sources of compliant fuel

Everything else to demonstrate best intentions.

# Reg 18 Fuel oil quality



- Required properties of fuel oil identified (Reg.18.3).
- When bunkering fuel, receive a Bunker Delivery Note (BDN)(Reg. 18.5).
- BDN required to be retained on board for 3 three years(Reg. 18.6).
- BDN accompanied by representative sample (MARPOL sample), ... retained on board for 12 months (Reg.18.8.1).
- Inspection and verification by PSC (Reg.18.7.1 & Reg.18.7.2).

# Reg 18 Local suppliers of fuel oil

Parties are required to:

- Maintain a register of local suppliers of fuel oil (Reg.18.9.1)
- Local suppliers to provide a certified BDN and sample (Reg.18.9.2), and retain a copy of the BDN for 3 years (Reg.18.9.3)
- Take action against local suppliers of fuel oil that does not comply with that stated on BDN (Reg.18.9.4)
- Inform the Administration of a ship when ship is found to be non-compliant (Reg.18.9.5)
- Inform IMO of all cases of non-compliant fuel oil being supplied (Reg.18.9.6)



# Abatement systems principles

The exhaust gas scrubber reduces the sulphur oxide content of the exhaust gases by 90 to 95 per cent.

Spray jets drench the exhaust gas with sea water.

Water and sulphur react to form sulphuric acid, which is neutralised with alkaline components in the sea water.

Filters separate particles and oil from the mixture before the cleaned water is given back.

By the open loop type direct to the sea and closed loop to be cleaned and reused on board.



# Exhaust gas scrubbers

An Exhaust Gas Cleaning System (EGCS) unit may be approved subject to periodic parameter and emission checks (Scheme A) or the system may be equipped with a continuous emission monitoring system (Scheme B)

The use of SO<sub>2</sub> (ppm)/CO<sub>2</sub> (%) ratio method will simplify the monitoring of SO<sub>x</sub> emission and facilitate approval of an Exhaust Gas Cleaning unit.

Res MEPC.340(77) 2021 Guidelines for exhaust gas cleaning systems.

Concerns about the wash water. Ph > 6,5 and PAH max 50 µg/L (0,05mg/L)



# Questions ?