



Sulphur 2020: Ship implementation Plan

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Background

The 2020 Sulphur global limit:
the largest significant change ever



The currently in-force ECAs:

- the Baltic Sea area (since 2005)
- the North Sea area (since 2006)
- the North American area (including Hawaii, Saint-Pierre-et-Miquelon) (since 2012)
- the U.S. Caribbean Sea area (including Puerto Rico and US Virgin Islands) (since 2014)



Getting ready for 2020 Sulphur

1. Best practice for fuel oil purchasers/users
2. Best practice for fuel oil suppliers
3. Best practice for Member States/coastal States - To be finalized in May 2019
4. Ship-specific implementation plan
5. ISO standard for the determination of the sulfur content
6. ISO standard for fuels used in marine diesel engines and boilers
7. IMO GISIS module on non-availability of compliant fuel oil



Reference should be made:

- MEPC.1/Circ.875
- MEPC.1/Circ.875/Add.1
- MEPC.1/Circ.878
- ISO 8754:2003
- ISO 8217:2017

Best practice for fuel oil purchaser

Fuel oil suppliers are responsible for:

- correctly specifying the fuel oil which is to be supplied
- implementing measures to confirm that the fuel oil delivered is compliant
- including all the necessary specifications in the contract.



Fuel purchasers should:

- strive to purchase fuel oil from **quality-oriented fuel oil suppliers**
- require that suppliers follow best practices and confirm that procedures are in place if non-compliant fuel oil is detected or delivered.
- include a requirement in their Quality assurance (QA) system to check and approve the quantity to be ordered and quality requirement prior to transmitting their order to the supplier

Best practice for fuel oil suppliers

Fuel oil suppliers are responsible for:

- providing compliant fuel
- ensuring the quality of the fuel
- providing the required representative samples; and
- providing the bunker delivery note and the safety data sheets



Fuel oil suppliers should:

- Specify fuel properties (e.g. flashpoint, ignition quality, stability of blended fuel oil, compatibility, viscosity, cat fines, cold flow properties, acid number)
- confirm compliance with industry standards such as those specified by ISO (i.e. ISO 8217:2017 for marine distillates fuels)

Ship Implementation Plan

Aspects to be covered before 1 January 2020

- Risk assessment and mitigation plan
- Fuel oil system modifications and tank cleaning
- Fuel oil capacity and segregation capability
- Procurement of compliant fuel
- Fuel oil changeover plan
- Documentation and reporting



To be remembered:

- The plan is not mandatory
- The plan could be kept onboard and updated as necessary
- Administrations and PSC authorities may take into account the plan when verifying compliance with Sulphur requirements
- Lack of plan should not be considered as “clear grounds” for a more detailed inspection

Ship Implementation Plan

Tank cleaning



Tank cleaning before loading compliant fuel prior 1 January 2020 should be assessed based on:

- Type of compliant Sulphur fuel
- Use of specific changeover procedures, gradually flushing through the fuel system until the Sulphur content in the fuel oil is at a compliant level

Ship Implementation Plan

Tank cleaning



Manual cleaning during dry docking

- Cleaning of the tanks and flushing all the pipework in the fuel oil service systems
- Time required: 2 to 4 days per tanks. Overall it may take 1 to 2 weeks

A ship that has had all its fuel oil tanks and fuel system cleaned can start loading compliant fuels and expect to be fully compliant right away

Ship Implementation Plan

Tank cleaning



Manual cleaning during service

- Time required: a minimum of 4 days per tank to which the time to drain the tank should be added
- Flushing all the pipework in the fuel oil service system may take 1 or 2 additional days
- Safety precautions for entering enclosed spaces should be considered
- The residues from tank cleaning should be retained onboard

Cleaning tanks in service with specialized additives

Gradual cleaning of the sediments and asphaltenic sludge from HSFO tanks and fuel systems by dosing additives

Ship Implementation Plan

Fuel oil system modifications



Potential impact on machinery systems are to be assessed and ship is to be prepared

– **Use of distillates**

- check the engine and its performance,
- check the fuel pumps and injection nozzles

– **Use of FAME:**

- check the engine,
- check oily water separators, overboard discharge monitors and filters

– **Use of blended residual fuels:**

- Operational issues
- Adjustment of centrifuges

Ship Implementation Plan

Fuel oil capacity and segregation capability



Fuel oil capacity and segregation capability

- Expected number of bunker tanks
- Expected total storage capacity (m³)
- Approximate total fuel oil content (m³) in the fuel oil transfer, purification and delivery systems

Ship Implementation Plan

Procurement of compliant fuel oil



Procurement of compliant fuel oil

- Details of fuel purchasing procedure to source compliant fuels
- Estimated date for bunkering compliant fuel oil
- Confirmation from bunker supplier(s) to provide compliant fuel oil on the specified date
- Details of arrangements (if any planned) to dispose of any remaining non-compliant fuel

Ship Implementation Plan

Fuel oil changeover plan



Fuel oil changeover plan

- Need for a ship-specific fuel changeover plan
- Expected date and approximate time of completion of the changeover procedure
- Availability of adequately trained officers and crew familiar with the ship's fuel system and fuel changeover procedures to carry out the fuel oil changeover procedure

Ship Implementation plan

Fuel changeover : Important operating issues



1. Assessment of the fuel system on board the ship
2. Consideration of the fuel storage, settling and service tank arrangement.
3. Reduction of ship power prior to commencement of fuel switching
4. Thermal shock
5. Compatibility of the mixed fuels
6. Adjustment of purified systems
7. Check of the temperatures of the engine and its components

Ship Implementation Plan

Documentation and reporting



- Necessary updates to the shipboard fuel oil tank management plans and stability and trim booklets
- Procedures to limit the impact of using non-compliant fuel oil
- Procedure for Fuel Oil Non-Availability Reporting (FONAR)

Ongoing discussions at IMO



- **Safety implications** associated with the use of low-Sulphur fuel oil - MSC 101 in June 2019
- **Issues related to the use of non-compliant fuel** - currently under discussion at PPR 6 this week



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