



# **MARPOL Annex VI - Fuel Oil Quality Requirements**

## **Guidelines for Suppliers**

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# 1. INTRODUCTION

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## 1.1 Abu Dhabi Ports

The Abu Dhabi Ports Company (Abu Dhabi Ports) is the Ports Authority for the commercial non-petroleum ports of the Emirate of Abu Dhabi.

We are responsible for overseeing the wide range of work activities that take place in our ports, aiming to ensure health, safety and environmental risk is maintained as low as reasonably practicable.

To achieve this goal, Abu Dhabi Ports has established a framework of policies, rules, standards and procedures – collectively, the Port Rules – which form an essential component of the Port Integrated Health Safety & Environment Management System.

We use a wide variety of methods to encourage and support port users to manage risk in a sensible and proportionate way, and to secure compliance with the Port Rules including the international and local regulations and standards applicable to port operations.

## 1.2 Background

Fuel oil is a fraction obtained from, commonly, crude oil, which may be a distillate, for example gas oil, or the heavy residual oil that remains after refining. Typically the fuel oil used by large ocean-going ships is a blend of residuals, colloquially known as 'bunkers', whose combustion in an engine or boiler generates pollutants including Sulphur Dioxide or SOX<sup>1</sup>, the volume of SOX emitted determined by the volume of sulphur in the fuel oil.

In 2016, the International Maritime Organization (IMO) amended the International Convention for the Prevention of Pollution from Ships (MARPOL) to globally-limit the volume of sulphur in the fuel oil used by ships to 0.50% m/m (mass by mass)<sup>2</sup>. This requirement that ships use only low sulphur fuel oil (LSFO) comes into force globally on 1 January 2020<sup>3</sup>. However, ships may continue to use high sulphur fuel oil (HSFO) if an alternative approach to minimizing SOX emissions is in use, for example the ship is fitted with an exhaust cleaning system compliant to IMO standards<sup>4</sup>.

In addition, to enhance compliance, MARPOL applies control to fuel oil suppliers<sup>5</sup>. Among other things, suppliers must ensure fuel oil delivered to ships conforms to IMO quality standards and, when required by MARPOL, or if requested, provide the purchaser with a sealed sample(s) and prescribed documentation.

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<sup>1</sup> Other pollutants include Nitrous Oxides (NOX) and particulates.

<sup>2</sup> In an Emission Control Area (ECA), for example the Baltic Sea, the sulphur limit is 0.1% m/m. There are no ECAs in the MENA Region

<sup>3</sup> MARPOL Annex VI Regulation 14.

<sup>4</sup> IMO Resolution MEPC.259(68) 2015 Guidelines for exhaust gas cleaning systems.

<sup>5</sup> MARPOL Annex VI Regulation 18.



### 1.3 Purpose

These Fuel Oil Quality Guidelines, which are substantially based on the guidance published by the IMO<sup>6</sup> and industry best practice<sup>7</sup>, are intended to assist fuel oil suppliers licensed by Abu Dhabi Ports fulfil their statutory obligation to supply fuel oil and support documentation compliant to MARPOL requirements.

In addition to these Fuel Oil Quality Guidelines, suppliers should refer to standard ISO 13739 *Petroleum products – Procedures for transfer of Bunkers to ships*. Reference should also be made to national standards such as SS 524: 2014 – *Singapore Specification for quality management for Bunker supply chain (QMBS)*, SS 600 – *Singapore Standard Code of Practice for Bunkering*, and to industry best practice such as guidelines published by the International Council on Combustion Engines (CIMAC).

### 1.4 Definitions

- (1) **Supplier:** Manufactures or purchases, and subsequently owns, stores and sells fuel oil for use by ships. Distributes fuel oil from pipelines, trucks and / or barges. May blend products to meet the specifications of the customer. May own or charter a distribution network or may hire delivery services from a third party.
- (2) **Purchaser:** Secures and pays for the fuel oil delivered to a ship at the operator side (user) and not a trader. Can be the ship owner or the charterer, depending on the contractual arrangements between these interests; and often used in contracts as counterpart of the Supplier.

### 1.5 Compliance with Applicable Law

These Fuel Oil Quality Guidelines do not reduce, extend or modify obligations contained in any legislation applicable to port activities in the Emirate of Abu Dhabi.

Further, these Fuel Oil Quality Guidelines are expressed in general terms. Suppliers should not assume that they deal with all operating conditions and circumstances.

In the event of any inconsistency between these Fuel Oil Quality Guidelines and the legislation under which Abu Dhabi Ports exercises a statutory function, power or discretion, the legislation will prevail.

### 1.6 Coming into Force

These Fuel Oil Quality Guidelines come into force on 31 December 2019.

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<sup>6</sup> IMO Circular MEPC.1/Circ.875/Add.1 *Guidance on Best Practice for Fuel Oil Suppliers for Assuring the Quality of Fuel Oil Delivered to Ship*.

<sup>7</sup> *The supply and use of 0.50%-Sulphur marine fuel* published by the International Bunker Industry Association et al.



## 2. FUEL OIL SUPPLY

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### 2.1 Summary of Responsibilities

The Purchaser is responsible for correctly specifying, to the Supplier, the fuel oil required for delivery to a ship, which may be multiple grades.

The Supplier has a responsibility to deliver fuel oil that is compliant with the specification contractually agreed with the Purchaser and statutory MARPOL standards. Where required<sup>8</sup>, the Supplier is also responsible for providing representative samples of the fuel oil delivered<sup>9</sup> together with the documentation required by IMO.

The Supplier should source constituents for the blending of fuel oil from appropriate refinery streams, and / or from synthetic or renewable sources, to produce a fuel oil compliant to MARPOL standards<sup>10</sup> and relevant technical specifications<sup>11</sup>. The fuel oil delivered to a ship should be homogeneous and stable, and subject to testing to verify compliance with the required standard, the results supplied to the Purchaser on request.

### 2.2 Quality Management Systems (QMS)

The Supplier should establish and document a quality management system (QMS) for all aspects of fuel oil production and supply. The QMS documentation should include references to the technical and other standards adhered to by the Supplier along with any independent third party accreditation of the QMS, or elements of the QMS. If requested, the Supplier should provide evidence of the QMS to the Purchaser, for example third party certification.

#### 2.2.1 Quality Control of Fuel Oil During Production

The following practices are recommended for adoption by the Supplier:

- (a) maintain a database of suitable and unsuitable fuel oil blend components based on experience, industry knowledge and reported incidents;
- (b) develop and / or use appropriate blend modelling tools; and
- (c) perform tests on new / unfamiliar fuel oil blends to affirm compliance with the required quality standards.

The Supplier should ensure sufficient data on blending components is available to ensure the fuel oil delivered to the ship fulfils the requirements of the Purchaser. Key data of the fuel oil blend components include, but are not limited to, viscosity, density, flashpoint and sulphur content.

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<sup>8</sup> The securing of fuel oil samples and issue of documentation is only required if the fuel oil is supplied to a ship of 400 gross tonnes or greater engaged on international voyages. However, for all other ships, the Supplier should provide a sample(s) and documentation if requested by the Purchaser.

<sup>9</sup> IMO Circular MEPC.1/Circ.864/Rev.1 2019 *Guidelines for On-Board Sampling for the Verification of the Sulphur Content of the Fuel Oil Used on Board Ships*.

<sup>10</sup> MARPOL Annex VI Regulation 18.3.

<sup>11</sup> ISO/PAS 23263, Petroleum products – Fuels (class F); Considerations for fuel suppliers and users regarding marine fuel quality in view of the implementation of maximum 0.5% sulphur in 2020.



To avoid precipitation of solids during storage, and to ensure the fuel oil delivered is stable, to the extent that this is practicable, the Supplier should subject all fuel oil components to testing prior to blending, to establish that they are mutually compatible with one another.

To maintain a homogenous product, the blending of fuel oil should only take place during production or in shore tanks. Blending should not take place during delivery to the ship, including transportation using, for example, a bunker barge.

The Supplier should ensure fuel oil delivered contains no extraneous, potentially deleterious materials. This does not preclude the use of additives intended to improve the characteristics of the fuel oil, for example cold flow properties or combustion properties. However, the Supplier should verify any additives used are suitable in a marine application, for example, the additive has received approval from engine manufacturers.

The final blend of fuel oil produced should be subject to testing by the Supplier at an accredited laboratory, ideally to secure a Certificate of Quality (COQ).

### **2.2.2 Quality Control of Fuel Oil in the Supply Chain**

The QMS of the Supplier should cover all stages of handling the fuel oil, from taking custody of the product and / or blend components to the point that custody passes to the Purchaser on transfer of the fuel oil to the ship. The QMS should identify all parties other than the Supplier engaged in handling the fuel oil together with the arrangements for their oversight by the Supplier.

The Supplier should ensure samples of the fuel oil are drawn and tested at each point of custody transfer through the supply chain, to verify that the product supplied to the ship matches the origin<sup>12</sup>. This is a key part of a QMS, to facilitate transparency and traceability, and to assist the Supplier identify the origin of potential, or proven, inconsistencies in fuel oil production.

The quality of fuel oil, as defined on the COQ, may change during transport, storage and delivery. The Supplier should seek to prevent this occurring through working closely with involved third parties, including:

- Establish good housekeeping practice throughout the supply chain. This includes maintaining the fuel oil at the correct temperature and preventing water ingress; the Supplier should ensure the removal of any water that has accumulated in the fuel oil prior to delivery, to avoid conditions leading to microbial / bacterial growth that can severely compromise fuel oil quality.
- Ensure storage tanks are in good condition and suitable for the fuel oil blend. If tanks are not empty before loading fresh product, ensure the resulting fuel oil blend is properly mixed to be homogeneous and stable, and subject to testing using samples from the bottom, middle and top of the tank.

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<sup>12</sup> See CIMAC guidance and Section 8 of ISO 8217.





- Verify the tankers used for transportation are suitable for the fuel oil blend. The Supplier should secure a guarantee from the transportation contractor that no residues were present in the tank(s) prior to loading that may present a risk of cross-contamination.
- For the concurrent delivery of multiple grades of fuel oil, where practicable use segregated pipelines / hoses and connections for each grade at each stage of product transfer. Where this is not practicable, prior to the transfer commencing, the Supplier should agree with the Purchaser the order of delivery<sup>13</sup>.

## **2.3 Fuel Oil Sampling During Delivery**

### **2.3.1 Objective**

The objective is to obtain fuel oil samples at the point of delivery that are representative of the product transferred from the Supplier to the Purchaser. This is an essential component of a holistic QMS and provides authoritative evidence should a dispute arise between Supplier and Purchaser, or questions are raised by the competent authorities of a port subsequently visited by the ship receiving the fuel oil.

### **2.3.2 Sampling Procedure**

The Supplier should use a clean container of sufficient volume<sup>14</sup> to collect a single primary sample of each grade of fuel oil delivered to the ship. Ideally, the Supplier should take the sample(s) at the inlet manifold of the ship<sup>15</sup>. Where this is not practicable, as directed by the Master or other representative of the Purchaser<sup>16</sup>, an alternative sampling point may be used. To ensure the sample is representative, the sample should be drawn continuously throughout the fuel oil transfer operation using either an automatic sampler or manually<sup>17</sup>.

The representatives of the Supplier and the Purchaser should witness the entire sampling process. This includes the sealing and labelling of the sample container(s). The Supplier may adopt an alternative means of observation if the representative of the Supplier cannot be physically present on the receiving ship<sup>18</sup>.

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<sup>13</sup> The delivery of lighter / lower sulphur grade fuel oil should precede that of heavier / higher sulphur grade.

<sup>14</sup> The sample should be 500-750 ml and in any case not less than 400 ml.

<sup>15</sup> IMO Resolution MEPC.182(59), the *2009 Guidelines for the Sampling of Fuel oil for Determination of Compliance with the Revised MARPOL Annex VI*.

<sup>16</sup> The Purchaser may appoint a bunker surveyor licensed by Abu Dhabi Ports.

<sup>17</sup> ISO 13739 and ISO 3171 for automatic pipeline sampling, ISO 3170 for manual sampling methods.

<sup>18</sup> To facilitate effective remote witnessing, visibility of the sampling equipment can be improved by marking the sampling zone with high visibility tape or paint.



### 2.3.3 Distribution of Samples

The Supplier should sub-divide the primary sample(s) to provide, in addition to the sample retained by the Supplier:

- (a) two samples for the receiving ship, one of which is the MARPOL sample;
- (b) a sample for the licensed bunker surveyor, if engaged; and
- (c) a sample for retention by the bunker barge or road tanker operator, as the case may be.

The Supplier should facilitate a request from the Purchaser for additional samples. However, the Supplier should not (further) sub-divide the primary sample(s) for this purpose.

### 2.3.4 Sealing and Labelling of Samples

The Supplier should secure each fuel oil sample with a uniquely identified seal countersigned by the attending representatives of Supplier and Purchaser. A label should also be attached to the sample including, as a minimum, the following information<sup>19</sup>:

- Location at which, and the method by which, the sample was drawn.
- Date of commencement of fuel oil delivery.
- Name of installation, bunker barge or company supplying road tanker.
- Name and IMO number of the receiving ship.
- Signatures and names of the representative of the Supplier and the Purchaser.
- Details of seal identification.
- Grade of fuel oil delivered.

The Bunker Delivery Note (BDN) should record details of the sample seal identifiers together with other relevant documentation as described below.

### 2.3.5 Retention of Samples

The Supplier should retain each fuel oil sample in appropriate storage<sup>20</sup> for at least thirty (30) days from the date of delivery or until such time as any dispute involving the fuel oil supplied has been resolved.

## 2.4 Documentation

### 2.4.1 Safety Data Sheets

The Supplier should provide a Safety Data Sheet (SDS) conforming to IMO standards<sup>21</sup> to the receiving ship for each grade of fuel oil delivered; to inform the crew of all health, safety, handling and environmental risks associated with the product.

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<sup>19</sup> Regulation 18.8 of MARPOL Annex VI and IMO Resolution MEPC 182(59).

<sup>20</sup> Cool / ambient temperature and no exposure to sunlight.

<sup>21</sup> IMO Resolution MSC.286(86) *Recommendations for Material Safety Data Sheets (MSDS) for MARPOL Annex I Fuel oil Cargo and Fuel Oil.*



### 2.4.2 Bunker Delivery Note

The BDN is the official receipt issued by the Supplier to the ship stating the grade and quantity of fuel oil delivered.

The Supplier should issue a BDN to the representative of the Purchaser for each grade of fuel oil delivered including the following information<sup>22</sup>:

- Name and IMO number of receiving ship.
- Port of delivery.
- Date of commencement of delivery.
- Name, address and telephone number of fuel oil supplier.
- Product name(s).
- Quantity (metric tons) of fuel oil delivered.
- Density of fuel oil at 15°C (kg/m<sup>3</sup>)<sup>23</sup>.
- Sulphur content of fuel oil (% m/m) (actual figure)<sup>24</sup>.
- A declaration signed and certified by the representative of the Supplier that the fuel oil supplied is in conformity with Regulation 14(1) or (4)(a) and Regulation 18(1) of MARPOL Annex VI.

The Supplier should facilitate a request from the Purchaser for additional information on the BDN.

The representatives of the Supplier and the Purchaser should sign the BDN(s), both the original issued to the Purchaser (or the ship) and the copy retained by the Supplier.

The Supplier should retain the BDN copy for a minimum of three years from the date of issue<sup>25</sup>.

### 2.4.3 Additional Information

Where possible the Supplier should provide the Purchaser with a copy of the COQ for the fuel oil delivered together with associated laboratory analysis reports.

The Supplier should also provide information to the receiving ship in relation to the properties of the fuel oil that may affect how the fuel oil behaves during storage and handling, particularly if the product supplied differs in characteristics from traditional / mainstream fuel oil.

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<sup>22</sup> Regulation 18.5 and appendix V of MARPOL Annex VI.

<sup>23</sup> Tested in accordance with ISO 3675.

<sup>24</sup> Tested in accordance with ISO 8754.

<sup>25</sup> MARPOL Annex VI Regulation 18.9.3.



## **2.5 Dispute Resolution**

The contract between Supplier and Purchaser should stipulate the procedure for dispute resolution. This includes the conduct of laboratory analysis of the fuel oil sample(s)<sup>26</sup>.

In the circumstance where the fuel oil delivered is subsequently proven by test results to be not as contractually specified, the Supplier should:

- (a) immediately notify Abu Dhabi Ports detailing the nature of the non-conformity;
- (b) contact all other Purchasers of the fuel oil detailing the nature of the non-conformity; and
- (c) conduct an investigation to determine the source of the non-conformity and implement appropriate corrective action, reporting the outcome to Abu Dhabi Ports.

Should a ship experience operational problems suspected related, but not proven, to the fuel oil delivered, the Supplier should offer full assistance to the Purchaser to determine the root cause of the potential anomaly. This may involve, for example, the provision of information on the origin of the product and / or blends, to help build knowledge of fuel oil sources that may be associated with unusual or unexpected operational issues.

Without divulging commercially sensitive information, the Supplier should copy all correspondence that relates to an alleged fuel deficiency to Abu Dhabi Ports.

## **2.6 Supply of Non-Compliant (High Sulphur) Fuel Oil**

### **2.6.1 Purchaser Requests Non-Compliant Fuel Oil**

In the circumstance where a Purchaser expressly seeks to obtain fuel oil with a sulphur content exceeding 0.5% m/m, the Supplier should obtain confirmation from the Purchaser that an approved alternative means of compliance is in use on the ship receiving the fuel oil, for example an exhaust gas cleaning system. Should confirmation not be forthcoming, or there is doubt that an alternative means of compliance is in use, the Supplier should immediately notify Abu Dhabi Ports.

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<sup>26</sup> The nominated laboratory should be independent and accredited to undertake testing to ISO 17025 or an equivalent standard.



### **2.6.2 Non-Availability of Compliant Fuel Oil**

In the circumstance where a Supplier is unable to deliver fuel oil with a sulphur content of 0.5% m/m or less, for example, compliant fuel oil is temporarily exhausted, the Supplier should provide the Purchaser<sup>27</sup> with a written explanation for the non-availability<sup>28</sup>. The BDN, as countersigned by both Supplier and Purchaser, should record the issue of this explanation and the acceptance of non-compliant fuel oil by the Purchaser.

### **2.6.3 Notification to Abu Dhabi Ports**

As soon as practicable thereafter, the Supplier should notify Abu Dhabi Ports on each occasion non-compliant fuel oil is delivered detailing the reasons for so doing.

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<sup>27</sup> The Purchaser determines whether to accept or refuse the fuel oil as offered.

<sup>28</sup> To facilitate completion of a Fuel Oil Non-Availability Report (FONAR) by the ship as described in IMO Resolution MEPC.320(74) *2019 Guidelines for consistent implementation of the 0.50% sulphur limit under MARPOL Annex VI*.



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### **3. AUDIT AND INSPECTION**

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Fuel oil suppliers may be subject to audit or inspection by authorised officers of Abu Dhabi Ports, or other competent authority, to determine conformance with the conditions of their licence, including compliance with these Fuel Oil Quality Guidelines.

Abu Dhabi Ports reserves the right to request or obtain fuel oil samples for analysis from any bunker barge or road tanker delivering fuel oil to a ship, or shore bunker terminal, without securing the consent of the Supplier.

In the event that the analysis of fuel oil identifies a discrepancy, the Supplier must implement corrective action as directed by Abu Dhabi Ports. Failure to do so may result in enforcement action by Abu Dhabi Ports, which may include a financial penalty and / or suspension of the licence issued to the Supplier.