



Circular 2010/001

Sulphur content of marine fuels

Date: 15/7/2011

To whom it may concern,

This circular replaces circular 2010/001, version 1.1.

Reference is made to the Belgian Royal Decree (RD) of 27 April 2007 (koninklijk besluit van 27 april 2007 betreffende de voorkoming van luchtverontreiniging door schepen en de vermindering van het zwavelgehalte van sommige scheepsbrandstoffen). This RD transposes the European Directive 2005/33/EC amending European Directive 1999/32/EC as regards the sulphur content of marine fuels, into Belgian law.

Article 4b of Directive 1999/32/EC, inserted by Directive 2005/33/EC (Shortened): "With effect from 1 January 2010, EU Member States shall take all necessary measures to ensure that ships at berth in EU Community ports do not use fuels with a sulphur content exceeding 0.1%*m/m*."

In other words and in real terms, this boils down to the use of Marine Gas Oil (MGO).

The use of low sulphur fuels (LSF) in general and specifically the use of LSF with a content not exceeding 0.1%*m/m* for safe operations of diesel engines and boilers raised great concerns to the BMI.

The use of LSF can be related to design criteria and operational criteria.

The Commission Recommendation of 21 December 2009 on the safe implementation of the use of low sulphur fuel by ships at berth in Community ports has been taken into consideration.

I. Main & Auxiliary Diesel Engines

1. A fuel change over from Heavy Fuel Oil (HFO) to LSF may result in troubles with fuel pumps, vapour lock etc...due to vaporization of the highly volatile LSF in the heated fuel supply piping.
2. Different types of fuel request the use of different types of cylinder oil (lubrication). In other words, cylinder oil must be compatible with fuel oil.
3. Today's LSF tend to have low viscosity and low carbon residue contents.
4. LSF are also related to problems due to their low lubricity properties.

Actions to be taken

A. Approval and surveys (Machinery certification)

1. In case where modifications to the fuel system are necessary (in accordance with the engine manufacturer's recommendations)(including hardware and software issues), a

retrofit plan approval shall be produced and relevant surveys shall be executed by the Recognised Organization (RO).

2. With reference to the manufacturer's recommendations, a risk assessment shall be conducted, to be reviewed by the RO.
3. The RO shall draft an attestation. A copy of the attestation shall be forwarded to the BMI.

B. ISM Code

1. Operational manuals (and when necessary additional monitoring procedures) for related machinery shall be reviewed by the RO:
 - a) General recommendations from Engine Manufacturer or Oil Manufacturer and recommendations to the crew regarding ignition delay, defective combustion, abnormal wear of piston rings and cylinder liners;
 - b) Recommendations from Engine Manufacturer in cases of abnormal conditions (i.e. high exhaust gas temperatures).
2. Fuel changeover procedures between HFO and LSF must be established by the owner and to be reviewed by the RO:
 - a) Including but not limited to dangers and possible problems involved (i.e. abnormal wear of piston rings/liners, vapour lock, problems with fuel pumps...);
 - b) SOLAS regulations prohibit the use of fuel oils with a flashpoint lower than 60° C. Marine Gas Oil (MGO) may have flashpoints below 60° C! Bunker Delivery Notes must confirm that the flashpoint of the fuel oil is 60°C or above.

II. Boilers

Boilers have been designed to the specifications of the boiler manufacturer. Where a boiler has been originally designed to burn only HF or Marine Diesel Oil (MDO), various issues must be considered when using LSF for boilers. The owner shall consult with the boiler manufacturer whether LSF can be used, with or without necessary modifications.

Actions to be taken

A. Approval and surveys (Machinery certification)

1. Whether modifications are necessary or not, and LSF can be used, a retrofit plan approval shall be produced and relevant surveys shall be executed by the RO. (Hardware and software items shall also be considered)
2. The RO shall draft an attestation. A copy of the attestation shall be forwarded to the BMI.
3. With reference to the manufacturer's recommendations, a risk assessment shall be conducted by the owner, to be reviewed by the RO in order to consider additional measures or countermeasures to be taken for safe operation of the boilers.

B. ISM Code

1. Operational manuals (and when necessary additional monitoring procedures) for related boilers shall be reviewed by the RO.
2. Fuel changeover procedures between HFO and LSF shall be established by the owner/shipyard and to be reviewed by the RO, Including but not limited to:
 - a) dangers and possible problems involved (i.e. vaporization of LSF, instability of burning, flame failure, increasing risk of explosion of the boiler);
 - b) The possible operational restrictions during the changeover;

- c) The list of all actions necessary for the safe switching between LSFO and other fuel oils (manual and automatic actions);
- d) The detailed procedure for the manual actions and the list of the parameters to be monitored;
- e) The safety measures to be followed in case of failure or alarm (where applicable);
- f) SOLAS regulations prohibit the use of fuel oils with a flashpoint lower than 60°C. MGO may have flashpoints below 60°C! Bunker Delivery Notes must confirm that the flashpoint of the fuel oil is 60°C or above.

ir.Bart Heylbroeck
Naval architect – director
Belgian Maritime Inspectorate

