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Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Directive 1999/32/EC as regards the sulphur content of marine fuels

{SEC(2011) 918 final}

{SEC(2011) 919 final}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

General context

Promoting a more resource efficient, greener and more competitive economy is at the heart of Europe 2020 strategy¹. In this context further reduction of air pollution is important to improve human health and the environment and contributes to the attainment of more sustainable Europe. The EU actions over the past decades have resulted in a considerable reduction of emissions of most air pollutants, including sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds, ammonia and particulate matter (PM). The greatest share of these reductions has been achieved by land-based emission sources such as industrial plants or road transport. Evidence shows that further reduction of such pollutants will deliver significant benefits to the health of EU citizens, the environment, and the economy at large.

Historically, less attention was given to address maritime emission sources compared to land-based sources. However, as maritime emissions of air pollutants can travel large distances they have an impact on land. Projections made in 2005 showed that without further regulatory action the continued growth in emissions of SO₂ and NO_x from the maritime sector will surpass total emissions of these pollutants from all land-based sources by 2020.²

Grounds for and objectives of the proposal

The sulphur content of a liquid fuel essentially determines the SO₂ emissions related to the combustion of that fuel, as well as the formation of (secondary) particular matter (PM). Directive 1999/32/EC as amended regulates the sulphur content of fuels used by maritime transport and incorporates certain rules, agreed under the International Maritime Organisation (IMO), into EU law. In particular, the Directive incorporates more stringent rules on sulphur content of marine fuels to be used in areas in need of special environmental protection, the Sulphur Emission Control Areas³ (SECAs).

Since the amendment of the Directive in 2005, and with strong EU support, IMO rules, among others in relation to SO₂, were revised in October 2008. These rules are contained in Annex VI of the Marine Pollution Convention 73/78 (Revised MARPOL Annex VI)⁴. Already at the time of the adoption of Directive's 2005 amendment the EU's co-legislators, expecting the need for further reduction of shipping emissions, called upon the Commission to review the legal requirements related to the sulphur content of liquid fuels.

Consistency with other policies and objectives of the Union

¹ Communication from the Commission, Europe 2020 A strategy for smart, sustainable and inclusive growth, COM(2010) 2020 final.

² SEC (2005) 1133: Commissions Staff Working Paper accompanying the Communication on Thematic Strategy on Air Pollution (COM(2005)446 final), the Directive on Ambient Air Quality and Cleaner Air for Europe (COM(2005)447 final) and the Commission Staff working paper on the implementation of EU Air Quality Policy and preparing for its comprehensive review, SEC(2011)342 final.

³ In the EU SECAs cover the Baltic and North Seas and the English Channel.

⁴ Resolution MEPC.176(58) adopted on 10 October 2008 (Revised MARPOL Annex VI).

This proposal is consistent with Article 191 of the Treaty on the Functioning of the European Union (TFEU) and aims to provide a high level of protection for human health and the environment. It is furthermore consistent with the EU 2020 Strategy and its associated flagship initiatives, notably those relating to the low carbon society roadmaps and innovation union, as well as existing EU policies for sustainable transport.

2. RESULTS OF CONSULTATIONS WITH THE INTERESTED PARTIES AND IMPACT ASSESSMENT

Public consultation

In preparation of this amendment the Commission conducted an online consultation open to all interested parties (including organisations, Member States, NGOs, general public) during the period of 29 October 2010 to 5 January 2011. Stakeholders were requested to express their views on the possible incorporation of the latest relevant IMO's rules into EU legislation. In addition to the public consultation, the Commission also regularly consulted Member States' representatives and other stakeholders.

The public consultation yielded 244 responses from various organisations. The important contribution of the revised Annex VI of MARPOL to improving air quality in the EU has been widely acknowledged by all stakeholders. In the view of most respondents the EU provisions on the abatement technologies should be aligned with the revised Annex VI of MARPOL. The broad range of abatement technologies should in their view be allowed, while ensuring appropriate safeguards for the environment. Respondents have also broadly agreed that strengthening and harmonising monitoring and enforcement of the sulphur standards is an important tool that would ensure delivery of the intended environmental improvements. Some stakeholders raised concerns about the costs of the new requirements and the potential risk of modal shifts (from short sea shipping to trucks), in particular in areas where the sulphur standards are stricter (SECAs). Others underlined the need for a prompt EU action to encourage the industry's response and safeguard the environmental benefits of the revised Annex VI of MARPOL.

More detailed information on the results of the public consultation is presented in the Impact Assessment accompanying this proposal⁵.

External expertise and public information

Several studies were conducted in support of the preparatory work leading to the present proposal. These studies have been made available upon completion on the Commission's webpage dedicated to EU policies on shipping emissions: http://ec.europa.eu/environment/air/transport/ships_directive.htm.

The results of the impact assessment

The new international limit values for the sulphur content of marine fuels are expected to significantly reduce emissions of sulphur dioxides from the maritime sector. This will greatly contribute to achieving the general environmental objectives stated in the 2005 Thematic Strategy on Air Pollution as well as the specific objectives stated in the Directive. It will furthermore yield important ancillary benefits in terms of reducing emissions of particulate

⁵ SEC [reference]

matter and NO_x (an important precursor of ground-level ozone). It is essential to ensure that these projected benefits materialise, not least for the purpose of promoting compliance with existing ambient air quality limit values.

The impact assessment confirms the cost-effectiveness of the full alignment of the Directive with the IMO stricter fuel standards and the rules on emission abatement methods. According to its findings the MARPOL Annex VI 2008 revision offers an estimated €15 to €34 billion in benefits to the EU in improved health and reduced mortality. The costs of implementing the revision range from €2.6 to €11 billion. As such the revision offers benefits that are three to thirteen times greater than the costs.

In addition to the alignment of the Directive with IMO rules, the impact assessment recommends maintaining the link between the stricter fuel standards in SECAs and those applying for passenger ships on a regular service outside SECAs. However, the introduction of a new SECA standard for passenger ships would be delayed by 5 years in order to avoid potential problems with fuel availability. The benefit to cost ratios for this option range from 1.5 to 6 (if the 0.1% standard is introduced in 2020) and from 0.8 to 10 (if the 0.1% standard is introduced in 2025).

Furthermore, the impact assessment analysed the issues identified during the review of the Directive. In particular, it showed that certain weaknesses exist in the enforcement provisions of the Directive (in particular on sampling and reporting). The impact assessment suggests to first develop guidance on monitoring and implementation of the Directive and, should this approach fail, to consider adopting binding rules.

Finally, the impact assessment also recommends that the European Commission and Member States use and, where possible and necessary, adapt existing instruments, to assist industry in the transition towards the new best available technology standards, including those agreed at the IMO or other relevant organisations (notably for NO_x, PM, and GHG).

3. LEGAL ELEMENTS OF THE PROPOSAL

Summary of the proposed action

The purpose of this proposal is to revise Directive 99/32/EC on the sulphur content of certain liquid fuels with the aim to:

- (1) Align the Directive with the IMO rules on fuel standards, including the standards applicable outside SECAs.
- (2) Align the Directive with the IMO rules on the emission abatement methods.
- (3) Maintain the link between the stricter fuel standards in SECAs (now requiring maximum sulphur content of marine fuel of 1.5% and from 2015 - 0.1%) and those applying for passenger ships on a regular service outside SECAs (at the moment 1.5%).
- (4) Strengthen EU monitoring and enforcement regime.

Incorporating the international fuel standards into EU law would strengthen the effectiveness of these standards as they would be monitored and enforced under the EU regime, which is more effective than the international enforcement system. The proposed extended access to

and promoting the use of innovative emission abatement methods as an equivalent compliance option addresses concerns about the cost implications resulting from the new IMO rules for certain industries. This would significantly lower the IMO compliance costs (by 50% to 88%) and promote innovative industry solutions, in line with the priorities of the Europe 2020 Strategy and Article 3 of the Treaty on European Union (TEU). Furthermore, stricter fuel standards for passenger ships on a regular service, which operate mostly in ports or close to shore, would ensure improvement of air quality in coastal areas. The introduction of the stricter fuel standard for passenger ships would be delayed by 5 years in comparison with SECAs in order to avoid potential problems with fuel availability. Finally, strengthening EU monitoring and enforcement regime is particularly important considering that the significantly stricter fuel standards and the associated compliance costs may increase the incentives for circumvention.

These actions will ensure better implementation and enforcement of the Directive by national authorities and easier compliance by the industry and should result in a high level of environmental protection.

Legal basis

The primary objective of the Directive is the protection of the environment. This proposal is therefore based on Article 192 of the TFEU.

Subsidiary principle

The right for the EU to regulate the sulphur content of liquid fuels with significant impact on the internal market and the environment is established in the TFEU. Article 3 TEU stipulates that 'The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment'. Moreover, Article 191 TFEU states that 'Union policy on the environment shall contribute to [...] preserving, protecting and improving the quality of environment, protecting human health, prudent and rational utilisation of natural resources, promoting measures at international level to deal with regional or worldwide environmental problems [...]'.⁶

Global dimension of shipping and a cross-border impact of air pollution emitted from the combustion of fuels containing sulphur require that common rules are established for all Member States. In the absence of such rules different national standards would apply to ships operating in EU waters. Such a legal patchwork would make the operation of a shipping industry in the EU very complicated and costly, hence distorting internal market.

Only a harmonised action at EU level, with its strengthened monitoring and enforcement regime, would ensure an effective implementation and application of the international fuel standards across Member States.⁶

Detailed explanation of the proposal

Article 1

⁶ More detailed explanation on the subsidiarity principle is available in the Impact Assessment accompanying this proposal.

This Article details each of the proposed amendments to Directive 1999/32/EC.

- (1) Article 2 of Directive 1999/32/EC is amended to adapt the definitions of marine diesel oil and marine gas oil to the latest ISO standard and to extend the definition of emission abatement method and align it with the definition of equivalents in Regulation 4 of the revised Annex VI of MARPOL.
- (2) Article 3 is amended to revise the provisions on maximum sulphur content of heavy fuel oil following the adoption of Directive 2010/75 of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)⁷, which recasts the European legislation on industrial emissions.
- (3) Article 3a is added to ensure that marine fuels are not used or placed on the market in Member States if their sulphur content exceeds the general standard of 3.5 % by mass. In particular, this provision addresses the risk that the possibility to use heavy fuel oil in combination with emission abatement methods instead of low sulphur distillate fuels could result in use and placing on the market of poor quality fuel. Abatement methods would allow desulphurisation of high sulphur fuel and reduction of sulphur dioxide emissions to air. However, if poor quality fuel with high sulphur content is used for abatement, it could result in a discharge of high density waste water and have negative effects on marine environment. Ensuring a minimum fuel quality aims also at preventing the risk of ship engine failure;
- (4) Article 4 on maximum sulphur content in gas oil is amended to delete the references to the dates of entry into force of sulphur limits that have become obsolete.
- (5) Article 4a is amended to:
 - Introduce a new provision on the sulphur fuel standard applicable outside SECAs ("general standard");
 - Align the sulphur fuel standards applicable in SECAs with the revised Annex VI of MARPOL;
 - Introduce 0.1% sulphur limit for passenger ships operating outside SECAs in 2020, thereby restoring the link of the requirements for passenger ships operating outside SECAs with those for SECAs;
 - Clarify that the register of local suppliers of marine fuel that Member States are obliged to maintain should be publicly available;
 - Delete the outdated references;
 - Empower the Commission to designate new SECAs on the basis of the IMO's decision.
- (6) Article 4b is amended to delete the exemption from the obligation set out in Article 4b(1) for certain vessels operating in the Hellenic Republic, as the period for which it

⁷ OJ L 334, 17.12.2010, p. 17.

was granted has expired, and to delete the reference to the dates of entry into force of sulphur limits that have become obsolete.

- (7) Article 4c is amended and Articles 4d and 4e are added to align the Directive to the revised Annex VI of MARPOL and adapt it to technical progress. In particular, the proposed Directive requires Member States to allow the ships to use emission abatement methods as an alternative to using low sulphur marine fuels provided that they continuously achieve reductions of sulphur dioxide emissions equivalent to those that would be achieved by using low sulphur fuel. The use of emission abatement methods is also subject to certain criteria to ensure that these methods do not give rise to significant negative impacts on and risks to human health and the environment. The criteria will be established either by the IMO, subject to supplementation or amendment by the Commission Decision or, in the absence of the IMO instruments, by the European Commission. The emission abatement methods for use by ships flying the flag of Member States will be approved either on the basis of the 96/98/EC of 20 December 1996 on marine equipment⁸ or on the basis of this Directive, by the Committee on Safe Seas and the Prevention of Pollution from Ships established by Regulation 2099/2002/EC. The procedure and conditions for testing of new abatement methods remain unchanged.
- (8) Article 6 is amended to empower the Commission to specify the frequency of sampling, the sampling methods and the definition of a sample representative of the fuel examined as well as to adapt the method for determining the sulphur content and the fuel verification procedure to the newest international technical standards.
- (9) Article 7 is amended to clarify the scope of the report on the sulphur content of fuels covered by the Directive to be submitted to the Commission by Member States and to empower the Commission to specify the format and the content of the report. The amendment also aligns paragraph 4 of Article 7 on adaptations of the relevant Directive's provisions to scientific and technical progress with the new comitology rules under the Treaty of Lisbon.
- (10) Article 8 is deleted as it refers to a Directive that has been repealed.
- (11) Article 9 is deleted as the Directive does not provide for implementing acts.
- (12) Article 9a is added to provide for conditions for the exercise of the power to adopt delegated acts by the European Commission.

Article 2

This article requires Member States to transpose the proposed Directive.

Article 3

This Article concerns the date of entry into force of the proposed Directive.

Article 4

⁸ OJ L 46, 17.02.1997, p. 25.

This Article addresses the proposed Directive to the Member States.

4. BUDGETARY IMPLICATION

The proposal has no budgetary implication for the Union budget.

5. OTHER COMMENTS

The Commission proposal is accompanied by the Communication which, in section 4, makes suggestions for compliance strategies and outlines existing tools and possible future measures which can help industry in meeting its environmental challenges.

The Commission also envisages to codify the Directive 1999/32/EC and its subsequent amendments, including this proposal for amendment, once adopted by the European Parliament and the Council. This will render the Directive 1999/32/EC more readable and legally clear and contribute to the achievement of the EU better regulation strategy.

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Directive 1999/32/EC as regards the sulphur content of marine fuels

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the European Commission⁹,

After transmission of the draft legislative act to the national Parliaments,

Having regard to the opinion of the European Economic and Social Committee¹⁰,

Having regard to the opinion of the Committee of the Regions¹¹,

Acting in accordance with the ordinary legislative procedure,

Whereas:

- (1) The environmental policy of the Union, as set out in the action programmes on the environment and in particular in the Sixth Environmental Action Programme adopted by Decision No 1600/2002/EC of the European Parliament and the Council¹², has as one of its objectives to achieve levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment.
- (2) Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC¹³ lays down the maximum permitted sulphur content of heavy fuel oil, gas oil and marine gas oil used in the Union.
- (3) Emissions from shipping due to the combustion of marine fuels with a high sulphur content contribute to air pollution in the form of sulphur dioxide and particulate matter, which harm human health and contribute to acidification.

⁹ OJ C , , p. .

¹⁰ OJ C , , p. .

¹¹ OJ C , , p.

¹² OJ L 242, 10.9.2002, p. 1.

¹³ OJ L 121, 11.5.1999, p. 13.

- (4) According to Directive 1999/32/EC the Commission is to report to the European Parliament and the Council on the implementation of the Directive and to table any proposals for amendments, in particular as regards the reduction of sulphur limits for marine fuel in SO_x Emission Control Areas (SECAs), taking account of work within the International Maritime Organisation (IMO).
- (5) In 2008, a Resolution was adopted to amend Annex VI of the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereafter MARPOL), containing regulation for the prevention of air pollution from ships. The revised Annex VI to MARPOL entered into force on 1 July 2010.
- (6) The revised Annex VI to MARPOL introduces, inter alia, stricter sulphur limits for marine fuel in SECAs (1.00% as of 1 July 2010 and 0.10% as of 1 January 2015) as well as in sea areas outside SECAs (3.5% as of 1 January 2012 and, in principle, 0.50% as of 1 January 2020). Most Member States are obliged to require ships to use fuel with maximum 1.00% sulphur content in SECAs as of 1 July 2010 based on their international commitments. In order to ensure coherence with international law as well as to secure proper enforcement of new globally established sulphur standards in the Union, the provisions of Directive 1999/32/EC should be aligned with the revised Annex VI to MARPOL. In order to ensure a minimum quality of fuel used by ships either for fuel or technology based compliance, marine fuel the sulphur content of which exceeds the general standard of 3.5 % by mass should not be allowed for use or placing on the market in the Union.
- (7) Passenger ships operate mostly in ports or close to coastal areas and their impacts on human health and the environment are significant. Those ships are required to use marine fuel with the same maximum sulphur content as is applicable in SECAs (1.5%). Given that stricter sulphur standards will apply in SECAs, it is justified by the need to improve air quality around ports and coasts in the non-SECA territories that the same standards apply to passenger ships. However, the introduction of a new SECA standard for passenger ships would be delayed by 5 years in order to avoid potential problems with fuel availability.
- (8) Proper enforcement of the obligations with regard to the sulphur content of marine fuels is necessary to achieve the aims of Directive 1999/32/EC. The experience from the implementation of that Directive has shown that there is a need for stronger monitoring and enforcement regime to ensure a proper implementation of the Directive. To that end, it is necessary that Member States ensure sufficiently frequent and accurate sampling of marine fuel placed on the market or used on board ship as well as regular verification of ships' log books and bunker delivery notes. It is also necessary that they establish a system of effective, proportionate and dissuasive penalties for non-compliance with the provisions of Directive 1999/32/EC. In order to ensure more transparency of information, it is also appropriate to provide that the register of local suppliers of marine fuel is made publicly available.
- (9) Reporting by Member States under Directive 1999/32/EC has proved insufficient for the purpose of verification of compliance with the provisions of the Directive due to the lack of harmonized and sufficiently precise provisions on the content and the format of the Member States' reports. Therefore, more detailed indications as regards

the content and the format of the report are necessary to ensure a more harmonised reporting.

- (10) Following the adoption of Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)¹⁴, which recasts the Union legislation on industrial emissions, it is necessary to revise the provisions of Directive 1999/32/EC on maximum sulphur content of heavy fuel oil accordingly.
- (11) Complying with the low fuel sulphur limits, particularly in SECAs, can result in a significant increase in the price of marine fuels, at least in the short term, and can have a negative effect for the competitiveness of short sea shipping in comparison with other transport modes as well as for the competitiveness of the industries in the countries bordering SECAs. Suitable solutions are necessary in order to reduce compliance costs for the affected industries, such as allowing for alternative, more cost-effective methods of compliance than fuel-based compliance and providing support, where necessary. The Commission will, based inter alia on reports from Member States, closely monitor the impacts of the shipping sector's compliance with the new fuel quality standards, particularly with respect to possible modal backshift from sea to land based transport.
- (12) Access to emission abatement methods should be facilitated. Those methods can provide emission reductions at least equivalent to, or even greater than, those achievable using low sulphur fuel, provided that they have no significant negative impacts on the environment, such as marine ecosystems, and that they are developed subject to appropriate approval and control mechanisms. The criteria for use of emission abatement methods should be established either by the IMO, subject to supplementation or amendment by the Commission Decision or, in the absence of the IMO instruments, by the European Commission. The already known alternative methods, such as the use of on-board exhaust gas cleaning systems or the mixture of fuel and liquefied natural gas (LNG) should be recognised in the Union. It is important to promote testing and development of new emission abatement methods.
- (13) In order to determine the date of the application of 0.50% sulphur limit, to designate new SECAs, to approve new alternative abatement methods and to establish the appropriate conditions for their use, to ensure appropriate monitoring of sulphur content of fuels and the harmonized content and the format of Member States' reports and to adapt the provisions of the Directive to scientific and technical progress, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission in respect of specification of the date from which the maximum sulphur content of fuel of 0.50% by mass should apply in the Union, designation of new SECAs on the basis of the decision of the IMO, approval of new emission abatement methods not covered by Council Directive 96/98/EC¹⁵ and establishment, supplementation or amendment of conditions for their use, the specification of the means of sampling and emission monitoring and the content and the format of the report and the amendment of Article 2, points 1, 2, 3, 3a, 3b and 4 or Article 6 paragraph 1(a) and 2 in the light of scientific and technical

¹⁴ OJ L 334, 17.12.2010, p. 17.

¹⁵ OJ L 241, 29.8.1998, p. 27.

progress and, where relevant, the instruments of the IMO. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.

- (14) It is appropriate for the existing Committee on Safe Seas and the Prevention of Pollution from Ships established by Regulation (EC) No 2099/2002 of the European Parliament and of the Council of 5 November 2002 establishing a Committee on Safe Seas and the Prevention of Pollution from Ships (COSS) and amending the Regulations on maritime safety and the prevention of pollution from ships¹⁶ to assist the Commission in the approval of the emission abatement technologies which are not covered by Council Directive 96/98/EC of 20 December 1996 on marine equipment¹⁷. Directive 1999/32/EC should therefore be amended accordingly,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Directive 1999/32/EC is amended as follows:

1. Article 1(2) point (h) is replaced by the following:

'(h) fuels used on board vessels employing emission abatement methods in accordance with Articles 4c and 4e.'
2. Article 2 is amended as follows:
 - (a) points 3a and 3b are replaced by the following:

'3a. *marine diesel oil* means any marine fuel as defined for DMB grade in Table I of ISO 8217 with the exception of the reference to the sulphur content;

3b. *marine gas oil* means any marine fuel as defined for DMX, DMA and DMZ grades in Table I of ISO 8217 with the exception of the reference to the sulphur content;'
 - (b) point 3m is replaced by the following:

'3m. *emission abatement method* means any fitting, material, appliance or apparatus to be fitted in a ship or other procedure, alternative fuel, or compliance method, used as an alternative to low sulphur marine fuel meeting the requirements set out in this Directive, that is verifiable, quantifiable and enforceable;'
3. Article 3 is amended as follows:
 - (a) paragraphs 1 and 2 are replaced by the following:

¹⁶ OJ L 324, 29.11.2002, p. 1.

¹⁷ OJ L 46, 17.02.1997, p. 25.

1. Member States shall ensure that heavy fuel oils are not used within their territory if their sulphur content exceeds 1 % by mass.

2. Until 31 December 2015, subject to appropriate monitoring of emissions by competent authorities the requirement set out in paragraph 1 shall not apply to heavy fuel oils used:

- (a) in combustion plants which fall within the scope of Directive 2001/80/EC of the European Parliament and of the Council^{*}, which are subject to Article 4(1), 4(2) or 4(3)(a) of that Directive and which comply with the emission limits for sulphur dioxide for such plants as set out in that Directive;
- (b) in combustion plants which fall within the scope of Directive 2001/80/EC, which are subject to Article 4(3)(b) and 4(6) of that Directive and the monthly average sulphur dioxide emissions of which do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis;
- (c) in combustion plants which do not fall under points (a) or (b), and the monthly average sulphur dioxide emissions of which do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis;
- (d) for combustion in refineries, where the monthly average of emissions of sulphur dioxide averaged over all combustion plants in the refinery, irrespective of the type of fuel or fuel combination used, but excluding plants which fall under points (a) and (b), gas turbines and gas engines, do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis.

As from 1 January 2016, subject to appropriate monitoring of emissions by competent authorities the requirement set out in paragraph 1 shall not apply to heavy fuel oils used:

- (a) in combustion plants which fall within the scope of Chapter III of Directive 2010/75/EU of the European Parliament and of the Council^{**}, and which comply with the emission limits for sulphur dioxide for such plants as set out in Annex V of that Directive or, where those emission limit values are not applicable according to that Directive, for which the monthly average sulphur dioxide emissions do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis;
- (b) in combustion plants which do not fall under point (a), and the monthly average sulphur dioxide emissions of which do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis;

^{*} OJ L 309, 27.11.2001, p.1.

^{**} OJ L 334, 17.12.2010, p. 17.

- (c) for combustion in refineries, where the monthly average of emissions of sulphur dioxide averaged over all combustion plants in the refinery, irrespective of the type of fuel or fuel combination used, but excluding plants falling under point (a), gas turbines and gas engines, do not exceed 1 700 mg/Nm³ at an oxygen content in the flue gas of 3 % by volume on a dry basis.

Member States shall take the necessary measures to ensure that any combustion plant using heavy fuel oil with a sulphur concentration greater than that referred to in paragraph 1 is not operated without a permit issued by a competent authority, which specifies the emission limits.'

- (b) paragraph 3 is deleted.

4. The following Article 3a is inserted:

'Article 3a

Maximum sulphur content in marine fuel

Member States shall ensure that marine fuels are not used or placed on the market within their territory if their sulphur content exceeds 3.5 % by mass.'

5. Article 4(1) is replaced by the following:

'1. Member States shall ensure that gas oils are not used within their territory if their sulphur content exceeds 0.10 % by mass.'

6. Article 4a is amended as follows:

- (a) the title is replaced by the following :

'Maximum sulphur content of marine fuels used in territorial seas, exclusive economic zones and pollution control zones of Member States, including SO_x Emission Control Areas and by passenger ships operating on regular services to or from Union ports'

- (b) paragraph 1 is replaced by the following:

'1. Member States shall take all necessary measures to ensure that marine fuels are not used in the areas of their territorial seas, exclusive economic zones and pollution control zones falling within SO_x Emission Control Areas if the sulphur content of those fuels by mass exceeds:

- (a) 1.00 % until 31 December 2014;
- (b) 0.10 % as from 1 January 2015.

This paragraph shall apply to all vessels of all flags, including vessels whose journey began outside the Union.

- (c) the following paragraph 1a is inserted:

'1a. Member States shall take all necessary measures to ensure that marine fuels are not used in the areas of their territorial seas, exclusive economic zones and pollution control zones if the sulphur content of those fuels by mass exceeds:

- (a) 3.50 % as of 1 January 2012;
- (b) 0.50 % as from 1 January 2020.

The Commission shall be empowered to adopt delegated acts in accordance with Article 9a of this Directive concerning the date from which the sulphur standard laid down in point (b) of this paragraph applies. Based on the assessment by the IMO of the availability of marine fuel to comply with the maximum sulphur content of fuel of 0.50% by mass, referred to in Regulation 14(8) of Annex VI of MARPOL, this date shall be 1 January 2020 or 1 January 2025.

This paragraph shall apply to all vessels of all flags, including vessels whose journey began outside of the Union, without prejudice to paragraphs 1 and 4 and Article 4b.'

- (d) paragraph 2 is replaced by the following:

'The Commission shall be empowered to adopt delegated acts in accordance with Article 9a of this Directive concerning the designation of sea areas as SO_x Emission Control Areas on the basis of the decision of the IMO in accordance with Regulation 14(3)(2) of Annex VI to MARPOL.'

- (e) paragraphs 4, 5 and 6 are replaced by the following:

'4. Member States shall take all necessary measures to ensure that marine fuels are not used in their territorial seas, exclusive economic zones and pollution control zones falling outside SO_x Emission Control Areas by passenger ships operating on regular services to or from any Union port if the sulphur content of those fuels by mass exceeds:

- (c) 1.5 %;
- (d) 0.10 % as from 1 January 2020.

- 5. Member States shall require the correct completion of ships' logbooks, including fuel-changeover operations, as a condition of ships' entry into Union ports.

- 6. Member States shall, in accordance with Regulation 18 of Annex VI to MARPOL:

- (a) maintain a publicly available register of local suppliers of marine fuel;
- (b) ensure that the sulphur content of all marine fuels sold in their territory is documented by the supplier on a bunker delivery note, accompanied by a sealed sample signed by the representative of the receiving ship;

- (c) take action against marine fuel suppliers that have been found to deliver fuel that does not comply with the specification stated on the bunker delivery note;
- (d) ensure that remedial action is taken to bring any non-compliant marine fuel discovered into compliance.'
- (e) paragraph 8 is deleted.

7. Articles 4b and 4c are replaced by the following:

'Article 4b

Maximum sulphur content of marine fuels used by ships at berth in Union ports

1. Member States shall take all necessary measures to ensure that the following vessels do not use marine fuels with a sulphur content exceeding 0.10 % by mass:

- (b) ships at berth in Union ports, allowing sufficient time for the crew to complete any necessary fuel-changeover operation as soon as possible after arrival at berth and as late as possible before departure.

Member States shall require the time of any fuel-changeover operation to be recorded in ships' logbooks.

2. Paragraph 1 shall not apply:

- (a) whenever, according to published timetables, ships are due to be at berth for less than two hours;
- (d) to ships which switch off all engines and use shore-side electricity while at berth in ports.

3. Member States shall ensure that marine gas oils are not placed on the market in their territory if the sulphur content of those marine gas oils exceeds 0.10 % by mass.

'Article 4c

Emission abatement methods

1. Member States shall allow the use of emission abatement methods by ships of all flags in their ports, territorial seas, exclusive economic zones and pollution control zones, as an alternative to using marine fuels that meet the requirements of Articles 4a and 4b, subject to the provisions of paragraphs 2 and 3.

2. Ships using the emission abatement methods referred to in paragraph 1 shall continuously achieve reductions of sulphur dioxide emissions that are at least equivalent to the reductions that would be achieved by using marine fuels

that meet the requirements of Articles 4a and 4b. The sulphur dioxide emissions resulting from the use of the emission abatement methods shall not exceed the limit values set out in Annex 1.

3. The emission abatement methods referred to in paragraph 1 shall comply with the criteria specified in the instruments referred to in Annex 2.1, unless superseded or supplemented by the criteria set out in Annex 2.2.

4. The Commission shall be empowered to adopt delegated acts in accordance with Article 9a concerning:

- the amendment or the supplementation of the values set out in Annex 1;
- the amendment or the supplementation of the list of instruments referred to in Annex 2.1;
- the establishment, the amendment or the supplementation of the criteria referred to in Annex 2.2; and
- detailed requirements for monitoring of emissions, where relevant.

The Commission shall take into account, inter alia, scientific and technological progress as well as the relevant instruments and standards adopted by the International Maritime Organisation.'

8. The following Articles 4d and 4e are inserted:

'Article 4d

**Approval of emission abatement methods for use on board ships flying the flag
of a Member State**

1. Emission abatement methods falling within the scope of Council Directive 96/98/EC* shall be approved in accordance with the provisions of that Directive.

2. Emission abatement methods not covered by paragraph 1 shall be approved in accordance with the procedure referred to in Article 3(2) of Regulation 2099/2002/EC of the European Parliament and of the Council of 5 November 2002 establishing a Committee on Safe Seas and the Prevention of Pollution from Ships (COSS)**, taking into account:

- (a) guidelines developed by the IMO;
- (b) results of any trials conducted under Article 4e;

* OJ L 241, 29.8.1998, p. 27.

** OJ L 324, 29.11.2002, p. 1.

- (c) effects on the environment, including achievable emission reductions, and impacts on ecosystems in enclosed ports, harbours and estuaries;
- (d) feasibility of monitoring and verification.'

'Article 4e

Trials of new emission abatement methods

Member States may, in cooperation with other Member States, as appropriate, approve trials of ship emission abatement methods on vessels flying their flag, or in sea areas within their jurisdiction. During those trials, the use of marine fuels meeting the requirements of Articles 4a and 4b shall not be mandatory, provided that all of the following conditions are fulfilled:

- (1) the Commission and any port State concerned are notified in writing at least six months before trials begin;
- (2) permits for trials do not exceed 18 months in duration;
- (3) all ships involved install tamper-proof equipment for the continuous monitoring of funnel gas emissions and use it throughout the trial period;
- (4) all ships involved achieve emission reductions which are at least equivalent to those which would be achieved through the limits on sulphur in fuel specified in this Directive;
- (5) there are proper waste management systems in place for any waste generated by the emission abatement methods throughout the trial period;
- (6) there is an assessment of impacts on the marine environment, particularly ecosystems in enclosed ports, harbours and estuaries throughout the trial period;
- (7) full results are provided to the Commission, and made publicly available, within six months of the end of the trials.'

9. Article 6 is amended as follows:

- (a) paragraph 1 is replaced by the following:

'1. Member States shall take all necessary measures to check by sampling that the sulphur content of fuels used complies with Articles 3, 3a, 4, 4a and 4b. The sampling shall commence on the date on which the relevant limit for maximum sulphur content in the fuel comes into force. It shall be carried out with sufficient frequency and in such a way that the samples are representative of the fuel examined, and in the case of marine fuel, of the fuel being used by vessels while in relevant sea areas and ports.

Each of the following means of sampling, analysis and inspection of marine fuel shall be used:

- (a) sampling of the marine fuel for on-board combustion while being delivered to ships, in accordance with the Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI^{*}, and analysis of its sulphur content;
- (b) sampling and analysis of the sulphur content of marine fuel for onboard combustion contained in tanks and in sealed bunker samples on board ships;
- (c) inspection of ships' log books and bunker delivery notes.

The Commission shall be empowered to adopt delegated acts in accordance with Article 9a concerning:

- (i) the frequency of sampling;
 - (ii) the sampling methods;
 - (iii) the definition of a sample representative of the fuel examined;
 - (iv) the information to be included in ships' log books and bunker delivery notes.'
- (b) paragraph 1a is deleted.
- (c) paragraph 2 is replaced by the following:

'2. The reference method adopted for determining the sulphur content shall be ISO method 8754 (2003).

In order to determine whether marine fuel delivered to and used on board ships is compliant with the sulphur limits required by Articles 3, 3a, 4, 4a and 4b the Fuel Verification Procedure for MARPOL Annex VI Fuel Oil Samples^{**} shall be used.'

10. Article 7 is amended as follows:

- (a) paragraph 1 is replaced by the following:

'1. Each year by 30 June, Member States shall, on the basis of the results of the sampling, analysis and inspections carried out in accordance with Article 6, submit a report to the Commission on the compliance with the sulphur standards set out in this Directive for the preceding year.'

- (b) the following paragraph 1a is inserted:

* Resolution MEPC.182(59), adopted on 17.07.2009.

** Appendix VI to Resolution MEPC.176(58) adopted on 10 October 2008 (Revised MARPOL Annex VI).

'1a. The Commission shall be empowered to adopt delegated acts in accordance with Article 9a concerning the information to be included in the report and the format of the report.'

(c) paragraphs 2 and 3 are deleted.

(d) paragraph 4 is replaced by the following:

'4. The Commission shall be empowered to adopt delegated acts in accordance with Article 9a concerning the adaptations of Article 2, points 1, 2, 3, 3a, 3b and 4, Article 6 paragraph 1(a) and (2) to scientific and technical progress.'

11. Article 8 is deleted.

12. Article 9 is deleted.

13. The following Article 9a is inserted:

'Article 9a

Exercise of the delegation

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
 2. The delegation of power referred to in Articles 4a(1a) and (2), 4c(4), 6(1), 7(1a) and 7(4) shall be conferred on the Commission for an indeterminate period of time from [*the date of entry into force of this Directive*].
 3. The delegation of power referred to in Articles 4a(1a) and (2), 4c(4), 6(1), 7(1a) and 7(4) may be revoked at any time by the European Parliament or by the Council. A decision of revocation shall put an end to the delegation of the powers specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
 4. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
 5. A delegated act adopted pursuant to Articles 4a(1a) and (2), 4c(4), 6(1), 7(1a) and 7(4) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of 2 months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by 2 months at the initiative of the European Parliament or the Council.'
14. The Annex to Directive 1999/32/EC is replaced by the Annex to this Directive.

Article 2

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by [*12 months after the entry into force of this Directive*] at the latest. They shall forthwith communicate to the Commission the text of those provisions and a correlation table between those provisions and this Directive.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 3

Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 4

This Directive is addressed to the Member States.

Done at [...],

For the European Parliament
The President

For the Council
The President

ANNEX

'ANNEX 1

Maximum emission values for abatement methods as referred to in Article 4c(2)

Marine fuel sulphur limits referred to in Articles 4a and 4b and Regulations 14.1 and 14.4 of Annex VI of MARPOL and corresponding emission limit values referred to in Article 4c(2)

Marine fuel Sulphur Content (% m/m)	Ratio Emission SO ₂ (ppm)/CO ₂ (% v/v)
4.50	195.0
3.50	151.7
1.50	65.0
1.00	43.3
0.50	21.7
0.10	4.3

Note: -The use of the Ratio Emissions limits is only applicable when using petroleum based Distillate or Residual Fuel Oils.
- In the case of exhaust gas cleaning systems that absorb CO₂ during the exhaust gas cleaning process it is necessary to measure the CO₂ prior to the cleaning process and use the CO₂ concentration before cleaning with the SO₂ concentration after cleaning.'

'ANNEX 2

Criteria for the use of emission abatement methods referred to in Article 4c(3)

1. The emission abatement methods referred to in Article 4c shall comply at least with the criteria specified in the following instruments, as applicable:

<i>Emission abatement method</i>	<i>The relevant Commission decision</i>
Mixture of marine fuel and boil-off gas	Commission Decision 2010/769/EU of 13 December 2010 on the establishment of criteria for the use by liquefied natural gas carriers of technological methods as an alternative to using low sulphur marine fuels meeting the requirements of Article 4b of Council Directive 1999/32/EC relating to a reduction in the sulphur content of certain liquid fuels as amended by Directive 2005/33/EC of the European Parliament and of the Council on the sulphur content of marine fuels (OJ L 328, 14.12.2010, p. 15).
Exhaust gas cleaning systems	IMO RESOLUTION MEPC.184(59) adopted on 17 July 2009

2. Ships using emission abatement methods in accordance with Article 4c shall:

- continuously monitor and record the emissions of sulphur dioxide, and
- document thoroughly that any waste streams discharged into the sea, including enclosed ports, harbours and estuaries have no significant negative impacts on and do not pose risks to human health and the environment.'