



GUIDE FOR

SO_x SCRUBBER READY VESSELS

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Foreword

International, regional, national and local air emissions legislation is driving the development of primary machinery technologies to reduce exhaust emissions, together with the use of alternative cleaner fuels, such as LNG, and secondary exhaust emissions aftertreatment systems.

Key amongst these emissions drivers are the gaseous exhaust emissions legislated through IMO MARPOL Annex VI Regulations 13 and 14 for nitrogen oxide emissions from diesel engines and sulfur oxide emissions from all fuel burning equipment onboard.

The IMO limits SO_x emissions by regulating the sulfur content of marine fuels with 0.1% for the emission control areas effective from 1 January 2015 and the anticipated global sulfur limits to 0.5% effective from 1 January 2020 (subject to review in 2018). Additionally, all ships to use fuel with a maximum sulfur content of 0.10% when ‘at berth’ (including at anchor) in EU ports since January 2010 and beginning in 2020, the EU will limit sulfur in fuel to 0.5% for operation in EU territorial seas irrespective of the outcome of any IMO determination in 2018. All these will promote increasing use of exhaust gas cleaning systems, such as SO_x scrubbers as an alternative to low Sulphur fuel.

The air emissions performance testing, statutory certification, and statutory survey aspects are regulated through MARPOL Annex VI with any proposed alternative means of compliance, such as exhaust gas cleaning systems, permitted through Regulation 4 in association with any applicable IMO Guidelines. At the time of issuance of this Guide, the applicable Guidelines for SO_x exhaust gas cleaning systems are IMO Resolution MEPC.259(68) – *2015 Guidelines for Exhaust Gas Cleaning Systems*, adopted on 15 May 2015. Acceptance of an exhaust emission abatement system as an alternative under MARPOL Annex VI is subject to approval by the flag Administration of the vessel.

Users of this Guide should be aware that due to changing regulations, and depending on specific geographical uses, compliance with this Guide may not necessarily reflect all requirements in all regions at the time of construction or future retrofitting.

The intent of this Guide is to provide guidance to shipowners and shipbuilders indicating the extent to which a ship design has been prepared or “ready” for the installation and operation of a scrubber for SO_x emissions removal. The actual ABS requirements to be applied for a SO_x scrubber are detailed in the *ABS Guide for Exhaust Emission Abatement* (herein after referred to as the *EEA Guide*).

The purpose of this Guide is to indicate the extent to which a vessel has been prepared or “ready” for compliance with the *EEA Guide*. Compliance with the applicable edition of the *EEA Guide* in force at the time the “SO_x Scrubber Ready” service is provided does not guarantee compliance with the edition of the *EEA Guide* as may be applicable at the time of the SO_x scrubber retrofit.

The *EEA Guide* has been developed in order to provide guidance for the design and construction of exhaust emission abatement systems, focusing on SO_x scrubbers, SCR systems, and Exhaust Gas Recirculation (EGR) arrangements, and may be applied to all vessel types. An exhaust emission abatement system is considered approved upon verification of compliance with both the ABS requirements and the applicable IMO Regulations and Guidelines. Whilst compliance with the applicable IMO Regulations and Guidelines is a pre-requisite for ABS approval and notation, this Guide covers only the Classification approval aspects and statutory approval would be made by ABS as a separate parallel process in the capacity of a Recognized Organization for the vast majority of flag Administrations.

Despite the foreseen trend of using SO_x scrubbers, the decision of building a new ship or retrofitting an existing one is not simple, due to the current uncertainty with the entry into force of the 0.5% global sulfur limit and the cleaner fuel alternatives such as LNG. However, considering the promise of the advantages that may be gained from use of SO_x scrubber, the shipbuyers may decide to place ship orders with additional provision for using a SO_x scrubber with the intention to complete installation in the future. This arrangement may be called “SO_x Scrubber Ready”. In order to facilitate future modifications, the shipbuyers and shipbuilders must make a significant effort to figure out what features should be incorporated on a vessel and incorporate these in the shipbuilding contract.

This Guide has been developed considering that the following elements may be desired by owners opting for features of SO_x Scrubber readiness in the Classification of their vessels.

- i) The first is an independent and public recognition that a vessel has been designed intentionally with feasible retrofit of a SO_x Scrubber in mind and that it has physical features that make it suitable for such a retrofit.
- ii) The second addresses the need for owners to specify instructions to the builder in terms of Class guidance and requirements.
- iii) The third provides confirmation to the owner and the shipbuilder that any vessel features agreed between the two parties have been approved by the Classification society based on their requirements that would be applied if the vessel had been built with a SO_x Scrubber to the concept proposed. This Guide becomes effective on the first day of the month of publication.

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The applicable edition of the *ABS Rules for Building and Classing Steel Vessels (Steel Vessel Rules)* is to be used in association with this Guide.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



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