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To : All Surveyors and who it may concern

No : 2022-6-E
Date : 2022.05.13

Subject	9.160 Notice for Amendments to the KR Technical Rules - Guidance for Prevention Systems of Pollution from Ships
Application	(Refer to Effective date for each KR Technical Rules specified in Par.1 and the attachment)

1. Please be informed that the amendments have been made to the following KR Technical Rule 2021 as attachment to reflect Requests for Establishment/Revision of Classification Technical Rules. And you are kindly requested to apply the amendments on the relevant works according to effective date.

Amended KR Technical Rule	Effective Date	Amendments
Guidance for Prevention Systems of Pollution from Ships	1 Jun 2022 (Date of contract for ship construction or the application date for installation)	Updating IMO instrument to MEPC.Res.340(77)
		To reflect result of internal review <ul style="list-style-type: none">● Indicating that the Guidance is separate from the Convention● Updating texts to clarification

2. Furthermore, please be informed that the amendments will be included in 2022 edition for Rules and Guidance on KR Classification Technical Rules which is provided on the website.

Attachments :

Amendment for Guidance for Prevention System of Pollution from Ships. (The end)

Amendments of Classification Tech. Rule

Guidance for Prevention Systems of Pollution from ships

2022. 5.



Machinery Rule Development Team

- Main Amendments -

(1) Request for Establishment/Revision of Classification Technical Rules

<ships contracted for construction on or an application for installation or after 2022/06/01>

● Clarifying the intention of Class requirements separated from ones of conventions(MARPOL and IMO instruments)

● Updated texts for clarification meaning of requirements.

(2) Etc.

<ships contracted for construction on or an application for installation or after 2022/06/01>

● Adding the provision for application of systems other than reducing engine NOx or SOx emissions
(ex. iCER of WinGD used only for improve combustion efficiency)

Present	Amendment
<p style="text-align: center;">CHAPTER 1 Environmental Protection <u>Systems</u></p> <p style="text-align: center;">Section 1 General</p> <p>101. General</p> <ol style="list-style-type: none"> 1. This <u>Guidance</u> applies to the ships classed with the Society or intended to be registered under the Society with the notation, which intended to comply with the environmental protection requirements for design, construction and operation for obtaining the relevant notation. 2. This <u>Guidance</u> determines the level of the environmental protection system of ships based on the application in viewpoints of marine pollution prevention, air pollution prevention, preventing destruction of the ecosystem, ship recycling, and safety management systems. 3. The notation prescribed in (1) are classified into the followings. <ol style="list-style-type: none"> (1) CLEAN1 notation: Ships complying with requirements in Sec. 2. (2) CLEAN2 notation: Ships complying with additional requirements of the Society in Sec. 3. (3) CLEAN3 notation: Ships complying with additional requirements of the Society in Sec. 4. <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 1 Environmental Protection <u>SystemsShips</u></p> <p style="text-align: center;">Section 1 General</p> <p>101. General</p> <ol style="list-style-type: none"> 1. This <u>GuidanceChapter</u> applies to the ships classed with the Society or intended to be registered under the Society with the notation, which intended to comply with the environmental protection requirements for design, construction and operation for obtaining the relevant notation. 2. This <u>GuidanceChapter</u> determines the level of the environmental protection system of ships based on the application in viewpoints of marine pollution prevention, air pollution prevention, preventing destruction of the ecosystem, ship recycling, and safety management systems. 3. The notation prescribed in (1) are classified into the followings. <ol style="list-style-type: none"> (1) CLEAN1 notation: Ships complying with requirements in Sec. 2. (2) CLEAN2 notation: Ships complying with additional requirements of the Society in Sec. 3. (3) CLEAN3 notation: Ships complying with additional requirements of the Society in Sec. 4. <p style="text-align: center;"><i>(Omitted)</i></p>
<p>(*) As per the reason of amendment, the title of Section 2 to Section 4 is also updated as follow:</p> <p style="text-align: center;">Section 2 Environmental Protection <u>Systems</u> (Phase 1)</p> <p style="text-align: center;">Section 3 Environmental Protection <u>Systems</u> (Phase 2)</p> <p style="text-align: center;">Section 4 Environmental Protection <u>Systems</u> (Phase 3)</p>	<p style="text-align: center;">Section 2 Environmental Protection <u>SystemsShips</u> (Phase 1)</p> <p style="text-align: center;">Section 3 Environmental Protection <u>SystemsShips</u> (Phase 2)</p> <p style="text-align: center;">Section 4 Environmental Protection <u>SystemsShips</u> (Phase 3)</p>

Present	Amendment
<p data-bbox="174 268 1077 312">CHAPTER 1 Environmental Protection <u>Systems</u></p> <p data-bbox="291 379 958 443">Section 2 Environmental Protection <u>System</u> (Phase 1)</p> <p data-bbox="174 528 288 555"><i>(Omitted)</i></p> <p data-bbox="136 603 490 635">203. Air pollution prevention</p> <ol data-bbox="165 651 1115 852" style="list-style-type: none"> 1. The emission of nitrogen oxides from engine is to be complied with MARPOL Annex VI Reg.13. 2. The sulphur content of fuel oil used or carried for use on board a ship is to be complied with MARPOL Annex VI Reg.14. Alternatively, ratio of emission sulphur dioxide per carbon dioxide (SO₂(ppm)CO₂(% v/v)) is to be complied with IMO Res.MEPC.259(68). <p data-bbox="591 970 703 997"><i>(Omitted)</i></p>	<p data-bbox="1270 268 1993 347">CHAPTER 1 Environmental Protection Systems<u>Ships</u></p> <p data-bbox="1180 411 2083 448">Section 2 Environmental Protection <u>SystemShips</u> (Phase 1)</p> <p data-bbox="1180 528 1294 555"><i>(Omitted)</i></p> <p data-bbox="1142 603 1496 635">203. Air pollution prevention</p> <ol data-bbox="1171 651 2121 852" style="list-style-type: none"> 1. The emission of nitrogen oxides from engine is to be complied with MARPOL Annex VI Reg.13. 2. The sulphur content of fuel oil used or carried for use on board a ship is to be complied with MARPOL Annex VI Reg.14. Alternatively, ratio of emission sulphur dioxide per carbon dioxide (SO₂(ppm)CO₂(% v/v)) is to be complied with IMO Res.MEPC.259(68)340(77). <p data-bbox="1597 970 1709 997"><i>(Omitted)</i></p>

Present	Amendment
<p style="text-align: center;">CHAPTER 1 Environmental Protection <u>Systems</u></p> <p style="text-align: center;">Section 3 Environmental Protection <u>Systems</u> (Phase 2)</p> <p>302. Marine pollution prevention <i>(Omitted)</i></p> <p>2. For cargo area of oil tankers, the following requirements are to be complied with: <i>(Omitted)</i></p> <p>(3) Coamings are to be fitted on deck in accordance with Pt 8, Ch 2, 401. 6 of the <u>Rules</u>.</p> <p>(4) Requirements in Pt 7, Ch 1, 1002. 7 (4) of the <u>Rules</u> are to be complied with.</p> <p><i>(Omitted)</i></p> <p>4. NLS tankers defined in MARPOL Annex II/16.9 are to be comply with the following requirements. <i>(Omitted)</i></p> <p>(2) Coamings are to be fitted on deck in accordance with Pt 7, Ch 6, 307. 7 of the <u>Rules</u>.</p> <p>(3) Piping systems serving permanent ballast tanks are to be independent of piping systems serving cargo tanks and of cargo tanks themselves in accordance with Pt 7, Ch 6, 305. 1 of the <u>Rules</u>.</p> <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 1 Environmental Protection <u>SystemsShips</u></p> <p style="text-align: center;">Section 3 Environmental Protection <u>SystemsShips</u> (Phase 2)</p> <p>302. Marine pollution prevention <i>(Omitted)</i></p> <p>2. For cargo area of oil tankers, the following requirements are to be complied with: <i>(Omitted)</i></p> <p>(3) Coamings are to be fitted on deck in accordance with Pt 8, Ch 2, 401. 6 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p>(4) Requirements in Pt 7, Ch 1, 1002. 7 (4) of the <u>Rules for the Classification of Steel Ships</u> are to be complied with.</p> <p><i>(Omitted)</i></p> <p>4. NLS tankers defined in MARPOL Annex II/16.9 are to be comply with the following requirements. <i>(Omitted)</i></p> <p>(2) Coamings are to be fitted on deck in accordance with Pt 7, Ch 6, 307. 7 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p>(3) Piping systems serving permanent ballast tanks are to be independent of piping systems serving cargo tanks and of cargo tanks themselves in accordance with Pt 7, Ch 6, 305. 1 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p style="text-align: center;"><i>(Omitted)</i></p>

Present	Amendment
<p>CHAPTER 1 Environmental Protection <u>Systems</u></p> <p>Section 3 Environmental Protection <u>Systems</u> (Phase 2)</p> <p>303. Air pollution prevention</p> <ol style="list-style-type: none"> 1. The emission of nitrogen <u>oxides</u> from engine is to be complied with 203. 1. And one or more notations specified in Chapter 2 is to be applied. 2. It is to be complied with 202. 2. of this chapter with respect to sulphur <u>oxides</u>. And notations specified in Chapter 3 is to be applied. <p><i>(Omitted)</i></p> <p>Section 4 Environmental Protection <u>SystemsShips</u> (Phase 3)</p> <p>402. Marine pollution prevention</p> <p><i>(Omitted)</i></p> <ol style="list-style-type: none"> 3. NLS tankers defined in MARPOL Annex II/16.9 are to be comply with the following requirements. <ol style="list-style-type: none"> (1) The arrangements of cargo tanks are to comply with the double hull and double bottom requirements of a Type 2 ship specified in Pt 7, Ch 6, 206. 1 (2) of the <u>Rules</u> unless a Type 1 ship is to comply with requirements of a Type 1 ship. (2) Gauging systems for cargo tanks are to be of closed device specified in Pt 7, Ch 6, 1301. 1 (3) of the <u>Rules</u>. <p><i>(Omitted)</i></p>	<p>CHAPTER 1 Environmental Protection <u>SystemsShips</u></p> <p>Section 3 Environmental Protection <u>SystemsShips</u> (Phase 2)</p> <p>303. Air pollution prevention</p> <ol style="list-style-type: none"> 1. The emission of nitrogen oxides from engine is to be complied with 203. 1. And one or more notations specified in Chapter 2 is to be applied. 2. It is to be complied with 202. 2. of this chapter with respect to sulphur oxides. And notations specified in Chapter 3 is to be applied. <p><i>(Omitted)</i></p> <p>Section 4 Environmental Protection <u>SystemsShips</u> (Phase 3)</p> <p>402. Marine pollution prevention</p> <p><i>(Omitted)</i></p> <ol style="list-style-type: none"> 3. NLS tankers defined in MARPOL Annex II/16.9 are to be comply with the following requirements. <ol style="list-style-type: none"> (1) The arrangements of cargo tanks are to comply with the double hull and double bottom requirements of a Type 2 ship specified in Pt 7, Ch 6, 206. 1 (2) of the <u>Rules for the Classification of Steel Ships</u> unless a Type 1 ship is to comply with requirements of a Type 1 ship. (2) Gauging systems for cargo tanks are to be of closed device specified in Pt 7, Ch 6, 1301. 1 (3) of the <u>Rules for the Classification of Steel Ships</u>. <p><i>(Omitted)</i></p>

Present	Amendment
<p data-bbox="147 268 1106 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="483 427 766 459">Section 1 General</p> <p data-bbox="136 499 297 531">101. General</p> <ol data-bbox="165 547 1115 882" style="list-style-type: none"> 1. This Chapter applies to nitrogen oxide emission abatement system to control of emitted amount of nitrogen <u>oxides</u> (NOx) to the atmosphere through engines installed on ships. 2. Amount of emitted <u>nitrogen oxides</u> via emission abatement system is to be complied with Reg.13 of MARPOL Annex VI, taking into account operating environment of installed ship. 3. <u>Nitrogen oxides</u> emission abatement system can comply with the designed amount of emission in accordance with above 2 by passing selective catalytic reduction device, exhaust gas recirculation system, or adjusting combustion condition. <p data-bbox="165 906 232 938">(New)</p>	<p data-bbox="1151 268 2110 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1491 427 1774 459">Section 1 General</p> <p data-bbox="1144 499 1305 531">101. General</p> <ol data-bbox="1173 547 2123 994" style="list-style-type: none"> 1. This Chapter applies to nitrogen oxide emission abatement system to control of emitted amount of nitrogen oxides (<u>hereinafter</u> NOx) to the atmosphere through engines installed on ships. 2. Amount of emitted nitrogen oxidesNOx via emission abatement system is to be complied with Reg.13 of MARPOL Annex VI, taking into account operating environment of installed ship. 3. Nitrogen oxidesNOx emission abatement system can comply with the designed amount of emission in accordance with above 2 by passing selective catalytic reduction device, exhaust gas recirculation system, or adjusting combustion condition. 4. <u>Where considered necessary by the Society, the requirements in this Chapter can be applied correspondingly to systems other than those intended for reducing NOx emissions.</u>

Present	Amendment
<p style="text-align: center;">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p style="text-align: center;">Section 1 General</p> <p>102. Notation</p> <ol style="list-style-type: none"> Ships equipped with the <u>nitrogen oxides</u> emission abatement system specified in 101. 3 shall be applied the "CEmN" notation. Additional notation is to be applied in accordance with mechanism of <u>nitrogen oxides</u> emission abatement system as follow: <ul style="list-style-type: none"> CEmN-SCR : Ships equipped with selective catalytic reduction system conformed to Sec. 2 CEmN-EGR : Ships equipped with exhaust gas recirculation system conformed to Sec. 3 CEmN-E&F : Ships reducing emission of <u>nitrogen oxides</u> by adjusting combustion environment and/or fuel used in engines without a separate <u>nitrogen oxides</u> emission abatement system When multiple nitrogen oxides emission abatement system are applied, the additional notations in 102. 2 <u>is to be added</u>. For example, notation "CEmN-E&F, EGR" is applied, if ship is complied with the Reg.13.4(Tier II) of MARPOL Annex VI by adjusting combustion environment and/or fuel used in engines and the Reg.13.5(Tier III) of MARPOL Annex VI is complied by using exhaust gas recirculation system. 	<p style="text-align: center;">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p style="text-align: center;">Section 1 General</p> <p>102. Notation</p> <ol style="list-style-type: none"> Ships equipped with the nitrogen oxides<u>NOx</u> emission abatement system specified in 101. 3 shall be applied the "CEmN" notation. Additional notation is to be applied in accordance with mechanism of nitrogen oxides<u>NOx</u> emission abatement system as follow: <ul style="list-style-type: none"> CEmN-SCR : Ships equipped with selective catalytic reduction system conformed to Sec. 2 CEmN-EGR : Ships equipped with exhaust gas recirculation system conformed to Sec. 3 CEmN-E&F : Ships reducing emission of nitrogen oxides<u>NOx</u> by adjusting combustion environment and/or fuel used in engines without a separate nitrogen oxides<u>NOx</u> emission abatement system When multiple nitrogen oxides<u>NOx</u> emission abatement systems are applied, the additional notations in 102. 2 <u>is to be added</u> <u>can be specified side-by-side</u>. For example, notation "CEmN-E&F, EGR" is applied, if ship is complied with the Reg.13.4(Tier II) of MARPOL Annex VI by adjusting combustion environment and/or fuel used in engines and the Reg.13.5(Tier III) of MARPOL Annex VI is complied by using exhaust gas recirculation system.

Present	Amendment
<p data-bbox="147 268 1104 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="221 424 1030 459">Section 2 Selective Catalytic Reduction system(SCR)</p> <p data-bbox="136 499 297 526">201. General</p> <p data-bbox="165 552 324 579">1. Application</p> <p data-bbox="199 596 1115 807">(1) This Guidance applies to the <u>SCR</u> system, reductant agent tanks and piping systems of reductant agents, etc. using urea (e.g. AUS 40 - aqueous urea solution specified in ISO 18611-1:2014) or ammonia solutions as the reductant agents to reduce NOx emission from <u>diesel</u> engines. In cases where agents other than those mentioned above are used, they are to be as deemed appropriate by the Society in a viewpoint of corrosion, fire, and human safety.</p> <p data-bbox="199 842 1115 962">(2) This <u>Guidance</u> covers the safety requirements for the installation of SCR systems, the performance and tests, etc. related to SCR systems to reduce NOx emission are to comply with <u>MARPOL Annex VI and Marine Environment Management Act</u>.</p> <p data-bbox="165 1126 383 1153"><i>(to the next page)</i></p>	<p data-bbox="1151 268 2107 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1225 424 2033 459">Section 2 Selective Catalytic Reduction(SCR) system</p> <p data-bbox="1142 499 1303 526">201. General</p> <p data-bbox="1171 552 1330 579">1. Application</p> <p data-bbox="1205 596 2121 842">(1) This <u>GuidanceSection</u> applies to the <u>Selective Catalytic Reduction(herein-after SCR)</u> system, reductant agent tanks and piping systems of reductant agents, etc. using urea (e.g. AUS 40 - aqueous urea solution specified in ISO 18611-1:2014) or ammonia solutions as the reductant agents to reduce NOx emission from diesel engines. In cases where agents other than those mentioned above are used, they are to be as deemed appropriate by the Society in a viewpoint of corrosion, fire, and human safety.</p> <p data-bbox="1205 847 2121 906">(2) This <u>GuidanceSection</u> covers the safety requirements for the installation of SCR system.</p> <p data-bbox="1205 911 2121 1091">(3) <u>As separate from requirements in this Section, the performance and tests, etc. related to SCR systems to reduce NOx emission are to comply with requirements in Conventions and guidelines such as the MARPOL Annex VI, NOx technical code and IMO Res.MEPC.291(71) and requirements from administration such as Marine Environment Management Act in Republic of Korea.</u></p> <p data-bbox="1171 1126 1388 1153"><i>(to the next page)</i></p>

Present	Amendment
<p data-bbox="152 268 1099 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="224 427 1028 459">Section 2 Selective Catalytic Reduction system(SCR)</p> <p data-bbox="136 499 297 531">201. General</p> <p data-bbox="168 555 324 587">1. Application</p> <p data-bbox="203 627 1115 746">(3) Where a ship designed for the reduction of NO_x emissions by the use of selective catalytic reduction system is designed, is to be constructed and tested in accordance with this Guidance, the CEmN-SCR notation is to be assigned.</p> <p data-bbox="203 754 1115 930">(4) <u>Since Selective Catalytic Reduction System technology will be under constant development</u>, the requirements of this <u>Guidance</u> may need to be supported by additional information and requirements, on a case by case basis. Designs that are not in compliance with this <u>Guidance</u> may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety.</p> <p data-bbox="589 1034 696 1066"><i>(Omitted)</i></p>	<p data-bbox="1153 268 2110 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1225 427 2038 459">Section 2 Selective Catalytic Reduction(SCR) system</p> <p data-bbox="1142 499 1303 531">201. General</p> <p data-bbox="1173 555 1330 587">1. Application</p> <p data-bbox="1205 627 2116 746">(3)(4) Where a ship designed for the reduction of NO_x emissions by the use of selective catalytic reductionSCR system is designed, is to be constructed and tested in accordance with this Section, the CEmN-SCR notation is to be assigned.</p> <p data-bbox="1205 754 2116 962">(4)(5) Since Selective Catalytic Reduction System technology will be under constant development, <u>The requirements of this GuidanceSection</u> may need to be supported by additional information and requirements considerations, on a case by case basis. Designs that are not in compliance with this <u>GuidanceSection</u> may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety.</p> <p data-bbox="1594 1050 1702 1082"><i>(Omitted)</i></p>

Present	Amendment
<p>CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p>Section 2 Selective Catalytic Reduction system(SCR)</p> <p>204. System configuration</p> <p>1. General</p> <p>(1) The piping system which may contain ammonia solution and urea solution is to comply with the requirements of the <u>Rules</u> in addition to the requirements of this <u>Guidance</u>.</p> <p>(2) The control system of the reductant injection system is to be in accordance with the requirements in Pt 6, Ch 2 of the <u>Rules</u>, automatic and remote control system is to be in accordance with the requirements in Pt 9, Ch 3 of the <u>Rules</u>.</p> <p><i>(Omitted)</i></p>	<p>CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p>Section 2 Selective Catalytic Reduction(SCR) system</p> <p>204. System configuration</p> <p>1. General</p> <p>(1) The piping system which may contain ammonia solution and urea solution is to comply with the requirements of the <u>Rules for the Classification of Steel Ships</u> in addition to the requirements of this <u>GuidanceSection</u>.</p> <p>(2) The control system of the reductant injection system is to be in accordance with the requirements in Pt 6, Ch 2 of the <u>Rules for the Classification of Steel Ships</u>, automatic and remote control system is to be in accordance with the requirements in Pt 9, Ch 3 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p><i>(Omitted)</i></p>
<p>(*) The following listed provisions are also to amend as same as an above amendment to update “Rules”. (Omitted detailed text)</p> <p>If some provision contains amendments other than to change the expression “Rules” to “Rules for the Classification of Steel Ships”, the provisions have all amendments.</p> <div> <div> <p>Ch.2 Sec.2 Selective Catalytic Reduction(SCR) system</p> <p>“204. System configuration”</p> <p>“206. Handling ammonia solution as reductant agent”</p> <p>“207. Survey and Test”</p> <p>“208. Periodical Surveys”</p> <p>Ch.2 Sec 3 Exhaust Gas Recirculation(EGR) System</p> <p>“305. EGR System Configuration”</p> <p>“306. EGR System Equipment ”</p> <p>“308. System Design”</p> <p>“309. Survey and Test ”</p> <p>“310. Periodical Surveys”</p> </div> <div> <p>Ch.3 Sec 2 Exhaust Gas Cleaning(EGC) System</p> <p>“205. EGC System Configuration”</p> <p>“206. EGC System Equipment”</p> <p>“207. EGC System Piping”</p> <p>“208. System Design”</p> <p>“209. Survey and Test”</p> <p>Ch.3 Sec 4 Ships using Low Sulphur Fuel</p> <p>(To discuss updating to “Low Sulphur Fuel Oil” at this amendment)</p> <p>“402. Fuel Oil System”</p> </div> </div>	

Present	Amendment
<p>CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p>Section 2 Selective Catalytic Reduction system(SCR)</p> <p>204. System Configuration</p> <p>2. SCR system <i>(Omitted)</i></p> <p>(4) Exhaust gas heating device (A) General In cases where exhaust gas heating devices are installed in order to raise the temperature of the exhaust gas from engines, the requirements in this <u>Guidance</u> are to be complied with. Exhaust gas heating devices which are not equipped with burners are to conform to requirements deemed appropriate by the Society.</p> <p><i>(Omitted)</i></p> <p>208. Periodical Surveys</p> <p>1. General For items not specified in this <u>Guidance</u>, the relevant requirements specified in Pt 1 of the Rules apply.</p> <p><i>(Omitted)</i></p>	<p>CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p>Section 2 Selective Catalytic Reduction(SCR) system</p> <p>204. System Configuration</p> <p>2. SCR system <i>(Omitted)</i></p> <p>(4) Exhaust gas heating device (A) General In cases where exhaust gas heating devices are installed in order to raise the temperature of the exhaust gas from engines, the requirements in this <u>GuidanceSection</u> are to be complied with. Exhaust gas heating devices which are not equipped with burners are to conform to requirements deemed appropriate by the Society.</p> <p><i>(Omitted)</i></p> <p>208. Periodical Surveys</p> <p>1. General For items not specified in this <u>GuidanceSection</u>, the relevant requirements specified in Pt 1 of the Rules for the Classification of Steel Ships apply.</p> <p><i>(Omitted)</i></p>

Present	Amendment
<p data-bbox="152 268 1102 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="241 427 1012 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="136 499 295 531">301. General</p> <ol data-bbox="165 547 1115 730" style="list-style-type: none"> 1. This <u>Guidance</u> is to apply to Exhaust Gas Recirculation(hereinafter EGR) system and their auxiliary systems reducing <u>diesel</u> engine NOx emissions. 2. For items not specified in this <u>Guidance</u>, the relevant requirements specified in Pt 5 of the Rules apply. <p data-bbox="203 770 268 802"><i>(New)</i></p> <ol data-bbox="165 938 1115 1121" style="list-style-type: none"> 3. <u>Since EGR technology will be under constant development, the requirements of this Guidance may need to be supported by additional information and requirements, on a case by case basis. Designs that are not in compliance with this Guidance may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety.</u> <p data-bbox="589 1185 698 1217"><i>(Omitted)</i></p>	<p data-bbox="1155 268 2105 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1245 427 2016 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="1144 499 1303 531">301. General</p> <ol data-bbox="1173 547 2123 890" style="list-style-type: none"> 1. This Guidance<u>Section</u> is to apply to Exhaust Gas Recirculation(hereinafter EGR) system and their auxiliary systems reducing diesel engine NOx emissions <u>and deals with safety requirements for the arrangement of the system.</u> 2. For items not specified in this Guidance<u>Section</u>, the relevant requirements specified in Pt 5 of the Rules for the Classification of Steel Ships apply. 3. <u>As separate from requirements in this Section, the performance and tests, etc. related to EGR system to reduce NOx emission are to comply with requirements in Conventions and guidelines such as the MARPOL Annex VI and NOx technical code, and requirements from administration such as Marine Environment Management Act in Republic of Korea.</u> <ol data-bbox="1173 938 2123 1121" style="list-style-type: none"> 34. Since EGR technology will be under constant development, tThe requirements of this Section may need to be supported by additional information and requirements<u>considerations</u>, on a case by case basis. Designs that are not in compliance with this Guidance<u>Section</u> may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety. <p data-bbox="1597 1185 1706 1217"><i>(Omitted)</i></p>

Present	Amendment
<p data-bbox="152 268 1102 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="241 427 1012 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="136 499 304 531">302. Notation</p> <p data-bbox="165 547 1115 667">1. Where a ship designed for the reduction of NO_x emissions by the use of Exhaust Gas Recirculation system is designed, constructed and tested in accordance with this <u>Guidance</u>, the CEmN-EGR notation of Table 2.3.1 is to be assigned.</p> <p data-bbox="165 687 237 719"><i>(New)</i></p> <p data-bbox="165 826 1115 890">2. In addition to CEmN-EGR, CEmN-EGR(R) and/or (S) may be additionally assigned if the relevant requirements are met.</p> <p data-bbox="201 898 1115 1114">(1) <u>Where a ship provided EGR systems that incorporate engine systems that are designed for the purposes of removing the sulfur by-products from the exhaust gases that originate from the fuel and incorporate, for example, water scrubbing and water cleaning systems, the CEmN-EGR is to be assigned. Where a water treatment system is incorporated in the EGR system, the washwater discharge criteria is to meet the requirements of IMO Res. MEPC.259(68). (2020)</u></p> <p data-bbox="589 1166 696 1198"><i>(Omitted)</i></p>	<p data-bbox="1155 268 2105 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1245 427 2016 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="1144 499 1312 531">302. Notation</p> <p data-bbox="1173 547 2123 667">1. Where a ship designed for the reduction of NO_x emissions by the use of Exhaust Gas Recirculation system is designed, constructed and tested in accordance with this <u>GuidanceSection</u>, the CEmN-EGR notation of Table 2.3.1 is to be assigned.</p> <p data-bbox="1205 683 2123 834">(1) <u>Where a ship provided EGR system that incorporate engine systems that are designed for the purposes of removing the sulfur by-products from the exhaust gases that originate from the fuel and incorporate, for example, water scrubbing and water cleaning systems, the CEmN-EGR is to be assigned.</u></p> <p data-bbox="1173 842 2123 906">2. In addition to CEmN-EGR, CEmN-EGR(R) and/or (S) may be additionally assigned if the relevant requirements are met.</p> <p data-bbox="1205 914 2123 1129">(1) Where a ship provided EGR systems that incorporate engine systems that are designed for the purposes of removing the sulfur by-products from the exhaust gases that originate from the fuel and incorporate, for example, water scrubbing and water cleaning systems, the CEmN-EGR is to be assigned. Where a water treatment system is incorporated in the EGR system, the washwater discharge criteria is to meet the requirements of IMO Res. MEPC.259(68). (2020)</p> <p data-bbox="1592 1182 1700 1214"><i>(Omitted)</i></p>

Present	Amendment																								
<div>CHAPTER 2 Nitrogen oxides Emission Abatement System</div> <div>Section 3 Exhaust Gas Recirculation(EGR) System</div> <div>302. Notation</div> <div>Table 2.3.1. Class Notation of EGR</div> <table><tr><th>No.</th><th>Notation</th><th>relevant requirements</th></tr><tr><td>1</td><td>CEmN-EGR</td><td>All requirements of Section 3 EGR Excluding the relevant requirements of No. 2 and 3 of this table</td></tr><tr><td>2</td><td>CEmN-EGR(R)</td><td>In addition to <u>relevant requirements</u> of CEmN-EGR, provisions of 305. 3 (<u>redundancy requirements</u>)</td></tr><tr><td>3</td><td>CEmN-EGR(S)</td><td>In addition to <u>relevant requirements</u> of CEmN-EGR, paragraphs 2~6 of Table 2.3.3 (<u>Type approval or test/survey requirements</u>)</td></tr></table> <div>(Omitted)</div> <div>305. EGR System Configuration</div> <div>1. General</div> <div>(1) Exhaust Gas Recirculation is the process of recirculating a portion of the <u>diesel engine exhaust gases, typically up to 40%,</u> back to the engine cylinders for the purpose of reducing the amount of excess oxygen within the cylinder and thereby reducing engine NOx emissions.</div> <div>(Omitted)</div>	No.	Notation	relevant requirements	1	CEmN-EGR	All requirements of Section 3 EGR Excluding the relevant requirements of No. 2 and 3 of this table	2	CEmN-EGR(R)	In addition to <u>relevant requirements</u> of CEmN-EGR , provisions of 305. 3 (<u>redundancy requirements</u>)	3	CEmN-EGR(S)	In addition to <u>relevant requirements</u> of CEmN-EGR , paragraphs 2~6 of Table 2.3.3 (<u>Type approval or test/survey requirements</u>)	<div>CHAPTER 2 Nitrogen oxides Emission Abatement Systems</div> <div>Section 3 Exhaust Gas Recirculation(EGR) System</div> <div>302. Notation</div> <div>Table 2.3.1. Class Notation of EGR</div> <table><tr><th>No.</th><th>Notation</th><th>relevant requirements</th></tr><tr><td>1</td><td>CEmN-EGR</td><td>All requirements of Section 3 EGR Excluding the relevant requirements of No. 2 and 3 of this table</td></tr><tr><td>2</td><td>CEmN-EGR(R)</td><td>In addition to relevant requirements of CEmN-EGR, <u>redundancy requirements</u> (Provisions of 305. 3) (redundancy requirements)</td></tr><tr><td>3</td><td>CEmN-EGR(S)</td><td>In addition to relevant requirements of CEmN-EGR, <u>test and survey requirements</u> (Items 2~6 of Table 2.3.3) (Type approval or test/survey requirements)</td></tr></table> <div>(Omitted)</div> <div>305. EGR System Configuration</div> <div>1. General</div> <div>(1) Exhaust Gas Recirculation is the process of recirculating a portion of the diesel engine exhaust gases, typically up to 40%, back to the engine cylinders for the purpose of reducing the amount of excess oxygen within the cylinder and thereby reducing engine NOx emissions.</div> <div>(Omitted)</div>	No.	Notation	relevant requirements	1	CEmN-EGR	All requirements of Section 3 EGR Excluding the relevant requirements of No. 2 and 3 of this table	2	CEmN-EGR(R)	In addition to relevant requirements of CEmN-EGR , <u>redundancy requirements</u> (Provisions of 305. 3) (redundancy requirements)	3	CEmN-EGR(S)	In addition to relevant requirements of CEmN-EGR , <u>test and survey requirements</u> (Items 2~6 of Table 2.3.3) (Type approval or test/survey requirements)
No.	Notation	relevant requirements																							
1	CEmN-EGR	All requirements of Section 3 EGR Excluding the relevant requirements of No. 2 and 3 of this table																							
2	CEmN-EGR(R)	In addition to <u>relevant requirements</u> of CEmN-EGR , provisions of 305. 3 (<u>redundancy requirements</u>)																							
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Present	Amendment
<p data-bbox="147 268 1104 347">CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p data-bbox="241 427 1010 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="136 499 448 531">307. EGR System Piping</p> <p data-bbox="165 552 533 584">1. Exhaust Gas Piping Systems</p> <p data-bbox="201 595 1115 866"> (1) Exhaust Gas Piping/Scrubber Materials and Installation (A) Exhaust gas piping materials located before the EGR <u>SO_x</u> scrubber, where fitted, may be of the same material specification as the standard engine exhaust gas piping. (B) The sections of the scrubber that are subjected to washwater (e.g., the interior reaction chamber or washwater piping/nozzles, etc.) are to be constructed of suitable corrosion resistant materials. (C) Exhaust gas piping materials used after the <u>SO_x</u> scrubber unit are to be of a corrosion resistant material such as stainless steel. </p> <p data-bbox="589 927 696 954"><i>(Omitted)</i></p>	<p data-bbox="1155 268 2112 347">CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p data-bbox="1249 427 2016 459">Section 3 Exhaust Gas Recirculation(EGR) System</p> <p data-bbox="1144 499 1464 531">307. EGR Piping Systems</p> <p data-bbox="1173 552 1541 584">1. Exhaust Gas Piping Systems</p> <p data-bbox="1209 595 2123 866"> (1) Exhaust Gas Piping/Scrubber Materials and Installation (A) Exhaust gas piping materials located before the EGR SO_x scrubber, where fitted, may be of the same material specification as the standard engine exhaust gas piping. (B) The sections of the scrubber that are subjected to washwater (e.g., the interior reaction chamber or washwater piping/nozzles, etc.) are to be constructed of suitable corrosion resistant materials. (C) Exhaust gas piping materials used after the SO_x scrubber unit are to be of a corrosion resistant material such as stainless steel. </p> <p data-bbox="1597 927 1704 954"><i>(Omitted)</i></p>

Present	Amendment
<p>CHAPTER 2 Nitrogen oxides Emission Abatement System</p> <p>Section 3 Exhaust Gas Recirculation(EGR) System</p> <p>308. System Design <i>(Omitted)</i></p> <p>2. Control and Monitoring System <i>(Omitted)</i></p> <p>(2) The temperatures, pressures and flows in the EGR system and associated systems are to be controlled and monitored as follows: <i>(Omitted)</i></p> <p>(C) Indications of parameters necessary for the safe and effective operation of exhaust gas recirculation system are to be provided at the local and, as applicable, remote control stations, as per Table 2.3.2 of this <u>Guidance</u> and are to include the following parameters:</p> <ul style="list-style-type: none"> (a) EGR system pump/fan/blower/motor operational status (b) EGR system parameters for operational safety (c) Level indication of EGR system tanks (d) Status of any EGR system alarms, shutdowns and Emergency Stop <p><i>(Omitted)</i></p> <p>3. Safety Shutdown System <i>(Omitted)</i></p> <p>(2) Monitoring and safety shutdowns are to be in accordance with Table 2.3.2 of this <u>Guidance</u>.</p> <p><i>(Omitted)</i></p>	<p>CHAPTER 2 Nitrogen oxides Emission Abatement Systems</p> <p>Section 3 Exhaust Gas Recirculation(EGR) System</p> <p>308. System Design <i>(Omitted)</i></p> <p>2. Control and Monitoring System <i>(Omitted)</i></p> <p>(2) The temperatures, pressures and flows in the EGR system and associated systems are to be controlled and monitored as follows: <i>(Omitted)</i></p> <p>(C) Indications of parameters necessary for the safe and effective operation of exhaust gas recirculation system are to be provided at the local and, as applicable, remote control stations, as per Table 2.3.2 of this <u>GuidanceSection</u> and are to include the following parameters:</p> <ul style="list-style-type: none"> (a) EGR system pump/fan/blower/motor operational status (b) EGR system parameters for operational safety (c) Level indication of EGR system tanks (d) Status of any EGR system alarms, shutdowns and Emergency Stop <p><i>(Omitted)</i></p> <p>3. Safety Shutdown System <i>(Omitted)</i></p> <p>(2) Monitoring and safety shutdowns are to be in accordance with Table 2.3.2 of this <u>GuidanceSection</u>.</p> <p><i>(Omitted)</i></p>

Present

Amendment

CHAPTER 2 Nitrogen oxides Emission Abatement System

(Refer to the next page)

Section 3 Exhaust Gas Recirculation(EGR) System

Table 2.3.3 Test and Survey for components of EGR (2022)

No.	Components	<u>Approval of Administration or Class Type approval</u>	<u>Class Type approval</u>	Test and Survey
1	Control panel for EGR ⁽⁵⁾			●
2	Pumps(incl. motors and controlgears for motors) ^{(1),(6)}			●
3	Blowers(incl. motors and controlgears for motors) ^{(1),(6)}			●
4	Scrubber body ^{(2),(6)}			●
5	Heat exchanger ^{(3),(6)}			●
6	Storage tank for washwater treatment chemical ^{(4),(6)}			●

Note.

- (1) Components for the continual operation of the EGR are to be tested in accordance with the requirements specified in **Pt 5, Ch 6 & Pt 6** of the Rules.
- (2) The entire length of both longitudinal and circumferential welded joints and exhaust gas pipe or wash water pipe joints on scrubber body are to be subjected to liquid penetrant testing(PT). Where considered necessary by the Surveyor, additional non-destructive examinations may be required. (2022)
- (3) It shall be inspected based on the Rule of Pt 5 Ch 5 Sec 3. (2022)
- (4) Storage tank that do not form part of the hull are to be subjected to a hydraulic test at a head pressure of 2.5 m on the tank top plate, together with the attachment after manufacture.
- (5) Where equipment specified in Guidance 6, Ch 1 and **Ch 2, 301.1** is installed, Regardless of class notation, the type approval product is to be installed in the control panel/power panel. (See Guidance Pt 6, Ch 1 and **Ch 2, 301.1**)
- (6) For the applicable class notation 'CEmN-EGR(S)' in Table 2.3.1

(Omitted)

Present	Amendment																																			
(Refer to the previous page)	<div>CHAPTER 2 Nitrogen oxides Emission Abatement System</div> <div>Section 3 Exhaust Gas Recirculation(EGR) System</div> <div>Table 2.3.3 Test and Survey for components of EGR (2022)</div> <table><tr><th>No.</th><th>Components</th><th>Approval of Administration or Class Type approval</th><th>Class-Type approval</th><th>Test and Survey</th></tr><tr><td>1</td><td>Control panel for EGR⁽⁶⁾</td><td></td><td>●⁽⁶⁾</td><td>●</td></tr><tr><td>2</td><td>Pumps(incl. motors and controlgears for motors)^{(1),(2)}</td><td></td><td></td><td>●</td></tr><tr><td>3</td><td>Blowers(incl. motors and controlgears for motors)^{(1),(2)}</td><td></td><td></td><td>●</td></tr><tr><td>4</td><td>Scrubber body^{(2),(3)}</td><td></td><td></td><td>●</td></tr><tr><td>5</td><td>Heat exchanger^{(3),(4)}</td><td></td><td></td><td>●</td></tr><tr><td>6</td><td>Storage tank for washwater treatment chemical^{(4),(5)}</td><td></td><td></td><td>●</td></tr></table> <div>Note. (1) For the applicable class notation 'CEmN-EGR(S)' in Table 2.3.1 (1)(2) Components for the continual operation of the EGR are to be tested in accordance with the requirements specified in Pt 5, Ch 6 & Pt 6 of the Rules for the Classification of Steel Ships. (2)(3) The entire length of both longitudinal and circumferential welded joints and exhaust gas pipe or wash water pipe joints on scrubber body are to be subjected to liquid penetrant testing(PT). Where considered necessary by the Surveyor, additional non-destructive examinations may be required. (2022) (3)(4) It shall be inspected based on the Rules for the Classification of Steel Ships of Pt 5 Ch 5 Sec 3. (2022) (4)(5) Storage tank that do not form part of the hull are to be subjected to a hydraulic test at a head pressure of 2.5 m on the tank top plate, together with the attachment after manufacture. (5)(6) Where equipment specified in Guidance relating to the Rules for the Classification of Steel Ships 6, Ch 1 and Ch 2, 301.1 is installed, Regardless of class notation, the type approval product is to be installed in the control panel/power panel. (See Guidance Pt 6, Ch 1 and Ch 2, 301.1) (6) For the applicable class notation 'CEmN-EGR(S)' in Table 2.3.1</div>	No.	Components	Approval of Administration or Class Type approval	Class-Type approval	Test and Survey	1	Control panel for EGR ⁽⁶⁾		● ⁽⁶⁾	●	2	Pumps(incl. motors and controlgears for motors) ^{(1),(2)}			●	3	Blowers(incl. motors and controlgears for motors) ^{(1),(2)}			●	4	Scrubber body ^{(2),(3)}			●	5	Heat exchanger ^{(3),(4)}			●	6	Storage tank for washwater treatment chemical ^{(4),(5)}			●
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6	Storage tank for washwater treatment chemical ^{(4),(5)}			●																																
	(Omitted)																																			

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 1 General</p> <p>101. General</p> <ol style="list-style-type: none"> 1. This Chapter applies to sulphur oxide emission abatement system to use fuel oil containing small sulphur content or to control ratio of emission sulphur dioxide per carbon dioxide (SO₂(ppm)CO₂(% v/v)) to the atmosphere through engines installed on ships. 2. The containing sulphur content of fuel oil in paragraph 1 is to be complied with the Reg.14 of MARPOL Annex VI. 3. Amount of emission ratio via <u>sulphur oxide</u> emission abatement system in paragraph 1 is to be complied with IMO Res.MEPC.259(68), taking into account operating environment of installed ship. <p>(New)</p> <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 1 General</p> <p>101. General</p> <ol style="list-style-type: none"> 1. This Chapter applies to sulphur oxide(<u>hereinafter SO_x</u>) emission abatement systems to use fuel oil containing small sulphur content or to control ratio of emission sulphur dioxide per carbon dioxide (SO₂(ppm)CO₂(% v/v)) to the atmosphere through engines installed on ships. 2. The containing sulphur content of fuel oil in paragraph 1 is to be complied with the Reg.14 of MARPOL Annex VI. 3. Amount of emission ratio via sulphur oxide<u>SO_x</u> emission abatement systems in paragraph 1 is to be complied with IMO Res.MEPC.259(68)340(77), taking into account operating environment of installed ship. 4. <u>Where considered necessary by the Society, the requirements in this Chapter can be applied correspondingly to systems other than those intended for reducing SO_x emissions.</u> <p style="text-align: center;"><i>(Omitted)</i></p>

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning system(EGC)</p> <p>201. General</p> <ol style="list-style-type: none"> 1. This <u>Guidance</u> are to apply to arrangements and system design of Exhaust Gas Cleaning system reducing SOx emissions of fuel oil combustion machinery except incinerator. 2. For items not specified in this <u>Guidance</u>, the relevant requirements specified in Pt 5 of the <u>Rules</u> apply. <p><i>(New)</i></p> <p><i>(to the next page)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p>201. General</p> <ol style="list-style-type: none"> 1. This <u>GuidanceSection</u> areis to apply to arrangements and system design of Exhaust Gas Cleaning(hereinafter <u>EGC</u>) system reducing SOx emissions of fuel oil combustion machinery except incinerator. 2. For items not specified in this <u>GuidanceSection</u>, the relevant requirements specified in Pt 5 of the Rules for the Classification of Steel Ships apply. 3. <u>As separate from requirements in this Section, the performance and tests, etc. related to EGC system to reduce SOx emission are to comply with requirements in Conventions and guidelines such as the MARPOL Annex VI and MO Res.MEPC.340(77) and requirements from administration such as Marine Environment Management Act in Republic of Korea.</u> <p><i>(to the next page)</i></p>

Present	Amendment																								
<div>CHAPTER 3 Sulphur oxide Emission Abatement Systems</div> <div>Section 2 Exhaust Gas Cleaning system(EGC)</div> <div>201. General</div> <div><div>3. The washwater discharge criteria is to meet the requirements of IMO Res. MEPC.259(68).</div><div>4. Since EGC technology will be under constant development, the requirements of this Guidance may need to be supported by additional information and requirements, on a case by case basis. Designs that are not in compliance with this Guidance may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety.</div></div> <div>202. Notation</div> <div>(Omitted)</div> <div>Table 3.2.1 Class Notation of EGC</div> <table><tr><th>No.</th><th>Notation</th><th>relevant requirements</th></tr><tr><td>1</td><td>CEmS-EGC</td><td>All requirements of Section 2 EGC excluding the relevant requirements of item 2 and 3 of Table 3.2.1</td></tr><tr><td>2</td><td>CEmS-EGC(R)</td><td>In addition to relevant requirements of CEmS-EGC, provisions of 205. 3 (redundancy requirements)</td></tr><tr><td>3</td><td>CEmS-EGC(S)</td><td>In addition to relevant requirements of CEmS-EGC, item 4.~ 8. of Table 3.2.4 (Type approval or test/survey requirements)</td></tr></table> <div>(Omitted)</div>	No.	Notation	relevant requirements	1	CEmS-EGC	All requirements of Section 2 EGC excluding the relevant requirements of item 2 and 3 of Table 3.2.1	2	CEmS-EGC(R)	In addition to relevant requirements of CEmS-EGC, provisions of 205. 3 (redundancy requirements)	3	CEmS-EGC(S)	In addition to relevant requirements of CEmS-EGC, item 4.~ 8. of Table 3.2.4 (Type approval or test/survey requirements)	<div>CHAPTER 3 Sulphur oxide Emission Abatement Systems</div> <div>Section 2 Exhaust Gas Cleaning(EGC) system</div> <div>201. General</div> <div><div>3. The washwater discharge criteria is to meet the requirements of IMO Res. MEPC.259(68).</div><div>4. Since EGC technology will be under constant development, tThe requirements of this Section may need to be supported by additional information and requirementsconsiderations, on a case by case basis. Designs that are not in compliance with this GuidanceSection may be approved after evaluation by the Society, provided that it can be demonstrated that the design represents an equal or better level of safety.</div></div> <div>202. Notation</div> <div>(Omitted)</div> <div>Table 3.2.1 Class Notation of EGC</div> <table><tr><th>No.</th><th>Notation</th><th>relevant requirements</th></tr><tr><td>1</td><td>CEmS-EGC</td><td>All requirements of Section 2 EGC excluding the relevant requirements of item 2 and 3 of this table</td></tr><tr><td>2</td><td>CEmS-EGC(R)</td><td>In addition to relevant requirements of CEmS-EGC, <u>redundancy requirements</u> (Provisions of 205. 3) (redundancy requirements)</td></tr><tr><td>3</td><td>CEmS-EGC(S)</td><td>In addition to relevant requirements of CEmS-EGC, <u>test and survey requirements</u> (Item 4.~ 8. of Table 3.2.4) (Type approval or test/survey requirements)</td></tr></table> <div>(Omitted)</div>	No.	Notation	relevant requirements	1	CEmS-EGC	All requirements of Section 2 EGC excluding the relevant requirements of item 2 and 3 of this table	2	CEmS-EGC(R)	In addition to relevant requirements of CEmS-EGC, <u>redundancy requirements</u> (Provisions of 205. 3) (redundancy requirements)	3	CEmS-EGC(S)	In addition to relevant requirements of CEmS-EGC, <u>test and survey requirements</u> (Item 4.~ 8. of Table 3.2.4) (Type approval or test/survey requirements)
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3	CEmS-EGC(S)	In addition to relevant requirements of CEmS-EGC, <u>test and survey requirements</u> (Item 4.~ 8. of Table 3.2.4) (Type approval or test/survey requirements)																							

Present	Amendment																																				
<div>CHAPTER 3 Sulphur oxide Emission Abatement Systems</div> <div>Section 2 Exhaust Gas Cleaning system(EGC)</div> <div>203. Plans and Data</div> <div>(Omitted)</div> <div>2. Documents required by IMO Res. MEPC.259(68) are to be additionally submitted.</div> <table><tr><th>Documents</th><th>Scheme A</th><th>Scheme B</th></tr><tr><td>SECP(SOx Emissions Compliance Plan)</td><td>X</td><td>X</td></tr><tr><td>ETM-A(EGC System-Technical Manual for Scheme A)</td><td>X</td><td></td></tr><tr><td>ETM-B(EGC System-Technical Manual for Scheme B)</td><td></td><td>X</td></tr><tr><td>OMM(Onboard Monitoring Manual)</td><td>X</td><td>X</td></tr><tr><td>EGC Record Book</td><td>X</td><td>X</td></tr></table> <div>(Omitted)</div>	Documents	Scheme A	Scheme B	SECP(SOx Emissions Compliance Plan)	X	X	ETM-A(EGC System-Technical Manual for Scheme A)	X		ETM-B(EGC System-Technical Manual for Scheme B)		X	OMM(Onboard Monitoring Manual)	X	X	EGC Record Book	X	X	<div>CHAPTER 3 Sulphur oxide Emission Abatement Systems</div> <div>Section 2 Exhaust Gas Cleaning(EGC) system</div> <div>203. Plans and Data</div> <div>(Omitted)</div> <div>2. Documents required by IMO Res. MEPC.259(68) are to be additionally submitted.</div> <table><tr><th>Documents</th><th>Scheme A</th><th>Scheme B</th></tr><tr><td>SECP(SOx Emissions Compliance Plan)</td><td>X</td><td>X</td></tr><tr><td>ETM-A(EGC System-Technical Manual for Scheme A)</td><td>X</td><td>-</td></tr><tr><td>ETM-B(EGC System-Technical Manual for Scheme B)</td><td>-</td><td>X</td></tr><tr><td>OMM(Onboard Monitoring Manual)</td><td>X</td><td>X</td></tr><tr><td>EGC Record Book</td><td>X</td><td>X</td></tr></table> <div>(Omitted)</div>	Documents	Scheme A	Scheme B	SECP(SOx Emissions Compliance Plan)	X	X	ETM-A(EGC System-Technical Manual for Scheme A)	X	-	ETM-B(EGC System-Technical Manual for Scheme B)	-	X	OMM(Onboard Monitoring Manual)	X	X	EGC Record Book	X	X
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OMM(Onboard Monitoring Manual)	X	X																																			
EGC Record Book	X	X																																			

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning system(EGC)</p> <p>206. EGC System Equipment</p> <p><i>(Omitted)</i></p> <p>3. Dry scrubber consumable equipment</p> <p>(1) For dry type exhaust gas cleaning systems, details of the granulate supply and discharge systems are to be submitted.</p> <p>(2) Unless alternative means of compliance in accordance with 205. 3. (2) of this <u>Guidance</u> are applicable, drive arrangements for the exhaust cleaning reductant consumable are to be arranged in a redundant arrangement.</p> <p>4. Electrical Systems</p> <p>For items not specified in this <u>Guidance</u>, the relevant requirements specified in Pt 6 of the <u>Rules</u> apply.</p> <p>(1) Electrical Motors and controlgears for motors</p> <p>When the “CEmS-EGC(S)” class notation is applied, motors and controlgears for motors are to be certified in accordance with the relevant requirements specified in Pt 6 of the <u>Rules</u>.</p> <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p>206. EGC System Equipment</p> <p><i>(Omitted)</i></p> <p>3. Dry scrubber consumable equipment</p> <p>(1) For dry type exhaust gas cleaning systems, details of the granulate supply and discharge systems are to be submitted.</p> <p>(2) Unless alternative means of compliance in accordance with 205. 3. (2) of this <u>GuidanceSection</u> are applicable, drive arrangements for the exhaust cleaning reductant consumable are to be arranged in a redundant arrangement.</p> <p>4. Electrical Systems</p> <p>For items not specified in this <u>GuidanceSection</u>, the relevant requirements specified in Pt 6 of the <u>Rules for the Classification of Steel Ships</u> apply.</p> <p>(1) Electrical Motors and controlgears for motors</p> <p>When the “CEmS-EGC(S)” class notation is applied, motors and controlgears for motors are to be certified in accordance with the relevant requirements specified in Pt 6 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p style="text-align: center;"><i>(Omitted)</i></p>

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning system(EGC)</p> <p>207. EGC System Piping</p> <p>1. Exhaust Gas Piping Systems</p> <p><i>(Omitted)</i></p> <p>(3) Interconnection of exhaust gas piping</p> <p>(A) Normally, exhaust pipes from <u>diesel</u> engines and flue gas pipes from oil-fired boilers are to be routed separately and not interconnected. However, interconnected exhaust piping systems to a common EGC unit may be accepted subject to the arrangements preventing the passage or leakage of exhaust gases to other equipment or spaces that may then pose a safety risk to that equipment or health risk to the vessel's crew or passengers.</p> <p><i>(Omitted)</i></p> <p>5. Residue Tank</p> <p><i>(Omitted)</i></p> <p>(4) The EGC residue tank is to be provided with air pipes complying with Pt 5, Ch 6, 201. of the <u>Rules</u>. The residue tank is to be arranged with a high level alarm.</p> <p>(5) Sounding arrangements are to be provided for the EGC residue tank in accordance with Pt 5, Ch 6, 203. and Pt 8, Ch 2, Sec 1 of the <u>Rules</u>.</p> <p>(6) The EGC residue tank is to be so designed as to facilitate cleaning.</p> <p>(7) Where EGC residue tanks used in closed loop chemical treatment systems are also used as the overflow tank for the NaOH storage tank, the additional requirements of 206. 3. of this <u>Guidance</u> are to be applied.</p> <p style="text-align: right;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p>207. EGC System Piping</p> <p>1. Exhaust Gas Piping Systems</p> <p><i>(Omitted)</i></p> <p>(3) Interconnection of exhaust gas piping</p> <p>(A) Normally, exhaust pipes from <u>diesel</u> engines and flue gas pipes from oil-fired boilers are to be routed separately and not interconnected. However, interconnected exhaust piping systems to a common EGC unit may be accepted subject to the arrangements preventing the passage or leakage of exhaust gases to other equipment or spaces that may then pose a safety risk to that equipment or health risk to the vessel's crew or passengers.</p> <p><i>(Omitted)</i></p> <p>5. Residue Tank</p> <p><i>(Omitted)</i></p> <p>(4) The EGC residue tank is to be provided with air pipes complying with Pt 5, Ch 6, 201. of the <u>Rules for the Classification of Steel Ships</u>. The residue tank is to be arranged with a high level alarm.</p> <p>(5) Sounding arrangements are to be provided for the EGC residue tank in accordance with Pt 5, Ch 6, 203. and Pt 8, Ch 2, Sec 1 of the <u>Rules for the Classification of Steel Ships</u>.</p> <p>(6) The EGC residue tank is to be so designed as to facilitate cleaning.</p> <p>(7) Where EGC residue tanks used in closed loop chemical treatment systems are also used as the overflow tank for the NaOH storage tank, the additional requirements of 206. 3. of this <u>GuidanceSection</u> are to be applied.</p> <p style="text-align: right;"><i>(Omitted)</i></p>

Present	Amendment
<p data-bbox="165 268 1088 347">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p data-bbox="271 427 983 464">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p data-bbox="136 501 392 533">208. System Design</p> <p data-bbox="165 549 277 580"><i>(Omitted)</i></p> <p data-bbox="165 600 560 632">2. Control and Monitoring System</p> <p data-bbox="165 647 277 679"><i>(Omitted)</i></p> <p data-bbox="201 692 1115 783">(2) The temperatures, pressures and flows in the EGC system and associated systems are to be controlled and monitored as follows: <i>(Omitted)</i></p> <p data-bbox="239 815 1115 1091">(C) Indications of parameters necessary for the safe and effective operation of the exhaust gas cleaning process are to be provided at the local and, as applicable, remote control stations, as per Table 3.2.3 of this <u>Guidance</u> and are to include the following parameters: (a) EGC system pump/fan/blower/motor operational status (b) EGC system parameters for operational safety (c) Level indication of EGC system tanks (d) Status of any EGC system alarms, shutdowns and Emergency Stop</p> <p data-bbox="165 1099 277 1131"><i>(Omitted)</i></p> <p data-bbox="165 1150 490 1182">3. Safety Shutdown System</p> <p data-bbox="165 1198 277 1230"><i>(Omitted)</i></p> <p data-bbox="239 1238 1115 1302">(2) Monitoring and safety shutdowns are to be in accordance with Table 3.2.3 of this <u>Guidance</u>.</p> <p data-bbox="589 1355 696 1386"><i>(Omitted)</i></p>	<p data-bbox="1171 268 2094 347">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p data-bbox="1276 421 1989 458">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p data-bbox="1140 496 1397 528">208. System Design</p> <p data-bbox="1171 544 1283 576"><i>(Omitted)</i></p> <p data-bbox="1171 595 1568 627">2. Control and Monitoring System</p> <p data-bbox="1171 643 1283 675"><i>(Omitted)</i></p> <p data-bbox="1207 687 2121 778">(2) The temperatures, pressures and flows in the EGC system and associated systems are to be controlled and monitored as follows: <i>(Omitted)</i></p> <p data-bbox="1245 810 2121 1086">(C) Indications of parameters necessary for the safe and effective operation of the exhaust gas cleaning process are to be provided at the local and, as applicable, remote control stations, as per Table 3.2.3 of this <u>GuidanceSection</u> and are to include the following parameters: (a) EGC system pump/fan/blower/motor operational status (b) EGC system parameters for operational safety (c) Level indication of EGC system tanks (d) Status of any EGC system alarms, shutdowns and Emergency Stop</p> <p data-bbox="1171 1094 1283 1126"><i>(Omitted)</i></p> <p data-bbox="1171 1145 1498 1177">3. Safety Shutdown System</p> <p data-bbox="1171 1193 1283 1225"><i>(Omitted)</i></p> <p data-bbox="1245 1233 2121 1297">(2) Monitoring and safety shutdowns are to be in accordance with Table 3.2.3 of this <u>GuidanceSection</u>.</p> <p data-bbox="1592 1350 1700 1382"><i>(Omitted)</i></p>

Present

Amendment

CHAPTER 3 Sulphur oxide Emission Abatement Systems

Section 2 Exhaust Gas Cleaning(EGC) system

(Refer to the next page)

Table 3.2.4. Test and Survey for components of EGC (2022)

No.	Components	<u>Approval of Administration or</u> <u>Class Type approval</u>	<u>Class Type approval</u>	Test and Survey
1	Exhaust gas emission monitoring system	●		
2	Washwater emission monitoring system		●	
3	Control panel for EGC ⁽⁵⁾			●
4	Pumps(incl. motors and controlgears for motors) ^{(1),(6)}			●
5	Blowers(incl. motors and controlgears for motors) ^{(1),(6)}			●
6	Scrubber body ^{(2),(6),(7)}			●
7	Heat exchanger ^{(3),(6)}			●
8	Storage tank for washwater treatment chemical ^{(4),(6)}			●

Note.

- (1) Components for the continual operation of the EGC are to be tested in accordance with the requirements specified in **Pt 5, Ch 6 & Pt 6** of the Rules.
- (2) The entire length of both longitudinal and circumferential welded joints and exhaust gas pipe or wash water pipe joints on scrubber body are to be subjected to liquid penetrant testing(PT). Where considered necessary by the Surveyor, additional non-destructive test may be required. (2022)
- (3) It shall be inspected based on the Rule of Pt 5 Ch 5 Sec 3. (2022)
- (4) Storage tank that do not form part of the hull are to be subjected to a hydraulic test at a head pressure of 2.5 m on the tank top plate, together with the attachment after manufacture.
- (5) Where equipment specified in **Guidance 6, Ch 1** and **Ch 2, 301.1** is installed, Regardless of class notation, the type approval product is to be installed in the control panel/power panel. (See **Guidance Pt 6, Ch 1 and Ch 2, 301.1**)
- (6) For the applicable class notation 'CEmS-EGC(S)' in **Table 3.2.1**
- (7) When vessels install scrubber without exhaust gas by-pass arrangement required in 205. 4, scrubber body is to be performed non-destructive examinations irrespective of notation in 202. (2022)

(Omitted)

Present	Amendment																																													
(Refer to the previous page)	<div>CHAPTER 3 Sulphur oxide Emission Abatement Systems</div> <div>Section 2 Exhaust Gas Cleaning(EGC) system</div> <div>Table 3.2.4. Test and Survey for components of EGC (2022)</div> <table><tr><th>No.</th><th>Components</th><th>Approval of Administration or Class Type approval</th><th>Class Type approval</th><th>Test and Survey</th></tr><tr><td>1</td><td>Exhaust gas emission monitoring system</td><td>●</td><td>●⁽⁶⁾</td><td></td></tr><tr><td>2</td><td>Washwater emission monitoring system</td><td></td><td>●⁽⁶⁾</td><td></td></tr><tr><td>3</td><td>Control panel for EGC⁽⁶⁾</td><td></td><td>●⁽⁶⁾</td><td>●</td></tr><tr><td>4</td><td>Pumps(incl. motors and controlgears for motors)^{(1),(6)(1),(2)}</td><td></td><td></td><td>●</td></tr><tr><td>5</td><td>Blowers(incl. motors and controlgears for motors)^{(1),(6)(1),(2)}</td><td></td><td></td><td>●</td></tr><tr><td>6</td><td>Scrubber body^{(2),(6),(7)(1),(3),(7)}</td><td></td><td></td><td>●</td></tr><tr><td>7</td><td>Heat exchanger^{(3),(6)(1),(4)}</td><td></td><td></td><td>●</td></tr><tr><td>8</td><td>Storage tank for washwater treatment chemical^{(4),(5)(1),(5)}</td><td></td><td></td><td>●</td></tr></table> <div>Note. (1) For the applicable class notation 'CEmS-EGC(S)' in Table 3.2.1 (1)(2) Components for the continual operation of the EGC are to be tested in accordance with the requirements specified in Pt 5, Ch 6 & Pt 6 of the Rules for the Classification of Steel Ships. (2)(3) The entire length of both longitudinal and circumferential welded joints and exhaust gas pipe or wash water pipe joints on scrubber body are to be subjected to liquid penetrant testing(PT). Where considered necessary by the Surveyor, additional non-destructive test may be required. (2022) (3)(4) It shall be inspected based on the Rules for the Classification of Steel Ships of Pt 5 Ch 5 Sec 3. (2022) (4)(5) Storage tank that do not form part of the hull are to be subjected to a hydraulic test at a head pressure of 2.5 m on the tank top plate, together with the attachment after manufacture. (5)(6) Where equipment specified in Guidance relating to the Rules for the Classification of Steel Ships Pt 6, Ch 1 and Ch 2, 301.1 is installed, Regardless of class notation, the type approval product is to be installed in the control panel/power panel. (See Guidance Pt 6, Ch 1 and Ch 2, 301.1). (6) For the applicable class notation 'CEmS-EGC(S)' in Table 3.2.1 (7) When ships install scrubber without exhaust gas by-pass arrangement required in 205. 4, scrubber body is to be performed non-destructive examinations irrespective of notation in 202. (2022)</div> <div>(Omitted)</div>	No.	Components	Approval of Administration or Class Type approval	Class Type approval	Test and Survey	1	Exhaust gas emission monitoring system	●	● ⁽⁶⁾		2	Washwater emission monitoring system		● ⁽⁶⁾		3	Control panel for EGC ⁽⁶⁾		● ⁽⁶⁾	●	4	Pumps(incl. motors and controlgears for motors) ^{(1),(6)(1),(2)}			●	5	Blowers(incl. motors and controlgears for motors) ^{(1),(6)(1),(2)}			●	6	Scrubber body ^{(2),(6),(7)(1),(3),(7)}			●	7	Heat exchanger ^{(3),(6)(1),(4)}			●	8	Storage tank for washwater treatment chemical ^{(4),(5)(1),(5)}			●
No.	Components	Approval of Administration or Class Type approval	Class Type approval	Test and Survey																																										
1	Exhaust gas emission monitoring system	●	● ⁽⁶⁾																																											
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Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p>210. Periodical Surveys</p> <p>1. General</p> <p>For items not specified in this <u>Guidance</u>, the relevant requirements specified in Pt 1 of the <u>Rules</u> apply.</p> <p>2. Annual Survey</p> <p>Annual surveys are to be included.</p> <ol style="list-style-type: none"> (1) External examination of all components, including scrubber unit, chemical treatment piping/supply unit, washwater, tanks, pumps, valves and piping, etc.. (2) Performance test of the instrumentation, control, monitoring, and safety equipment including indicators and alarms. (3) Performance test of Changeover devices of exhaust gas pipes and the corresponding indicator (4) Operation test of Remote shut-off devices for reductant agent storage tank valves if installed (5) General examinations of safety and protective equipment(refer to 207.3.(8)) (6) Performance test of Safety showers Eyewash if installed (7) Instruction and operation manual, the location of the applicable warning notices(refer to 204) (8) Confirmation that the documents required by IMO Res. MEPC.259 (68) are well maintained (see Section 203.2). <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 2 Exhaust Gas Cleaning(EGC) system</p> <p>210. Periodical Surveys</p> <p>1. General</p> <p>For items not specified in this <u>GuidanceSection</u>, the relevant requirements specified in Pt 1 of the <u>Rules for the Classification of Steel Ships</u> apply.</p> <p>2. Annual Survey</p> <p>Annual surveys are to be included.</p> <ol style="list-style-type: none"> (1) External examination of all components, including scrubber unit, chemical treatment piping/supply unit, washwater, tanks, pumps, valves and piping, etc.. (2) Performance test of the instrumentation, control, monitoring, and safety equipment including indicators and alarms. (3) Performance test of Changeover devices of exhaust gas pipes and the corresponding indicator (4) Operation test of Remote shut-off devices for reductant agent storage tank valves if installed (5) General examinations of safety and protective equipment(refer to 207.3.(8)) (6) Performance test of Safety showers Eyewash if installed (7) Instruction and operation manual, the location of the applicable warning notices(refer to 204) (8) Confirmation that the documents required by IMO Res. MEPC.259 (68) are well maintained (see Section 203.2). <p style="text-align: center;"><i>(Omitted)</i></p>

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 3 Exhaust Gas Cleaning system(EGC) Ready ships</p> <p>301. General</p> <ol style="list-style-type: none"> 1. This <u>Guidance</u> applies to ships which are prepared for conversion with the design or the partial installation related with exhaust gas cleaning system mentioned in Sec 2 during the new building phase or in-service. 2. EGC ready levels are defined in 2 steps, and additionally defined in 4 steps according to type of system. <p><i>(Omitted)</i></p> <p>303. Requirements for levels of EGC Ready</p> <p>1. General</p> <ol style="list-style-type: none"> (1) This <u>Guidance</u> prescribes plans to be submitted and consideration for preparing(refer to below 4.) the exhaust gas cleaning system. The design and installation of structures and systems are to be in accordance with applicable requirements in Sec 3. (2) Drawing approval and survey for EGC ready are not accepted as Drawing approval and survey for conversion of exhaust gas cleaning system. When the ship is converted, drawing approval and surey are to be carried out in accordance with Sec 3 in force at the time of the ship conversion. Approved Drawings and certifications from new building stage may be used as reference for conversion. <p style="text-align: right;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 3 Exhaust Gas Cleaning system(EGC) Ready ships</p> <p>301. General</p> <ol style="list-style-type: none"> 1. This <u>GuidanceSection</u> applies to ships which are prepared for conversion with the design or the partial installation related with exhaust gas cleaning system mentioned in Sec 2 during the new building phase or in-service. 2. EGC ready levels are defined in 2 steps, and additionally defined in 4 steps according to type of system. <p><i>(Omitted)</i></p> <p>303. Requirements for levels of EGC Ready</p> <p>1. General</p> <ol style="list-style-type: none"> (1) This <u>GuidanceSection</u> prescribes plans to be submitted and consideration for preparing(refer to below 4.) the exhaust gas cleaning system. The design and installation of structures and systems are to be in accordance with applicable requirements in Sec 3. (2) Drawing approval and survey for EGC ready are not accepted as Drawing approval and survey for conversion of exhaust gas cleaning system. When the ship is converted, drawing approval and surey are to be carried out in accordance with Sec 3 in force at the time of the ship conversion. Approved Drawings and certifications from new building stage may be used as reference for conversion. <p style="text-align: right;"><i>(Omitted)</i></p>

Present	Amendment
<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 4 Ships using low sulphur fuel</p> <p>401. General</p> <ol style="list-style-type: none"> 1. This Section applies to ships using fuel oil complied with Reg.14 of MARPOL Annex VI <u>without exhaust gas cleaning system</u>. 2. It is applied the "CEmS-LSF" notation for ships arranged fuel oil system in 402., without exhaust gas cleaning system. <p>402. Fuel oil system</p> <p><i>(Omitted)</i></p> <ol style="list-style-type: none"> 5. For items not specified in this section, the relevant requirements specified in Pt 5 and Pt 8 of the <u>Rules</u> apply. <p style="text-align: center;"><i>(Omitted)</i></p>	<p style="text-align: center;">CHAPTER 3 Sulphur oxide Emission Abatement Systems</p> <p style="text-align: center;">Section 4 Ships using Low Sulphur Fuel <u>Oil</u></p> <p>401. General</p> <ol style="list-style-type: none"> 1. This Section applies to ships using <u>two kinds of</u> fuel oil complied with Reg.14.1 and Reg.14.4 of MARPOL Annex VI without exhaust gas cleaning system. 2. It is applied the "CEmS-LSF" notation for ships arranged fuel oil system in 402., without exhaust gas cleaning system. <p>402. Fuel oil system</p> <p><i>(Omitted)</i></p> <ol style="list-style-type: none"> 5. For items not specified in this Section, the relevant requirements specified in Pt 5 and Pt 8 of the Rules <u>for the Classification of Steel Ships</u> apply. ⚴ <p style="text-align: center;"><i>(Omitted)</i></p>

Present	Amendment
<p data-bbox="181 304 1070 395" style="text-align: center;">CHAPTER 4 Ships satisfying Energy Efficiency Design Index(EEDI) Phase 3</p> <p data-bbox="483 485 768 517" style="text-align: center;">Section 1 General</p> <p data-bbox="136 560 297 587">101. General</p> <ol data-bbox="165 611 1115 807" style="list-style-type: none"> 1. This <u>Guidance</u> applies to the ships whose verified attained EEDI are less than or equal to the required EEDI for phase 3 in MARPOL Annex VI, Regulation 21 as amended by IMO Res.MEPC.324(75). 2. Ships applying the EEDI notation in accordance with this <u>Guidance</u> are to comply with the applicable requirements of MARPOL Annex VI, Regulations 19, 20 and 21, and are to hold a valid IEE Certificate. <p data-bbox="589 858 696 885" style="text-align: center;"><i>(Omitted)</i></p>	<p data-bbox="1189 304 2078 395" style="text-align: center;">CHAPTER 4 Ships satisfying Energy Efficiency Design Index(EEDI) Phase 3</p> <p data-bbox="1491 485 1776 517" style="text-align: center;">Section 1 General</p> <p data-bbox="1144 560 1305 587">101. General</p> <ol data-bbox="1173 611 2123 807" style="list-style-type: none"> 1. This <u>GuidanceChapter</u> applies to the ships whose verified attained EEDI are less than or equal to the required EEDI for phase 3 in MARPOL Annex VI, Regulation 21 as amended by IMO Res.MEPC.324(75). 2. Ships applying the EEDI notation in accordance with this <u>GuidanceChapter</u> are to comply with the applicable requirements of MARPOL Annex VI, Regulations 19, 20 and 21, and are to hold a valid IEE Certificate. <p data-bbox="1597 858 1704 885" style="text-align: center;"><i>(Omitted)</i></p>