

# STCW

## Convention

### International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

#### INCLUDING 2010 MANILA AMENDMENTS

Consolidated edition, 2011

### Supplement

April 2017

Since the publication of the STCW Consolidated Edition 2011, the following amendments have been adopted by the Maritime Safety Committee:

Resolution	Amends	Date of entry into force	Page
MSC.396(95)	<b>STCW Convention</b> Chapter I: General provisions – Regulations I/1 and I/11  Chapter V: Special training requirements for personnel on certain types of ships – New Section V/3	1 January 2017	2
MSC.397(95)	<b>STCW Code</b> Part A: Mandatory standards regarding provisions of the Annex to the STCW Convention – Chapter V: Standards regarding special training requirements for personnel on certain types of ships – New Section A-V/3	1 January 2017	4

## Resolution MSC.396(95)

adopted on 11 June 2015

# International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978

## Chapter I

### General provisions

#### Regulation I/1

*Definitions and clarifications*

1 *In paragraph 1, after the existing subparagraph .40, the following new definition is inserted:*

**“.41** *The IGF Code means the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels, as defined in SOLAS regulation II-1/2.29.”*

#### Regulation I/11

*Revalidation of certificates*

2 *Existing paragraph 1 is amended to read:*

**“1** Every master, officer and radio operator holding a certificate issued or recognized under any chapter of the Convention other than regulation V/3 or chapter VI, who is serving at sea or intends to return to sea after a period ashore, shall, in order to continue to qualify for seagoing service, be required, at intervals not exceeding five years, to:

- .1** meet the standards of medical fitness prescribed by regulation I/9; and
- .2** establish continued professional competence in accordance with section A-1/11 of the STCW Code.”

## Chapter V

### Special training requirements for personnel on certain types of ships

3 *The following new regulation V/3 is added after existing regulation V/2:*

#### “Regulation V/3

*Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on ships subject to the IGF Code*

**1** This regulation applies to masters, officers and ratings and other personnel serving on board ships subject to the IGF Code.

**2** Prior to being assigned shipboard duties on board ships subject to the IGF Code, seafarers shall have completed the training required by paragraphs 4 to 9 below in accordance with their capacity, duties and responsibilities.

**3** All seafarers serving on board ships subject to the IGF Code shall, prior to being assigned shipboard duties, receive appropriate ship and equipment specific familiarization as specified in regulation I/14, paragraph 1.5.

**4** Seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code shall hold a certificate in basic training for service on ships subject to the IGF Code.

**5** Every candidate for a certificate in basic training for service on ships subject to the IGF Code shall have completed basic training in accordance with provisions of section A-V/3, paragraph 1 of the STCW Code.

**6** Seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code who have been qualified and certified according to regulation V/1-2, paragraphs 2 and 5, or regulation V/1-2, paragraphs 4 and 5 on liquefied gas tankers, are to be considered as having met the requirements specified in section A-V/3, paragraph 1 for basic training for service on ships subject to the IGF Code.

**7** Masters, engineer officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code shall hold a certificate in advanced training for service on ships subject to the IGF Code.

**8** Every candidate for a certificate in advanced training for service on ships subject to the IGF Code shall, while holding the Certificate of Proficiency described in paragraph 4, have:

- .1** completed approved advanced training for service on ships subject to the IGF Code and meet the standard of competence as specified in section A-V/3, paragraph 2 of the STCW Code; and
- .2** completed at least one month of approved seagoing service that includes a minimum of three bunkering operations on board ships subject to the IGF Code. Two of the three bunkering operations may be replaced by approved simulator training on bunkering operations as part of the training in paragraph 8.1 above.

**9** Masters, engineer officers and any person with immediate responsibility for the care and use of fuels on ships subject to the IGF Code who have been qualified and certified according to the standards of competence specified in section A-V/1-2, paragraph 2 for service on liquefied gas tankers are to be considered as having met the requirements specified in section A-V/3, paragraph 2 for advanced training for ships subject to the IGF Code, provided they have also:

- .1** met the requirements of paragraph 6; and
- .2** met the bunkering requirements of paragraph 8.2 or have participated in conducting three cargo operations on board the liquefied gas tanker; and
- .3** have completed sea going service of three months in the previous five years on board:
  - .1** ships subject to the IGF Code;
  - .2** tankers carrying as cargo, fuels covered by the IGF Code; or
  - .3** ships using gases or low flashpoint fuel as fuel.

**10** Every Party shall compare the standards of competence which it required of persons serving on gas-fuelled ships before 1 January 2017 with the standards of competence in Section A-V/3 of the STCW Code, and shall determine the need, if any, for requiring these personnel to update their qualifications.

**11** Administrations shall ensure that a Certificate of Proficiency is issued to seafarers, who are qualified in accordance with paragraphs 4 or 7, as appropriate.

**12** Seafarers holding Certificates of Proficiency in accordance with paragraph 4 or 7 above shall, at intervals not exceeding five years, undertake appropriate refresher training or be required to provide evidence of having achieved the required standard of competence within the previous five years."

## Resolution MSC.397(95)

adopted on 11 June 2015

### Seafarers' Training, Certification and Watchkeeping (STCW) Code

#### Part A

Mandatory standards regarding provisions  
of the annex to the STCW Convention

#### Chapter V

Standards regarding special training requirements  
for personnel on certain types of ships

1 *The following new section A-V/3 is added after existing section A-V/2:*

##### **"Section A-V/3**

*Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on ships subject to the IGF Code*

##### **Basic training for ships subject to the IGF Code**

- 1 Every candidate for a certificate in basic training for service on ships subject to the IGF Code shall:
- .1.1 have successfully completed the approved basic training required by regulation V/3, paragraph 5, in accordance with their capacity, duties and responsibilities as set out in table A-V/3-1; and
  - .1.2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/3-1; or
  - .2 have received appropriate training and certification according to the requirements for service on liquefied gas tankers as set out in regulation V/3, paragraph 6.

##### **Advanced training for ships subject to the IGF Code**

- 2 Every candidate for a certificate in advanced training for service on ships subject to the IGF Code shall:
- .1.1 have successfully completed the approved advanced training required by regulation V/3, paragraph 8 in accordance with their capacity, duties and responsibilities as set out in table A-V/3-2; and
  - .1.2 provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/3-2; or
  - .2 have received appropriate training and certification according to the requirements for service on liquefied gas tankers as set out in regulation V/3, paragraph 9.

##### **Exemptions**

3 The Administration may, in respect of ships of less than 500 gross tonnage, except for passenger ships, if it considers that a ship's size and the length or character of its voyage are such as to render the application of the full requirements of this section unreasonable or impracticable, exempt the seafarers on such a ship or class of ships from some of the requirements, bearing in mind the safety of people on board, the ship and property and the protection of the marine environment.

**Table A-V/3-1**

*Specification of minimum standard of competence in basic training  
for ships subject to the IGF Code*

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	<b>Column 4</b>
<b>Competence</b>	<b>Knowledge, understanding and proficiency</b>	<b>Methods for demonstrating competence</b>	<b>Criteria for evaluating competence</b>
Contribute to the safe operation of a ship subject to the IGF Code	<p>Design and operational characteristics of ships subject to the IGF Code</p> <p>Basic knowledge of ships subject to the IGF Code, their fuel systems and fuel storage systems:</p> <ol style="list-style-type: none"> <li>.1 fuels addressed by the IGF Code</li> <li>.2 types of fuel systems subject to the IGF Code</li> <li>.3 atmospheric, cryogenic or compressed storage of fuels on board ships subject to the IGF Code</li> <li>.4 general arrangement of fuel storage systems on board ships subject to the IGF Code</li> <li>.5 hazard zones and areas</li> <li>.6 typical fire safety plan</li> <li>.7 monitoring, control and safety systems aboard ships subject to the IGF Code</li> </ol> <p>Basic knowledge of fuels and fuel storage systems' operations on board ships subject to the IGF Code:</p> <ol style="list-style-type: none"> <li>.1 piping systems and valves</li> <li>.2 atmospheric, compressed or cryogenic storage</li> <li>.3 relief systems and protection screens</li> <li>.4 basic bunkering operations and bunkering systems</li> <li>.5 protection against cryogenic accidents</li> <li>.6 fuel leak monitoring and detection</li> </ol>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ol>	<p>Communications within the area of responsibility are clear and effective</p> <p>Operations related to ships subject to the IGF Code are carried out in accordance with accepted principles and procedures to ensure safety of operations</p>

Table A-V/3-1 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the safe operation of a ship subject to the IGF Code (continued)	Basic knowledge of the physical properties of fuels on board ships subject to the IGF Code, including: .1 properties and characteristics .2 pressure and temperature, including vapour pressure/temperature relationship  Knowledge and understanding of safety requirements and safety management on board ships subject to the IGF Code		
Take precautions to prevent hazards on a ship subject to the IGF Code	Basic knowledge of the hazards associated with operations on ships subject to the IGF Code, including: .1 health hazards .2 environmental hazards .3 reactivity hazards .4 corrosion hazards .5 ignition, explosion and flammability hazards .6 sources of ignition .7 electrostatic hazards .8 toxicity hazards .9 vapour leaks and clouds .10 extremely low temperatures .11 pressure hazards .12 fuel batch differences  Basic knowledge of hazard controls: .1 emptying, inerting, drying and monitoring techniques .2 anti-static measures .3 ventilation .4 segregation .5 inhibition .6 measures to prevent ignition, fire and explosion .7 atmospheric control .8 gas testing .9 protection against cryogenic damages (LNG)  Understanding of fuel characteristics on ships subject to the IGF Code as found on a Safety Data Sheet (SDS)	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Correctly identifies, on a Safety Data Sheet (SDS), relevant hazards to the ship and to personnel, and takes the appropriate actions in accordance with established procedures  Identification and actions on becoming aware of a hazardous situation conform to established procedures in line with best practice

Table A-V/3-1 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply occupational health and safety precautions and measures	<p>Awareness of function of gas-measuring instruments and similar equipment:</p> <p>.1 gas testing</p> <p>Proper use of specialized safety equipment and protective devices, including:</p> <p>.1 breathing apparatus</p> <p>.2 protective clothing</p> <p>.3 resuscitators</p> <p>.4 rescue and escape equipment</p> <p>Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to ships subject to the IGF Code, including:</p> <p>.1 precautions to be taken before entering hazardous spaces and zones</p> <p>.2 precautions to be taken before and during repair and maintenance work</p> <p>.3 safety measures for hot and cold work</p> <p>Basic knowledge of first aid with reference to a Safety Data Sheet (SDS)</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times</p> <p>Appropriate safety and protective equipment is correctly used</p> <p>First aid do's and don'ts</p>

Table A-V/3-1 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Carry out firefighting operations on a ship subject to the IGF Code	<p>Fire organization and action to be taken on ships subject to the IGF Code</p> <p>Special hazards associated with fuel systems and fuel handling on ships subject to the IGF Code</p> <p>Firefighting agents and methods used to control and extinguish fires in conjunction with the different fuels found on board ships subject to the IGF Code</p> <p>Firefighting system operations</p>	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. Simulated shipboard conditions) and, whenever possible and practicable, in darkness	<p>Initial actions and follow-up actions on becoming aware of an emergency conform with established practices and procedures</p> <p>Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures</p> <p>Clothing and equipment are appropriate to the nature of the firefighting operations</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions</p> <p>Extinguishment of fire is achieved using appropriate procedures techniques and firefighting agents</p>
Respond to emergencies	Basic knowledge of emergency procedures, including emergency shutdown	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	The type and impact of the emergency is promptly identified, and the response actions conform to the emergency procedures and contingency plans
Take precautions to prevent pollution of the environment from the release of fuels found on ships subject to the IGF Code	<p>Basic knowledge of measures to be taken in the event of leakage/spillage/venting of fuels from ships subject to the IGF Code, including the need to:</p> <p>.1 report relevant information to the responsible persons</p> <p>.2 awareness of shipboard spill/leakage/venting response procedures</p> <p>.3 awareness of appropriate personal protection when responding to a spill/leakage of fuels addressed by the IGF Code</p>	<p>Examination or assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	Procedures designed to safeguard the environment are observed at all times

**Table A-V/3-2**  
*Specification of minimum standard of competence of advanced training  
 for ships subject to the IGF Code*

<b>Column 1</b>	<b>Column 2</b>	<b>Column 3</b>	<b>Column 4</b>
<b>Competence</b>	<b>Knowledge, understanding and proficiency</b>	<b>Methods for demonstrating competence</b>	<b>Criteria for evaluating competence</b>
Familiarity with physical and chemical properties of fuels aboard ships subject to the IGF Code	<p>Basic knowledge and understanding of simple chemistry and physics and the relevant definitions related to safe bunkering and use of fuels used on board ships subject to the IGF Code, including:</p> <ul style="list-style-type: none"> <li>.1 the chemical structure of different fuels used on board ships subject to the IGF Code</li> <li>.2 the properties and characteristics of fuels used on board ships subject to the IGF Code, including:               <ul style="list-style-type: none"> <li>.2.1 simple physical laws</li> <li>.2.2 states of matter</li> <li>.2.3 liquid and vapour densities</li> <li>.2.4 boil-off and weathering of cryogenic fuels</li> <li>.2.5 compression and expansion of gases</li> <li>.2.6 critical pressure and temperature of gases</li> <li>.2.7 flashpoint, upper and lower flammable limits, auto-ignition temperature</li> <li>.2.8 saturated vapour pressure/reference temperature</li> <li>.2.9 dewpoint and bubble point</li> <li>.2.10 hydrate formation</li> <li>.2.11 combustion properties: heating values</li> <li>.2.12 methane number/knocking</li> <li>.2.13 pollutant characteristics of fuels addressed by the IGF Code</li> </ul> </li> <li>.3 the properties of single liquids</li> <li>.4 the nature and properties of solutions</li> </ul>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ul>	<p>Effective use is made of information resources for identification of properties and characteristics of fuels addressed by the IGF Code and their impact on safety, environmental protection and ship operation</p>

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Familiarity with physical and chemical properties of fuels aboard ships subject to the IGF Code (continued)	.5 thermodynamic units .6 basic thermodynamic laws and diagrams .7 properties of materials .8 effect of low temperature, including brittle fracture, for liquid cryogenic fuels  Understanding the information contained in a Safety Data Sheet (SDS) about fuels addressed by the IGF Code		
Operate controls of fuel related to propulsion plant and engineering systems and services and safety devices on ships subject to the IGF Code	Operating principles of marine power plants  Ships' auxiliary machinery  Knowledge of marine engineering terms	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ability to safely perform and monitor all operations related to the fuels used on board ships subject to the IGF Code	<p>Design and characteristics of ships subject to the IGF Code</p> <p>Knowledge of ship design, systems, and equipment found on ships subject to the IGF Code, including:</p> <ul style="list-style-type: none"> <li>.1 fuel systems for different propulsion engines</li> <li>.2 general arrangement and construction</li> <li>.3 fuel storage systems on board ships subject to the IGF Code, including materials of construction and insulation</li> <li>.4 fuel-handling equipment and instrumentations on board ships: <ul style="list-style-type: none"> <li>.4.1 fuel pumps and pumping arrangements</li> <li>.4.2 fuel pipelines</li> <li>.4.3 expansion devices</li> <li>.4.4 flame screens</li> <li>.4.5 temperature monitoring systems</li> <li>.4.6 fuel tank level gauging systems</li> <li>.4.7 tank pressure monitoring and control systems</li> </ul> </li> <li>.5 cryogenic fuel tanks temperature and pressure maintenance</li> <li>.6 fuel system atmosphere control systems (inert gas, nitrogen), including storage, generation and distribution</li> <li>.7 toxic and flammable gas-detecting systems</li> <li>.8 fuel Emergency Shut Down system (ESD)</li> </ul>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ul>	<p>Communications are clear and understood</p> <p>Successful ship operations using fuels addressed by the IGF Code are carried out in a safe manner, taking into account ship designs, systems and equipment</p> <p>Pumping operations are carried out in accordance with accepted principles and procedures and are relevant to the type of fuel</p> <p>Operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and to avoid pollution of the marine environment</p>

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ability to safely perform and monitor all operations related to the fuels used on board ships subject to the IGF Code (continued)	<p>Knowledge of fuel system theory and characteristics, including types of fuel system pumps and their safe operation on board ships subject to the IGF Code</p> <ul style="list-style-type: none"> <li>.1 low pressure pumps</li> <li>.2 high pressure pumps</li> <li>.3 vaporizers</li> <li>.4 heaters</li> <li>.5 pressure build up units</li> </ul> <p>Knowledge of safe procedures and checklists for taking fuel tanks in and out of service, including:</p> <ul style="list-style-type: none"> <li>.1 inerting</li> <li>.2 cooling down</li> <li>.3 initial loading</li> <li>.4 pressure control</li> <li>.5 heating of fuel</li> <li>.6 emptying systems</li> </ul>		

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and monitor safe bunkering, stowage and securing of the fuel on board ships subject to the IGF Code	<p>General knowledge of ships subject to the IGF Code</p> <p>Ability to use all data available on board related to bunkering, storage and securing of fuels addressed by the IGF Code</p> <p>Ability to establish clear and concise communications and between the ship and the terminal, truck or the bunker-supply ship</p> <p>Knowledge of safety and emergency procedures for operation of machinery, fuel- and control systems for ships subject to the IGF Code</p> <p>Proficiency in the operation of bunkering systems on board ships subject to the IGF Code including:</p> <ol style="list-style-type: none"> <li>.1 bunkering procedures</li> <li>.2 emergency procedures</li> <li>.3 ship-shore/ship-ship interface</li> <li>.4 prevention of rollover</li> </ol> <p>Proficiency to perform fuel system measurements and calculations, including:</p> <ol style="list-style-type: none"> <li>.1 maximum fill quantity</li> <li>.2 On Board Quantity (OBQ)</li> <li>.3 Minimum Remain On Board (ROB)</li> <li>.4 fuel consumption calculations</li> </ol> <p>Ability to ensure the safe management of bunkering and other IGF Code fuel related operations concurrent with other onboard operations, both in port and at sea</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved simulator training</li> <li>.3 approved training programme</li> <li>.4 approved laboratory equipment training or witnessing bunker operation</li> </ol>	<p>Fuel quality and quantity is determined taking into account the current conditions and necessary corrective safe measures are taken</p> <p>Procedures for monitoring safety systems to ensure that all alarms are detected promptly and acted upon in accordance with established procedures</p> <p>Operations are planned and carried out in accordance with fuel transfer manuals and procedures to ensure safety of operations and avoid spill damages and pollution of the environment</p> <p>Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe working procedures</p>

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take precautions to prevent pollution of the environment from the release of fuels from ships subject to the IGF Code	<p>Knowledge of the effects of pollution on human and environment</p> <p>Knowledge of measures to be taken in the event of spillage/ leakage/ venting</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Procedures designed to safeguard the environment are observed at all times</p>
Monitor and control compliance with legislative requirements	<p>Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL), as amended and other relevant IMO instruments, industry guidelines and port regulations as commonly applied</p> <p>Proficiency in the use of the IGF Code and related documents</p>	<p>Assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>The handling of fuels on board ships subject to the IGF Code complies with relevant IMO instruments and established industrial standards and codes of safe working practices</p> <p>Operations are planned and performed in conformity with approved procedures and legislative requirements</p>

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Take precautions to prevent hazards	<p>Knowledge and understanding of the hazards and control measures associated with fuel system operations on board ships subject to the IGF Code, including:</p> <ol style="list-style-type: none"> <li>.1 flammability</li> <li>.2 explosion</li> <li>.3 toxicity</li> <li>.4 reactivity</li> <li>.5 corrosivity</li> <li>.6 health hazards</li> <li>.7 inert gas composition</li> <li>.8 electrostatic hazards</li> <li>.9 pressurized gases</li> <li>.10 low temperature</li> </ol> <p>Proficiency to calibrate and use monitoring and fuel detection systems, instruments and equipment on board ships subject to the IGF Code</p> <p>Knowledge and understanding of dangers of non-compliance with relevant rules/regulations</p> <p>Knowledge and understanding of risks assessment method analysis on board ships subject to the IGF Code</p> <p>Ability to elaborate and develop risks analysis related to risks on board ships subject to the IGF Code</p> <p>Ability to elaborate and develop safety plans and safety instructions for ships subject to the IGF Code</p> <p>Knowledge of hot work, enclosed spaces and tank entry including permitting procedures</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ol>	<p>Relevant hazards to the ship and to personnel associated with operations on board ships subject to the IGF Code are correctly identified and proper control measures are taken</p> <p>Use of flammable and toxic gas detection devices are in accordance with manuals and good practice</p>

Table A-V/3-2 (continued)

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply occupational health and safety precautions and measures on board a ship subject to the IGF Code	<p>Proper use of safety equipment and protective devices, including:</p> <ol style="list-style-type: none"> <li>.1 breathing apparatus and evacuating equipment</li> <li>.2 protective clothing and equipment</li> <li>.3 resuscitators</li> <li>.4 rescue and escape equipment</li> </ol> <p>Knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety including:</p> <ol style="list-style-type: none"> <li>.1 precautions to be taken before, during and after repair and maintenance work on fuel systems addressed in the IGF Code</li> <li>.2 electrical safety (reference to IEC 60079-17)</li> <li>.3 ship/shore safety checklist</li> </ol> <p>Basic knowledge of first aid with reference to a Safety Data Sheets (SDS) for fuels addressed by the IGF Code</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ol>	<p>Appropriate safety and protective equipment is correctly used</p> <p>Procedures designed to safeguard personnel and the ship are observed at all times</p> <p>Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns</p> <p>First aid do's and don'ts</p>
Knowledge of the prevention, control and firefighting and extinguishing systems on board ships subject to the IGF Code	<p>Knowledge of the methods and firefighting appliances to detect, control and extinguish fires of fuels addressed by the IGF Code</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ol style="list-style-type: none"> <li>.1 approved in-service experience</li> <li>.2 approved training ship experience</li> <li>.3 approved simulator training</li> <li>.4 approved training programme</li> </ol>	<p>The type and scale of the problem is promptly identified, and initial actions conform with the emergency procedures for fuels addressed by the IGF Code</p> <p>Evacuation, emergency shutdown and isolation procedures are appropriate to the fuels addressed by the IGF Code</p>

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