

## Overview and gaps of the regulatory framework for bunkering of gas-fuelled ships

No	Item	Relevant existing Standard, Rule	Current responsibility	Under development by	Assumed finalising date	Regulated?	Related gap No	Comment
<b>Onshore regulations</b>								
1	LNG cargo transport, Pipeline	EN 1474	CEN	CEN / TC 282	-	YES	-	-
2	LNG cargo transport, Road	ADR	UNECE	-	-	YES	-	-
3	LNG cargo transport , Rail	RID	OTIF	-	-	YES	-	-
4	LNG storage, pressurization, liquefaction (Terminal)	EN 1473	CEN	CEN / TC 282	-	YES	-	-
5	LNG cargo transfer	ISO 28460 EN 1474	ISO CEN	ISO TC 67 CEN / TC 282	-	YES	-	-
6	LNG ship to shore cargo interfaces	ISO 28460	ISO	ISO TC 67 CEN / TC 282	-	YES	-	-
7	Back loading from LNG terminal	EN 1474	CEN	CEN / TC 282	-	YES	-	-
8	LNG bunker station	ISO 28460 EN 1473 EN 13645	ISO CEN	ISO TC 28 CEN / TC 282	-	NO	8	Resulting from the "Study on Standards and Rules for bunkering gas fuelled ships" an extension of the scope of ISO 28460 could be possible to create a suitable Standard for bunkering LNG as fuel from Shore to ships. Decissions and activities regarding this recommendation have not started yet
9	Risk analysis procedure for LNG bunker stations	ISO 31010 ISO 17776	ISO	ISO TC 67	March 2013 (First Draft)	NO	9.1	The current draft of the ISO TC 67 WG 10 bunker guidelines containing a risk assessment approach and risk acceptance criteria. These Guidelines are still under development For the time being common procedures are missing.
10	LNG cargo port operations	ISO 28460	ISO	ISO TC 67 CEN / TC 282	-	YES	-	-
11	Training onshore personal	EN 1474	CEN	CEN / TC 282	-	YES	-	-
<b>Maritime regulations</b>								
12	LNG cargo transport, Seagoing ship	IGC Code	IMO	BLG	-	YES	-	-
13	LNG cargo transport, Inland vessel	ADN	UNECE / CCNR	Working Groups of the CCNR	2014 / 2015	NO	6	The transport of LNG by Inland tanker is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
14	Gas fuelled vessels, Seagoing	MSC.285(86) IGF Code	IMO	BLG	2015	YES	-	The Interim Guidelines MSC 285.(86) gives guidance for safety requirements for gas fuelled ships. The IGF Code is still under development but will build a suitable international adopted Code for gas fuelled vessels.

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15	Gas fuelled vessels, Inland	RVIR	CCNR	Working Groups of the CCNR	2014 / 2015	NO	7	The use of LNG as fuel for Inland vessels is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
16	LNG storage onboard Inland vessels, Cargo	ADN	UNECE / CCNR	Working Groups of the CCNR	2014 / 2015	NO	6	The transport of LNG by Inland tanker is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
17	LNG storage onboard Inland vessels, Fuel	RVIR	CCNR	Working Groups of the CCNR	2014 / 2015	NO	7	The use of LNG as fuel for Inland vessels is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
18	LNG cargo transfer procedures	ISO 28460 EN 1160 EN 1474	ISO CEN	ISO TC 67 CEN / TC 282	-	YES	-	-
19	LNG cargo transfer systems	ISO 28460 EN 1160 EN 1474	ISO CEN	ISO TC 67 CEN / TC 282	-	YES	-	-
20	LNG cargo sampling	ISO 8943 EN 12838 ISGOTT ISGINTT	ISO CEN SIGTTO	ISO TC 28 CEN / TC 282 SIGTTO	-	YES	-	-
21	LNG cargo measurement	ISO 10976	ISO	ISO TC 28	-	YES	-	-
22	Crew training gas tanker, Seagoing	IGC Code STCW Code	IMO	BLG STW	-	YES	-	-
23	Crew training gas tanker, Inland	ADN RVIR	CCNR	Working Groups of the CCNR	2014 / 2015	NO	10	The transport of LNG by Inland tanker is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
24	Crew training gas fuelled vessel, seagoing	IGF Code STCW Code	IMO SIGTTO	BLG STW SIGTTO WG	-	NO	10	Within the Draft IGF Code basic requirements are stated. Similar to the IGF Code the training requirements were addressed to STW. The IGF Code is still under development. The scope of STW is still under discussion. The SIGTTO established an own working group dealing with training items for gas-fuelled ships crew. First results are expected in 2013.
25	Crew training gas fuelled vessel, Inland	RVIR	CCNR	Working Groups of the CCNR	2014 / 2015	NO	10	The use of LNG as fuel for Inland vessels is not regulated. First applications and rule development initiatives recently started. Finalising date and content of the amendments are not foreseeable.
<b>Bunkering regulations</b>								
26	Definition of the LNG bunkering process	-	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	3, 4	Guidelines under development Not planned as international standard, yet.

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27	LNG bunkering procedures, STS	-	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	1, 2	Guidelines under development Not planned as international standard, yet.
28	LNG bunkering procedures, TTS	-	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	1, 2	Guidelines under development Not planned as international standard, yet.
29	LNG bunkering procedures, PTS	-	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	1, 2	Guidelines under development Not planned as international standard, yet.
30	LNG bunkering procedures, Mobile tanks	IGF Code ISO TC 67 WG 10 Guidelines	IMO ISO	BLG ISO TC 67 WG 10	-	NO	5	Handling procedures for mobile tanks are not foreseen within the current rule development; neither in the IGF Code nor in the ISO TC 67 WG 10 Guidelines
31	LNG fuel transfer systems	ISO 28460 EN 1474	ISO CEN	ISO TC 67 CEN / TC 282	-	YES	-	-
32	LNG ship to delivering facility interfaces	ISO TC 67 WG 10 Guidelines	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	14	Functional requirements for the bunker interfaces are under development by ISO TC 67 WG 10. Design and operational requirements should be considered.
33	LNG bunker port operations	ISO 28460	ISO	ISO TC 67 CEN / TC 282 IAPH	-	NO	9	Resulting from the "Study on Standards and Rules for bunkering gas fuelled ships" an extension of the scope of ISO 28460 could be possible to create a suitable Standard for bunkering LNG as fuel from Shore to ships. Decisions and activities regarding this recommendation are not started, yet. The International Association of Ports and Harbors established own working groups defining requirements and guidelines for bunkering LNG within port areas. Finalising dates and application to International Standards are not foreseeable.
34	LNG bunkering safety distances	ISO TC 67 WG 10 Guidelines	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	9.3	Common safety distances are not defined. The current Draft of the ISO TC 67 WG 10 Guidelines contain a chapter "Calculation of safety distances". The approach should be cross checked with requirements of ISO 28460.
35	LNG bunkering risk assessment and risk acceptance criteria	ISO TC 67 WG 10 Guidelines	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	9.1	Within the ISO TC 67 WG 10 Guidelines a risk assessment approach and as well acceptance criteria are foreseen. The guidelines are not yet finalized.
36	LNG bunkering during loading / unloading and passenger embarking / disembarking	IGF Code ISO TC 67 WG 10 Guidelines	IMO ISO	BLG ISO TC 67 WG 10	March 2013 (First Draft)	NO	9.2	Within the ISO TC 67 WG 10 Guidelines loading / unloading and passenger embarking / disembarking processes are addressed to the risk assessment procedure. Detailed design requirements are not defined within the ISO TC 67 WG 10 guidelines and the draft IGF code.
37	LNG bunker related Emergency Plans	-	-	-	-	NO	9.5	Procedures are not defined and not in the scope of the current rule development
38	LNG fuel sampling	ISO 8943 EN 12838 ISGOTT ISGINTT	ISO CEN SIGTTO	ISO TC 28 CEN / TC 282 SIGTTO	-	NO	13	Procedures for sampling gas fuelled ships not defined and not in the scope of the current rule development

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39	LNG fuel measurement	ISO 10976	ISO	ISO TC 28	-	NO	15	Procedures for LNG fuel management are not defined and not in the scope of the current rule development.
40	LNG marine fuel quality	ISO 8216 ISO 8217	ISO	ISO TC 28 ISO TC 67	-	NO	11	The specifications for LNG as fuel are not defined. Currently under discussion during the ISO TC 67 WG 10 work.
41	LNG sulphur content	MARPOL Annex VI	IMO	-	-	NO	12	Procedures for the measurement of the sulphur content of LNG as fuel are not defined and not in the scope of the current rule development
42	Accreditation criteria LNG bunker company	-	-	-	-	NO	9.4	Accreditation criteria for LNG bunker companies are not defined, yet.
43	Environmental requirements	ISO TC 67 WG 10 Guidelines	ISO	ISO TC 67 WG 10	March 2013 (First Draft)	NO	16	Basic statement to avoid the release of methane to atmosphere are stated but no procedures are defined.

### List of abbreviation

<b>ADN</b>	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
<b>ADR</b>	European Agreement concerning the International Carriage of Dangerous Goods by Road
<b>BLG</b>	Bulk, Liquids and Gases; sub-committee of the IMO
<b>CCNR</b>	Central Commission for the Navigation on the Rhine
<b>CEN</b>	European Committee for Standardization
<b>EN</b>	European Standard
<b>IAPH</b>	International Association of Ports and Harbors
<b>IGC Code</b>	International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (Gas Carrier Code)
<b>IGF Code</b>	International Code of Safety for Ships using Gases or other Low-Flashpoint Fuels
<b>ISGINTT</b>	international Safety Guide for Inland Navigation Tank-barges and Terminals
<b>ISGOTT</b>	International Safety Guide for Oil Tankers & Terminals
<b>ISO</b>	International Organization for Standardization
<b>LNG</b>	Liquefied Natural Gas
<b>MARPOL</b>	International Convention for the Prevention of Pollution from Ships
<b>MSC</b>	Maritime Safety Committee of the IMO
<b>OTIF</b>	Convention concerning International Carriage by Rail
<b>PTS</b>	Pipeline / Terminal-to-Ship
<b>RID</b>	Regulations concerning the International Carriage of Dangerous Goods by Rail
<b>RVIR</b>	Rhine Vessel Inspection Regulation
<b>SIGTTO</b>	Society of International Gas Tanker and Terminal Operators
<b>STCW</b>	The Seafarers' Training, Certification and Watchkeeping Code of the IMO
<b>STS</b>	Ship-to-Ship
<b>STW</b>	IMO Sub-Committee on Standards of Training and Watchkeeping
<b>TC</b>	Technical Committee
<b>TTS</b>	Truck-to-Ship
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>WG</b>	Working Group