INTERNATIONAL STANDARD

ISO 13739

First edition
2010-01-15

Petroleum products — Procedures for transfer of bunkers to vessels

Produits pétroliers — Procédures de transfert des soutes dans les navires

Reference number
ISO 13739:2010(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13739 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 2, *Measurement of petroleum and related products*.

This first edition of ISO 13739:2010 cancels and replaces ISO/TR 13739:1998, which has been technically revised.

Introduction

This International Standard was developed for the benefit of the marine industry, including shipowners, operators, charterers, bunker suppliers, bunker tanker operators and surveyors. It sets out a series of procedures to promote the uniform and expeditious transfer of bunkers to vessels meeting the latest safety, health and environmental (SHE) standards.

Petroleum products — Procedures for transfer of bunkers to vessels

WARNING — The use of this International Standard can involve hazardous materials, operations and equipment. This International Standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies procedures and requirements for the transfer of bunkers to vessels involving bunker tankers, road tankers and shore pipelines. It applies to pre-delivery, delivery and post-delivery checks and documentation.

This International Standard neither governs the legal rights of the parties involved nor supersedes applicable international conventions and/or local port legislation(s).

Local and international regulations, such as International Maritime Organization (IMO) regulation: *International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL), Annex VI: Prevention of Air Pollution from Ships* (hereinafter MARPOL 73/78), apply to all parties involved in the transfer of bunkers.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8217, *Petroleum products — Fuels (class F) — Specifications of marine fuels*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
bunker
marine fuel comprising distillate fuel or residual fuel for a vessel's consumption

3.2
bunker agreement
contractual terms applying to a bunker transfer

3.3
bunker delivery note
BDN
official document from the supplier providing information on the quantity of the bunker(s) delivered to the vessel and limited information on the quality

3.4
Bunker Surveyor
person engaged to survey the bunker operation

3.5
bunker tanker
bunker barge or tanker used for the supply of bunkers to the vessel

3.6
bunker tanker operator
company which operates the bunker tanker

3.7
Cargo Officer
individual who is appointed by the supplier to be responsible for the delivery of bunkers to the vessel from the bunker tanker(s), the shore tank(s) or the road tanker(s) and is responsible for the completion of the documentation

3.8
cargo tank
tank containing bunkers

3.9
Chief Engineer
Chief Engineer of the vessel or his representative, who is authorized to receive bunkers and sign the associated documentation

3.10
nominated tank
tank from which the bunker(s) is/are delivered

3.11
non-cargo tank
tank not containing bunkers

3.12
road tanker
truck used for the supply of bunkers to the vessel

3.13
sample
bunker specimen defined by time, location and method of sampling

3.14
seals
tamper-evident devices which uniquely identify the origin of the sample and prevent unauthorized loosening or removal of the sample container closure

3.15
shore pipeline
shore connection point for the supply of bunkers to a vessel

3.16
supplier
company whose name appears on the bunker delivery note (BDN)

NOTE It is possible that the supplier is not the actual seller of the bunkers.

3.17
vessel
ship receiving bunkers

4 Responsibilities

4.1 The Cargo Officer shall:

a) provide an appropriate bunkering pre-delivery safety checklist depending on the mode of delivery (see Annexes C, D or E);

b) prepare the bunker requisition form (see Annex F) and confirm with the Chief Engineer the actual vessel requirements as stated on the requisition form;

c) prepare the non-cargo tank inspection form (see Annex G), as applicable;

d) prepare the cargo tanks measurement/calculation form (see Annex H), as applicable;

e) take samples in accordance with Annex L and prepare the sample labels (see Annex I);

f) prepare the BDN;

g) verify, sign and stamp the documents mentioned in a) to f).

4.2 The Chief Engineer shall:

a) prepare the vessel to receive bunkers;

b) confirm that the actual precautions and actions, as stated in the bunkering pre-delivery safety checklist (see Annexes C, D and E), have been taken by the vessel;

c) inspect and verify the non-cargo tank inspection form (see Annex G), as applicable;

d) inspect the measuring and sampling equipment for good service condition;

e) witness the opening and closing of tank gauges or flow meter readings and confirm the cargo tanks measurement/calculation form (see Annex H);

f) check the sample labels (see Annex I) upon completion of sampling (Annex L);

g) check the BDN;

h) verify, sign and stamp the documents mentioned in b), c), e), f) and g).

4.3 The Bunker Surveyor(s), if engaged, shall:

a) identify themselves to the Chief Engineer and the Master/Cargo Officer;

b) comply with this International Standard and, where applicable, any additional procedures set out by the authorities;

c) notify the Cargo Officer and Chief Engineer of any non-compliance with this International Standard for immediate corrective action. Any non-compliance or irregularity found shall be reported to his principal in writing.

4.4 The Master of the bunker tanker shall allow the Bunker Surveyor to board the bunker tanker.

4.5 The Cargo Officer, Chief Engineer and Bunker Surveyor, if engaged, shall work closely together to ensure the procedures are complied with and carried out safely and diligently at all times during the bunkering operation.

5 Documentation

5.1 Documents supporting a transfer of bunkers to vessels involving bunker tankers, road tankers and shore pipelines will vary according to local authorities', legal, supplier's and vessel's requirements. Therefore, it is not practical to recommend standardized forms. However, for accountability of duties, the minimum documentation for a bunker delivery includes the following.

5.1.1 For bunker tanker delivery:

a) safety checklist;

b) bunker requisition form;

c) non-cargo tank inspection form;

d) cargo tanks measurement/calculation form;

e) bunker delivery note;

f) delivery time log form;

g) sample labels.

5.1.2 For road tanker and/or shore pipeline delivery:

a) safety checklist;

b) bunker requisition form;

c) bunker quantity measurement record;

d) bunker delivery note;

e) delivery time log form;

f) sample labels.

5.2 Bunker suppliers shall have all these documents available. The documents shall bear the bunker supplier's name and, if applicable, valid bunkering licence or registration number. Bunker suppliers shall issue documents for a bunker delivery which are consistent with this International Standard and applicable international conventions. Bunker suppliers may have their own formats for these documents.

5.3 Completion of proper documentation is the joint responsibility of the Cargo Officer, the Chief Engineer and the Bunker Surveyor (if any).

6 Bunker specifications

Unless otherwise agreed on in the bunker agreement, the bunkers supplied shall be in compliance with ISO 8217.

7 Pre-delivery requirements

7.1 Safety, health and environment

7.1.1 The safety, health and environment (SHE) requirements given in Annex A shall be observed by all personnel involved in the delivery for the safe transfer of bunkers. Internationally accepted safety standards should also be observed.

7.1.2 The person in charge of the respective area(s) of bunker delivery operation shall remain at all times responsible for the safety of his crew, cargo and facilities and should not allow safety to be prejudiced by the actions of others.

7.1.3 Methods for effective communication, emergency shutdown requirements given in A.3.5 and A.3.6, as well as hand signals shall be prearranged by the Cargo Officer and the Chief Engineer (see Annex B). A copy of the hand signal diagram shall be given to the Chief Engineer prior to the commencement of the bunkering operation.

7.2 Pre-delivery documentation

Except where required by local regulations, the following pre-delivery documents, where applicable, shall be signed and stamped by the Chief Engineer and the Cargo Officer when completed. These pre-delivery documents include:

a) bunkering pre-delivery safety checklist;

b) bunker requisition form;

c) non-cargo tanks inspection form for bunker tanker delivery;

d) cargo tanks measurement/calculation form.

These pre-delivery documents are intended to

— record an agreement on operational details of the transfer, and

— ensure safe transfer of the product.

7.3 Bunkering pre-delivery safety checklist

7.3.1 A pre-delivery conference shall be conducted between the Cargo Officer, Chief Engineer and Bunker Surveyor, if engaged. Such a conference shall include SHE checks, a review of the pre-delivery safety checklist and the establishment of communication links. A bunker pre-delivery safety checklist (see Annexes C, D and E) shall be completed, signed and stamped by the Cargo Officer and Chief Engineer, with their names clearly printed.

7.3.2 Any amendment to this checklist shall be signed by the Cargo Officer and the Chief Engineer.

7.3.3 The original of the completed checklist shall be retained by the Cargo Officer and the duplicate shall be given to the Chief Engineer.

7.4 Bunker requisition

7.4.1 The Cargo Officer shall inform the Chief Engineer of:

a) nominated quantity and grade(s) to be supplied;

b) delivery sequence and pumping rate;

c) sampling equipment to be used (see Annex K);

d) witnessing of the measurement procedure and sampling procedure (see Annex L);

e) line clearing requirements.

This requirement is given in the bunker requisition form (see Annex F).

7.4.2 Any amendment to this form shall be signed by the Cargo Officer and the Chief Engineer.

7.4.3 The original of the completed form(s) shall be retained by the Cargo Officer and the duplicate(s) shall be given to the Chief Engineer.

7.5 Non-cargo tanks inspection for bunker tanker delivery

7.5.1 The Cargo Officer and the Chief Engineer shall witness the measurement of non-cargo tanks and shall inspect the void spaces (see Annex G). If the Chief Engineer does not attend the inspection, the Cargo Officer shall record this on the form. This shall be endorsed by the Chief Engineer.

7.5.2 Any amendment to this form shall be signed by the Cargo Officer and the Chief Engineer.

7.5.3 The original of the completed form(s) shall be retained by the Cargo Officer and the duplicate(s) shall be given to the Chief Engineer.

7.6 Cargo tank measurement/calculation

7.6.1 The tank measurement/calculation form is used to record tank gauging and/or meter readings, cargo temperature readings and quantity calculations.

7.6.2 This form should contain the information given in Annex H and shall be used by the Cargo Officer to record the calculation of the quantity in the tanks. The relevant API/ASTM/IP/ISO methods for gauging and measurement of petroleum and petroleum products shall be used (see the Bibliography).

7.6.3 For bunker tanker or shore tank deliveries, the Cargo Officer shall invite the Chief Engineer to witness the opening gauge (or meter reading) and the taking of cargo temperature of all cargo tanks. The Chief Engineer should witness the (remote) tank gauging of all the cargo tanks before commencement of the pumping operation. If the Chief Engineer declines the invitation, the Cargo Officer shall record this on the form. This shall be endorsed by the Chief Engineer.

7.6.4 The manual tank gauging procedure for bunker tanker deliveries shall be as given in Annex J.

7.6.5 If a flowmeter is used, it shall be calibrated, certified and sealed. The calibration frequency and the applicable method to prove or verify the volumetric or mass flow meter used shall be in accordance with industry standards (including the API Manual of Petroleum Measurement Standards, Chapter 5). A copy of the certificate shall be available for verification.

7.6.6 For road tanker delivery, where applicable, the Cargo Officer shall invite the Chief Engineer to witness the breaking of the seals on the outlets of the compartments.

7.6.7 All documentation required by 7.6.1 to 7.6.6 shall be completed, signed and stamped by the Cargo Officer and the Chief Engineer with their names, date and time of signing clearly printed (see Annex H).

7.6.8 Any amendment to this form shall be signed by the Cargo Officer and the Chief Engineer.

7.6.9 The original of the completed form(s) shall be retained by the Cargo Officer and the duplicate(s) shall be given to the Chief Engineer.

8 Delivery requirements

8.1 General

8.1.1 Once the pre-delivery requirements have been completed and the bunker hose(s) has/have been properly connected, bunkering operation shall commence after confirmation by the Chief Engineer.

8.1.2 The Cargo Officer and the Chief Engineer are responsible for the entire bunkering operation, including the sampling process.

8.1.3 Communication between the Cargo Officer and the vessel shall be maintained throughout the entire bunkering operation.

8.1.4 The Cargo Officer and the Chief Engineer shall agree on the pumping rate, but in no case shall the agreed rate exceed the safe working pressure.

8.1.5 When an order to stop pumping is given by the vessel, the Cargo Officer shall stop the pumping immediately.

8.1.6 All stoppages and reasons for these stoppages shall be recorded in the delivery time log form.

8.2 Bunker tanker delivery requirements

8.2.1 During the entire bunkering process, no other bunker tanker shall be allowed to come alongside the bunker tanker delivering bunker(s) to the vessel, unless previously agreed on by the Cargo Officer and the Chief Engineer.

8.2.2 Onboard the bunker tanker, no inter-tank transfers except for stripping from the nominated tanks shall be carried out during the bunkering operation.

8.2.3 If the Chief Engineer has disallowed the clearing of the bunker hose content into the vessel's tank, the content in the hose(s) shall be drained back into the bunker tanker after the pumping operation is completed and before final gauging is taken.

8.2.4 If the Chief Engineer has confirmed his acceptance of the line clearing process, the bunker hose content shall be cleared (when possible) into the vessel's tank, after the pumping operation is completed. The following shall apply.

a) The Cargo Officer shall notify and confirm with the Chief Engineer, prior to the commencement of operation, that the vessel has sufficient tank ullage for safe line clearing.

b) The Cargo Officer will close the discharge valve after the pump to build up the air pressure in the pipeline within the safe operating limits, by using the bunker tanker's pump.

c) Once the pressure is built up, the Cargo Officer will open the discharge valve for the remaining bunkers in the bunker hose(s) to be cleared into the vessel's tank.

d) The line clearing process shall only be carried out after the pumping operation is completed. It shall not be repeated more than twice and shall not cause excessive air to be introduced into the bunkers in the vessel's tank(s).

e) Once the line clearing process is completed, the residue contents in the hose(s) shall be drained back into the bunker tanker before final gauging is taken.

f) Compressed air shall not be used by the bunker tanker for the line clearing process.

8.2.5 Post-delivery checks and documentation shall commence after the line clearing process and/or the drain back process.

9 Sampling

9.1 General

9.1.1 The objective is to obtain a single representative sample of the delivered bunker.

9.1.2 The taking of the sample shall be witnessed by the Cargo Officer and the Chief Engineer and the location of the sampler and method of sampling shall be recorded on the bunker requisition form and signed by the Cargo Officer and the Chief Engineer.

9.1.3 If a delivery is made from more than one bunker tanker, separate samples shall be drawn for each delivery.

9.2 Sampling procedure and equipment

9.2.1 The sampling procedure is given in Annex L.

9.2.2 A single sample shall be drawn continuously throughout the delivery, from either end of the bunker hose, using an automatic sampler or a continuous drip sampling device (see Annex M). The guidelines for the sampling of fuel oil for compliance with Annex VI of MARPOL 73/78 are for the sample to be drawn by the Cargo Officer, using a sampling device at the receiving vessel's inlet bunker manifold. It is recommended that the commercial samples and the MARPOL sample be derived from this single sample.

9.2.3 All bunker deliveries shall comply with the sampling equipment given in Annex K, except for delivery from a road tanker which is specified in 9.2.5.

9.2.4 If the sampling equipment provided by the bunker tanker or shore supply location differs from those given in Annex K, the Chief Engineer shall make comments in the remarks section of the bunker requisition form.

9.2.5 For road tanker delivery, truck loading samples are common industry practice and may be designated as the representative samples for the delivery. Such a practice should be recorded in the bunker requisition form and signed by the Cargo Officer and the Chief Engineer. It is recommended that the samples from the truck(s) be drawn according to the procedure given in 9.2.2.

10 Quantity measurements

10.1 All equipment relating to measurement shall be in good condition and, where applicable, its accuracy verified according to a regular maintenance programme and subject to the requirements of local authorities.

10.2 For delivery by bunker tanker, the measurements of quantity shall be determined by tank gauging or flowmeter onboard the bunker tanker. The manual tank gauging procedure is given in Annex J.

10.3 For shore pipeline delivery, the measurements of quantity shall be determined by automatic or manual gauging or flowmeter on shore.

10.4 For delivery by road tanker, the quantity shall be determined by weighbridge or flowmeter.

NOTE Flowmeters can be situated in pipelines from a tank farm or can be fitted on road tankers.

10.5 The Cargo Officer shall use the latest tank calibration tables, including trim and list corrections, certified by a recognized, competent third-party for the calculations of quantity.

10.6 The delivered quantity shall be based on the out-turn quantity of the delivering facility and measurements/readings and calculations witnessed by the Cargo Officer and the Chief Engineer. The Chief Engineer shall verify the quantity stated on the BDN to be in accordance with the calculations.

10.7 In the event of a quantity dispute, the party making the claim shall issue a note of protest, which shall be signed for receipt by the other party (see Annex P).

11 Post-delivery requirements

11.1 Post-delivery documentation

Except where dictated by local regulations, the following relevant post-delivery documents shall be signed by the Chief Engineer and the Cargo Officer, when completed to their satisfaction:

a) cargo tanks measurement/calculation form;

b) non-cargo tanks inspection form for bunker tanker delivery;

c) sample labels;

d) bunker delivery note.

11.2 Cargo tanks measurement/calculation form

The procedure specified in 7.6 shall be carried out to determine the delivered quantity. The tank gauging procedure shall be as given in Annex J.

11.3 Non-cargo tanks inspection form for bunker tanker delivery

In case of a dispute, the Cargo Officer and Chief Engineer shall inspect and verify the contents and measurements of the non-cargo tanks. The appropriate post-delivery section of the non-cargo tanks inspection form (see Annex G, Part II) shall be completed and signed off by both parties.

11.4 Sample labels

On completion of the bunkering and sampling operations, sample labels (see Annex I) shall be completed and pasted immediately on the respective sample bottles, in the presence of the Chief Engineer. The Cargo Officer and the Chief Engineer shall sign and stamp the sample labels. No sample labels shall be presented to the Chief Engineer for signature prior to the completion of the bunkering and sampling operations.

The sample labels shall be prepared by the Cargo Officer and shall contain at least the following information:

a) name of vessel and IMO number;

b) date of sampling;

c) port/location;

d) supplier;

e) supply source (name of bunker tanker/shore terminal or road tanker number);

f) sampling point;

g) sampling method;

h) quantity and grade of product;

i) names and signatures of the Chief Engineer, Cargo Officer and Bunker Surveyor (if engaged);

j) supplier's seal number and counter seal number (if applicable).

11.5 Bunker delivery note

A BDN shall be used for each individual bunker delivery. For multiple deliveries by bunker tanker, a separate BDN will be issued for each bunker tanker delivery, whereas for multiple road tanker deliveries, only one BDN needs to be issued.

Whilst every supplier will have his own format for the BDN, it shall be prepared by the Cargo Officer and shall contain at least the following information:

a) name of receiving vessel;

b) IMO number of the receiving vessel;

c) date of commencement of the delivery;

d) name, address and telephone number of the marine fuel oil supplier;

e) bunker specification (grade name);

f) quantity (metric tonnes);

g) density at 15 °C, as supplied;

h) viscosity at 40 °C or 50 °C, as supplied;

i) sulfur content as supplied;

j) a declaration signed and certified by the fuel oil suppliers representative that “The bunker(s) supplied is/are in conformity with Regulation 14 and Regulation 18 of MARPOL 73/78 Annex VI”;

k) a record of the supplier's sample seal numbers and any counter sample seal numbers;

l) delivery port;

m) bunker tanker name or name of supplying terminal;

n) next port of call;

o) receiving vessel's stamp and signature of the Master/Chief Engineer;

p) signature and, where applicable, stamp from the Cargo Officer;

q) section for comments.

NOTE Regulations for the prevention of air pollution from ships in Annex VI of MARPOL 73/78 require the BDN to be stored onboard the vessel for a minimum of three years.

At least two copies of the completed BDN shall be signed by the Cargo Officer and the Chief Engineer, with their names clearly printed and stamped with the bunker tanker/terminal/road tanker's stamp and vessel's stamp.

Any cancellation or amendment on the BDN shall be endorsed and stamped by the Cargo Officer and the Chief Engineer.

11.6 Delivery time log form

The delivery time log form shall be prepared by the Cargo Officer and shall contain at least the following information:

a) name of supplier;

b) name of receiving vessel;

c) IMO number of the receiving vessel;

d) date and time of coming alongside of bunker tanker or road tanker;

e) date and time of connection of hose;

f) date and time of commencement of pumping;

g) date and time of any changes in pumping rate/shutdowns, etc.;

h) date and time of completion of pumping;

i) date and time of disconnection of hose;

j) date and time of departure of bunker tanker or road tanker;

k) receiving vessel's stamp and signature of the Master/Chief Engineer;

l) signature and, where applicable, stamp from the Cargo Officer.

12 Stock movement logbook

12.1 For bunker tanker delivery, the bunker tanker shall keep and maintain a stock movement logbook. Every page of the logbook shall be serially numbered and each page shall be for a day's entries. Any cancelled pages shall be crossed out and retained in the logbook. The logbook shall be properly bound to prevent the removal of any page.

12.2 The daily entries of the stock movement logbook shall contain at least the following:

a) date and time of receipts and deliveries;

b) product grade, quantity, tank numbers and source of receipts;

c) product grade, quantity, tank numbers and destination of deliveries;

d) description of documents evidencing receipts and/or deliveries;

e) records of blending/inter-tank transfers;

f) summary of the stock movement;

g) name and signature of the person preparing the daily entries.

12.3 The Cargo Officer shall maintain the daily entries of the logbook. If there is no activity of the bunker tanker on a particular day, the Cargo Officer shall record so in the logbook.

12.4 Every stock movement of the bunker tanker, except for inter-tank transfers, shall be supported by a document duly executed and endorsed by the party concerned. The document reference shall be recorded accordingly in the logbook.

12.5 The Cargo Officer shall prepare the daily entries and sign the logbook with his name clearly stated within two hours of any stock movement.

12.6 The stock movement logbook shall be kept onboard the bunker tanker for a minimum period of three months, calculating from the current date, and shall be made available to the local authorities on request.

12.7 In the event of a quantity dispute, the relevant pages of the stock movement logbook, showing all the stock movements related to the bunker delivery, shall be made available for inspection and photocopying by the local authorities, the Chief Engineer and/or the Bunker Surveyor, if engaged.

12.8 An example of the format of the stock movement logbook is shown in Annex O.

13 Others

13.1 Plan of bunker tanker and diagram

The tank capacity plan, piping diagram and trim and list tables shall be made available onboard for inspection.

13.2 Blending of products

13.2.1 When in-line or in-tank blending onboard the bunker tanker is carried out, the blended product shall be homogenous in accordance with the general requirements of ISO 8217.

13.2.2 To ensure a homogenous blend, in-tank mixing of blend components onboard the bunker tanker shall not be carried out concurrently with the bunker delivery.

13.3 Note of protest

In the event of a disagreement during the bunkering operation, the Cargo Officer or the Chief Engineer may issue a note of protest, containing full details and facts relevant to the disagreement, which shall be signed for receipt by the other party (see Annex P).

Annex A
(normative)

Safety, health and the environment

A.1 Pre-delivery conference

Prior to the commencement of the bunker delivery, a pre-delivery conference shall be conducted between the Cargo Officer, the Chief Engineer and the Bunker Surveyor, if engaged.

A.2 Planning for safety

A.2.1 Firefighting

The Cargo Officer and the Chief Engineer shall ensure that firefighting equipment is ready for immediate use during the bunker delivery.

A.2.2 Emergency preparedness

Emergency preparedness shall include regular drills, simulating various emergency scenarios which can occur during the bunkering operation. These scenarios shall be part of both the bunker tanker's and vessel's approved contingency plans. Such drills, when carried out, shall be documented.

A.2.3 Safety of crew

All members involved in the bunkering operation shall be properly rested. Members shall not use any substance (e.g. alcohol and drugs) which negatively influences their performance. They shall also be trained in the use of, and provided with, appropriate personal protective equipment.

A.2.4 Bunkering pre-delivery safety checklist

The safety checklist for bunkering operations (see Annexes C, D and E) shall be presented by the Cargo Officer to the Chief Engineer at the pre-delivery conference. The safety checklist is an essential reminder of the principal safety factors and shall be supplemented by continuous vigilance during the entire bunkering operation. This will assist in the adherence to the relevant safety procedures of a bunkering operation.

A.3 Observing safe work practices

A.3.1 Smoking and naked lights

Any regulations regarding smoking and the use of naked lights shall be strictly enforced. Warning notices shall be clearly and appropriately displayed.

A.3.2 Safe access

For the transfer of personnel, the vessel shall provide an accommodation ladder or access in compliance with the *International Convention for the Safety of Life at Sea (SOLAS), 1974*. The access shall be properly rigged and illuminated. Personnel shall use only the designated means of access between the supplier's facilities and the vessel.

A.3.3 Outboard deckway

Personnel shall be reminded to walk on the outboard side of the bunker tanker to avoid falling objects from vessels, such as lashing materials.

A.3.4 Unauthorized craft

No unauthorized craft shall be allowed alongside the bunker tanker or the vessel throughout the bunkering operation.

A.3.5 General communication

A.3.5.1 Good communication among all members involved in the bunkering operation is an essential requirement for successful bunkering operations. A common language for communication shall be prearranged before bunkering operations commence.

A.3.5.2 Verbal and/or non-verbal communication shall be established between the parties. These may include radio or hand signals (see Annex B).

A.3.5.3 An emergency signal in the form of a horn and/or hand signals shall be prearranged and established. In the event of a breakdown of communications, the emergency signal shall be initiated and all operations immediately suspended.

A.3.5.4 Bunkering operations shall not resume until satisfactory communications have been re-established.

A.3.6 Emergency shutdown

A.3.6.1 Anyone observing a potential emergency situation or an unsafe condition shall immediately alert any member involved in the bunkering operation, who shall evaluate the situation and, if necessary, initiate an emergency shutdown.

A.3.6.2 The bunkering operations shall remain suspended until the Cargo Officer, the Chief Engineer, and/or, where applicable, the authorities have agreed that it is safe to resume.

A.4 Preventing exposure to health hazards

A.4.1 Hydrogen sulfide

A.4.1.1 Hydrogen sulfide (H_2S) is a very dangerous, toxic, explosive, colourless and transparent gas, which can be found in marine residual fuels. Hydrogen sulfide can be formed during the manufacture of the fuel at the refinery or during handling and storage.

A.4.1.2 At very low concentrations, the gas has the characteristic smell of rotten eggs. However, at higher concentrations, it causes a loss of smell, headaches and dizziness, and at very high concentrations, instantaneous death.

A.4.1.3 Vapours containing H_2S can accumulate during storage or transport and can be vented during the filling of tanks. Exposure to H_2S vapours can occur when dipping tanks, opening tank hatch covers, entering empty tanks and from vent/vent pipes when tanks are being heated.

A.4.1.4 It is strongly recommended that personnel involved in the loading and transfer of bunkers be made aware of the hazards of vapour-phase H_2S and have in place appropriate processes and procedures to manage the risk of exposure. For example, personal H_2S monitors and appropriate respiratory protection should be provided and used.

A.4.2 Accommodation openings

In order to prevent oil vapours from entering the accommodation area, all access doors to the accommodation shall be kept closed during the bunkering operation. All doors opened for personnel transit shall be closed immediately after use. The air conditioning system for the accommodation should be switched to the re-circulation mode.

A.4.3 Material safety data sheet

A.4.3.1 A material safety data sheet (MSDS) provides the information necessary for customers, bunker tanker operators, emergency workers and others to decide on the appropriate handling and management of petroleum products.

A.4.3.2 The Cargo Officer shall provide the Chief Engineer with a copy of the MSDS for the bunkers to be supplied.

A.5 Protection of the marine environment

A.5.1 Oil spill response equipment

Oil spill response equipment shall be ready for immediate use on the bunker tanker and the vessel at all times.

A.5.2 Scuppers

In order to prevent oil spilling into the waters, all scuppers/drains on the bunker tanker and the vessel shall be properly plugged prior to bunkering operation. Any accumulation of oil-free water shall be drained off periodically.

A.5.3 Oil spill

In the event of any spillage causing or likely to cause pollution, masters of the bunker tanker and the vessel, regardless of which party is responsible, shall immediately take appropriate action to stop, contain and clean up. The actions shall be in accordance with local laws and regulations.

Annex B
(informative)

Examples of hand signals for bunkering protocol

a) Wait/hold

b) Start

c) Reduce pumping rate

d) Increase pumping rate

e) Stop

f) Finish

Figure B.1 — Hand signals for bunkering

Annex C
(informative)

Bunker tanker pre-delivery safety checklist

(click here to access this form in electronic format)

Vessel's name _____ Bunker tanker's name _____

Vessel's IMO No. _____ Port _____

Vessel's location _____ Date _____

All items should be confirmed by the Cargo Officer and the Chief Engineer by checking the appropriate box. A copy of the completed checklist should be retained by both the bunker tanker and the vessel.

No.	Items to be checked	Bunker tanker		Vessel		Remarks
		Yes	No	Yes	No	
1	Have you checked the fendering system?					
2	Are you securely moored?					
3	Are you ready to move under your own power?					
4	Has the bunker requisition form been completed?					
5	Will the bunker tanks be monitored at regular intervals?					
6	Are transfer hoses in good condition, properly rigged with all flange holes fully bolted?					
7	Is there electrical insulation in place between the bunker tanker and vessel connection?					
8	Will personnel be in constant attendance at the bunker stations during the delivery?					
9	Are all bunker tank lids closed?					
10	Are unused connections blanked?					
11	Are required delivery warning notices in position?					
12	Are all personnel involved in the bunkering operations using appropriate personal protective equipment?					
13	Are restrictions on smoking and the use of naked flames being observed?					
14	Is firefighting equipment positioned and ready for immediate use?					

No.	Items to be checked	Bunker tanker		Vessel		Remarks
		Yes	No	Yes	No	
15	Is emergency oil spill response equipment positioned adjacent to both hose connections?					
16	Are all external doors and portholes in the accommodation closed?					
17	Are window type air conditioning units (where fitted) disconnected?					
18	Are air conditioning intakes closed to prevent the entry of vapours?					
19	Is effective communication between the bunker tanker and the vessel established?					
20	Have emergency signals and shutdown procedure been agreed on?					
21	Is there safe access between the bunker tanker and vessel?					
22	Are scuppers and drains onboard securely plugged?					
23	Is sufficient lighting available to perform operations during hours of darkness?					

Declaration

We, the undersigned, have covered all items on this checklist and have satisfied ourselves that the entries we have made are correct.

For bunker tanker	For vessel
Name:	Name:
Signature:	Signature:
Stamp:	Stamp:
Date: Time:	Date: Time:

Annex D
(informative)

Shore pipeline pre-delivery safety checklist

(click here to access this form in electronic format)

Vessel's name _____ Terminal/wharf _____

Vessel's IMO No. _____ Port _____

Vessel's location _____ Date _____

All items should be confirmed by the Cargo Officer and the Chief Engineer by checking the appropriate box. A copy of the completed checklist should be retained by both the terminal/wharf and the vessel.

No.	Items to be checked	Terminal/wharf		Vessel		Remarks
		Yes	No	Yes	No	
1	Have you checked the fendering system?					
2	Are you securely moored?					
3	Are you ready to move under your own power?					
4	Has the bunker requisition form been completed?					
5	Will bunker tanks be monitored at regular intervals?					
6	Are transfer hoses in good condition, properly rigged with all flange holes fully bolted?					
7	Is there electrical insulation in place between the terminal and vessel connection?					
8	Will personnel be in constant attendance at the bunker stations during the delivery?					
9	Are unused connections blanked?					
10	Are required delivery warning notices in position?					
11	Are all personnel involved in the bunkering operations using appropriate personal protective equipment?					
12	Are restrictions on smoking and the use of naked flames being observed?					
13	Is firefighting equipment positioned and ready for immediate use?					
14	Is emergency oil spill response equipment positioned adjacent to both hose connections?					

No.	Items to be checked	Terminal/wharf		Vessel		Remarks
		Yes	No	Yes	No	
15	Is effective communication between the terminal/wharf and the vessel established?					
16	Have the emergency signals and shutdown procedure been agreed on?					
17	Are all external doors and portholes in the accommodation closed?					
18	Are air conditioning intakes closed to prevent the entry of vapours?					
19	Is there safe access between the terminal/wharf and vessel?					
20	Are scuppers and drains onboard securely plugged?					
21	Is sufficient lighting available to perform operations during hours of darkness?					

Declaration

We, the undersigned, have covered all items on this checklist and have satisfied ourselves that the entries we have made are correct.

For terminal/wharf	For vessel
Name:	Name:
Signature:	Signature:
Stamp:	Stamp:
Date: Time:	Date: Time:

Annex E
(informative)

Road tanker pre-delivery safety checklist

(click here to access this form in electronic format)

Vessel's name _____ Road tanker _____

Vessel's IMO No. _____ Port _____

Vessel's location _____ Date _____

All items should be confirmed by the Cargo Officer and the Chief Engineer by checking the appropriate box. A copy of the completed checklist should be retained by both the road tanker (RTW) and the vessel.

No.	Items to be checked	Road tanker		Vessel		Remarks
		Yes	No	Yes	No	
1	Have you checked the fendering system?	N/A	N/A			
2	Are you safely parked/securely moored?					
3	Are you ready to move under your own power?					
4	Has the bunker requisition form been completed?					
5	Will the bunker tanks be monitored at regular intervals?					
6	Are transfer hoses in good condition, properly rigged with all flange holes fully bolted?					
7	Will personnel be in constant attendance at the bunker stations during the delivery?					
8	Are unused connections blanked?					
9	Are required delivery warning notices in position?					
10	Are all personnel involved in the bunkering operations using appropriate personal protective equipment?					
11	Are restrictions on smoking and the use of naked flames being observed?					
12	Is firefighting equipment positioned and ready for immediate use?					
13	Is emergency oil spill response equipment positioned adjacent to both hose connections?					
14	Are all external doors and portholes in the accommodation closed?					

No.	Items to be checked	Road tanker		Vessel		Remarks
		Yes	No	Yes	No	
15	Are air conditioning intakes closed to prevent the entry of vapours?					
16	Is effective communication between the driver and the vessel established?					
17	Have emergency signals and shutdown procedure been agreed on?					
18	Is there safe access between the terminal/wharf and vessel?					
19	Are scuppers and drains onboard securely plugged?	N/A	N/A			
20	Is sufficient lighting available to perform operations during hours of darkness?					

Declaration

We, the undersigned, have covered all items on this checklist and have satisfied ourselves that the entries we have made are correct.

For road tanker	For vessel
Name:	Name:
Signature:	Signature:
Stamp:	Stamp:
Date: Time:	Date: Time:

N/A: Not applicable.

Annex F
(informative)

Example of a bunker requisition form

(click here to access this form in electronic format)

BUNKER REQUISITION FORM

Bunker Supplier's Name

The Chief Engineer Date:_____

MV/SS: _____ Location:_____

Dear Sir,

We have been nominated to supply you with the following grade(s) of bunker:

_____Tonnes Marine Fuel Oil of ISO 8217 grade _____

_____Tonnes Marine Fuel Oil of ISO 8217 grade _____

_____Tonnes Marine Diesel Oil/Gas Oil of ISO 8217 grade _____

_____Tonnes Marine Fuel Oil as per agreed specifications _____

We undertake to supply you with the above grade(s) of bunker. Some basic characteristics of the bunkers are as follows:

Grade	**Kinematic viscosity** @ 40° or 50 °C, mm^2/s	**Density** @ 15 °C, kg/m^3	**Water content** % V/V	**Flash point** °C	**Sulfur content** %, m/m	**Pour point** °C	**Average delivery temp.** °C

The delivery sequence is as follows:

Grade	**Delivery sequence**	**Maximum line pressure** (Bar)	**Supplier pumping rate** (Tonnes per hour)	**Required receiving rate** (Tonnes per hour)

1) Will you witness the opening and closing gauge of our tanks? Yes/No/N/A

2) Will you witness our meter readings? Yes/No/N/A

3) Will you witness sampling? Yes/No

4) What method will be used for clearing hose content at the end of bunkering? Line clearing into the vessel's tank(s) and drain back/Drain back

5) Location of sampling point Vessel manifold Bunker tanker manifold Other:

6) Sampling method Continuous drip Automatic Other:

Remarks : _____

Prepared by:

_____

Signature of Cargo Officer

Name in full (Block letters):_____

Bunker tanker's/Shore terminal's/
Road tanker's stamp_____

Date/Time: _____

Acknowledged by:

_____

Signature of Chief Engineer

Name in full (Block letters): _____

Vessel's stamp: _____

Date/Time: _____

N/A - Not applicable

Annex G
(informative)

Example of non-cargo tanks inspection form for bunker tanker delivery

(click here to access this form in electronic format)

NON-CARGO TANKS INSPECTION FORM

PART I: PRE-DELIVERY

To: The Chief Engineer

MV/SS: _____

Date: _____

Location: _____

Name of bunker tanker:_____

Licence/IMO No. _____

Dear Sir,

We hereby declare the pre-bunkering measuremens and contents of the non-cargo tanks on our bunker tanker as stated below. You are invited to witness the measurement of non-cargo tanks and inspect the void spaces.

Tank No./Compartment	Contents	Gauge ( )	Volume ( )	Remarks
Fore peak tank				
Aft peak tank				
Cofferdam				
Eng. fuel tank				
Ballast tank				
D/Bottom tank				
Other tank (specify)				

Signature of Cargo Officer

Name in full (Block letters)

Bunker tanker's stamp

Date/Time

Witnessed by Chief Engineer YES/NO

Acknowledged by:

Signature of Chief Engineer

Name in full (Block letters)

Vessel's stamp

Date/Time

PART II: POST-DELIVERY

(To be completed and signed after bunkering operation, if requested by the Chief Engineer)

The following tanks/compartments were inspected

Tank No./Compartment	Contents	Gauge ( )	Volume ( )	Remarks
Fore peak tank				
Aft peak tank				
Cofferdam				
Eng. fuel tank				
Ballast tank				
D/Bottom tank				
Other tank (specify)				

Signature of Cargo Officer

Name in full (Block letters)

Bunker tanker's stamp

Date/Time

Withnessed by Chief Engineer YES/NO

Acknowledged by:

Signature of Chief Engineer

Name in full (Block letters)

Vessel's stamp

Date/Time

Comments:_____

Annex H
(informative)

Example of cargo tanks measurement/calculation form for bunker tanker delivery

(click here to access this form in electronic format)

CARGO TANKS MEASUREMENT/CALCULATION FORM Serial No. _____

Name of bunker tanker:_____Name of vessel receiving bunkers: _____

All cargo tanks are gauged and witnessed:_____Date: _____

(1a) Tank gauging — OPENING

Draft forward:			Trim:			Trim correction applied? Yes / No*	Sea state: Calm/Slight/Moderate/Rough		
Draft aft:			List °P/S			List correction applied? Yes / No*			
Tank No.	Grade	Temp. °C	Reference height	Observed gauge	Corrected gauge	Total observed volume (Gross)	Density @ 15 °C	V.C.F. Table 54B	Total standard volume (Net)

(1b) Tank gauging — CLOSING

Draft forward:			Trim:			Trim correction applied? Yes / No*	Sea state: Calm/Slight/Moderate/Rough		
Draft aft:			List °P/S			List correction applied? Yes / No*			
Tank No.	Grade	Temp. °C	Reference height	Observed gauge	Corrected gauge	Total observed volume (Gross)	Density @ 15 °C	V.C.F. Table 54B	Total standard volume (Net)

(2) Meter reading:

Grade	Average temp. °C	Totaliser opening	Totaliser closing	Total observed volume (Gross)	Density @ 15 °C	V.C.F. Table 54B	Total standard volume (Net)

Supplier's density @15°C	Total standard volume (net) delivered	V.C.F. Table 56	Tonnes (in air)

Valid certificate of verification available? Yes/No* Weights and measures authority seal No. _____ Is seal intact? Yes/No*

Sampling container seal No._____ Needle valve seal No. _____

Remark (if any) _____

Opening gauges and cargo temperatures witnessed by Chief Engineer in the presence of Cargo Officer	**Closing gauges and cargo temperatures witnessed by Chief Engineer in the presence of Cargo Officer**
Signature of Chief Engineer: _____	Signature of Chief Engineer: _____
Name in full:_____ (Block letters)	Name in full:_____ (Block letters)
Date/Time:_____	Date/Time: _____
Vessel's stamp: _____	Vessel's stamp: _____
Signature of Cargo Officer: _____	Signature of Cargo Officer: _____
Name in full:_____ (Block letters)	Name in full:_____ (Block letters)
Date/Time: _____	Date/Time: _____
Bunker tanker's stamp: _____	Bunker tanker's stamp: _____

(* Delete as necessary)

Annex I
(informative)

Sample label

(click here to access this form in electronic format)

Bunker sample label		
Vessel's name		IMO No.:
Date	Port/Location	
Supplier	Name of bunker tanker/ Terminal or road tanker's No.:	
Sampling point ☐ Vessel manifold	☐ Bunker tanker manifold	Other: _____
Sampling method: ☐ Continuous drip ☐ Automatic ☐ Other(s) _____ (detail)		
Grade:	Quantity MT:	
Supplier's seal No.:	Vessel's seal No.:	
Chief Engineer	Cargo Officer	Bunker Surveyor
Name (Block letters)	Name (Block letters)	Name (Block letters)
Signature	Signature	Signature
Stamp	Stamp	Stamp

Annex J
(normative)

Manual tank gauging procedure for bunker tanker delivery

J.1 Personnel involved with the gauging of bunker tanks shall comply with all the necessary safety, health and related emergency requirements pertaining to a bunkering operation as given in Annex A.

J.2 Every sounding pipe of the bunker tanker's cargo tank shall be clearly marked with the reference height in accordance with the bunker tanker's tank calibration tables. It shall be permanently displayed in a prominent position on the sounding pipe. For bunker tankers using other means of measurement, such as a dip stick, the reference height shall be marked accordingly.

J.3 The Cargo Officer and the Chief Engineer shall jointly witness and confirm the gauging of tanks, meter readings and cargo temperature readings of all cargo tanks of the bunker tanker before and after delivery of bunkers. The Chief Engineer may use his own equipment to verify the readings. The readings shall be properly recorded in the cargo tanks measurement/calculation form as given in Annex H.

J.4 The following tank gauging procedure shall be observed by all parties concerned.

a) Every bunker tanker shall carry onboard appropriate measurement equipment, which meets the requirements according to ISO or equivalent standards (see the Bibliography).

b) The latest certified tank calibration tables, including trim and list corrections, shall be onboard and available for inspection.

c) The Cargo Officer and the Chief Engineer shall jointly verify the reference heights of cargo tanks on the bunker tanker and check the measurement equipment before witnessing the gauging and cargo temperature measurements. Any difference between the observed reference height and the reference height shown on the tank calibration tables shall be recorded in a note of protest and investigated before bunkering commences.

d) Oil-finding paste shall be used when gauging distillate fuel tanks. This is to determine the level of the product on the sounding tape accurately.

e) Gauges of both the nominated and non-nominated tanks shall be determined. Manual gauging shall require three consecutive readings to be within a range of 3 mm.

   If two consecutive readings are identical, this reading shall be reported to the nearest 1 mm, without taking additional gauges.

   If a third reading is taken, the three readings shall be averaged and this average reported to the nearest 1 mm.

f) Trim and list of the bunker tanker are to be recorded and the corrections shall be applied accordingly, as specified in the trim/list correction tables.

g) Temperatures of both the nominated and non-nominated tanks shall be determined. Temperature measurement shall be taken concurrent with gauging. Temperatures shall be taken at the middle level of the product. The thermometer shall remain in the liquid long enough to reach the temperature of the liquid which is being measured.

   Cargo temperatures of all tanks shall be taken to the nearest 0,5 °C for mercury-in-glass thermometers and 0,1 °C for portable electronic thermometers.

h) A "0" reading on the sounding tape does not necessarily mean that the tank is completely empty. If the tank calibration table (inclusive of trim and list correction) indicates a remaining volume, this volume shall be considered in the quantity calculation.

i) All reference heights, soundings and cargo temperatures as witnessed by both parties shall be recorded on the tank measurement/calculation form.

j) The tank measurement/calculation form shall be completed and signed by the Cargo Officer and the Chief Engineer immediately after opening gauges and closing gauges are taken and agreed on.

J.5 It is recommended that for all grades of bunker(s), a water cut be taken by using water-finding paste. Where the product is fuel oil, the bob of the sounding tape should be washed with distillate fuel after the water cut is taken, in order to have an accurate reading of the water level, if any.

Annex K
(normative)

Sampling equipment

The sampling equipment shall consist of the following listed in K.1 to K.5.

K.1 Sampling devices

Based on the likely performance accuracy of sampling devices, the preferential order is:

K.1.1 Flow-proportional automatic sampler.

K.1.2 Time-proportional automatic sampler.

K.1.3 Manual valve-setting continuous-drip sampler.

NOTE Use of the manual valve-setting continuous-drip sampler is recognized as common industry practice, albeit only the third listed preference. This acknowledges practical and economical considerations peculiar to the bunker industry.

K.2 Sampling container, weather-tight, having a capacity of at least 5 litres and capable of being security sealed.

K.3 Sample bottles, suitable for air transportation and long-term storage.

The bottle material shall not compromise the integrity of the sample. The sample bottle cap shall be designed to be tamper-proof, enabling it to be sealed and counter-sealed in a manner to prevent it from being prised off (see Annex N).

K.4 Sample labels, pre-printed, self-adhesive, tamper-proof and having a smear-proof surface, which can be written on. The label shall contain at least the text given in Annex I.

K.5 Seals, uniquely identifiable, preferably numbered in a consistent sequential order.

Annex L
(normative)

Sampling procedure

L.1 The procedure for bunker sampling shall be as given in L.2 to L.11.

L.2 Before delivery of bunkers, the Cargo Officer and the Chief Engineer shall inspect the sampling equipment as given in Annex K.

L.3 The Cargo Officer and the Chief Engineer shall jointly ensure that the volume of the sample container is adequate to fill the number of sample bottles as agreed. They shall also ensure the sampling container is clean before fixing it to the end of the sampling probe.

L.4 After the Cargo Officer and the Chief Engineer are satisfied that the sampling equipment meets the details given in Annex K, the sampling container shall be securely sealed in the presence of the Cargo Officer and the Chief Engineer. The seal number shall be recorded on the tank measurement/calculation form (see Annexes H and I).

L.5 Where a continuous drip sampler is used, the Cargo Officer and the Chief Engineer shall witness the setting of the needle valve on the sampling probe to ensure that a continuous-drip sample is collected throughout the entire duration of bunkering.

Unless otherwise agreed, the needle valve on the sampling probe shall be sealed in the presence of the Chief Engineer at the commencement of bunkering and the seal number recorded on the tank measurement/calculation form (see examples in Annexes H and I). Sampling shall start simultaneously with the commencement of the bunkering operation. When any adjustment of the needle valve is required, the Cargo Officer and the Chief Engineer shall witness the adjustment and record the change of seal number.

L.6 Upon completion of bunkering, the Cargo Officer and the Chief Engineer shall confirm that the security seals of the sampling container and the needle valve are not tampered with.

L.7 After the Cargo Officer and the Chief Engineer are satisfied with the sample collected in the sampling container, the sample shall be thoroughly shaken or stirred to promote homogeneity.

L.8 The sample is then poured in small, equal portions into at least four sample bottles, making three or four passes to fill each bottle in turn to obtain nominally identical samples. The minimum quantity in each sample bottle shall be 750 ml.

L.9 These sample bottles shall be distributed as follows:

a) two for the vessel, one of which is a MARPOL sample;

b) two retained by the bunker tanker (or terminal);

c) one for the Bunker Surveyor, if engaged;

d) one for fuel testing services, if required.

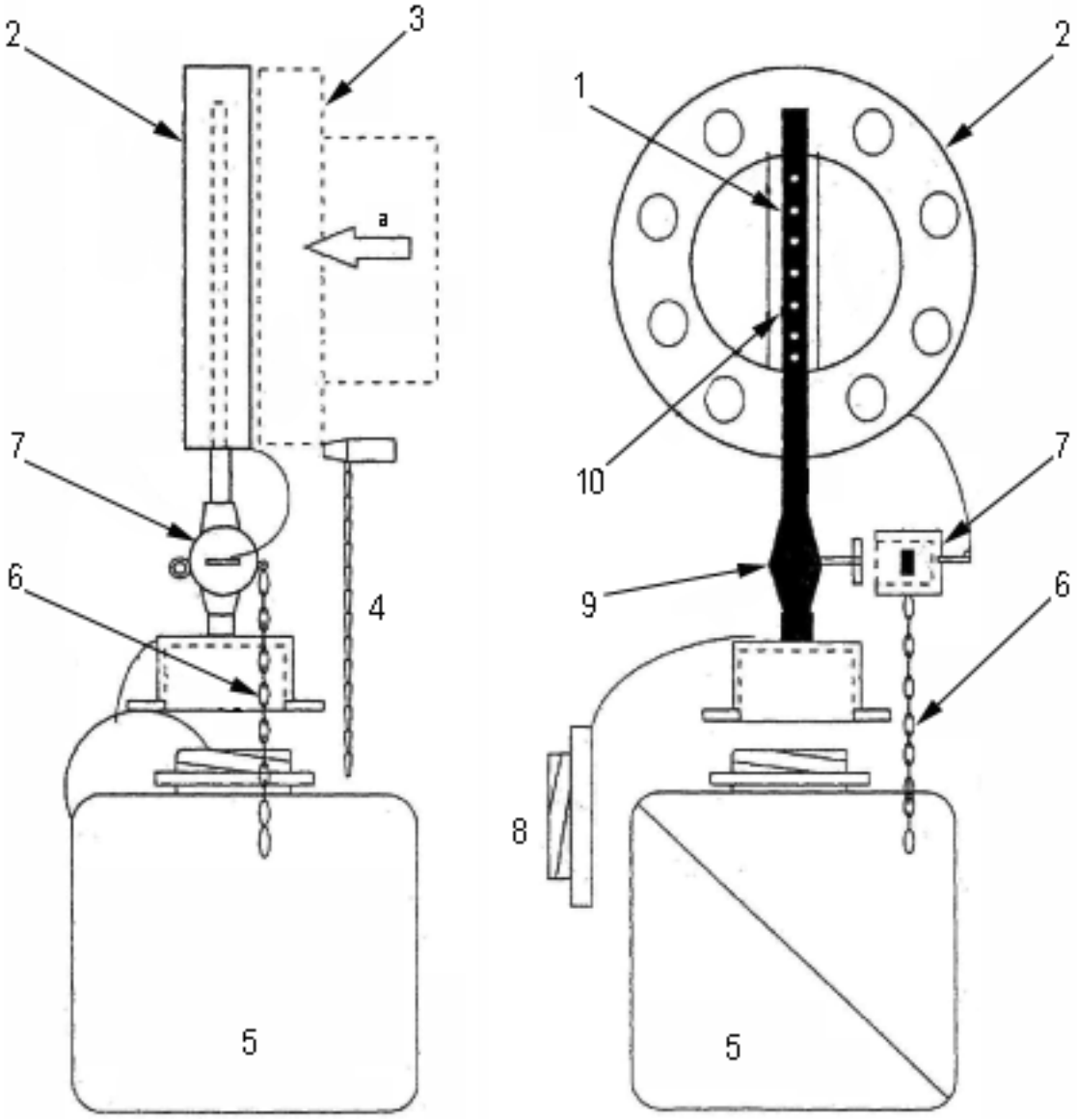
If the Chief Engineer and the Cargo Officer agree that additional bottles should be filled from the sample, their distribution and seal numbers shall also be recorded.

L.10 All sample bottles shall be closed and sealed in the presence of the Cargo Officer and the Chief Engineer. The seal numbers and, if used, counter seal numbers of all samples taken during this bunkering shall be recorded on the respective sample labels and on the bunker delivery note.

L.11 On completion of the bunkering and sampling operations, sample labels shall be completed, signed, stamped and pasted on the respective sample bottles by the Cargo Officer and the Chief Engineer. No sample labels shall be signed and stamped prior to the completion of the bunkering and sampling operations.

Annex M
(informative)

Diagrams of manual valve-setting continuous-drip sampler equipment



Key

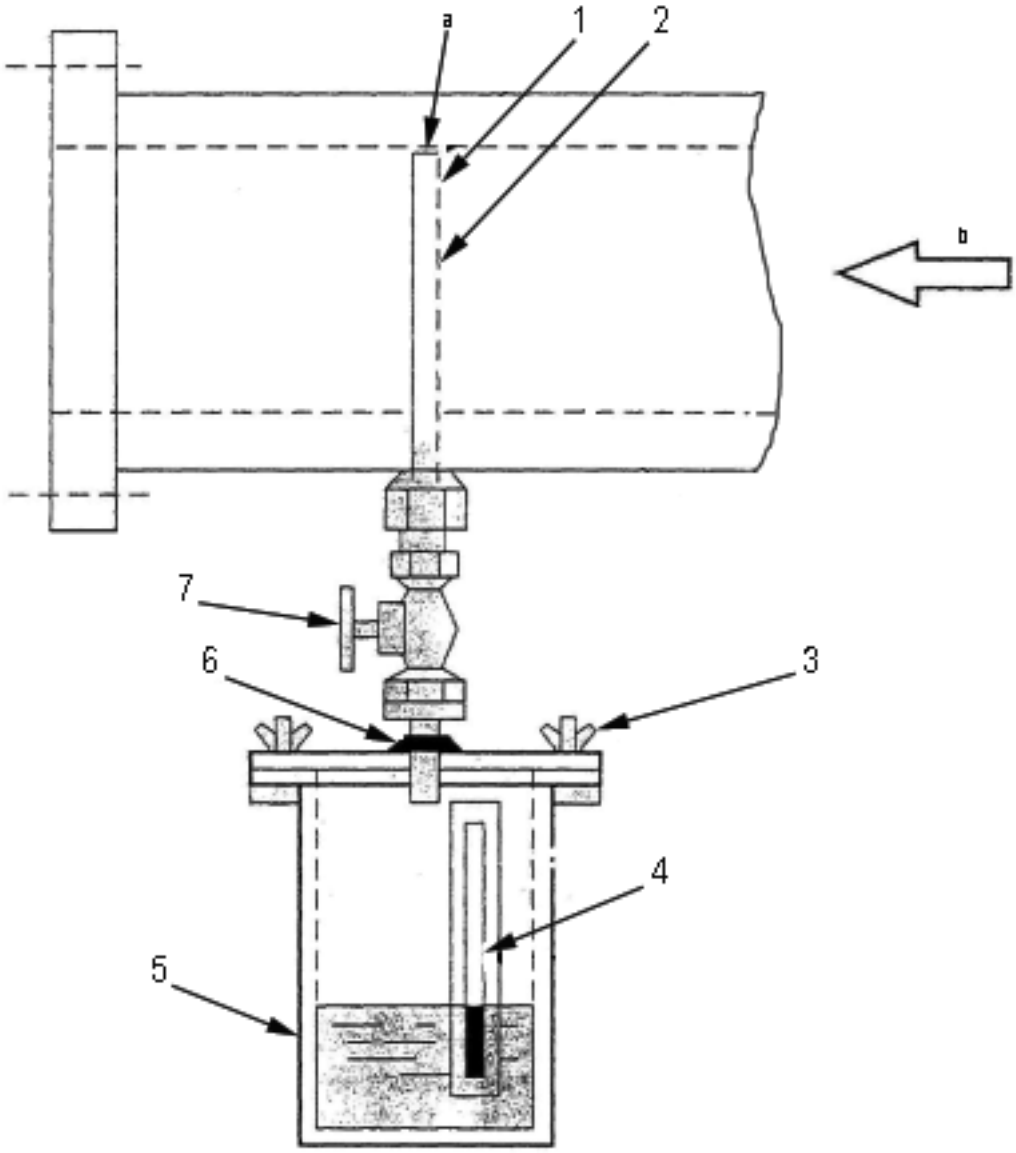
1 baffle plate
2 stainless steel sampler
3 sampler fitted to bunker tanker delivery hose flange
4 seal with unique number
5 weather-tight sampling container
6 locking chain
7 needle valve with security cap
8 cap
9 needle valve
10 detachable stainless steel probe with perforated holes of 5 mm diameter spaced 20 mm apart (holes face direction of flow of bunkers)

[a] Direction of flow of bunker fuel.

NOTE The figure is not drawn to scale.

Figure M.1 — Design of sampling equipment — Example 1

Figure M.1 and Figure M.2 are examples of designs of sampling equipment. A needle valve shall be fitted at the bottom of the sampling probe outside the sampler to control the rate at which a continuous drip sample can be drawn. This will also serve as a stop valve for the sampling. The sampling probe shall be detachable for cleaning and inspection.



Key

1 holes of 5 mm diameter spaced 20 mm apart
2 10 mm diameter stainless steel probe (detachable for cleaning and inspection)
3 wing nuts (with provision for sealing)
4 sight glass
5 sampling container
6 probe welded/fitted to weather-tight cover
7 needle valve (with provision for sealing)

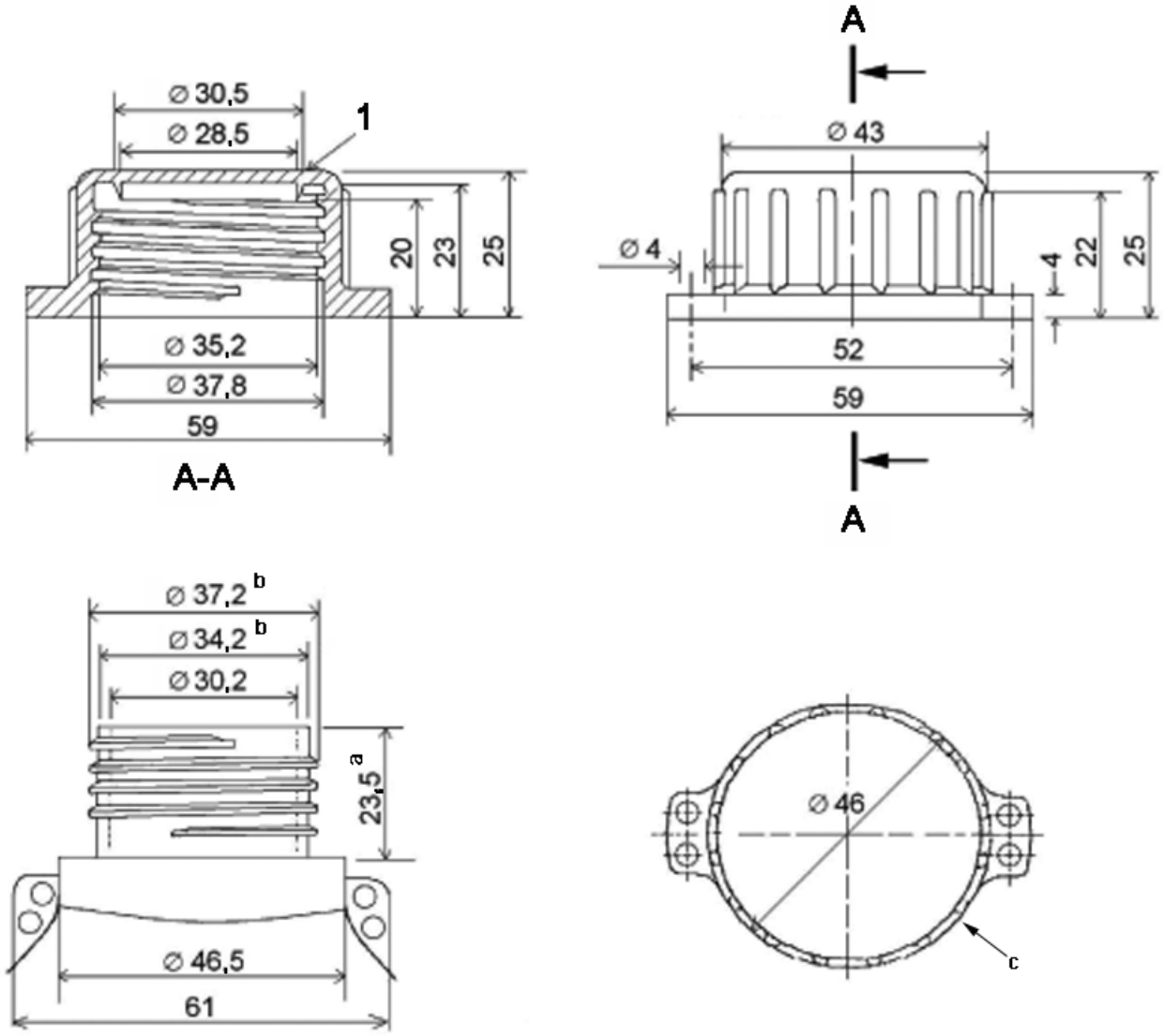
a The tube end is closed.
b Direction of flow of bunker fuel.

Figure M.2 — Design of sampling equipment — Example 2

Annex N
(informative)

Example of the design of sample bottle neck and cap

Dimensions in millimetres



Key

1 cap using an integral seal method to prevent leaks

a The pilfer height is 23,5 mm.

b The thickness of thread is 1,5 mm; the difference between thread major and minor diameter is then divided by 2.

c The number of serrations at 22,5° is 16.

Figure N.1 — Design of sample bottle neck and cap

Annex O
(informative)

Example of a stock movement logbook for a bunker tanker

(click here to access this form in electronic format)

STOCK MOVEMENT LOGBOOK

Serial No. _____

Bunker Tanker's Name: _____ Licence No.:_____ Date: _____

RECEIPTS FROM INSTALLATION/BUNKER TANKER/VESSEL									DELIVERIES TO VESSEL/BUNKER TANKER/INSTALLATION						
Product grade	Received from	Time		Document reference	Bunker tanker's tank Nos.	Quantity from source (Metric tons)	Quantity received (Metric tons)	Variance (Metric tons)	Product grade	Delivered to	Time		Document reference	Delivered from Tank/No. (Bunker tanker's tank)	Quantity delivered (Metric tons)
		Start	Stop								Start	Stop			

BLENDING / INTERTANK TRANSFERS (To be completed if there is blending of products or inter-tank transfer within the bunker tanker for the purpose of trim/list.)												
Blended from			Blended to				Transferred from			Transferred to		
Product grade	Tank No.	Quantity (Metric tons)	Blended grade	Tank No.	Quantity (Metric tons)	Document reference	Product grade	Tank No.	Quantity (Metric tons)	Product grade	Tank No.	Quantity (Metric tons)

SUMMARY OF STOCK MOVEMENTS (Metric tons)					
Tank No.	Product grade	Opening stock	+ Total quantity received	– Total quantity delivered	= Closing stock
1P					
1S					
2P					
2S					
3P					
3S					
4P					
4S					
5P					
5S					
TOTAL					

Remarks (please include daily product gain/loss):

Prepared by Cargo Officer:

Signature:

Name:

Annex P
(informative)

Example of note of protest

(click here to access this form in electronic format)

Date of protest	
BDN Ref. No.	
Name of receiving vessel	
Name of delivering bunker tanker/terminal/ road tanker	

Dear Sirs,

NOTE OF PROTEST FOR BUNKERING OPERATION IN _____ (port)

On behalf of my principal(s), I _____ (position/name) hereby register the following protest:

Yours faithfully

Signature and stamp _____

Name in full (block letters) _____

ACKNOWLEDGED RECEIPT

Signature and stamp _____

Name in full (block letters) _____Date/Time _____

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ICS 75.180.30

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