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# DB3309

## Local Standard of Zhou shan City

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**China (Zhejiang) Pilot Free Trade Zone Standard**

**Code of Practice for bunkering**

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## Preface

This standard is drafted in accordance with the rules given in GB / T 1.1-2009 " *Directives for standardization. Part 1: The structure and drafting of standards*"

This standard Appendix A, B, C, D, E, F, I, J are normative documents, whilst Appendix G, H, K, L, M, N are informative documents.

This standard is proposed by Zhoushan Port Comprehensive Bonded Zone Administrative Committee and is responsible for the interpretation

This standard is governed by Zhoushan Port Comprehensive Bonded Zone Administrative Committee .

This standard was responsibly drafted by: China Petroleum Circulation Association Marine Oil Professional Committee, China Marine Bunker (Petro China) Co., Ltd. , Sinopec Fuel Oil Sales Co., Ltd.

The main drafters of this standard: Qiang Yin, Wei Song, Guowei Tan, Ming Tian and Xunliang Liu.

# China (Zhejiang) Pilot Free Trade Zone Standard

## Code of practice for bunkering

### 1 Scope

The scope of this standard specifies the processes and procedures for the delivery of bunkers.

This standard applies to bonded ship bunkering operation in China (Zhejiang) Pilot Free Trade Zone Standard.

### 2 Normative references

The following referenced document are indispensable for the application of this standard. For undated references, the latest edition of the referenced documents (including any amendments) applies, unless otherwise stated by the implementing authority.

GB/T 1884 *Petroleum and liquid petroleum products Determination of density-Hydrometer method*

GB/T 1885 *Petroleum measurement tables*

GB/T 9109.1 *Dynamic measurement of petroleum and liquid petroleum products--Part 1: General principle*

GB/T 9109.5 *Petroleum and liquid petroleum products dynamic measurement -- Part 5: Calculation of oil quantities*

GB/T 25347 *Marine petroleum oil and lubricant supply terms*

GB/T 27867 *Petroleum liquid. Automatic pipeline sampling*

JT/T 38 *Handing over and taking over calculation requirements of marine tank for petroleum and liquid products of petroleum*

MARPOL73/78 *International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978*

### 3 Terms, Definitions and Symbols

For the purposes of this standard, all and following terms, definitions and symbols shall apply to GB/T 9109.1、 GB/T 9109.5、 GB/T 25347、 JT/T 38.

#### 3.1

Bunker supplier

The company which is qualified professional management of bunker supply with license.

#### 3.2

Bunker barge

The bunker barge for supplying bunker(s) to the vessel.

#### 3.3

Vessel to be supplied

The vessel receiving bunker(s).

3.4

Cargo officer

An individual who is authorized or appointed by bunker supplier and represents the bunker supplier to be responsible for bunker supply operations.

3.5

Ship officer

An individual who is authorized or appointed by the vessel and represents the vessel to be responsible for bunker receiving operations.

3.6

Bunker surveyor

An individual who is approved by bunker supplier and the vessel as the third party inspector.

3.7

Flange sampler

A device for continuous acquisition of oil samples at the outlet pipeline of bunker barge or at the entrance pipeline of the vessel.

3.8

Bunker delivery receipt(BDR)

A proprietary document which is confirmed via signature of bunker supplier and the vessel when bunker(s) is delivered by the bunker barge to the vessel, and used for final settlement of bunker charge.

3.9

Bonded oil

Bonded oil is the marine fuel oil (MFO), marine diesel oil (MDO) and marine gas oil (MGO) supplied to international voyage vessels.

3.10

Health Safety and Environment Management System

A whole management system which includes elements as organizations, responsibilities, methods, procedures, processes and resources on the purpose of Health Safety and Environment implement (HSE for short).

4 General requirements

4.1 Cargo officer

During the bunker operation, the bunker barge should be equipped with at least one representative of the bunker supply, who should pass professional pre-job training, understand the bunker operation process, familiar with the commercial terms, rules and marine fuel specifications.

#### 4.2 Safety management

##### 4.2.1 Management system

The bunker supplier should establish and improve the HSE management system.

##### 4.2.2 Safety equipment

All personnel involved in the bunker operation must equip protective suit throughout, including but not limited to: :

- a) Safety Helmet;
- b) Safety Shoes;
- c) Gloves; and
- d) Life jacket.

#### 4.3 Compliance and equipment of Bunker supplier

4.3.1 Should be registered in bunkering port relevant authorities and has the supply qualification and licence, and is approved to supply bonded fuel;

4.3.2 All oil measuring instruments including Capacity plan, the dipstick, the thermometer and the flow meter shall be compulsorily verified by the meteorological verification party, shall be valid and ensure the status is normal. Bunker barge should be equipped with its relevant certificate or a copy of its certificate. The function of measuring instrument shall meet the requirements of GB / T 9109.5 and JT / T 38. The expansion uncertainty of the bunker metering shall be less than or equal to 0.5%, and shall not be deducted by bunker supplier.

4.3.3 Cargo tank position of bunker barge, pipelines and Hand signals for bunkering communication (Appendix A) should be posted on the bunker barge prominently for both parties to view.

4.3.4 Should be equipped with Flange sampler, Sample buckets (bags), Sample bottles (no less than 0.6 L) and Bunker sample label ( Appendix J ). bunker sample buckets (bags) and bunker sample bottles should not be reused.

#### 4.4 Documentation

4.4.1 Bunker supplier shall be equipped with the following documents and signed by both parties :

- a) Bunker requisition form ;
- b) Vessel Measurement Report;
- c) Vessel Bunker Plan;
- d) Bunkering pre-delivery safety checklist ;
- e) Non-cargo tank declaration/inspection form;
- f) Bunker delivery receipt;
- g) Declaration forms related to port authorities.

4.4.2 Both parties of bunker barge and vessel should have seal with ship name to sign above documents.

## 5 Prerequisites before bunker delivery

- 5.1 Personnel of the vessel should check filling pipelines on board, oil reception tank, vent pipe and all other relevant valves are clear and normal. To place a drip tray and oil absorber under the entrance of oil tank and to block the deck scupper and close sea valve.
- 5.2 Personnel of bunker barge should check bunker supply pipelines to ensure bunker supply normal. To place a drip tray and oil absorber under the entrance of oil tank and to block the deck scupper and close sea valve related. Oil fence should be equipped in bunking spot.
- 5.3 The bunkering spot should hang marked warning board for forbidding smoking, make arrangement to avoid fire and explosion with fire equipment accordingly.
- 5.4 Both parties when bunkering should hang the signal flag (in daytime ) and light ( at night ) in compliance with the regulations of MSA.
- 5.5 The representatives of both parties should prepare the verified wireless communication equipment or Hand signals for bunkering communication before bunkering (see Appendix A) to ensure smooth communication throughout the bunkering.

## 6 Pre-bunker delivery

- 6.1 Before connecting the pipeline, the representatives of both parties shall confirm the information of bunker, such as Grade and Quantity, fill and sign with seal in the Bunker Requisition Form (Appendix B).
- 6.2 After the bunker application is confirmed, the bunker barge personnel under the vessel's cooperation, connects the pump hose correctly to ensure that the connection is firm and sealed to avoid leakage.
- 6.3 Representatives of the vessel may request the cargo officer to provide verified certificates of measuring instruments (including the capacity plan, the dipstick, the thermometer and the flow meter), tanks position map and pipelines map of the vessel and/or related documents. The cargo officer should cooperate accordingly.
- 6.4 The representatives of the vessel have the right to check the validity and legality of the certificate of capacity plan and measuring instruments and gauge arrangement of bunker barge tanks and height of gauge hatch in compliance with capacity plan.
- 6.5 cargo officer shall carry out safety gauge with the representatives of the vessel in accordance with the contents of the "Bunkering pre-delivery safety checklist" ( Appendix C ) and confirm the signatures with each other. Items that can not be confirmed should be stated. .
- 6.6 cargo officer shall provide the oil inspection certificate issued by the qualification unit. The laboratory item inspection shall meet the requirements of Appendix D and is kept for one year. The ship officer needs the Material Safety Data Sheet (MSDS) (Appendix E), and cargo officer shall provide MSDS before the commencement of the bunkering.
- 6.7 The cargo officer should provide the " Vessel Bunker Plan" (Appendix F), and the representatives of the vessel should fill in the form according the facts which should be confirmed with seals by both parties and ensure enough capacity of tanks in the vessel to receive bunker.
- 6.8 Before opening the pump, the representatives of both parties should measure the oil level, water level and oil temperature of all cargo tanks (including tanks which not to be supplied) in the vessel. The measurement requirements shall meet the JT / T 38 standard. After filling the measurement data in the "Vessel measurement report" (Appendix G), Vessel measurement report should be confirmed and signed by both parties and surveyor (if engaged). In the event that ship officer does not attend to witness to check bunker quantity , temperature, and verification of flow meter readings before pumping, it is considered to be trusted in



bunker measurement data from bunker barge and approved before pumping. ship officer should confirm and sign in the "Vessel measurement report (Appendix G). If do not agree to sign, representatives of both parties should jointly resolve the solution.

6.9 When measuring with a flow meter, both parties shall check that all seals of bunker barge flow meter are in good condition firstly and shall verify the flow meter reference readings before pumping and record it in the "Vessel measurement report" (Appendix G) which should be confirmed and signed by both parties and surveyor(if engaged) shortly.

6.10 The ship officer may request the non-cargo tank level of bunker barge, and the cargo officer shall provide the "Non-cargo tank declaration/inspection form" (Appendix H) and cooperate accordingly when ship officer requests to check non-cargo tank.

6.11 Before pumping, both parties should check the open status of all the valves in respective ships once again to gauge whether deck scupper are blocked or not and commence to pump when all is in order.

## 7 During bunker delivery

### 7.1 Bunker delivery supervision

7.1.1 Bunker barge starts to pump when received notice of pumping order from the vessel only. Pump speed and pump pressure should be strictly controlled within the scope of both parties' agreement.

7.1.2 Bunker barge must stop supply immediately when an abnormality occurs on spot or when given a stop order from the vessel. .

7.1.3 During the entire bunker delivery process, representatives of both parties must witness to pay attention to the duty gauge, to prevent steaming, seeping, dripping, leakage and so on. Bunker barge should also adjust mooring cables at any time to ensure safety when mooring and keep channel clear to communicate with crew on duty from the vessel freely.

### 7.2 Bunker Sampling and Preservation regulations during bunker delivery

#### 7.2.1 Sampling equipment:

7.2.1.1 The sampling equipment (Appendix I) should consists of the following :

- a) Flange Sampler;
- b) Sample bucket (bags);
- c) Sample bottles and caps;
- d) Bunker sample label (Appendix J) ;
- e) Seals with a unique identification code.

7.2.1.2 Sampling devices are not entirely limited to the above requirements, but also can be used by the both parties agreed by the agreement with other sealed sampling device, and should always need to meet the requirements of continuous drops during the whole bunker operation.

7.2.2 Bunker sample should be collected by flange sampler in sampling operation. Sampling point should be chosen after both parties' negotiation and could be at the outlet pipeline of bunker barge or at the entrance pipeline of the vessel. Both parties should send officers to witness and supervise the full process.

#### 7.2.3 Sampling Procedures

7.2.3.1 Before pumping, needle valve of flange sampler should be closed and clean sample bucket(bags) should be rotated and installed firmly and reliably at the interface of the flange sampler.

7.2.3.2 After 5 minutes' pumping, to open the needle valve slowly and adjust opening size according to the quantity of bunker and speed of pumping. To observe and adjust the opening size to ensure the continuity of drops of bunker sample all the time during the full process until the last 5 minutes before completion of pumping.

7.2.3.3 To shake bunker sample in sample bucket (bags) fully and split bunker sample into four sample bottles at least. Both parties save two bottles respectively or to split into five bottles and give one bottle to surveyor if engaged.

7.2.3.4 All packed sample bottles shall be sealed and stamped with Bunker sample label (Appendix J) and signature by both parties representatives and surveyor if engaged. Number of seals shall be recorded in the "Bunker delivery receipt" (Appendix K).

7.2.3.5 Any party is entitled to refuse to sign in the event that the opposite party collects bunker sample unilaterally and also could remark as "Supplier/Vessel not witness in bunker sampling process".

#### 7.2.4 Bunker sample preservation

7.2.4.1 Bunker samples on the purpose of retrospective collection for bunker quality shall be kept for at least 3 months from the date of sampling. Bunker samples on the purpose of retrospective collection for international environment shall be kept for at least one year from the date of sampling in accordance with MARPOL 73/78 Annex VI. Bunker samples should meet the related requirements within retrospective period.

7.2.4.2 The disposal of bunker samples shall comply with the relevant regulations of government.

### 8 Post-bunker delivery gauge and receipt

#### 8.1 Before the end of bunker supply

Bunker barge personnel should gradually reduce bunker supply speed and stop pumping immediately when up to quantity in bunker plan to avoid leakage and/or over-supplied.

#### 8.2 After completion of pumping

Gauge should be taken only after the balance bunker of bunker supply hose flows into tanks of bunker barge or the vessel in one effective way under agreement of both parties.

#### 8.3 Bunker quality measurement post-pumping

8.3.1 Upon completion of blowing line in bunkering operation, the cargo office should invite the representatives of the vessel to jointly witness the oil level, the water level and the oil temperature of all the cargo tanks (including tanks which not to be supplied). The data is filled in the "Vessel measurement report" (Appendix G), confirmed with signatures by both parties and surveyor if engaged.

8.3.2 When measuring with a flow meter, the cargo officer and ship officer shall re-check that all seals of bunker barge tanks' flow meter are in good condition and that both parties shall verify their pump metering readings on spot and record them in the "Vessel measurement report " (Appendix G) and confirm with signatures by both parties and surveyor if engaged.

8.3.3 The standard density of the bunker shall be in compliance with the inspection report provided by bunker barge. If any dispute, bunker samples should be sent to the verified authority approved by both parties for determination.

#### 8.4 Bunker quantity gauge post-pumping

8.4.1 The cargo officer shall gauge the quantity of bunker based on the oil level, oil temperature and density which are confirmed by both parties in compliance with the requirements of JT / T 38, GB / T 1884 and GB / T 1885.

8.4.2 When bunker is delivered by flow meter, quantity should be calculated according to the requirements of GB/T 9019.5 under the instruction of flow meter manufacturer. ◦

8.4.3 The ship officer is entitled to witness and calculate the quantity of bunker delivery.

#### 8.5 Receipt of Bunker delivery

8.5.1 The representatives of bunker supplier and the vessel should confirm calculation and the readings of bunkering commencement and completion; and fill in the "Bunker Delivery Receipt" (Appendix K) to be kept at least 3 years. The ship officer shall confirm gauge data of both bunkering commencement and completion in all tanks, whilst the other data in BDR shall be based on bunker supplier's, and sign with seals in the BDR provided by bunker supplier.

8.5.2 The representatives of the vessel shall cooperate with the cargo officer, fill relevant documents and sign with seals to meet the requirements of local port authorities.

### 9 Bunker survey

9.1 Bunker survey application is recommended to be arranged before bunker supply, "Application for bunker survey - applicable to the full process " (Appendix L) should be prepared and filled fully by cargo officer. Surveyor is invited to detect the whole bunkering operation only after the Application signed with seals by both parties. ◦

9.2 If bunker quantity dispute is arised from bunkering, both parties shall confirm that the relevant measurement data before bunkering is valid and thereafter apply for bunker survey only. "Application for bunker survey - applicable to pumping process " (Appendix M) should be prepared and filled fully by cargo officer. Surveyor is invited to detect the bunkering operation when pumping is already started after the Application signed with seals by both parties.

9.3 Bunker surveyor should collect data and calculate by using verified and valid measuring instrument.

9.4 Bunker surveyor's operation should be in strict accordance with national measurement regulations and national, provincial, professional standards.

9.5 Both cargo officer and ship officer should cooperate with bunker surveyor actively.

9.6 In the event of applying for bunker survey, the quantity of bunker delivery should be based on the gauge data or data of calculation from bunker surveyor.

### 10 Dispute and Complaint Settlement

10.1 When bunker quantity dispute occurred without sufficient condition and could not be applied for bunker survey, both parties shall negotiate and try to solve dispute on spot fairly, equally and friendly.

10.2 When bunker quantity dispute could not be solved on spot, both parties should be on the principles of ensuring safety and quick despatch to settle dispute. Ship officer should cooperate with cargo officer and fill in "Note of protest " (Appendix N) fully with both parties' seals in order to solve commercial disputes shortly.

10.3 The vessel should post a statement to bunker supplier within warranty period agreed by both parties if a quality problem is found. Both parties make agreement to send bunker samples with seals to verify authority approved by both parties for determination in order to solve commercial disputes shortly upon above result of determination.

10.4 The bunker samples with both parties' signature and seals, are the sole basis for retrospective bunker quality.

10.5 Bunker quality dispute should be made within 30 days after delivery and quantity dispute should be made within 60 days after delivery.

Appendix A  
(normative)

Hand signals for bunkering communication



1. WAIT/HOLD



2. START



3. REDUCE PUMPING RATE



4. INCREASE PUMPING RATE



5. STOP



6. FINISH

**Appendix B**  
(normative)  
**Bunker requisition form**

受油船舶船名 \_\_\_\_\_ 供油日期 \_\_\_\_\_  
 Vessel's name \_\_\_\_\_, Date \_\_\_\_\_  
 供油港口 \_\_\_\_\_ 供油泊位 \_\_\_\_\_  
 Delivery Port \_\_\_\_\_, berth \_\_\_\_\_

尊敬的先生：  
Dear sir:

受公司指定，谨向贵船供应下述品种燃料油：

We have been nominated to supply your vessel the following grade(s) of bunkers

吨船用燃料油

\_\_\_\_\_ Tones Marine Fuel Oil of \_\_\_\_\_ cst

吨船用重柴油(MDO)/船用轻柴油(MGO)

\_\_\_\_\_ Tones Marine Diesel oil /Gas oil.

我船将首先供应\_\_\_\_\_随后供应\_\_\_\_\_

We will supply \_\_\_\_\_ first, followed by \_\_\_\_\_ .

(1) 供油数量以供油驳船舱容或流量计为准。

The quantity of the bunker supplied is calculated solely according to the tank table or the reading on flowmeter of the barge.

(2) 是否需对供油驳船进行第三方检测：是/否/不适用。

Will you need surveyor for bunker barge? Yes/No/NA

(3) 受油方是否需要检测供油驳船油舱油位：是/否/不适用。

Will you be witnessing the pre- and post-pumping sounding of our barge? Yes /No /NA

(4) 受油方是否要监督供油驳船流量计读数：是/否/不适用。

Will you be witnessing our flowmeter reading? Yes /No /NA

(5) 受油方是否需要监督取样过程：是/否。

Will you be witnessing sampling on our barge? Yes /No

供方代表 For the barge's representative	受方代表 For the vessel's representative
签字: Signature	签字: Signature
供油驳船（盖章）: Bunker's stamp	受油船舶（盖章）: Vessel's stamp
日期和时间: Date & time	日期和时间: Date & time

NA--Not applicable (不适用)

Appendix C  
(normative)

Bunkering pre-delivery safety checklist

供油方 Supplier_____	受油方 Receiver_____
油种 Kind of the Oil_____	数量 Quantity_____
初始泵压 Initial Pump Pressure(kg/cm <sup>2</sup> )_____	初始泵量 Initial Pump Rate(m <sup>3</sup> /h)_____
最大泵压 Maximum Pump Pressure(kg/cm <sup>2</sup> )_____	最大泵量 Maximum Pump Rate(m <sup>3</sup> /h)_____
作业时间、地点 Date and Place of the Bunkering Operation_____	

填表须知:

**INSTRUCTIONS FOR COMPLETION**

一、双方须按表内所列项目检查、落实，对符合要求者用“√”表示，不符合要求者在备注栏内说明。

All the items of the list must be checked and implemented. Items agreed to be done shall be marked with “√” while items disagreed explained in column of remarks.

二、本表由供油方提供、经双方共同核查并签署后，各持一份，留船备查。

This form should be delivered by Supplier. This form is signed and checked by both parties and each party keep one of signed copies and keep it on board to be checked.

三、本表内容一经确定，不得擅自更改。

No correction should be done to the agreed contents in this Form.

检查项目 Items	供油方 Supplier	受油方 Receiver	备注 Remark
1. 双方是否安全系泊? Are the ships securely moored?			
2. 船舶间通道是否安全可靠? Is there safe access between supplying ship and receiving ship?			
3. 输油管是否完好? Are bunkering hoses in good condition?			
检查项目 Items	供油方 Supplier	受油方 Receiver	备注 Remark

4.输油管是否接妥并在结合处放置了集油容器? Are bunkering hoses correctly connected and drip collecting trays in position at the joining part?			
5.油管吊杆是否处于良好工作状态? If the pump handle wheels were in good condition?			
6.受油舱阀门是否已经打开? Is the valve of receiving tank open?			
7.量油管和空气管是否通畅? Are the sounding pipes and air pipes unblocked?			
8.主甲板泄水孔是否已堵塞? Are scuppers on the main deck effectively plugged?			
9.双方的操作程序是否已商定? Is the operation procedure agreed on by both parties?			
10.双方是否约定了联络方法? Is the communication system agreed on by both parties?			
11.应急停泵信号和应急关闭程序是否已商定? If the agreements on the emergency pump stopping signal and emergency stopping procedure reached?			
12.双方是否安排了专人值班? Are duty personal assigned by both parties?			
13.有关明火作业及吸烟的各项规定是否得到了执行? Are naked light and smoking regulations being observed?			
14.双方是否已派专人根据天气、潮汐和船舶吃水变化随时调整输油管的布设及弯曲半径、角度和系泊缆绳的收放? Has the ship appointed a special watchman for adjusting the radius angles of the transfer hoses and mooring rope according to the changes of weather and tides and draughts of the ship?			



15. 是否已就油污染应急措施达成协议? Was there any agreement for the emergency of oil pollution?			
16. 双方是否备妥了应付意外油污染事故所必需的吸附材料? Are necessary absorbing materials available for dealing with accidental escape of oil?			

## 声明

## DECLARATION

根据本表所列各项，我们已逐一进行了检查，双方对检查结果表示满意，确认双方均已符合要求，可以开泵。

经双方商定开始作业时间拟定于\_\_\_\_\_。

We have checked according to the items of the check list, and have satisfied ourselves. The operation can be commenced.

The two parties have agreed through discussion that the operation shall be started at\_\_\_\_\_.

供油方负责人姓名:

Person in charge  
from the Supplier \_\_\_\_\_

职务  
Rank \_\_\_\_\_

签字  
Signature \_\_\_\_\_

时间  
Time \_\_\_\_\_

受油方负责人姓名:

Person in charge  
from the Receiver \_\_\_\_\_

职务  
Rank \_\_\_\_\_

签字  
Signature \_\_\_\_\_

时间  
Time \_\_\_\_\_

## Appendix D

(normative)

## Quantity measurement and determination

Part One MGO Test items

化验项目 Test Items		化验结果 Test Result
运动粘度(40°C) kinematic Viscosity at 40°C	mm <sup>2</sup> /s	
闪点(闭口), °C Flash Point (closed)	min	
倾点, °C Pour Point	max	
灰分, % Ash	max	
10%蒸余物残碳, % CR 10% in Residue	max	
密度(20°C), Density at 20°C	kg/m <sup>3</sup>	
密度(15°C), Density at 15°C	kg/m <sup>3</sup>	
水分, % Water	max	
机械杂质, % Mechanical Impurities		
硫含量% (m/m) Sulfur	max	
十六烷指数 cetane index	min	
馏程 Distillation	50%馏出温度, °C 50%Percent distil-off temperature°C	max
Range	90%馏出温度, °C 90%Percent distil-off temperature°C	max

## Part Two MFO Test items

化验项目 Test Items	化验结果 Test Result		
	180 cst	380 cst	500 cst
运动粘度(50°C) mm <sup>2</sup> /s kinematic Viscosity at 50°Ccst max			
闪点(闭口), °C Flash Point (closed) min			
倾点, °C Pour point max			
水分, % Water max			
灰分, % Ash max			
残碳, % Carbon Residue max			
总沉淀物, % Total sediment max			
硫含量, % Sulfur Content max			
密度(20°C), kg/m <sup>3</sup> Density at 20°C max			
密度(15°C), kg/m <sup>3</sup> Density at 15°C max			
CCAI max			

Note: The specific oil test indicators should be agreed by both parties of contract and meet requirements of port authorities for those mandatory indicators.

Appendix E  
(normative)  
Material Safety Data Sheet

**Section 1: Product and Company identification**

Product name in Chinese: 180cst 燃料油

Product name: Fuel oil 180cst (diesel oil 0#)

Manufacturer:

Address:

Telephone:

Zip Code:

Fax number:

Emergency phone:

Valid date:

**Section 2: Composition/Information on ingredients**

Mixture: Composed of various hydrocarbons and non-hydrocarbons

Name of Hazardous Chemicals: Fuel oil 180cst (diesel oil 0#)

Hazardous Ingredients: Alkanes, Cyclanes and Aromatic Hydrocarbons, Sulfur, Oxygen, Nitrogen Compounds

**Section 3: Hazards Identification**

Classifications: Flammable liquid

Color: Black

Routes of entry: Inhalation, Ingestion, Dermal Contact

Hazards Summary: Dangerous cargo, Inflammable.

Prolonged or repeated contact with the skin is harmful. It will peel and lead to allergies and / or dermatitis.

Heating material may cause thermal burn. Based on experimental studies of animals, some of the ingredients in this item have a risk of skin cancer. At the same time may cause the following organ damage: liver, lung, blood system

Toxic gases: hydrogen sulfide (H<sub>2</sub>S)

Routes of entry: Inhalation, Ingestion, Dermal Contact and eye contact

Chronic intoxication: neurasthenia syndrome as the main performance, as well as eye and respiratory irritation symptoms, contact dermatitis and dry skin.

Acute intoxication: inhalation of high concentrations of steam, often occurs the excitement, thereafter it transfers into the inhibition, the performance would appears as fatigue, headache, tincture, trance, muscle tremor, common movement disorders; severe performance would become directional disorder, slander and blurred consciousness etc.; steam can cause eye and respiratory irritation symptoms and severe cases would turn to chemical pneumonia. Inhalation of liquid fuel oil can cause aspiration pneumonia and pulmonary edema at worst. Ingestion can cause mouth, throat and gastrointestinal irritation symptoms, there may be the same as central nervous system symptoms after inhalation.

Environmental hazards: harmful to the environment, should pay special attention to avoid the pollution of water.

Explosion hazard: its vapor and air can form an explosive mixture, which can cause combustion and explosion in case of meeting fire and high heat. Its steam is heavier than the air, would spread at a lower place to a considerable distance and burn when meets fire source. In case of high heat, the container pressure increases, there is a risk of cracking and explosion.

#### **Section 4: First aid measures**

Eye contact: Rinse immediately with plenty of flowing water at least 15 minutes. If eye pain persists, see a doctor.

Skin contact: Take off all contaminated clothing immediately. Wash off skin and hair with plenty of flowing water( soap available) 。 If skin irritation persists, see a doctor. Wash contaminated clothing before re-use.

Inhalation: Move to fresh air. Give oxygen. If breathing is irregular or stopped, administer artificial respiration.

Seek medical attention immediately.

Ingestion: Do Not induce vomiting without medical personnel's instruction. In case of vomiting, let the patient lean forward or lie on the left side (keep the head low), keep the airway clear and prevent the inhalation of vomit. Monitor for breathing carefully. It is forbidden to take liquid to the patient who performs the symptoms of drowsiness or decreased consciousness, that is, the patient who is losing consciousness. If be sober, rinse mouth with water, and drink as much water as possible. Seek help from a doctor or medical institution.

### **Section 5: Fire-fighting measures**

Flammability of the product: Combustible

Flash point: 61- 120 °C

Hazard products of combustion: carbon monoxide, carbon dioxide, sulfur trioxide and hydrothion.

Danger characteristic: its vapor and air form explosive mixture, which can cause combustion and explosion in case of meeting fire and high temperature. In case of high heat , increased pressure within the container will make a risk of cracking and explosion. It is easy to generate accumulation of static electricity when in over-speed of flow .

Fire fighting methods and fire extinguishing agent: Small fire: Use dry powder. Big Fires: Use dry chemicals, carbon dioxide, water mist or foam. Do not use sprinklers.

Fire precautions: firefighters must wear gas masks in a body fire suit to extinguish in the upwind direction of fire.

### **Section 6: Leakage emergency solution**

Emergency action: cut off the fire source. It is recommended that emergency personnel wear self-contained positive pressure respirator and wear anti-static work clothes. Cut off the leakage source as much as possible.

To prevent leakage into the sewer, drainage ditch and other restriction space. Make the discharge area with the oil fence in a circle so as to avoid environmental pollution, recycle with the explosion-proof pump in time and with oil-absorption felt, and use oil dispersant if necessary.

## **Section 7: Handling and storage**

Precautions for handling:

Handling personnel's have been technically trained to strictly follow the operating procedures. Avoid prolonged or repeated contact with the skin. Clean thoroughly after contact. Steam may contain hydrogen sulfide (H<sub>2</sub>S) gas, it requires that ventilation should be enhanced and equipment should be explosion-proof type and grounded electrically. Handling personnel wears oil handling technical work clothes. Workplace is forbidden to smoke and use open flames.

Storage Precautions: Store with a cool, ventilated warehouse. Away from fire and heat source. Equipped with explosion-proof lighting and ventilation devices. Prohibit to use mechanical equipment and tools which are prone to sparks. The storage area shall be provided with an emergency handling equipment and suitable storage materials.

## **Section 8: Exposure Controls/ Personal protection**

Engineering controls: The production process is tight and the ventilation is enhanced

Respiratory protection: should wear an air respirator or an oxygen respirator.

Eye protection: Wear chemical protective glasses.

Body protection: wear anti-virus penetration work clothes.

Hand protection: wear rubber oil resistant gloves.

Other protection: no smoking at work and use open flames.

## **Section 9: Physical and chemical properties**

Physical state: Liquid (Flowing).

Odor: Hydrocarbon characteristics.

Colour: Black.

Proportion: <1.01

Density:<1.01 g/cm<sup>3</sup> at 15 °C

Other physical and chemical properties see oil inspection certificate related.

## **Section 10: Stability and Reactivity**

Stability: Stable

Materials to avoid: Strong oxidizing agent

Conditions to avoid: Heat and open flame

Decomposition products: Carbon monoxide, carbon dioxide, hydrogen sulfide, sulfur dioxide, sulfur trioxide

Hazardous Polymerization: Not occur

## **Section 11: Toxicological information**

Acute toxicity: Ld50: 5000mg / kg (rat oral); LC50:> 5000mg / m<sup>3</sup> / 4h (rat inhalation).

Irritation: rat skin percutaneous: 500mg, severe irritation.

Other: male oral LDLO (mg / kg): 500; male oral TDLO (mg / kg): 3570.

## **Section 12: Ecological information**

Ecotoxicity: No information available.

Biodegradability: No information available.

Non-biodegradable: No information available.

## **Section 13. Regulatory information**

Regulatory information: It stipulates the safe production, use, storage, operation, transportation and waste gas of dangerous chemicals in Regulations on the Safety Administration of Dangerous Chemicals Chemicals (issued by the State Council on January 26, 2002). It is prohibited to dump according to Regulations of the People's Republic of China on the Dumping of Wastes at Sea (issued by the State Council on March 6, 1985).

Regulations of the People's Republic of China on the Dumping of Wastes at Sea (issued by the State Council on March 6, 1985) belong to the substances that prohibit dumping. This substance is classified as flammable liquid in Category 3 in List of dangerous goods (GB12268-2005), Its transportation is stipulated in details in Water transport regulations for dangerous goods (issued by the Ministry of Communications on November 4, 1996, No. 10 decree, 1996)



Appendix F  
(normative)  
Vessel Bunker Plan

On the purpose of making a best bunker supply by both parties and avoid leakage of over-pumped bunker supply, it is invited the vessel to fill receiving tank information truly.

Whilst we declare that the bunker plan is not deemed as supply measurement confirmation and final quantity of bunker supply as per Bunker Delivery Receipt

Grade: \_\_\_\_\_ Estimated quantity: \_\_\_\_\_  $\rho$ t \_\_\_\_\_ Whether collect sample at the entrance of flange interface in vessel and sealed: Yes  No

Receiving tanks information							
Rcv Order	Tank No./ Compartment	Full Capacity A (m3)	Balance Capacity B (m3)	Est. Bunker Capacity C (m3)	Bunker Volume Rate D (%)	Total Est. Bunker Capacity $\sum C$ (m3)	Bunker Quantity Calculation W (t)
					$D = (B + C) \div A \times 100\%$	$\sum C = C1 + C2 + \dots$	$W = \rho t \times \sum C$
1							
2							
3							
4							
5							
6							

1. The vessel confirm the orders of receiving tanks firstly; 2.Recommendation: D column should be definitely less than 90% by the way of adjusting all receiving tanks in C column; 3. $\rho$ t indicates the density corresponding to the measured temperature when bunkering; 4.According to the agreed pump speed and each receiving tanks in C column, the vessel should adjust tanks in time, and in accordance with the actual situation to inform bunker barge/ oil depot to reduce the pump speed or stop the pump; 5.Bunker barge / oil depot shall be in accordance with the vessel to review the bunker volume rate of each receiving tank.

Vessel name: \_\_\_\_\_ Vessel signature: \_\_\_\_\_ Supplier signature: \_\_\_\_\_ Date: \_\_\_\_\_

This table should be kept three years by vessel/ oil depot

## Appendix G

(informative)

## Vessel measurement report

Note:

1. All cargo tanks shall be gauged via capacity of bunker barge or flow meter;
2. The vessel should arrange personnel to witness before and after pumping or record flow meter readings to sample and supervise the whole bunkering process. Otherwise it is deemed as agreement and sign in the below table.

供油驳船船名 Barge's name		加油日期 Date		供油油种 Grade		商定泵速 Agreed pumping rate		t/h	
受油船舶船名 Vessel's name		供油港口 Delivery port		供油申请数 Applied quantity		商定最大泵压 Agreed pumping pressure Max.		MPa	
计量方式 Mode of measure 流量计 Flowmeter <input type="checkbox"/> 检尺 Sounding <input type="checkbox"/>		标准密度 $\rho_{20}/\rho_{15}$ Density at 20°C/15°C		g/m <sup>3</sup> K		开泵时间 Pumping start		停泵时间 Pumping end	
油舱读数 Sounding scale		泵前计量 Pre-pumping				泵后计量 Post-pumping			
		前吃水 Draft Fwd: m,		后吃水 Draft Aft: m		前吃水 Draft Fwd: m,		后吃水 Draft Aft: m	
		吃水差 Trim: m		测量孔在中心位置 Center <input type="checkbox"/>		吃水差 Trim: m		测量孔在中心位置 Center <input type="checkbox"/>	
		液位高度(mm) Liquid level		水高(mm) Water level		油温(°C) Temp		液位高度(mm) Liquid level	
流量计读数 Flowmeter		泵前读数(m <sup>3</sup> ) Pre-pumping		泵后读数(m <sup>3</sup> ) Post-pumping					
流量计读数 Flowmeter		泵前读数(mt) Pre-pumping		泵后读数(mt) Post-pumping					
出油舱号 Tank No		水分检查 Result of water check		油温(°C) Temp		水分检查 Result of water check		油温(°C) Temp	
签字确认 Confirmation (Signature)		供方代表 Signed by barge's representative		受方代表 Signed by vessel's representative		供方代表 Signed by barge's representative		受方代表 Signed by vessel's representative	
		公证人员 surveyor				公证人员 surveyor			

## Appendix H

(informative)

## Non-cargo tank declaration/inspection form

**Part one: Pre-delivery Declaration**

To: Ship Officer Date: \_\_\_\_\_

Vessel name: \_\_\_\_\_

Location: \_\_\_\_\_

Bunker barge name: \_\_\_\_\_

Dear Sir

We hereby declare the pre-bunkering gauging and contents of the non-cargo tanks on our bunker tanker as stated below. You are invited to inspect the declared gauging and contents.

Tank No./ Compartment	Declared gauge before bunkering			Remarks
	Content	Liquid level	Volume	
Fore peak tank				
Aft peak tank				
Engine fuel tank				
Ballast room				
Double bottom tank				
Others				

Signature of Cargo officer

Bunker tanker's stamp

Signature of ship officer

Vessel's stamp

Date/Time

**Part two: Post-delivery tank inspection/gauge**  
 (To be completed only in the event of a quantity dispute)

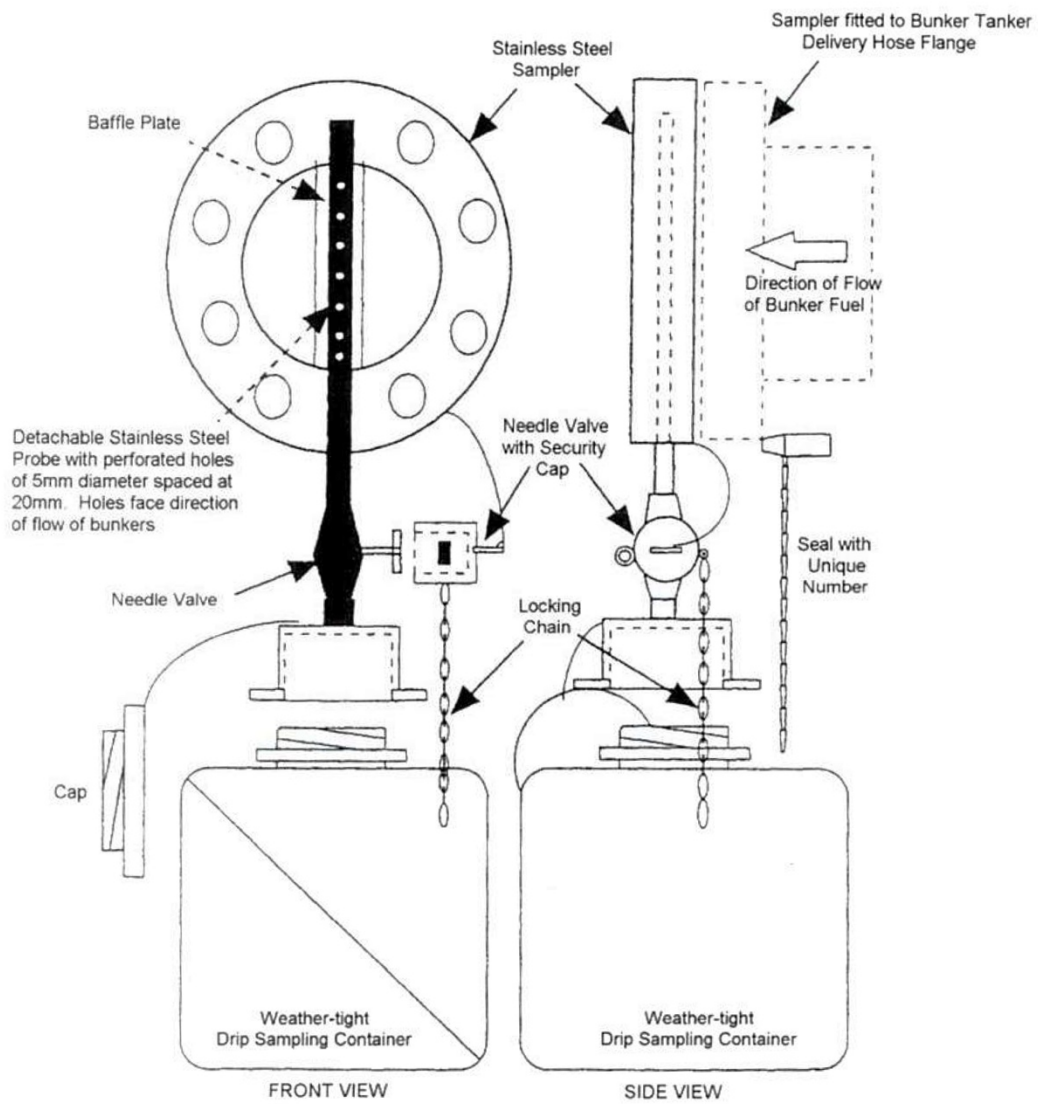
Tank No./ Compartment	Gauge After bunkering			Remarks
	Content	Liquid level	Volume	
Fore peak tank				
Aft peak tank				
Engine fuel tank				
Ballast room				
Double bottom tank				
Others				

Signature of ship officer <hr/> Vessel's stamp <hr/> Date/ Time <hr/>
--

Comments:

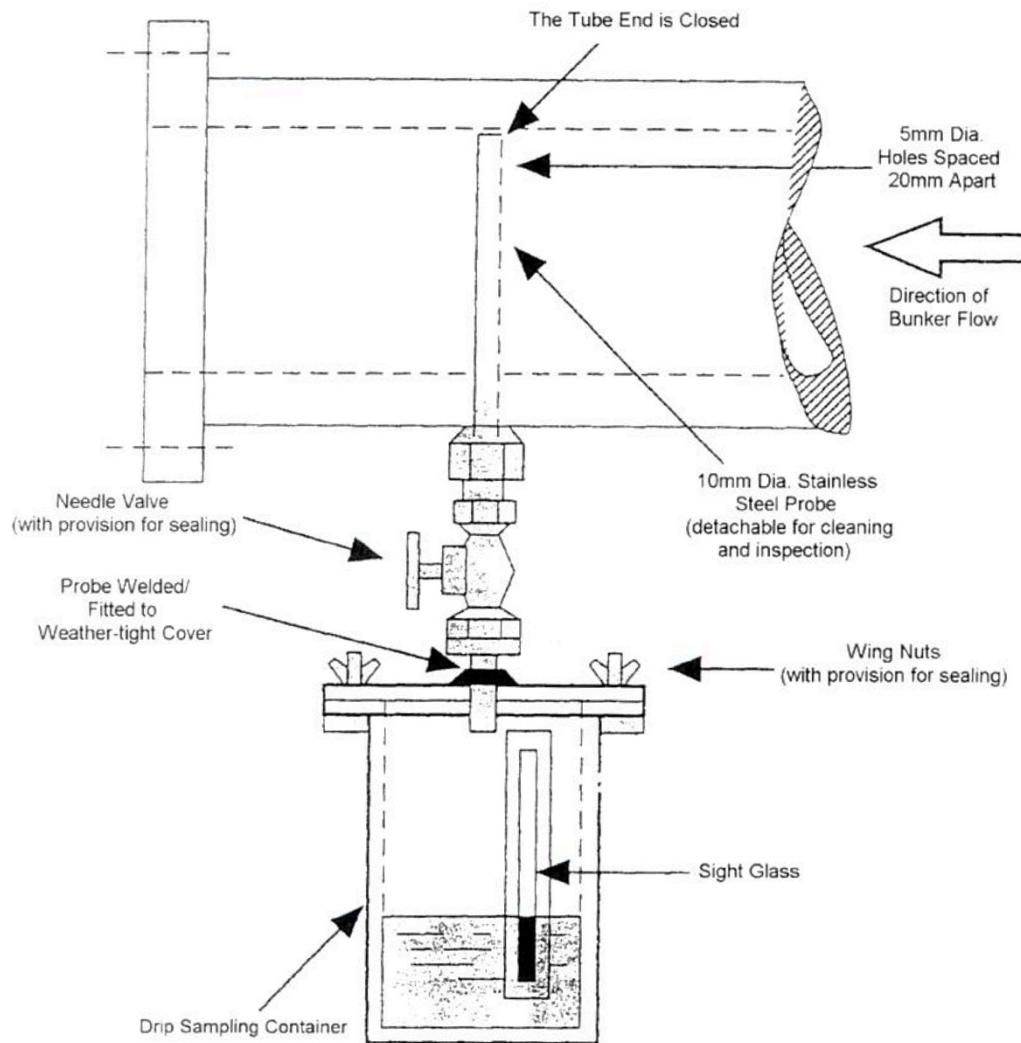
Appendix I  
 (normative)  
 Sampling equipment

Example 1



Example 2

Note: This sampling equipment should only be used for sample collection if 7.2.1.2 is applicable.



Appendix J  
(normative)  
Bunker sample label

受油船名[Vessel's Name]:			
供油船名 [Name of Bunker Tanker]:			
油品牌号 [Grade Ordered]:			
日期（日/月/年） [Date(DD/MM/YY):                    /                    /			
取样位置 [Sampling Point]: <input type="checkbox"/> 供油船总管[Bunker Tanker's Manifold] <input type="checkbox"/> 受油船总管[Vessel's Manifold]			
取样方法 [Sampling Method]: <input type="checkbox"/> 连续滴样法 [Continuous Drip] <input type="checkbox"/> 手工取样法[Composite of Spots]			
受油方代表[[Vessel's Representative]		供油方代表[[Supplier's Representative]	
密封号[Seal No]	密封号[Seal No]	密封号[Seal No]	密封号[Seal No]

Appendix K

(informative)

Bunker delivery receipt

受油船舶名	IMO编号
Delivered to MV .....	IMO No. ....
船公司 / 代理商	供油驳船名
Owner/Operator .....	Delivery Barge .....
供油地点	加油日期
Delivery Port & Berth .....	Delivery Date .....
开泵时间	停泵时间
Pumping Started .....	Pumping Stopped .....

油品质量指标	燃料油	轻柴油	其他(Others)
Product Characteristics:	IFO .....	MGO .....	.....
密度	.....	.....	.....
Density at 20°C/15°C	.....	.....	.....
运动粘度	.....	.....	.....
Viscosity (cSt)	at 50°C .....	at 40°C .....	.....
硫含量	.....	.....	.....
Sulfur Content, % (m/m)	.....	.....	.....
水份	.....	.....	.....
Water Content, % (v/v)	.....	.....	.....
闪点 (闭口)	.....	.....	.....
Flash Point (Closed), °C	.....	.....	.....
倾点	.....	.....	.....
Pour Point(upper), °C	.....	.....	.....
油温	.....	.....	.....
Oil Temperature, °C	.....	.....	.....
油样编号	.....	.....	.....
Sample Sealing No.	.....	.....	.....

供油数量	燃料油	轻柴油	其他(Others)
Supplied Quantity	IFO .....	MGO .....	.....
总供油容积数 (立方米)	.....	.....	.....
Gross Volume (m <sup>3</sup> )	.....	.....	.....
净供油容积数(立方米)	.....	.....	.....
Net Volume (m <sup>3</sup> )	.....	.....	.....
容积修正系数	.....	.....	.....
Volume Correction Factor(at 20°C):	.....	.....	.....
重量修正系数	.....	.....	.....
Weight Correction Factor:	.....	.....	.....
净供油重量 (公吨)	.....	.....	.....
Net Metric tonnes(mt):	.....	.....	.....

按上述数量供应正确无误。 收到的油品与油样情况良好。  
 We delivered the above quantity stated. We received the above quantity in good condition.  
 供油方签字盖章受油方签字盖章

Supplied by: ..... Received by: .....



(Sign and stamp) (sign and stamp by Chief Engineer/Master)

声明：上述燃料油品质符合 73/78 防污染公约附则 VI (防止船舶造成空气污染规则) 第 14.1 条款或第 14.4 以及第 18.3 条款。

A declaration signed and certified by the fuel supplier's representative that the fuel oil supplied is in conformity with regulation 14(1) and regulation 18(1) of MARPOL 73/78 Annex VI.

Appendix L  
(informative)

Application for bunker survey - applicable to full process

To: \_\_\_\_\_ (Surveyor approved by both parties)

\_\_\_\_\_ (Surveyor address)

Dear Sirs:

\_\_\_\_\_ (Date) Application for Bunker survey

Bunker barge \_\_\_\_\_ (name of bunker barge) would deliver \_\_\_\_\_ (metric  
tonnes) \_\_\_\_\_ (type of fuel) in \_\_\_\_\_ port for \_\_\_\_\_ (name of vessel to  
be supplied) on \_\_\_\_\_ (date) .

We hereby as the vessel and supplier jointly apply to \_\_\_\_\_ (name of surveyor party ) to  
witness as notary to gauge and calculate for bunker supply. Bunker survey report is valid for both parties and  
amount for final settlement.

Applicant:

(Name and stamp of bunker barge) \_\_\_\_\_

(Name and stamp of the vessel) \_\_\_\_\_

(Signature of cargo officer) \_\_\_\_\_

(Signature of ship officer) \_\_\_\_\_

Date of Application: \_\_\_\_\_

Appendix M  
(informative)

Application for bunker survey - applicable to pumping process

To: \_\_\_\_\_ (Surveyor approved by both parties)  
\_\_\_\_\_ (Surveyor address)

Dear Sirs:

\_\_\_\_\_ (Date) Application for Bunker survey

Bunker barge \_\_\_\_\_ (name of bunker barge) would deliver \_\_\_\_\_ ( metric  
tonnes ) \_\_\_\_\_ ( type of fuel ) in \_\_\_\_\_ port for \_\_\_\_\_ ( name of vessel to  
be supplied ) on \_\_\_\_\_ (date).

The representatives of the vessel and bunker supplier jointly attend to witness the gauge pre-pumping and post-pumping and temperature inspection in compliance with international bunker supply rules and record accordingly. However, both parties could not make agreement on the gauge and calculation in post-pumping.

We hereby as the vessel and supplier jointly apply to \_\_\_\_\_ (name of surveyor party ), to witness to gauge and calculate quantity of bunker based on data on board as notary. Bunker survey report is valid for both parties and amount for final settlement.

Applicant:

(Name and stamp of bunker barge) \_\_\_\_\_

(Name and stamp of the vessel) \_\_\_\_\_

(Signature of cargo officer) \_\_\_\_\_

(Signature of ship officer) \_\_\_\_\_

Date of Application: \_\_\_\_\_

Appendix N

(informative)

Note of Protest (Bunker Barge)

Date: \_\_\_\_\_

To: \_\_\_\_\_ (Name of vessel receiving bunkers)

Dear Sirs:

NOTE OF PROTEST FOR BUNKERING OPERATION ON \_\_\_\_\_ (Date)

I, Master/Cargo officer of bunker barge \_\_\_\_\_ (name of bunker barge) wish to verify that \_\_\_\_\_ tones of \_\_\_\_\_ (type of fuel) were delivered to your vessel by my bunker barge from \_\_\_\_\_ (date) \_\_\_\_\_ (time). We guarantee that the measuring instrument used in bunker supply operation are within the validity period of the verification and the relevant certificates have been verified by your representatives.

However, you have alleged that you have received \_\_\_\_\_ tonnes.

In the presence of our cargo officer your representative have witnessed the tank gauging and cargo temperatures in pre-pumping and post-pumping. Whilst calculation of bunker delivery is confirmed by your representative.

In view of the above, I hereby serve you this letter of protest on your said allegation.

Yours faithfully,

\_\_\_\_\_ (Signature of bunker barge/cargo officer)

\_\_\_\_\_ (Name and stamp of bunker barge)

Acknowledged receipt:

\_\_\_\_\_ (Signature of Chief Engineer / Ship officer of vessel receiving bunkers)

\_\_\_\_\_ (Name and stamp of vessel receiving bunkers)

Date \_\_\_\_\_