Real World Inspection process

M.C. Vink

UN environment programme | Mediterranean Action Plan Barcelona Convention | REMPEC | IMO INTERNATIONAL MARITIME ORGANIZATION

Content

- Example ship
- Documentation
- Fuel line diagram
- Pictures of sampling points
- Bunker fuel samples
- Flashpoint

- Refer to the Guidance document on The consistent implementation of the 0,10%Sulphur limit in the MED SOX ECA

Inspection on mv ELBE

Elbe Tug
Call Sign PDWN
657 Gt
Build 1959
L o.a. 58 m
Beam 11.2 m
Draught 5 m

2 x Smit MAN 1021kW

Crew 20
Passengers 80 (daytrips)

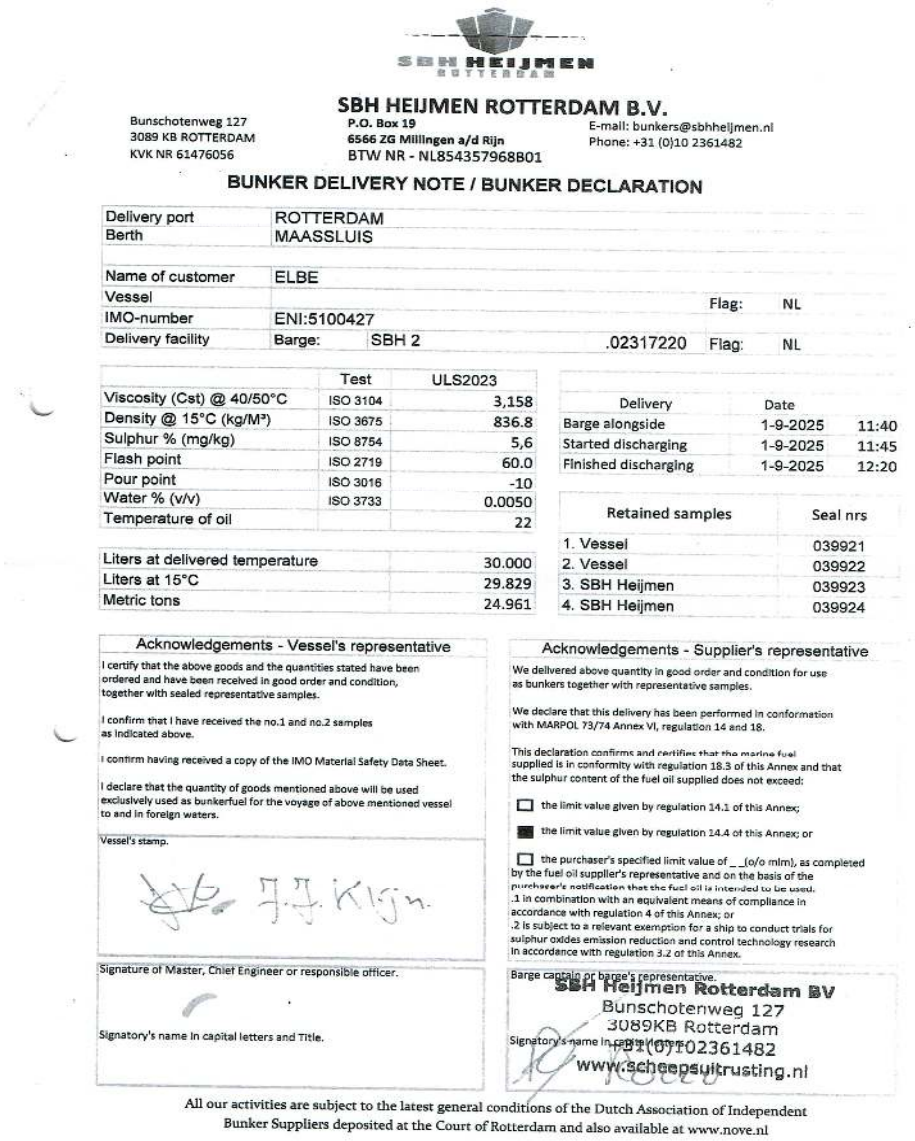
Before boarding

- Before boarding, relevant information about the ships in port may be obtained from THETIS and other sources, such as ship particulars, last and next port of call, arrival and departure times, port stay duration, etc.
- Based on the ships in port and their information, a ship may be selected for a sulphur inspection.
- Random Sulphur Inspections

Documentation Review

- **Bunker Delivery Notes (BDNs)** – Must include sulphur content of fuel.
- **Fuel change-over procedures** (for entering ECAs).
- **Logbooks** – Records of fuel switching, consumption, and operational details.
- **Engine Room Log** and Oil Record Book entries.
- **Certificates** – International Air Pollution Prevention (IAPP) Certificate.

Bunker
Delivery Note



SBH HEIJMEN ROTTERDAM B.V.

Bunschotenweg 127
3089 KB ROTTERDAM
KVK NR 61476056

P.O. Box 19
6566 ZG Millingen a/d Rijn
BTW NR - NL854357968B01

E-mail: bunkers@sbhheijmen.nl
Phone: +31 (0)10 2361482

BUNKER DELIVERY NOTE / BUNKER DECLARATION

Delivery port	ROTTERDAM				
Berth	MAASSLUIS				
Name of customer	ELBE				
Vessel				Flag:	NL
IMO-number	ENI:5100427				
Delivery facility	Barge:	SBH 2	.02317220	Flag:	NL

	Test	ULS2023
Viscosity (Cst) @ 40/50°C	ISO 3104	3,158
Density @ 15°C (kg/M³)	ISO 3675	836.8
Sulphur % (mg/kg)	ISO 8754	5,6
Flash point	ISO 2719	60.0
Pour point	ISO 3016	-10
Water % (v/v)	ISO 3733	0.0050
Temperature of oil		22

Liters at delivered temperature	30.000
Liters at 15°C	29.829
Metric tons	24.961

Delivery	Date	
Barge alongside	1-9-2025	11:40
Started discharging	1-9-2025	11:45
Finished discharging	1-9-2025	12:20

Retained samples	Seal nrs
1. Vessel	039921
2. Vessel	039922
3. SBH Heijmen	039923
4. SBH Heijmen	039924

Acknowledgements - Vessel's representative

I certify that the above goods and the quantities stated have been ordered and have been received in good order and condition, together with sealed representative samples.

I confirm that I have received the no.1 and no.2 samples as indicated above.

I confirm having received a copy of the IMO Material Safety Data Sheet.

I declare that the quantity of goods mentioned above will be used exclusively used as bunkerfuel for the voyage of above mentioned vessel to and in foreign waters.

Vessel's stamp.

Signature of Master, Chief Engineer or responsible officer.

Signatory's name in capital letters and Title.

Acknowledgements - Supplier's representative

We delivered above quantity in good order and condition for use as bunkers together with representative samples.

We declare that this delivery has been performed in conformation with MARPOL 73/74 Annex VI, regulation 14 and 18.

This declaration confirms and certifies that the marine fuel supplied is in conformity with regulation 18.3 of this Annex and that the sulphur content of the fuel oil supplied does not exceed:

☐ the limit value given by regulation 14.1 of this Annex;

■ the limit value given by regulation 14.4 of this Annex; or

☐ the purchaser's specified limit value of _ _(o/o m/m), as completed by the fuel oil supplier's representative and on the basis of the purchaser's notification that the fuel oil is intended to be used.
.1 in combination with an equivalent means of compliance in accordance with regulation 4 of this Annex; or
.2 is subject to a relevant exemption for a ship to conduct trials for sulphur oxides emission reduction and control technology research in accordance with regulation 3.2 of this Annex.

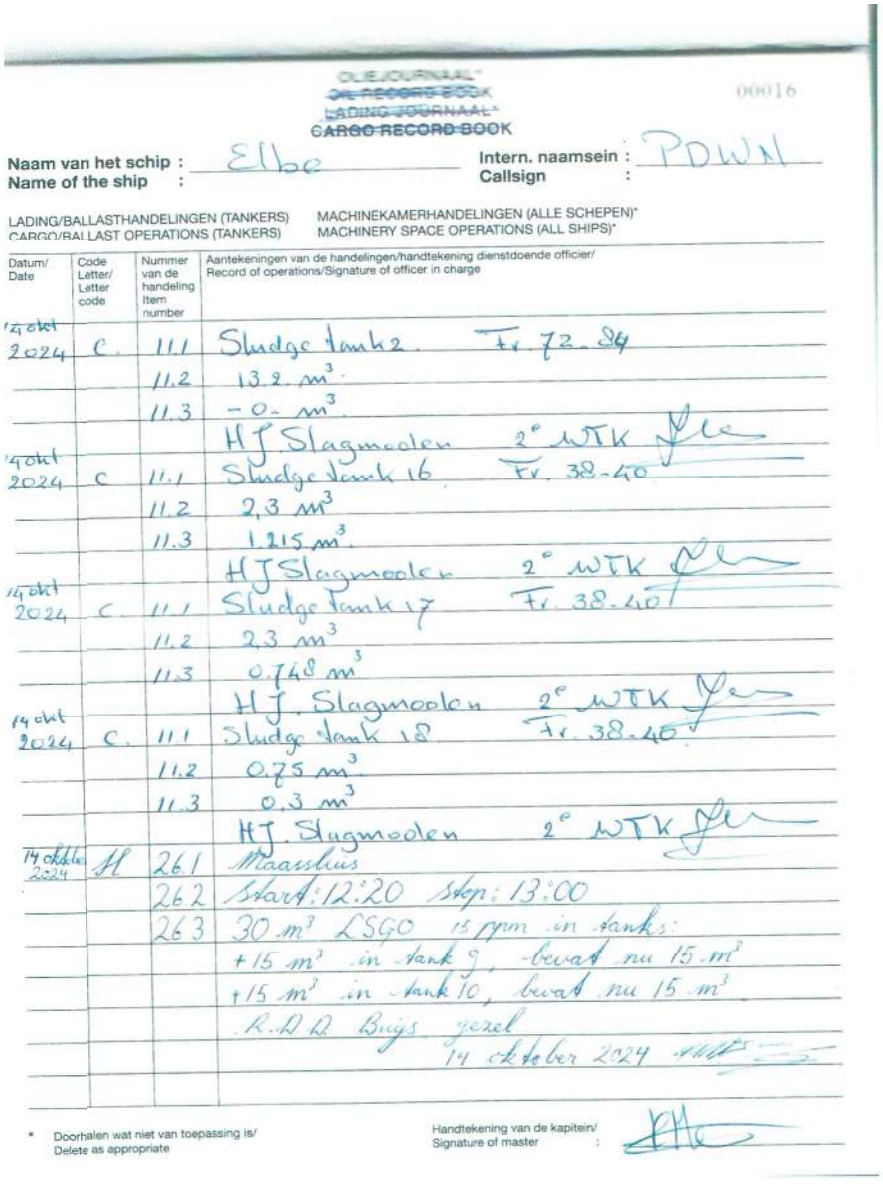
Barge captain or barge's representative.

SBH Heijmen Rotterdam BV
Bunschotenweg 127
3089KB Rotterdam
+31(0)102361482
www.scheepsuitrusting.nl

Signatory's name in capital letters

All our activities are subject to the latest general conditions of the Dutch Association of Independent Bunker Suppliers deposited at the Court of Rotterdam and also available at www.nove.nl

Oil Record Book



OLIEJOURNAAL*
~~OIL RECORD BOOK~~
LADING JOURNAAL*
~~CARGO RECORD BOOK~~

00016

Naam van het schip : Elbe
Name of the ship :

Intern. naamsein : PDWN
Callsign :

LADING/BALLASTHANDELINGEN (TANKERS)
CARGO/BALLAST OPERATIONS (TANKERS)

MACHINEKAMERHANDELINGEN (ALLE SCHEPEN)*
MACHINERY SPACE OPERATIONS (ALL SHIPS)*

Datum/ Date	Code Letter/ Letter code	Nummer van de handeling Item number	Aantekeningen van de handelingen/handtekening dienstdoende officier/ Record of operations/Signature of officer in charge
~~14~~ okt 2024	C.	11.1	Sludge tank 2. Fr. 72-84
		11.2	13.2. m^3.
		11.3	-0- m^3.
			HJ Slagmoolen 2° WTK
~~14~~ okt 2024	C	11.1	Sludge tank 16 Fr. 38-40
		11.2	2,3 m^3
		11.3	1.215 m^3.
			HJ Slagmoolen 2° WTK
~~14~~ okt 2024	C.	11.1	Sludge tank 17 Fr. 38.40
		11.2	2.3 m^3
		11.3	0.748 m^3
			HJ. Slagmoolen 2° WTK
14 okt 2024	C.	11.1	Sludge tank 18 Fr. 38.40
		11.2	0.75 m^3
		11.3	0.3 m^3
			HJ. Slagmoolen 2° WTK
14 oktober 2024	H	261	Maasluis
		262	Start: 12:20 Stop: 13:00
		263	30 m^3 LSGO 15 ppm in tanks:
			+15 m^3 in tank 9, bevat nu 15 m^3
			+15 m^3 in tank 10, bevat nu 15 m^3
			R.D.D. Buijs gezel
			14 oktober 2024

* Doorhalen wat niet van toepassing is/ Delete as appropriate

Handtekening van de kapitein/ Signature of master :

IAPP certificate

	2.3	Sulphur oxides (SOx) and particulate matter (regulation 14)
	2.3.1	When the ship operates outside of an Emission Control Area specified in regulation 14.3, the ship uses:
X	2.3.1.1	fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value of 0.50% m/m, and/or
--	2.3.1.2	an equivalent arrangement approved in accordance with regulation 4.1 as listed in 2.6 that is at least as effective in terms of SOx emission reductions as compared to using a fuel oil with a sulphur content limit value of 0.50% m/m.
	2.3.2	When the ship operates inside an Emission Control Area specified in regulation 14.3, the ship uses:
X	2.3.2.1	fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value of 0.10% m/m, and/or
--	2.3.2.2	an equivalent arrangement approved in accordance with regulation 4.1 as listed in 2.6 that is at least as effective in terms of SOx emission reductions as compared to using a fuel oil with a sulphur content limit value of 0.10% m/m
X	2.3.3	For a ship without an equivalent arrangement approved in accordance with regulation 4.1 as listed in paragraph 2.6, the sulphur content of fuel oil carried for use on board the ship shall not exceed 0.50% m/m as documented by bunker delivery notes
	2.4	Volatile organic compounds (VOCs) (regulation 15)
--	2.4.1	The tanker has a vapour collection system installed and approved in accordance with MSC/Circ.585.

Approval certificate number	Approved operations manual	Approving authority	Date

--	2.4.2.1	For a tanker carrying crude oil, there is an approved VOC Management Plan
	2.4.2.2	VOC Management Plan approval reference:

Approval certificate number	Approved operations manual	Approving authority	Date

	2.5	Shipboard incineration (regulation 16)
		The ship has an incinerator:
	2.5.1	installed on or after 1 January 2000 that complies with:
--	2.5.1.1	resolution MEPC.76(40), as amended*

Manufacturer and model	Serial number	Type test certificate number

--	2.5.1.2	resolution MEPC.244(66)

Manufacturer and model	Serial number	Type test certificate number

Fuel Analysis

AmSpec

Certificate of Analysis

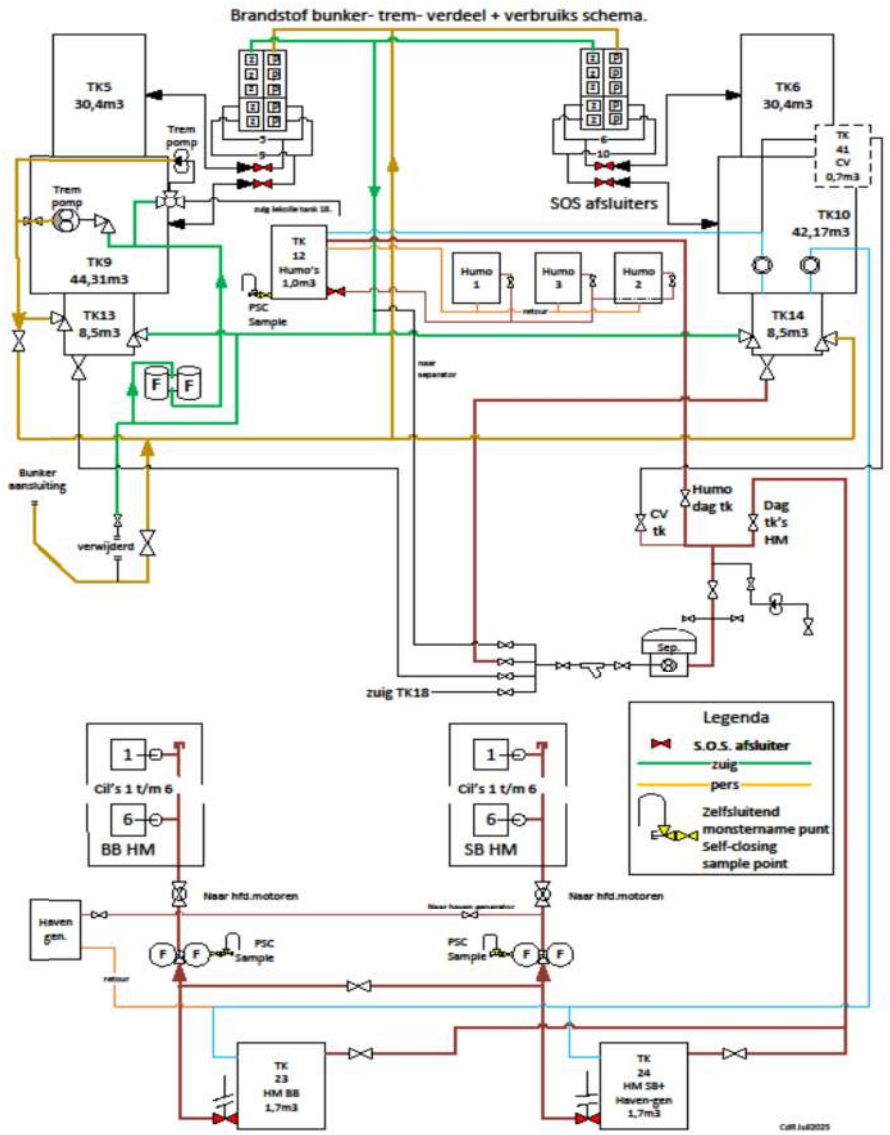
Vessel / Object:	1402	**Job No:**	621-24-15998
Location:	Rotterdam / Vopak Terminal Europoort (Netherlands)	**Date Sampled:**	06 Oct 2024
Job Type:	Sample & Analysis	**Date Tested:**	07 Oct 2024
Product Grade:	ULSD	**Version:**	1 / 07 Oct 2024 12:06
Client Reference:	Gunvor SA		

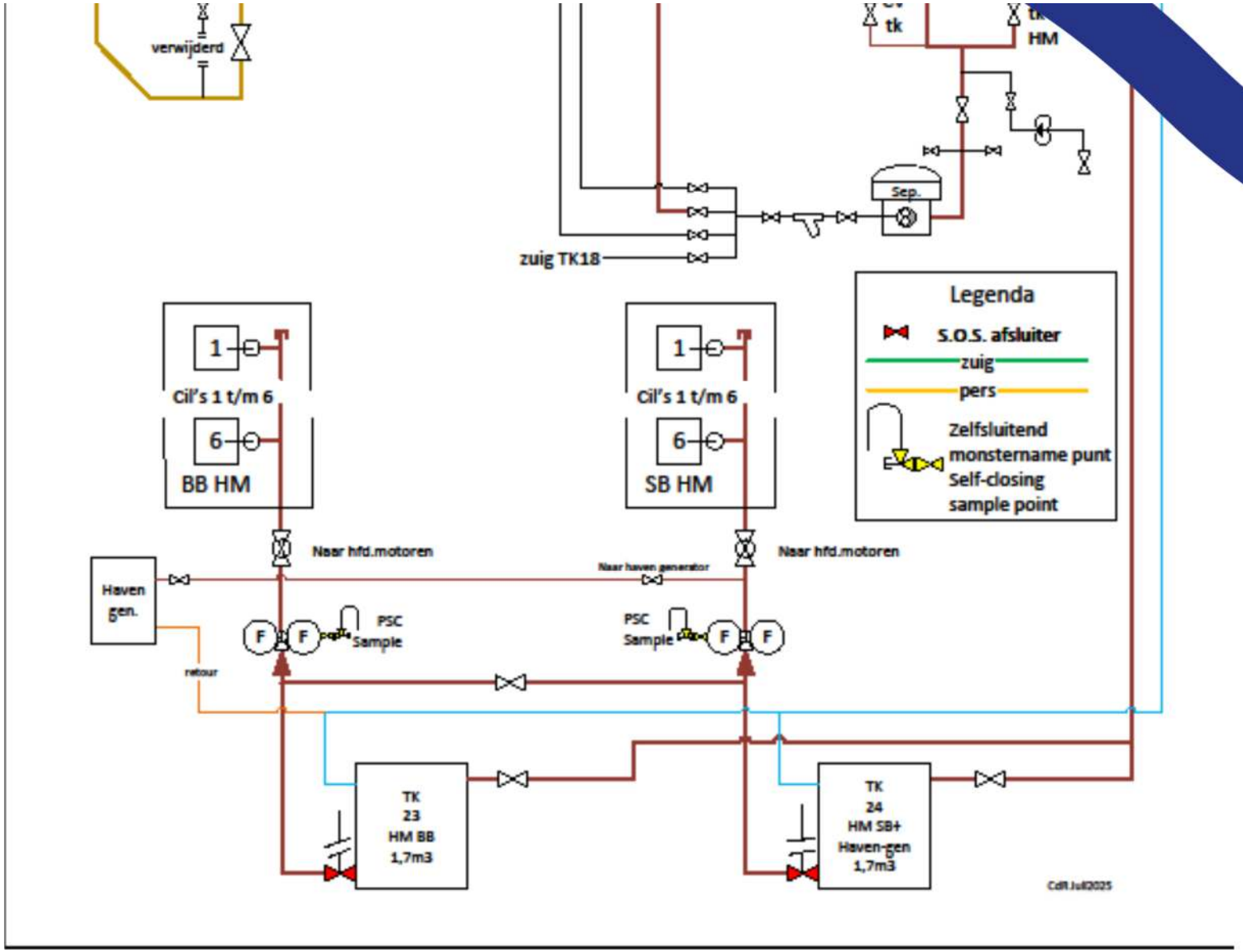
Sample	**Sample ID, Type & Description**
621-24-15998-001	Tank 1402 UML Composite Sample

Method	Test	Min	Max	Result	Units
ISO 12185!!	Gravity by Digital Density Meter				
	Density @ 15°C (Upper)			836.6	kg/m³
	Density @ 15°C (Middle)			836.6	kg/m³
	Density @ 15°C (Lower)			836.6	kg/m³
	Density @15°C	820.0	845.0	836.6	kg/m³
EN 20846	Sulfur		10.0	7.7	mg/kg
ISO 2719A	Flash Point	56.0		66.5	°C
ISO 3015	Cloud Point		-3	-5	°C
EN 116	Cold Filter Plugging Point				
	CFPP		-13	-20	°C
	Anomalous Aspiration Behaviour			No	
ISO 3104!!	Kinematic Viscosity				
	Kinematic Viscosity @104°F/40°C	2.000	4.500	2.938	cSt
	Procedure Used			B	
EN ISO 3405	Distillation				
	Recovered at 250 °C		65.0	33.7	% v/v
	Recovered at 350 °C	85.0		93.2	% v/v
	95 % (v/v) Recovered at		360.0	356.2	°C
EN ISO 4264	Cetane Index Method A	46.0		52.9	
EN 16715	Derived Cetane Number	51.0		55.5	
ASTM D2624	Electrical Conductivity @ 20.0°C	50		156	pS/m
EN ISO 12156-1	Lubricity at 60°C		460	380	µm
EN ISO 10370	Micro Method Carbon Residue on 10% Distillation Residue		0.30	< 0.10	%m/m
Visual	Visual Appearance	Cl & Br		Cl & Br	
EN 12937	Water Content		200	50.0	mg/kg
ASTM D1500	ASTM Color			L0.5	
EN 12916 Proc. A	Polycyclic Aromatic Hydrocarbons		8.0	3.1	%m/m
EN 16576	Manganese Content		2.0	< 0.50	mg/L
EN ISO 6245	Ash Content		0.010	< 0.001	mass%
EN 12662-1	Total Contamination		24	< 12.0	mg/kg
EN ISO 2160	Copper Corrosion Rating		1	1a	
EN 14078	FAME Content	7.0		< 0.05	% v/v
EN ISO 12205	Oxidation Stability Total Insolubles		25	4	g/m³

Notes: !! Test Method performed and reported within the scope of EN/ISO 17025:2017 accreditation (RvA L695).

Fuel diagram

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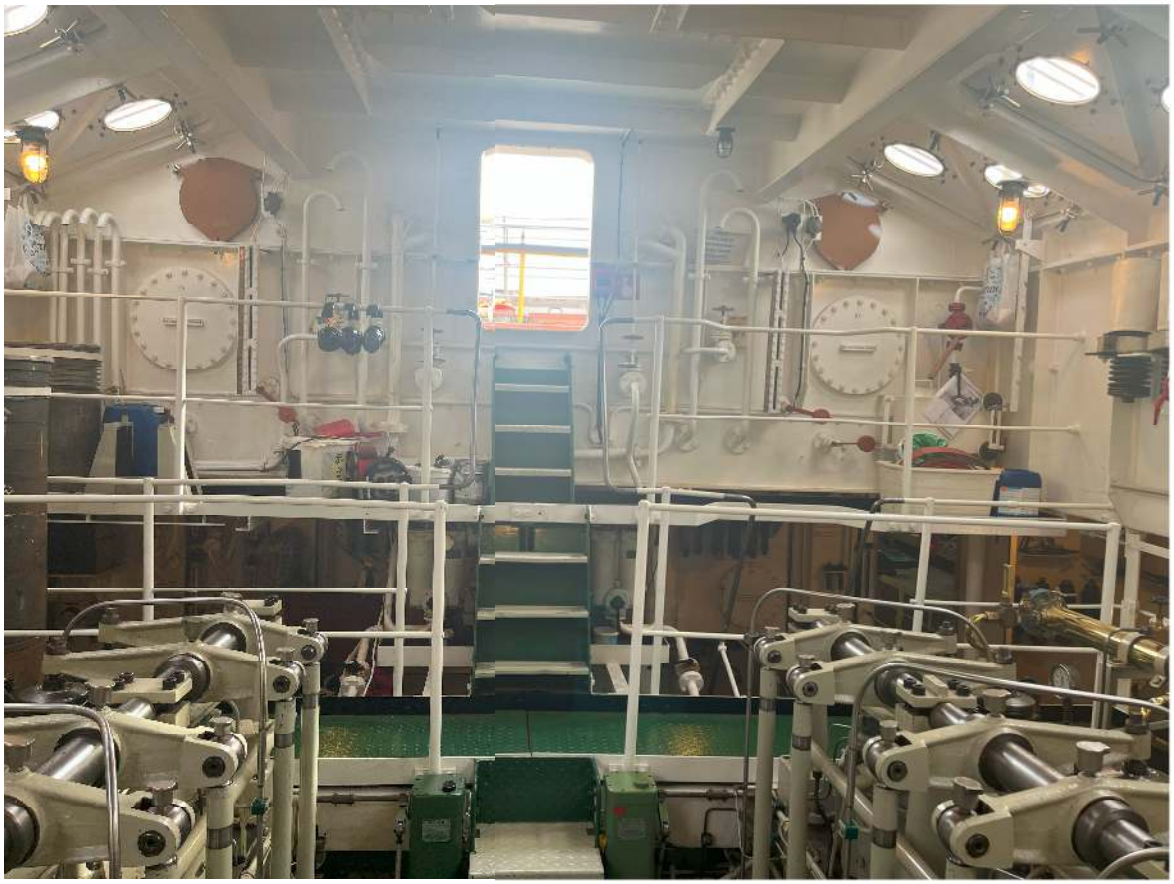
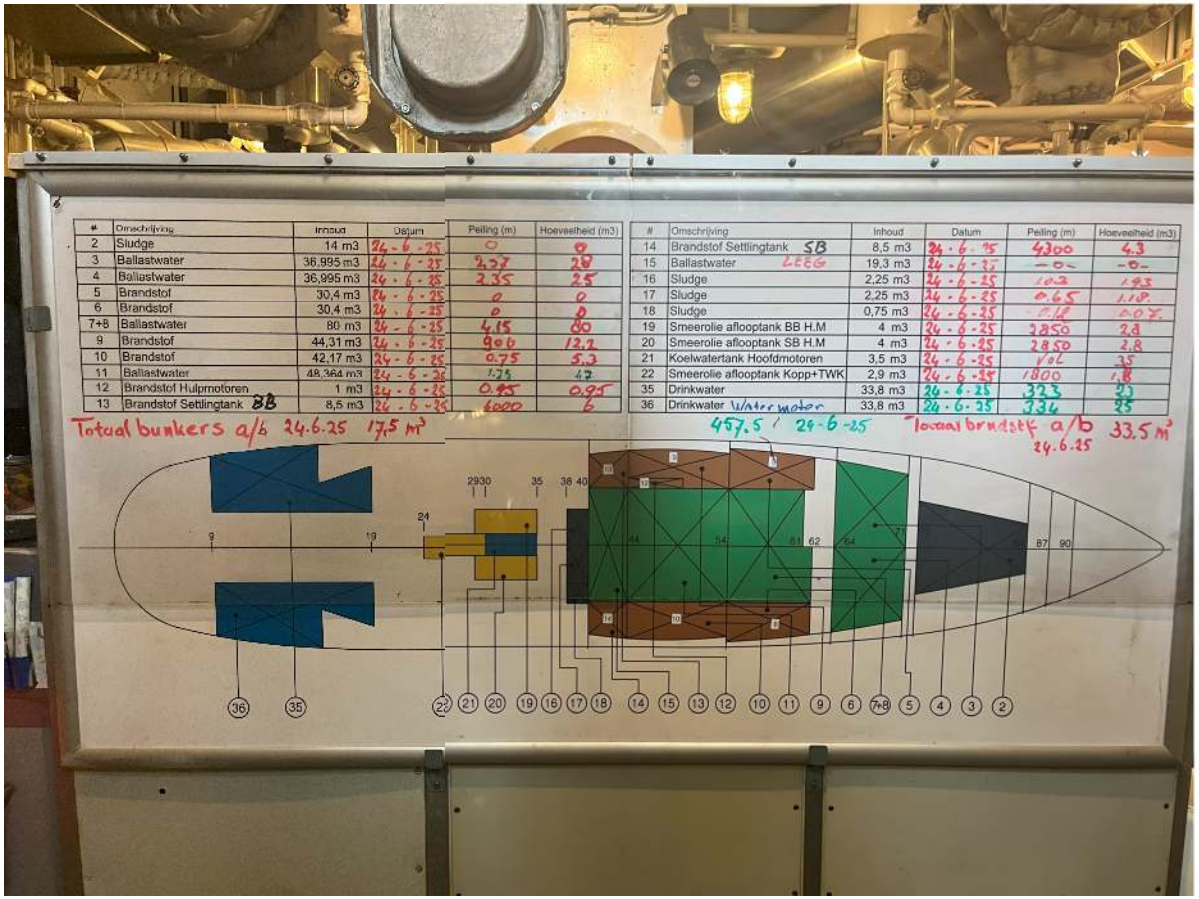
CdR Jul2025

Day tanks main engines



Self closing sample point ME

Sounding board in ER



#	Omschrijving	Inhoud	Datum	Peiling (m)	Hoeveelheid (m3)
2	Sludge	14 m3	24-6-25	0	0
3	Ballastwater	36,995 m3	24-6-25	2,37	28
4	Ballastwater	36,995 m3	24-6-25	2.35	25
5	Brandstof	30,4 m3	24-6-25	0	0
6	Brandstof	30,4 m3	24-6-25	0	0
7+8	Ballastwater	80 m3	24-6-25	4.15	80
9	Brandstof	44,31 m3	24-6-25	906	12,2
10	Brandstof	42,17 m3	24-6-25	0.75	5,3
11	Ballastwater	48,364 m3	24-6-25	1.75	42
12	Brandstof Hulpmotoren	1 m3	24-6-25	0.95	0.95
13	Brandstof Settlingtank SB	8,5 m3	24-6-25	6000	6

#	Omschrijving	Inhoud	Datum	Peiling (m)	Hoeveelheid (m3)
14	Brandstof Settlingtank SB	8,5 m3	24-6-25	4300	4.3
15	Ballastwater LEEG	19,3 m3	24-6-25	-0-	-0-
16	Sludge	2,25 m3	24-6-25	1.03	1.93
17	Sludge	2,25 m3	24-6-25	0.65	1.18
18	Sludge	0,75 m3	24-6-25	0.16	0.07
19	Smeerolie aflooptank BB H.M	4 m3	24-6-25	2850	2,8
20	Smeerolie aflooptank SB H.M	4 m3	24-6-25	2850	2,8
21	Koelwatertank Hoofdmotoren	3,5 m3	24-6-25	VOL	35
22	Smeerolie aflooptank Kopp+TWK	2,9 m3	24-6-25	1800	1,8
35	Drinkwater	33,8 m3	24-6-25	323	23
36	Drinkwater Waterwater	33,8 m3	24-6-25	334	25

Sample collection and analysis

- If the Sulphur Inspector's observations, general impressions and on-board checks of documentation confirm the ship is meeting the requirements of the Directive then the sulphur inspection should be limited to these checks.
- However, proof may be needed as to what fuel was, or is, being used at one particular time.

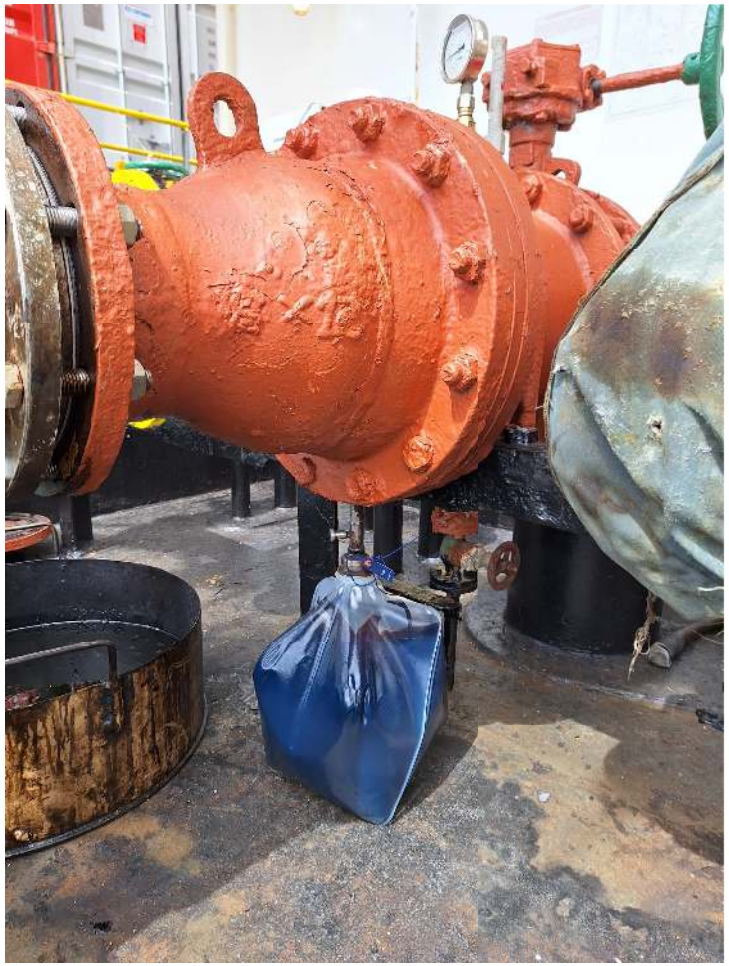
Fuel Samples

- **PSC**
  - In use and on-board sample
  - For compliance enforcement purposes
  - Taken in the presence of PSCO

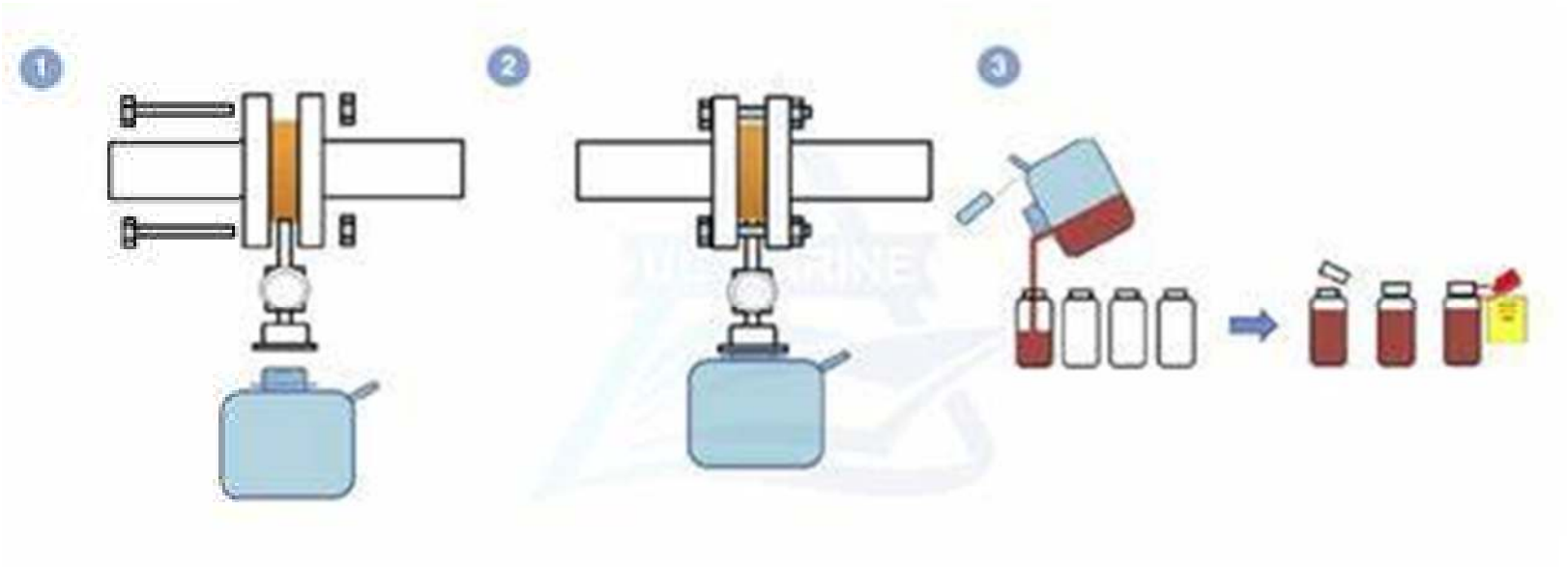
- **MARPOL Reg. 18 Annex VI**
  - For actions against suppliers.

- **Commercial**
  - Indication of non compliance

Marpol bunker sample

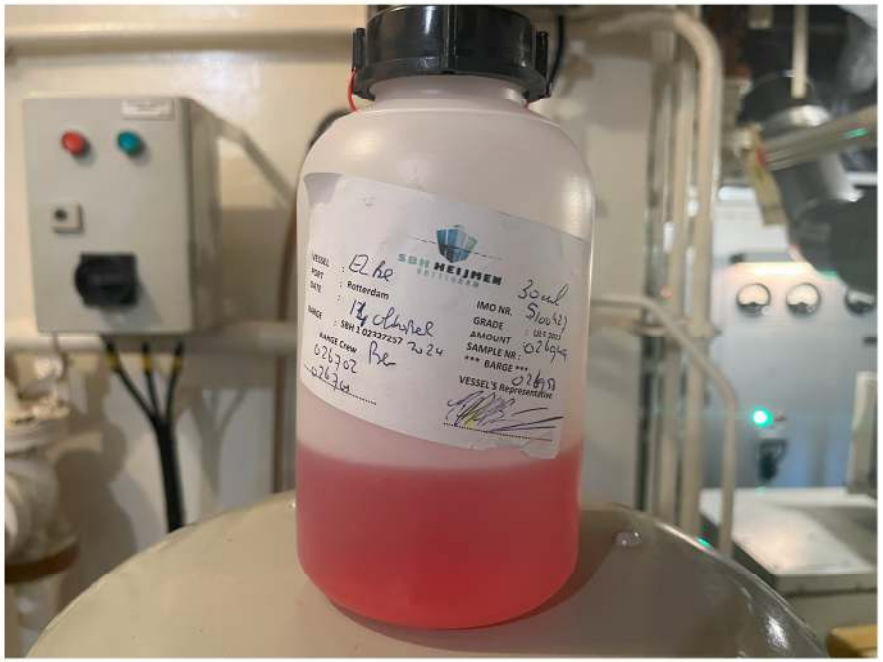


Marpol bunker sample



Location of fuel samples

Samples of bunkered fuel



Bunker Fuel Reg 18

- Fuel oil suppliers must provide a **Bunker Delivery Note (BDN)** and a **Supplier Declaration** certifying compliance.
- Ships must retain BDNs for **at least 3 years**, and representative fuel samples for **12 months** after delivery
- Sampling must be done via **continuous drip at the receiving ship's bunker manifold** and stored onboard for possible port inspections

- **Fuel Sampling Updates (2024)**
- The required size for delivered sample increased from **400 ml to 600 ml**. It also must now allow testing of flashpoint requirements under SOLAS safety codes. **MSC-MEPC.2/Circ.18**
- **MEPC.385(81)**, entering into force on **1 August 2025**: includes a minor amendment to exclude ships which use high-flashpoint gas fuels (e.g. ammonia) from the requirement to fit or designate in-use fuel oil sampling points

Flashpoint

- According to **SOLAS Chapter II-2**, which deals with **Fire Protection, Fire Detection and Fire Extinction**, the key requirements regarding fuel flashpoint are:

- Minimum flashpoint of fuel oil for use in machinery spaces is:
- 60°C (140°F)
- as per SOLAS Regulation II-2/4.2.1.

- Applies to all ships subject to SOLAS.
- Fuel bunkers must be documented with bunker delivery notes (BDNs) that include flashpoint values.

Sampling and on-board testing

- As PSC take the samples as necessary and send to the laboratory

or

- Portable handheld sulphur analysers may be used for spot checks.
- They measure sulphur content in fuel on site.

but

- Only certified Lab analyses are basis for enforcement

Picture from BRUKER

Scrubber systems

- If the ship uses an **exhaust gas cleaning system (EGCS)**:
- Inspect function and maintenance records.
- Review emission monitoring data and washwater discharge logs.

- More info in next presentation

Crew Preparedness and competence

- Engineers know the **fuel change-over procedure** and can explain it.
- Crew can explain:
  - Where BDNs and samples are stored.
  - How fuel switching is done.
  - Where sampling points are.
- There should be a designated officer available to **escort inspectors** and assist with fuel sampling.

Common NON compliance issues

- Using high-sulphur fuel inside Sulphur Emission Control Areas SECA
- Incomplete or falsified documentation.
- Contamination because of fuel changeover not done properly before entering ECAs.
- Malfunctioning or improperly used scrubbers.
- Record keeping and documentation errors
- Lack of training or awareness
- Tampering or deliberate evasion (Illegal bypass systems)

Questions about samples