



Inspectie Verkeer en Waterstaat  
Ministerie van Verkeer en Waterstaat



## Sulphur / Quality and Enforcement

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### Legislation and Guidelines

- IMO - MARPOL Revised Annex VI in force from 1 July 2010
  - Air pollution
- EU Directive 2005/33/EC in force from 1 January 2010
  - Sulphur
- IMO – MEPC.96(47) Guidelines for the sampling of fuel oil



## Inspection of Ships PSC / FSC

- MARPOL Convention Art 5
- Give clear grounds for inspections
- MARPOL Annex VI Reg 10
- Familiarity of crew
- EU directive paragraph (17) and article 4a



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April 2014



## Maximum % of S

%S	2014	2015	2016	2017	2018	2019	2020	2021
3.50					Re - view			
1.00								
0.50								
0.10								
	Outside ECA subject to review in 2018 (2025)							
	Inside ECA							

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April 2014



## EU directive 'Article 4b'



- **Maximum sulphur content of marine fuels used by ships at berth in Union ports**
- 1. Member States shall take all necessary measures to ensure that ships **at berth** in Union ports do not use marine fuels with a sulphur content exceeding 0,10 % by mass, allowing **sufficient time** for the crew to complete any necessary fuel-changeover operation as soon as possible after arrival at berth and as late as possible before departure.
- Paragraph 1 shall not apply:
  - (a) whenever, according to published timetables, ships are due to be at berth for less than two hours;
  - (b) to ships which switch off all engines and use shore- side electricity while at berth in ports.
- Sufficient time = generally agreed as 2 hours



## More specific

- This requirement applies to all community ports
- Ships at berth means ships which are **securely moored or anchored in a community port** while they are loading, unloading or hotelling, including the time spent not engaged in cargo operations
- But
  - Directive is not included in PSC Parish MOU
  - Not possible to use the PSC Parish MOU tools

Question: What in case ship transfers to other place in same port?



## NL Enforcement of EU directive 0.10%S

- Added to PSC inspections
- Paper check on BDN notes 0.10% S fuel
- Fuel system check on correct position of fuel valves
- Fuel lines by running engine are cold
- Fuel color to be clear



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April 2014



## Question

- How to act when % S > 0.10 %
- Deficientie / Penalty / Detention
- → In case analyse show 0.11%
- → In case analyse show 0.15%



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April 2014



## PSC Inspections on Annex VI

- Initial as a minimum
  - IAPP, EIAPP's en NOx Technical Files
  - Bunker delivery notes and fuel samples
  - Fuel oil change over procedure etc.
- Based on clear grounds a more detailed inspection
  - On quality and sulphur
  - Log books on changing over to low sulphur fuel
- Reasons for detention may be
  - No proper certificates on board
  - Sulphur percentage of the fuel is more than 3,50 or 1,00 %mm



## Taking of samples in NL

- By independent surveyor who takes care for transport and analyse
- As close as possible by the engine
- Lab rapports within 2 hours
- Possible actions
  - Detention
  - Non conformity (ISM)
  - Penalty





## Samples

### 1. PSC / FSC

- For compliance enforcement purposes.

### 2. MARPOL Reg. 18 Annex VI

- For actions against suppliers.

### 3. Commercial

- Indication of non compliance



## NL Results of enforcement sampling

**In 2011** 98 samples are taken

From which 50 where not in compliance (51 %)

In 27 cases action is taken by PSC (28 %)

**In 2012** 86 samples are taken

From which 40 where not in compliance (46 %)

In 25 cases action is taken by PSC (29 %)

**In 2013** 90 samples are taken

From which 41 where not in compliance (45%)

In 28 cases action is taken by PSC (31%) (11 detentions)

**Sampling alone → not effective**

**What do we need for more effective enforcement?**



## Commercial sampling

- Many ships take samples and analyses by private companies
- Sometimes these analyses indicates too much sulphur
- Should be used to inform flag and port states



## Marpol sample (Annex VI Reg 18)

- Taken according to Guideline on sampling
- Used for verification if the fuel delivered is compliant with Annex VI

### **Note:**

- All ships should notify its Administration and the relevant port authority when it cannot purchase compliant fuel
- **Notifications are collected** and used for enforcement on fuel suppliers
- Enforcement by warning and penalties



## Enforcement against suppliers

- On base of the notifications → by certain number the supplier is visited by our inspectorate
- MARPOL sample of the ship concerned may be used for contra analyses.
- In case contra analyses also shows to high sulphur action is taken against supplier
- Sending of Letter of Protest (notification) works







## Perspective of PSCO

Enforcement of 0.10 % S in ECA from 1-1-15

Fuel with 0.10 % S is +/- 50% more expensive

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IFO 380 → ca 600 \$ / m ton

MGO → ca 900 \$ / m ton

Daily use of ship 50 tons → price difference is 15.000 \$ / day

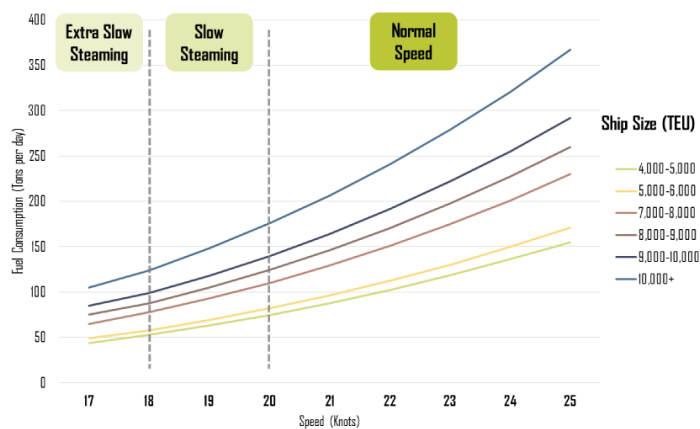
Sailing time 18 knots ca 3 days (Antwerp – Helsinki) is \$45.000 more expensive

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April 2014



## Fuel consumption of ships



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April 2014



## How to enforce

Sampling, Optical and Sniffing systems

Sampling alone not effective

Sniffing in port entrances and air surveillance

Sniffing two systems

1. Optical
2. Exhaust gas sample

Results used as base for risk analyses and any resulting sampling

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April 2014



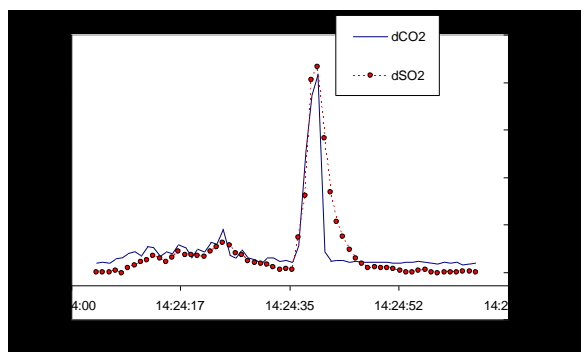
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April 2014



### Example of sniffer measurement:

Mixing ratios of  $\text{SO}_2$  and  $\text{CO}_2$  in the flue gas of an oil tanker.  
The  $\text{SO}_2/\text{CO}_2$  ratio in the plume indicates a sulfur fuel concentration of 1.9%.



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April 2014