Scrubbers. What do they mean to ports?

Tomas Nilson, Consultant, Environment, COWI AB
BPO Environmental Seminar on sewage from passenger ships waste port from scrubbers training on SDM
COWI around the world

- Over 124 countries
- Multinational presence
- Over 80 years of history
- 6,200 employees
- 17,000 ongoing projects
- EUR 631 million in turnover
5 March 2014, Gdańsk, Poland

Agenda

› Legislation
› Scrubber technology
› Scrubbers in action
› Scrubber waste
› Discussion

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Legislation

- Emission limits of 0.1% sulphur in SECA areas by 2015
- IMO, Marpol Annex VI

Source: http://www.jernkontoret.se/energi_och_miljo/bilder/seca_kartan.jpg
Background – stricter requirements on SOx

➤ Stricter requirements regarding SOx-emissions (Directive 2012/33/EU)
➤ One option: MGO (Marine Gas Oil)

➤ Another option: Natural gas (LNG) and ethanol

➤ A third option is to install a scrubber. Systems use heavy oil.

➤ Scrubber=emission control facility for *purification of exhaust gases*
Scrubber technology

- For new ships and retrofits
- Open and closed system
- Closed systems so far used in ports

Open scrubber system. Source: EGCSA
EGCSA – Exhaust gas cleaning systems association

- European members contacted
  - Alfa laval
  - Clean Marine
  - Green Tech Marine
  - MAN Diesel
  - Saacke GmbH
  - Wärtsilä
Scrubber waste

- Amounts

Example from Alfa Laval.

<table>
<thead>
<tr>
<th></th>
<th>ENGINES</th>
<th>TOTAL EFFECT MW</th>
<th>HFO TONNES/YEAR</th>
<th>SLUDGE TONNES/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container ship</td>
<td>1</td>
<td>8</td>
<td>5 800</td>
<td>1</td>
</tr>
<tr>
<td>Tanker</td>
<td>1</td>
<td>13.74</td>
<td>5 925</td>
<td>6</td>
</tr>
<tr>
<td>RO-RO ship</td>
<td>4</td>
<td>24.8</td>
<td>17 534</td>
<td>14</td>
</tr>
</tbody>
</table>
Contents and handling

› Contents – classification
  › 10 01 18* wastes from gas cleaning containing dangerous substances
  10 01 19 wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
  › 16 10 aqueous liquid wastes destined for off-site treatment
  16 10 01* aqueous liquid wastes containing dangerous substances
  16 10 02 aqueous liquid wastes other than those mentioned in 16 10 01

› Handling of waste in ports
Discussion

› Avoid sludge (engine running in port – Gothenburg as example)
› Scrubber systems are still under development, can/should ports be a factor in the further development? (legislation?)