Outline on standards and quality control of fuel and transportation means in Vietnam

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1. Why We are interested in fuel and transportation means?
   - E1 – Economy
   - E2 – Energy
   - E3 – Environment

2. Environment and transportation means in Cities
   - Air quality: very poor
   - Transportation means density:
     - Crowded
     - Fast annual increase
   - Fast increase of fossil energy (gasoline, diesel oil) consumption
4. Air pollution –Who are in charge?

- People (direct)
- Indirect –transportation means ...
- Fossil energy (gasoline, diesel oil ...)

5. Government Regulations on fuel and transportation means

- Decision 249/2005/QĐ-TTg dated 10/10/2005 on the road map of application of emissions standards for vehicles
- Effective date 1/7/2007
- Emissions
  + Fuel quality (sulfure ...)
  + Vehicle quality
  The standard is equivalent to EURO II

6. Some data of EURO standards

<table>
<thead>
<tr>
<th>Effective date</th>
<th>EURO standard</th>
<th>Sulfure content gasoline/diesel (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>EURO II</td>
<td>500/500</td>
</tr>
<tr>
<td>2008</td>
<td>EURO III</td>
<td>150/350</td>
</tr>
<tr>
<td>2010</td>
<td>EURO IV</td>
<td>50/50</td>
</tr>
<tr>
<td>2012</td>
<td>EURO V</td>
<td>10/10</td>
</tr>
</tbody>
</table>

7. The status of standards development for gasolines and diesel oils in Vietnam

In 2005 The Ministry of science and technology published 2 TCVNs:
- TCVN 6776:2005 – Unleaded gasolines – Specifications
8. Main characteristics of fuels in standards

### Unleaded gasolines

<table>
<thead>
<tr>
<th>Content of substance</th>
<th>TCVN 6776: 2000</th>
<th>TCVN 6776: 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur, max, mg/kg</td>
<td>1500</td>
<td>500</td>
</tr>
<tr>
<td>Octane, % of mass, max</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Metal (Fe, Mn), max, mg/l</td>
<td>18</td>
<td>5</td>
</tr>
</tbody>
</table>

### Diesel oils

<table>
<thead>
<tr>
<th>Content of substance</th>
<th>TCVN 5689: 2002</th>
<th>TCVN 5689: 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur, max, mg/kg</td>
<td>500; 2500; 5000</td>
<td>500; 2500</td>
</tr>
<tr>
<td>Cetan Index, max</td>
<td>45</td>
<td>46</td>
</tr>
</tbody>
</table>

9. The status of standards development for Biofuels

In 2007, The Ministry of Science and Technology has published 2 TCVN:
- TCVN 7716: 2007 Ethanol denatured fuel (E100) for blending with gasolines for use as automotive spark-ignition engine fuel – Specifications
- TCVN 7717: 2007 Biodiesel fuel stock (B100) – Specifications

In 2009, The Ministry of Science and Technology has published 2 TCVN:
- TCVN 8063: 2009 5% Ethanol unleaded gasoline blends – Specifications
- TCVN 8064: 2009 5% fatty acid methyl esters diesel fuel oils – Specifications

10. The status of standards development for Vehicles

In the years of 2005, 2006, 2007, The Ministry of Science and Technology published a number of standards (TCVNs) related to vehicles, one of them related to emissions:

11. How to control quality of gasolines and diesel oils

Law on standards and technical regulations:
- National standards (TCVN) – Voluntary
- Technical regulations (QCVN) – Mandatary
12. Technical regulation
QCVN 1 : 2007

- Regulated products:
  - Unleaded gasolines
  - Diesel oils

- Technical requirements:
  TCVNs of gasolines and diesel oils

13. Market surveillance activities

Planed MS
Random MS
Sample Test.

12. Technical regulation
QCVN 1 : 2007

Conformity assessment schemes

- Imported gasolines and diesel oils:
  Lot Sample test, (Module 7)
- Local produced:
  Type test, audit quality assurance system (Module 5)

Manufacturers shall make declaration of conformity with the technical regulation. Gasolines and diesel oils in the market subject to the market surveillance by the authorized agencies.

Thanks for your attention.