EU Solvent VOC Emissions for 2008 to 2012

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European Solvents Industry Group
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ABOUT ESIG

• Joint Activity of Oxygenated and Hydrocarbon Solvent Producers (28 Members)
• Two Sector Groups of the European Chemical Industry Council (CEFIC)
• Promotes best practice in solvent usage including HSE protection
ACCURATE SOLVENTS INVENTORIES

- In 2012, ESIG obtained solvent VOC data for each EU country for 2008 and 2009.
  - Work involved collating all hydrocarbon and oxygenated sales from EU solvent suppliers.
  - Total chlorinated solvents were included.
  - Data was reported in 18 separate end-use sectors.
  - This exercise is being repeated for 2013.
VOC EMISSIONS FROM SOLVENT VOLUMES

- EMISSIONS FACTORS depend on two parameters:
  - Final end-use of Solvent
  - Type of Solvent

- FINAL END USE = Defined in REACH
- Release to air % determined from Environmental safety assessment
Examples of Final End Use

• De-icing use-all completely released to Atmosphere - 100% emission factor

• Solvents used in Drilling or Mining are not released to air- 0% emissions factor
Examples of Type of Solvent

- Not all Solvents are VOCs – depends on their BP range and Molecular Weight
- Example is Hexane (C6) – a VOC
- However, a C14-C19 hydrocarbon solvent is not a VOC
- Cosmetics end use should be released to air but cosmetics use heavy HCs so emissions factor is below 100%
Converting Solvent Data to VOC Emissions

Agrochemical uses 100% released
Use as Fuel/Combustion 0.25% released
Industrial Cleaning 70% released
Consumer Uses (household, aerosols, cosmetics) 90% released
Professional Cleaning 50% released
Pharmaceuticals 30% released
EU27 VOC SOLVENT EMISSIONS

UNITS IN KILOTONNES EMISSIONS

• 2008  2159
• 2009  1917
• 2010  2094 (first Estimate*)
• 2011  2137 (first Estimate*)
• 2012  2058 (first Estimate*)

*based on chemical sales data for the EU
IMPORT/EXPORT within EU27

- Official CEFIC CHEMICAL sales show:
- Holland, Belgium and Germany export
- Some 20 countries including Austria, Poland and CZ Republic are net Importers
- UK, France and Ireland are self contained
- EU27 is assumed to consume all solvents
  No net export out of or import into EU27
## EU Solvent Emissions 2008 & 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>2008</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium + Lux</td>
<td>77</td>
<td>72</td>
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<tr>
<td>Germany</td>
<td>279</td>
<td>262</td>
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<td>Ireland</td>
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<tr>
<td>France</td>
<td>268</td>
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## EU27 Solvent Emissions 2008 & 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>2008</th>
<th>2012</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria+Romania</td>
<td>33</td>
<td>31</td>
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<tr>
<td>Baltic States +Finland</td>
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<tr>
<td>Italy</td>
<td>355</td>
<td>302</td>
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</tbody>
</table>
CONCLUSIONS

TOTAL EU Solvent VOC Emissions are in slight decline over the 5 year period 2008-2012

Results are available for all 18 end-use REACH Sectors

Communication to EU Member States and Inventory Teams is our main objective

Solvents VOC Emissions are available for all EU27 countries

The distribution of emissions between Member States will change relative to their individual economic growths