Hapag-Lloyd

The value added to our existing information
Carbon Calculation - Ocean

Carbon Emission Calculation – dry and reefer shipments

Calculations are based on
- methodology developed by CCWG
- for own/charter vessels
- for dry and reefer shipments
- weighted average of all vessels on a trade lane

= Trade lane emission factor/TEU-km

- Number of TEU
- Distance between port-pairs

= Individual Carbon Footprint
Emission Calculation - Transport Chain

Emission/Carbon calculation for whole door-to-door transport chain

Pre-Carriage

On-Carriage

Main Leg - Ocean

Credible data?

Credible data?
Emission Calculation - Transport Chain

Emission/Carbon calculation for whole door-to-door transport chain

Research Activities
- Analysis of commercial software products
- Carbon Accounting tools

Specific requirements of global transport chain
- Includes all transport modes
- Geographical data
- Carbon and other emissions

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EcoCalc Implementation

EcoCalc is embedded as an iframe

Hapag-Lloyd’s emission calculation server hosted by IVE

Usability
- Type ahead function for the location search supporting UN location codes
- Multilingual user interface – 4 languages supported (English, German, Spanish and Chinese)
- Result on one page and downloadable as PDF
- Keep it simple - only 3-5 information entries needed for a calculation

Added value
- In addition to CO₂, NOₓ, SO₂ and PM₁₀ are calculated using the EcoTransIT methods
- Pre- and on-carriage could be included to cover door-to-door transport chain

Reliability of calculation
- Routing selection based on Hapag-Lloyd’s location catalogue
- For pre- and on-carriage all emissions displayed for CO₂, NOₓ, SO₂ and PM₁₀ are calculated according to the EcoTransIT methods
- CO₂ of seaborne transportation calculated according to CCWG and data has been verified by Germanischer Lloyd
With the Hapag-Lloyd online emission calculator not only CO₂ but also SO₂, NOx and PM emissions can be estimated.
# Emission Calculation - Transport Chain

**Example: Customer-specific Information**

<table>
<thead>
<tr>
<th>Origin</th>
<th>Destination</th>
<th>Total Transport Chain</th>
<th>CO₂ [kg]</th>
<th>NOₓ [kg]</th>
<th>SO₂ [kg]</th>
<th>Dist. [km]</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRSSA</td>
<td>MLVIR</td>
<td>Pre-Carriage</td>
<td>41.227</td>
<td>0.000</td>
<td>0.000</td>
<td>41.227</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main Carriage</td>
<td>26.386</td>
<td>0.000</td>
<td>0.000</td>
<td>26.386</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On-Carriage</td>
<td>18.041</td>
<td>0.000</td>
<td>0.000</td>
<td>18.041</td>
</tr>
</tbody>
</table>

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<tr>
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<th>SO₂ [kg]</th>
<th>Dist. [km]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-Carriage</td>
<td>36.000</td>
<td>0.000</td>
<td>0.000</td>
<td>36.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main Carriage</td>
<td>25.000</td>
<td>0.000</td>
<td>0.000</td>
<td>25.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On-Carriage</td>
<td>16.000</td>
<td>0.000</td>
<td>0.000</td>
<td>16.000</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-Carriage</td>
<td>25.000</td>
<td>0.000</td>
<td>0.000</td>
<td>25.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main Carriage</td>
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<td>0.000</td>
<td>15.000</td>
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<tr>
<td></td>
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<td>On-Carriage</td>
<td>10.000</td>
<td>0.000</td>
<td>0.000</td>
<td>10.000</td>
</tr>
</tbody>
</table>

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