

# Clean Cargo Working Group (CCWG)

## Container Shipping Methodology

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# Current CCWG Membership

## Cargo Carriers



## Shippers and Freight Forwarders



# Clean Cargo Working Group – A Global B2B Platform

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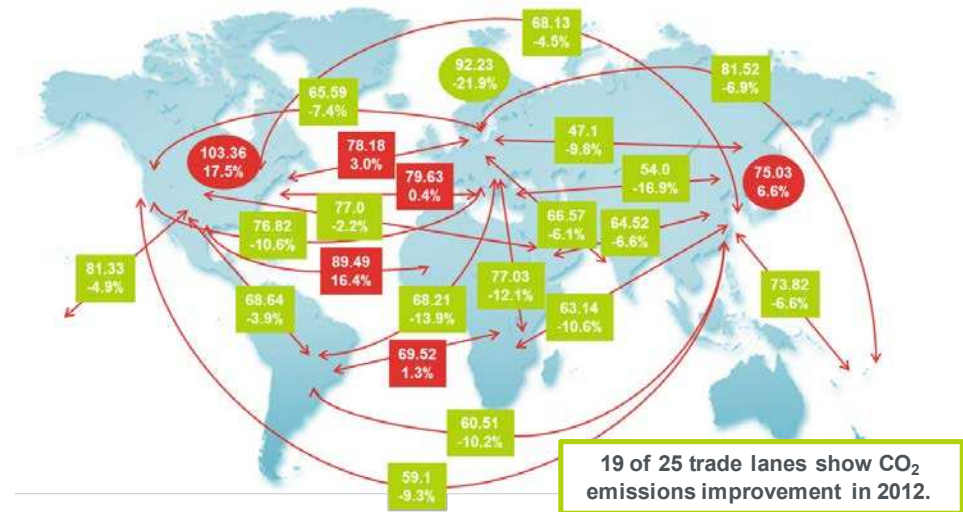
- Established in 2003
- Dedicated to improving environmental performance of ocean container transport
- Creating practical tools for measuring, evaluating and reporting environmental impacts of global transportation
- CO<sub>2</sub> methodology developed by the Group broadly recognized as industry standard for container shipping
- Emission factors generated enable shipping customers to calculate their carbon footprint

## Partners:



# Annual Aggregated Industry Performance Data

- CCWG gathered CO<sub>2</sub> and SO<sub>x</sub> emissions data from carriers for several years
- Aggregated environmental performance data is released to membership annually, highlighting industry-wide performance.
- Data can be used for procurement and reporting purposes.



**CCWG Collaborative Progress Report available at**

<http://www.bsr.org/en/our-insights/report-view/clean-cargo-working-group-progress-report-2015>

# CCWG Annual Data Collection Process – not just CO<sub>2</sub>.....

- Fuel Quality (sulfur content)
- NOx performance
- Emission reduction goals
- Technical / operational measures
- EMS
- Waste
- Ballast Water
- Training / Awareness
- Initiatives / Projects / Partnerships
- Procurement Policies

BSR

The Business of a Better World

CCWG Environmental Performance Survey (2014)

Code	Question	Answer	Remarks
0	<b>Environmental Performance Survey</b>		
1	<b>Policies &amp; Reporting</b>		
1.01	Do you have an environmental policy?	Yes	The Hapag-Lloyd Sustainability Policy is publicly available on our website <a href="http://www.hapag-lloyd.com/en/about_us/environment_policy.html">http://www.hapag-lloyd.com/en/about_us/environment_policy.html</a>
1.02	Do you publish an annual environmental performance report?	Yes	Information available on Hapag-Lloyd website. Additional information is provided in the Hapag-Lloyd Annual Report 2014 which will be publicly available by end of March 2015 <a href="http://www.hapag-lloyd.com/en/investor_relations/reports.html">http://www.hapag-lloyd.com/en/investor_relations/reports.html</a>  Member of <ul style="list-style-type: none"> <li>- Clean Cargo Working Group</li> <li>- Container Owners' Association</li> <li>- EcoTransIT World Initiative</li> <li>- Environment Committee of the German and European Shipowners' Associations</li> <li>- Environmental Ship Index Working Group</li> <li>- Global Logistics Emission Council</li> <li>- Green Logistics Stakeholder Working Group of Fraunhofer Institute</li> <li>- Korean Clean Air Working Group</li> <li>- Trident Alliance</li> <li>- WSC Environment and Air Emissions Advisory Committee</li> </ul> Cooperation with <ul style="list-style-type: none"> <li>- Engine Manufacturers</li> <li>- Ship Routing Systems development</li> <li>- Ship Performance Analysis Joint Industry Project</li> </ul> Partner of LNG Initiative
1.03	Are you involved in any environmental working groups, collaborations, voluntary initiatives or similar efforts?	Yes	
2	<b>Environmental Management System</b>		
2.04	Do you have an Environmental Management System (EMS) in place?	Yes	Hapag-Lloyd has an integrated Quality and Environmental Management System according to ISO 9001/ISO 14001 Standards. The System is certified by an external body (Germanischer Lloyd - now DNV GL). The current certificate can be downloaded from our website <a href="http://www.hapag-lloyd.com/en/about_us/environment_certificate.html">http://www.hapag-lloyd.com/en/about_us/environment_certificate.html</a>
2.05	Is your EMS certified by an independent third party?	Yes	
2.06	What are your environmental management objectives, targets, and milestones related to carbon and emissions reductions, including any key performance indicators you use to assess performance?		The overall objective is to continuously improve fuel efficiency and to reduce carbon emissions and air pollutants.
2.07	How are these objectives for emissions tied to your environmental strategy and business objectives?		Objectives for emission reductions are tied to the Hapag-Lloyd integrated Quality and Environmental Management System.  Within our integrated QEM System environmental programs are established which consists of a number of targets including responsibilities, tools and monitoring devices. Levels of achievement are measured and have to be reported regularly. They are part of internal and external audits as well as the annual review of the system through the top management.
2.08	What management systems, metrics, and staff do you use to monitor environmental performance?		

# CCWG Carbon Emission Calculation – Dry and Reefer shipments

Calculations are based on operational data

- total annual fuel consumption
- total annual distance sailed
- nominal capacity / no. of reefer plugs
- own / charter vessels
- Trade lane on which vessel is employed

= Trade lane emission factor (g CO<sub>2</sub>/TEU-km)



Carrier specific trade lane emissions factors



Aggregated CCWG trade lane emission factors





# Carrier Trade Lane Emission Factors – Third Party Verification

Example: Carrier Trade Lane Emissions			
Tradelane	CO2 Emissions - Dry (g/TEU-km)	CO2 Emissions - Reefer (g/TEU-km)	Sulfur Emissions (g/TEU-km)
Asia - Africa			
Asia - Mediterranean	59.47	84.42	0.99
Asia - Middle East/India	62.00	83.67	1.09
Asia - North America EC	60.57	91.92	0.73
Asia - North America WC	58.92	89.33	0.83
Asia - North Europe	41.62	73.41	0.62
Asia - Oceania	66.43	97.83	1.03
Asia - South America (EC/WC)			
Europe (North & Med) - Africa	78.75	121.38	1.15
Europe (North & Med) - Latin America/South America	71.78	102.94	1.14
Europe (North & Med) - Middle East/India	59.88	91.85	0.89
Europe (North & Med) - Oceania (via Suez/ via Panama)	68.42	102.68	1.08
Intra - Americas (Caribbean)	84.31	125.48	0.98
Intra - Asia			
Intra - Europe			
Mediterranean - North America EC (incl. Gulf)	69.38	96.10	1.09
Mediterranean - North America WC	71.65	101.58	0.74
North America - Africa			
North America - Oceania	95.97	121.68	1.44
North America - South America (EC/WC)	62.48	97.33	0.35
North America EC - Middle East/India	68.37	92.08	0.79
North Europe - North America EC (incl. Gulf)	71.86	100.05	0.85
North Europe - North America WC	65.14	95.20	0.87
South America (EC/WC) - Africa			
Other			
Fleet wide emissions	61.81	92.79	0.79

## Verification Statement

Zertifikat-Nr.: 179870-2015-OTH-GER-DNV

DNV GL SE, hereafter referred to as DNV GL, has been commissioned by the company

**Hapag-Lloyd Aktiengesellschaft**  
Ballindamm 25, 20095 Hamburg, Germany

hereafter referred to as 'Hapag-Lloyd AG', to verify the submissions to the Clean Cargo Working Group (CCWG), hereafter referred as the Submissions. The Submissions relate to the CO<sub>2</sub> and SO<sub>x</sub> emissions data reported to the BSR CCWG and the Environmental Performance Metrics Assessment (EPMA) score for the calendar year 2014.

**Management Responsibility**

Hapag-Lloyd AG management is responsible for preparing the Submissions and for maintaining effective internal controls including inputs to the Submissions. DNV GL's verification did not extend to the internal controls not associated with the Hapag-Lloyd AG Submissions.

**Verification approach**

DNV GL's verification has been conducted in accordance with the "Procedure and guidance for verifying the CO<sub>2</sub> and SO<sub>x</sub> emissions data reported into the BSR Clean Cargo Working Group (CCWG) Environmental Performance Metrics Assessment (EPMA) reporting system by ocean carriers" (hereafter referred as the EPMA reporting system) to provide limited assurance that the Submissions have been prepared in a manner consistent with the EPMA reporting system.

DNV GL's verification process included, but was not limited to, the following tasks:

- Desk review of the documentation submitted by Hapag-Lloyd AG, including completeness check and review of the methodology used.
- Office audit at the Hamburg Office of Hapag-Lloyd AG, including sampling of historical emissions data and interviews with personnel responsible for the collection of the emissions data. The processes for managing emissions data and information were checked for adequacy.
- Final review of the Submissions and other relevant support information (including office audit report) and assessment of the EPMA scores.

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.  
 4020011101-10001 DNV GL Business Assurance Certification and Issuance Location GmbH, Schwanenweg 14, 40320 Essen, Germany.  
 TEL: +49 203 7209-222, www.dnvgl.de/assurance

# How to use Carbon Emission Factors?

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## Shippers:

- Carbon Accounting
- Reporting Purposes
- Product Carbon Footprint
- Benchmarking
- Procurement
- ....

## Carriers:

- Meeting customers' demands
- Reporting Purposes
- Stakeholder dialogue
- Internal Benchmarking
- Supporting decision-making processes
- Continuous Improvement
- ....



# Carbon Accounting

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Shippers who want to calculate its company carbon footprint may use CO<sub>2</sub> trade lane emission factors considering following criteria:

- Number of TEUs shipped on respective trade lanes
- Distance sailed
  - Distance adjustment factor (15%)
- Utilization factor
  - Average utilization factor (70%)
- Possibly adding well-to-wheel adjustment factor
- ....

**CCWG Methodology Report available at**

<http://www.bsr.org/en/our-insights/report-view/ccwg-methodology-2015>

# Product Carbon Footprint - Example

**REWE Bio**  
Schweizer  
**Edelvollmilch-Schokolade**  
Kakao: 34 % mindestens

**Bio Vollmilchschokolade**  
Kakao: 34 % mindestens  
Die REWE Bio Edelvollmilch-Schokolade wird aus edlem Kakao hergestellt. Durch die schonende Verarbeitung und die hochwertigen Bio-Zutaten zergeht die REWE Bio Edelvollmilch-Schokolade langsam auf der Zunge.  
Zutaten: Rohrzucker\*, Vollmilchpulver\*\* 26,7 %, Kakaobutter\*, Kakao Masse\*, Vanilleschoten\*.  
\*aus kontrolliert biologischer Landwirtschaft.  
Trocken lagern. Vor Wärme schützen.  
Kann Spuren von Haselnüssen, Mandeln und Soja enthalten.  
Rohrzucker, Kakaobutter, Kakao Masse, Vanilleschoten: nach Fairtrade-Standards gehandelt. Gesamter Fairtrade-Anteil 73,3 %.  
Durch faire Handelsbedingungen können Kleinbauern und Arbeiter in den Anbauländern in eine nachhaltige Zukunft investieren.  
Rohrzucker, Kakaobutter, Kakao Masse mit Mengenausgleich.  
Mehr Infos unter [www.fairtrade-deutschland.de](http://www.fairtrade-deutschland.de)  
Erfahren Sie mehr über diese Schokolade: Website aufrufen und FAIRTRADE-Code 3862008 eingeben.

Durchschnittliche Nährwerte pro 100 g	%-RM*** pro 100 g	Pro Portion**	%-RM*** pro Portion**
Energie	2417 kJ	29 %	116 kJ
Fett	580 kcal	54 %	7,6 g
davon gesättigte Fettsäuren	37,9 g	115 %	4,6 g
Kohlenhydrate	23,0 g	20 %	10,4 g
davon Zucker	51,9 g	55 %	9,9 g
Eiweiß	49,5 g	14 %	1,4 g
Salz	7,0 g	4 %	0,05 g

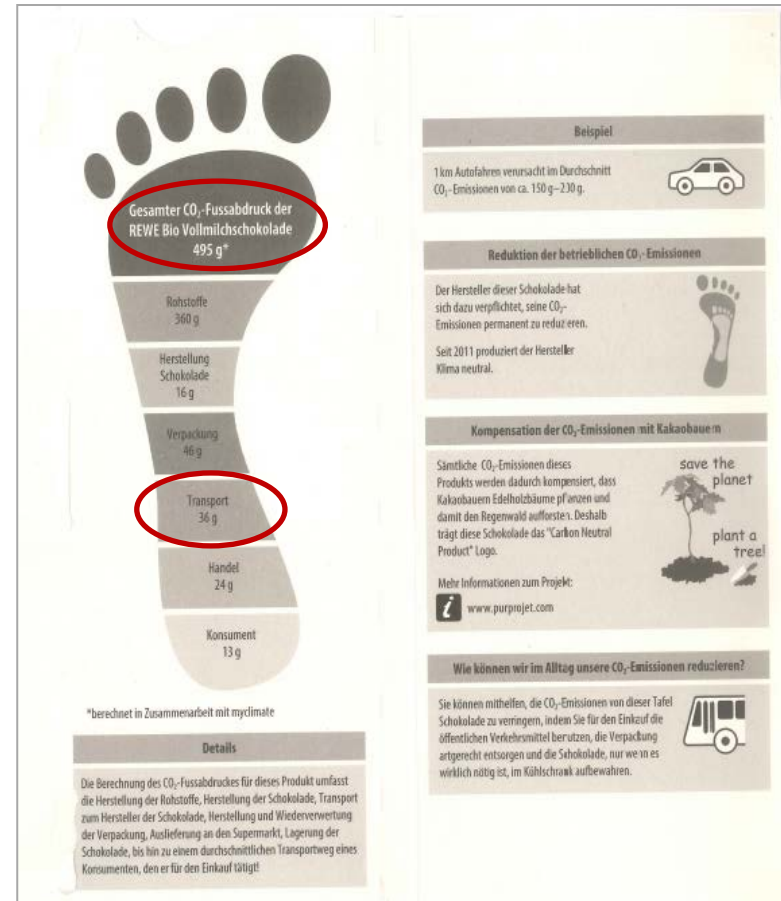
\*\*Portion = 2 Stück (- 20 g). Packung enthält 5 Portionen.  
\*\*\*RM: Referenzmenge für einen durchschnittlichen Erwachsenen (8400 kJ/2000 kcal).

FAIRTRADE  
Brennwert pro 100 g: 2417 kJ / 580 kcal  
pro Portion (2 Stück): 483 kJ / 116 kcal

100 g

100 g e

Handelsinformationen zum CO<sub>2</sub>-Fußabdruck auf der Innenseite.



# Emission Calculation - Transport Chain

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# EcoCalc – Hapag-Lloyd’s Emission Calculator

## EcoTransIT World Emission Calculator Tool - the basis for Hapag-Lloyd’s EcoCalc

- Calculation of full transport chain
- Includes NOx and PM emission
- Supporting UN location codes
- Only 3-5 information entries needed for a calculation
- Multilingual user interface
- Result downloadable as PDF
- Integration of Hapag-Lloyd’s CO<sub>2</sub> emission data

The screenshot shows the Hapag-Lloyd website with the 'Sustainability' section highlighted. The 'EcoCalc' tool is featured prominently, with a description: 'The Hapag-Lloyd EcoCalc allows you to calculate the emissions of your container transport from the beginning to the end of its journey. We offer a comprehensive overview of various types of emissions, covering: > Carbon Dioxide (CO2), > Nitrogen Oxide (NOx), > Sulphur Dioxide (SO2), > Particulate Matter (PM10)'. Below this, there is a form with fields for 'Start of Transport', 'Port of Loading\*', 'Port of Discharge\*', 'End of Transport', and 'Cargo Volume\*'. The 'Cargo Volume\*' field is set to 'TEU'. To the right of the form, there is a 'FAQ EcoCalc' section with links to 'frequently asked questions' and 'FAQ', a 'Contact' section with links to 'FAQ' and 'Email', and a 'Verification Statement' section with a link to 'verified' data. At the bottom right, there is a 'Driven by responsibility' section with a link to 'responsibility'.

# EcoTransIT World

## EcoTransIT World makes emission calculation an easy-to-go exercise

- EcoTransIT allows complete integration of CCWG CO2 emission data in business solutions
- To calculate (port-port) emission just type in
  - Location code or
  - Postal Code

The screenshot displays the EcoTransIT World web application interface. At the top, the logo 'EcoTransIT World' is visible with the tagline 'a sustainable move'. Below the logo is a navigation bar with tabs: HOME, CALCULATION (active), TARGET GROUP, FIRST STEPS, BUSINESS, and CONTACT. The main section is titled 'CALCULATION PARAMETERS' and contains several input fields:

- Input mode:** A dropdown menu set to 'Extended'.
- Freight:** A section with three input fields: 'Amount' (100), 'Unit' (Bulk (Tons)), and 'Type' (average goods). There is also a '1750' value in a small box.
- Ferry:** A dropdown menu set to 'normal'.
- Origin:** A dropdown menu set to 'City district' with a note 'Please press ENTER to confirm' and a link 'On-site not back available'.
- Transport service:** A section with a dropdown menu set to 'TS 1', a 'Transport mode' dropdown set to 'Sea ship', a 'Ship class' dropdown set to 'Aggregated', a 'Ship type' dropdown set to 'Please choose', a 'Speed reduction' input field set to '25%', and a 'Load factor' input field set to '0%'. There is a '+ VIA' button.
- Destination:** A dropdown menu set to 'City district' with a note 'Please press ENTER to confirm' and a link 'On-site not back available'.

At the bottom right, there are two buttons: 'CALCULATE' and 'RESET'.

# Thank you for your attention!

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