



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



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



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, NO_x, 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, NO_x, 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

Emission Calculation - Transport Chain



EcoCalc launched in October 2011

Hapag-Lloyd Sustainability

Company: About us, Press, IR, Career, Fleet, Products & Services, Offices, Local Info, News, Online Business
 Business: Overview, Management, Philosophy, Sustainability, Our Awards, Foundation, History
 Quality & Environment: EcoCalc, At a glance, Vessel Technology, On Board, Container, Shore-Based Contribution, Policy, Certificates

EcoCalc
 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 (NO_x)
- > Sulphur Dioxide (SO₂)
- > Particulate Matter (PM₁₀)

Please fill in the following details. The boxes marked with an * are mandatory in order to calculate your emissions.

Start of Transport: NAPA, CA, USA (USAPC)
 Port of Loading*: OAKLAND, CA, UNITED STATES (USOAK)
 Port of Discharge*: HAMBURG, GERMANY (DEHAM)
 End of Transport: UELZEN, GERMANY (DEUEL)
 Cargo Volume*: 10 TEU

Calculate

FAQ EcoCalc
 Here you find frequently asked questions regarding the Hapag-Lloyd EcoCalc.

Contact
 For further questions regarding the EcoCalc, please read our FAQ or contact us via Email.
 You may of course also contact your local sales person in case of questions.

Verification Statement
 Hapag-Lloyd emission data verified by Germanischer Lloyd.

Driven by responsibility
 Please read our newly published environmental brochure "Driven by responsibility".

Hapag-Lloyd EcoCalc Methodology
 The Hapag-Lloyd EcoCalc considers the different sections of the transport chain and applies industry recognised methods of calculation.

For seaborne transportation, emissions of carbon dioxide are calculated according to the methodology developed by the Clean Cargo Working Group. Hapag-Lloyd provides the basic calculation data for all owned container vessels and vessels operated under long-term charter. Nitrogen oxide, sulphur dioxide and particulate matter emissions are calculated according to the methods of EcoTransIT World.

For pre- and on-carriage all emissions displayed for CO₂, NO_x, SO₂ and PM₁₀ are likewise calculated according to the EcoTransIT World methods.

For all transport modes full utilization of capacities is assumed.

From	To	Mode of transport	Distance in km	CO ₂ in kg	NO _x in kg	SO ₂ in kg	PM ₁₀ in kg
NAPA, CA, USA (USAPC)	OAKLAND, CA, UNITED STATES (USOAK)	Truck	68	571.07	2.92	0.69	0.21
OAKLAND, CA, UNITED STATES (USOAK)	HAMBURG, GERMANY (DEHAM)	Vessel	15,512	11,479.19	483.05	290.00	42.66
HAMBURG, GERMANY (DEHAM)	UELZEN, GERMANY (DEUEL)	Truck	95	550.70	4.38	0.67	0.12
Total:			15,675	12,600.96	490.35	291.36	42.99

Download Your EcoCalc Result
 The emissions calculated are average arithmetical values for a standard container based on a variety of theoretical factors. Depending on input data emissions and actual route taken during shipment may diverge from these average arithmetical values.
 No liability is accepted for the completeness and accuracy of these calculations.

by Germanischer Lloyd.
Driven by responsibility
 Please read our newly published environmental brochure "Driven by responsibility".

DRIVEN BY RESPONSIBILITY

> Publications
Environmental Protection on Board our Ships
 Please click to enlarge the image.

With the Hapag-Lloyd online emission calculator not only CO₂ but also SO₂, NO_x and PM emissions can be estimated

Emission Calculation - Transport Chain



Example: Customer-specific Information

Total Transport Chain				TEUs	Total Emissions					Pre-Carriage					Main Carriage					On-Carriage									
Pre-Carriage Origin	Main Carriage (Ocean)		On-Carriage Destin.		CO2 [kg]	NOX [kg]	SO2 [kg]	Particulates		Distances [km]	CO2 [kg]	NOX [kg]	SO2 [kg]	Particulates		Distances [km]	CO2 [kg]	NOX [kg]	SO2 [kg]	Particulates		Distances [km]							
	Port of Loading	Port of Discharge						PM10 [kg]	Distances [km]					PM10 [kg]	Distances [km]					PM10 [kg]	Distances [km]		PM10 [kg]	Distances [km]					
BRSSA	BRSSA	NLRMT	NLYNR	18	11,528	491,206	285,311	41,423	8,685	36	0,377	0,045	0,008	4	12,651	468,934	265,254	41,065	8,529	1842	21,895	0,012	0,349	951					
CAQAK	CAYAN	JPTYO	JPTYO	11	15,327	410,065	148,028	27,251	12,239	9,708	152,637	0,077	4,202	4,259	5,282	256,626	147,949	22,984	7,937	336	3,801	0,002	0,064	43					
CASBR	CAMTR	BEANR	NLYNR	1	653	19,342	9,383	1,599	6,065	98	0,534	0,001	0,034	143	456	17,646	9,382	1,545	5,777	99	1,162	0,001	0,020	146					
CATOR	CAMTR	BEANR	NLYNR	33	22,121	681,652	329,441	53,318	8,469	3,607	60,971	0,025	1,679	546	15,062	582,327	329,394	50,995	5,777	3,253	38,355	0,022	0,644	146					
CATOR	CAMTR	IEDUB	EDDK	22	12,613	396,843	193,142	31,252	5,711	2,538	40,647	0,017	1,119	546	8,830	341,406	193,117	29,898	5,081	1,245	14,789	0,008	0,235	83					
CAYAN	CAYAN	JPTYO	JPTYO	2	1,038	47,444	26,300	4,197	7,932	17	0,094	0,000	0,006	16	960	46,659	26,300	4,179	7,937	61	0,691	0,000	0,012	43					
CNSHA	CNSHA	CAYAN	CATOR	10	14,638	436,757	158,984	28,549	13,630	119	1,242	0,349	0,027	22	5,668	275,386	158,764	24,864	9,369	8,911	140,129	0,071	3,858	4,299					
CNSHA	CNSHA	USLAX	USCFU	130	86,156	4,059,909	2,321,028	361,001	10,569	1,543	16,151	1,942	0,352	22	82,797	4,022,562	2,319,067	360,269	10,527	1,816	20,196	0,017	0,379	20					
CNSHA	CNSHA	USLAX	USGVP	87	131,506	3,856,540	1,554,003	273,102	14,472	1,033	10,809	1,299	0,236	22	85,410	2,692,022	1,551,991	241,903	10,527	75,063	1,153,709	0,713	31,763	3,922					
CNSHA	CNSHA	USLGB	USCFU	6	3,965	187,273	107,170	16,666	10,571	71	0,745	0,090	0,016	22	3,823	185,736	107,080	16,635	10,532	71	0,791	0,001	0,015	17					
CNSHA	CNSHA	USSEA	USGVP	90	128,112	3,850,585	1,424,496	253,488	13,356	1,068	11,182	1,344	0,244	22	50,784	2,467,286	1,422,427	220,975	9,327	76,259	1,172,097	0,724	32,269	4,006					
CNSHA	CNSHA	USSEA	USPDK	46	36,094	1,375,536	727,796	114,885	9,644	546	5,715	0,687	0,125	22	25,957	1,261,057	727,018	112,943	9,327	9,592	108,744	0,091	1,797	295					
CNSHA	CNSHA	USTIW	USPDK	9	6,674	285,637	143,049	22,494	9,622	107	1,118	0,134	0,024	22	5,102	247,869	142,900	22,200	9,370	1,465	16,649	0,014	0,270	230					
CNSHK	CNSHK	USTIW	USGVP	14	21,185	628,016	295,136	44,729	14,827	0	0	0	0	49	9,105	442,350	255,021	39,618	10,750	12,080	185,666	0,115	5,112	4,077					
CNTAO	CNTAO	USLAX	USCFU	30	19,746	941,456	539,808	83,948	10,640	57	0,597	0,072	0,013	4	19,270	936,198	539,732	83,848	10,617	419	4,661	0,004	0,087	20					
CNTAO	CNTAO	USSEA	USGVP	102	144,731	4,150,575	1,628,663	283,465	13,427	194	2,031	0,244	0,044	4	58,110	2,823,168	1,627,598	262,849	9,417	86,427	1,328,377	0,821	36,572	4,006					
CNTAO	CNTAO	USSEA	USPDK	17	13,262	511,054	271,341	42,913	9,715	32	0,338	0,041	0,007	4	9,685	470,528	271,266	42,141	9,417	3,545	40,188	0,034	0,664	295					
CNTAO	CNTAO	USTIW	USGVP	8	11,496	328,693	128,324	22,846	13,540	15	0,159	0,019	0,003	4	4,578	222,439	128,239	19,522	9,460	6,903	106,095	0,066	2,921	4,077					
CNTXG	CNTXG	CAYAN	CATOR	16	24,244	694,792	269,404	48,000	14,262	390	4,336	0,490	0,069	49	9,597	466,251	268,800	41,758	9,914	14,258	224,206	0,113	6,173	4,299					
CNTXG	CNTXG	USSEA	USDAY	1	1,452	42,046	16,767	2,954	13,802	24	0,271	0,031	0,004	49	597	29,096	16,728	2,599	9,872	830	12,759	0,008	0,351	3,881					
CNTXG	CNTXG	USSEA	USPDK	42	34,865	1,329,357	703,362	110,571	10,215	1,023	11,382	1,287	0,182	49	25,084	1,218,688	702,591	109,148	9,872	8,758	99,288	0,083	1,641	295					
CNTXG	CNTXG	USTIW	USPDK	4	3,140	125,056	67,335	10,578	10,134	97	1,084	0,123	0,017	49	2,399	116,572	67,206	10,440	9,915	651	7,400	0,006	0,120	230					
CNYTN	CNYTN	USLAX	USCFU	22	15,991	765,372	439,281	68,306	11,803	15,683	761,955	439,278	68,242	11,783	11,406	584,149	319,475	49,631	11,783	13,805	212,176	0,131	5,941	3,922					
CNYTN	CNYTN	USLAX	USGVP	16	25,211	766,325	319,698	58,472	15,705	281,696	13,695,777	7,890,053	1,225,727	11,788	4,676	52,090	0,044	0,966	17	1,065	16,368	0,010	0,451	2,423					
CNYTN	CNYTN	USLGB	USFVT	2	2,491	65,663	39,360	6,657	14,209	1,426	69,295	39,360	6,206	11,788	95,563	4,642,770	2,676,626	415,816	11,788	116,068	1,783,961	1,103	49,114	3,938					
CNYTN	CNYTN	USSEA	USGVP	508	754,444	22,387,821	9,079,115	1,591,955	14,549	324,003	15,741,184	9,075,026	1,403,814	10,542	430,441	6,615,836	4,089	102,111	4,006	35,717	1,735,249	1,000,397	155,413	10,542	11,677	132,384	0,111	2,188	295
CNYTN	CNYTN	USSEA	USPDK	56	47,394	1,867,632	1,000,509	157,600	10,637	1,276	61,973	36,728	5,555	10,542	21	0,236	0,000	0,005	15	55,222	848,760	0,525	23,367	4,077					
CNYTN	CNYTN	USTIW	USGVP	64	96,206	2,840,013	1,148,512	201,708	14,662	40,996	1,991,253	1,147,987	178,341	10,585	7,045	342,247	197,310	30,652	10,585	1,790	20,349	0,017	0,330	230					
CNYTN	CNYTN	USTIW	USPDK	11	8,835	362,596	197,327	30,983	10,915	1,427	69,307	39,957	6,207	11,790	28	0,311	0,000	0,006	20	1,732	26,626	0,016	0,733	3,938					
HKHKG	HKHKG	USLAX	USCFU	2	1,472	69,798	39,958	6,217	11,826	17	0,180	0,001	0,004	16	1,427	69,307	39,972	6,210	11,794	1,732	26,626	0,016	0,733	3,938					
HKHKG	HKHKG	USLGB	USCFU	133	97,638	4,640,386	2,658,192	413,531	11,827	1,141	11,940	0,036	0,260	16	94,903	4,610,707	2,658,141	412,945	11,794	1,574	17,539	0,015	0,325	17					
HKHKG	HKHKG	USLGB	USGVP	2	3,177	98,140	39,989	6,947	15,745	17	0,180	0,001	0,004	16	1,427	69,307	39,972	6,210	11,794	1,732	26,626	0,016	0,733	3,938					
HKHKG	HKHKG	USSEA	USPDK	119	101,790	3,981,715	2,127,444	335,341	10,960	1,021	10,683	0,032	0,233	16	75,946	3,689,796	2,127,176	330,459	10,549	24,814	281,315	0,236	4,649	295					
HKHKG	HKHKG	USTIW	USPDK	4	3,249	132,239	71,001	11,281	10,838	34	0,359	0,001	0,008	16	2,563	124,531	71,794	11,953	10,592	651	7,400	0,006	0,120	230					
JFNGO	JFNGO	USLAX	USCFU	2	1,205	57,231	32,804	5,102	9,705	6	0,021	0,000	0,000	6	1171	56,900	32,803	5,096	9,679	28	0,311	0,000	0,006	20					
JFNGO	JFNGO	USLAX	USGVP	2	2,903	83,442	32,920	5,826	13,607	6	0,021	0,000	0,000	6	1,171	56,900	32,803	5,096	9,679	1,726	26,522	0,016	0,730	3,922					
JFNGO	JFNGO	USLGB	USCFU	1	601	28,605	16,409	2,552	9,706	3	0,010	0,000	0,000	6	586	28,463	16,409	2,549	9,684	12	0,132	0,000	0,002	17					

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