

Annex



LIST OF SUBSIDIARIES OF THE EBRO GROUP

COMPANY	COUNTRY	BUSINESS AREA
Agromeruan, SARL AU	Morocco	Rice
Arotz Foods, S.A.	Spain	Others
Arroceiras Mundiaroz, S.A.	Portugal	Rice
Bertagni 1882, S.P.A.	Italy	Pasta
Ebro Foods, S.A.	Spain	Holding
Ebro Foods Belgium, N.V.	Belgium	Rice
Ebro Foods Netherlands B.V.	Netherlands	Rice
Ebro India, Private Ltd.	India	Rice
Ebro Ingredients, B.V.	Netherlands & Belgium	Ingredients
Ebro Premium Food, S.A.S.	India	Rice
Ebrofrost Denmark A/S	Denmark	Rice and pasta
Ebrofrost Germany, Gmbh	Germany	Rice and pasta
Ebrofrost UK, Ltd	United Kingdom	Rice and pasta
Ebrofrost North America	United States	Rice and pasta
Euryza, Gmbh	Germany	Rice
Geovita Functional Ingredients, S.R.L.	Italy	Ingredients
Herba Bangkok, S.L.	Thailand	Rice
Herba Cambodia, Co. Ltd	Cambodia	Rice
Herba Ricemills, S.L.U.	Spain	Rice
Indo European Foods Ltd.	United Kingdom	Rice
La Loma Alimentos, S.A.	Argentina	Rice
Lustucru Frais, S.A.S.	France	Fresh pasta
Lustucru Riz, S.A.S.	France	Rice
Mundi Riso, S.R.L.	Italy	Rice
Mundi Riz, S.A.	Morocco	Rice
Neofarms Bio, S.A.	Argentina	Rice
Pastificio Lucio Garofalo, Spa	Italy	Pasta
Riceland Magyarorzag, Kft	Hungary	Rice
Riviana Foods, Inc.	United States	Rice
Riviana Foods Canada Corporation	Canada	Fresh pasta
Santa Rita Harinas, S.L.U.	Spain	Flours
S&B Herba Foods, Ltd.	United Kingdom	Rice
Tilda, Ltd.	United Kingdom	Rice
Transimpex, Gmbh	Germany	Rice

LIST OF INDUSTRIAL FACILITIES (PRODUCTION PLANTS AND WAREHOUSES) AND OFFICES OF THE EBRO GROUP

COMPANY	COUNTRY	WORKPLACE	TYPE OF FACILITY
Arrotz Foods, S.A.	Spain	Navaleno	Industrial
Arrozeiras Mundiarroz	Portugal	Coruche	Industrial
		Lisbon	Office (lease)
Bertagni 1882, S.P.A.	Italy	Vicenza	Industrial
		Avio	Industrial
		Avio (ex Le Cont)	Warehouses
		Avio (ex Ginos)	
		Arcugnano (ex Campagnolo)	
Arcugnano (via Fermi)			
Ebro Foods Belgium, N.V.	Belgium	Merksem (plant A)	Industrial
Ebro Foods, S.A.	Spain	Madrid	Offices (lease)
		Barcelona	
		Granada	
Ebro Foods Netherlands BV	Netherlands	Wormer	Industrial
Ebro India, Private Ltd.	India	Taraori	Industrial
Ebrofrost Denmark, A/S	Denmark	Orbaek	Industrial
Ebrofrost Germany, GmbH	Germany	Offingen	Industrial
Ebrofrost North America	United States	Memphis	Industrial
Ebrofrost UK, Ltd	United Kingdom	Beckley	Industrial
Euryza, GmbH	Germany	Hamburg	Office (lease)
Geovita Functional Ingredients, S.R.L.	Italy	Bruno	Industrial
		Nizza Monferrato	Industrial
		Verona	Industrial
		Villanova Monferrato	Industrial
Herba Bangkok, S.L.	Thailand	Nong Khae	Industrial
Herba Cambodia, Co. Ltd	Cambodia	Phnom Phen	Industrial
Ebro Ingredients, B.V.	Belgium	Plant B	Industrial
		Plant F	Industrial
		Plant C	Industrial
	Netherlands	Plant E	Warehouse
		Beernem	Office (lease)
		Plant D	Industrial
Herba Ricemills, S.L.U.	Spain	San Juan de Aznalfarache	Industrial
		Jerez de la Frontera	Industrial
		Coria del Río	Industrial
		Isla Mayor	Industrial
		Silla	Industrial
		Algemesí	Industrial
		L'Aldea	Industrial
		La Rinconada	Industrial
		Los Palacios	Industrial
		Cotemsa	Warehouses
Raza			
Ecorub			

COMPANY	COUNTRY	WORKPLACE	TYPE OF FACILITY
Indo European Foods Ltd.	United Kingdom	Felixstowe	Industrial
La Loma Alimentos, S.A.	Argentina	Los Charrúas	Industrial
		Chajarí	Industrial
		Los Conquistadores	Industrial
		Buenos Aires	Office (lease)
		St Genis Laval	Industrial
Lustucru Frais, S.A.S.	France	Lorette	Industrial
		Communay	Industrial
		Communay	Warehouse
		Lyon	Office (owned)
Ebro Premium	France	Lyon	Office (owned)
Mundi Riz, S.A.	Morocco	Larache	Industrial
Mundi Riso, S.R.L.	Italy	Vercelli	Industrial
Neofarms BIO, S.A.	Argentina	Concordia	Office (lease)
Pastificio Lucio Garofalo, Spa	Italy	Gragnano	Industrial
Riceland Magyarorzag, Kft	Hungary	Budapest	Office (lease)
Riviana Foods Canada	Canada	Delta	Industrial
		Hamilton	Industrial
Riviana Foods	United States	Memphis	Industrial
		Carlisle	Industrial
		Brinkley	Industrial
		Hazen	Industrial
		Clearbrook	Industrial
		Freeport	Industrial
		Alvin	Industrial
		Colusa	Industrial
		Woodland	Industrial
		Fullbourn	Industrial
S&B Herba Foods, Ltd.	United Kingdom	Regent	Industrial
		Orpington	Office (lease)
		Loranca de Tajuña	Industrial
Santa Rita Harinas, S.L.U.	Spain	Loranca de Tajuña	Industrial
Tilda, Ltd.	United Kingdom	Classic	Industrial
		Jazz	Industrial
Transimpex, Gmbh	Germany	Lambsheim	Industrial
		Lambsheim	Office (owned)

LIST OF FOOD SAFETY AND QUALITY CERTIFICATIONS OF THE GROUP'S SUBSIDIARIES

COMPANY	COUNTRY	WORKPLACE	CERTIFICATION
Arotz Foods	Spain	Navaleno	IFS
			CAEE
Arrozeiras Mundiarroz	Portugal	Coruche	ISO 9001
			IFS
Bertagni 1882	Italy	Avio	BRC
			MSC
			ASC
			ORGANIC CERTIFICATION
	Arcugnano	IFS	
		ORGANIC CERTIFICATION	
		BRC	
		VQIP	
Ebro Foods Belgium	Belgium	Merksem	IFS
			KOSHER
			FEED CHAIN ALLIANCE (FCA)
			ORGANIC CERTIFICATION
			ORGANIC CERTIFICATION
			IFS
Ebro Foods Netherlands	Netherlands	Wormer	GMP +
			ORGANIC CERTIFICATION
			IFS
Ebrofrost Denmark	Denmark	Orbaek	KOSHER
			BRC
Ebrofrost Germany	Germany	Offingen	BRC
			HALAL
			KAT
			ORGANIC CERTIFICATION
Ebrofrost UK	United Kingdom	Beckley	BRC
Ebrofrost North America	United States	Memphis	BRC
			ORGANIC CERTIFICATION
			HALAL
			KOSHER

COMPANY	COUNTRY	WORKPLACE	CERTIFICATION	
Ebro India	India	Taraori	ORGANIC CERTIFICATION (organic paddy rice crop)	
			ORGANIC CERTIFICATION (organic rice processing)	
			BRC	
			IPQC	
			PPQS CHINA	
			PPQS USA	
Geovita Functional Ingredients	Italy	Bruno	HALAL	
			BCR	
			ORGANIC CERTIFICATION	
			KOSHER	
		Villanova Monferrato	IFS	
			HALAL	
			BRC	
			IFS	
Harinas Santa Rita	Spain	Loranca de Tajuña	HALAL	
			ORGANIC CERTIFICATION	
Herba Bangkok	Thailand	Saraburi	IFS	
			ISO 9001	
			BRC	
			ORGANIC CERTIFICATION (EU)	
			ORGANIC CERTIFICATION (USA)	
			HALAL	
			KOSHER	
			GMP & HACCP	
			ORGANIC CERTIFICATION	
			NATURLAND	
VQIP				
Herba Cambodia	Cambodia	Phnom Phen	GLUTEN FREE CERTIFICATION	
			ORGANIC CERTIFICATION (EU)	
			BRC	
			ORGANIC CERTIFICATION (USA)	
			KOSHER	
			VQIP	
Ebro Ingredients	Belgium	Schoten (plant B)	IFS FOOD	
		Schoten (plant C)	GMP +	
			IFS FOOD	
			GMP +	
		Schoten (plant F)	ECOLOGICAL CERTIFICATION (EU)	
			IFS FOOD	
	GMP +			
	Netherlands	Wormer		ECOLOGICAL CERTIFICATION (CHINA)
				IFS
GMP +				
KOSHER				
HALAL				
ORGANIC CERTIFICATION (EU)				
ORGANIC CERTIFICATION (CHINA)				
			ORGANIC CERTIFICATION NATURLAND	

COMPANY	COUNTRY	WORKPLACE	CERTIFICATION
Herba Ricemills	Spain	Coria del Río	IFS
			ISO 9001
			ECOLOGICAL CERTIFICATION
			ECOLOGICAL CERTIFICATION (USA)
		San Juan de Aznafarache	KOSHER
			ISO 9001
			BRC
			IFS
			ECOLOGICAL CERTIFICATION
			ECOLOGICAL CERTIFICATION (USA)
			KOSHER
		Jerez de la Frontera	ISO 9001
			IFS
			ECOLOGICAL CERTIFICATION
			ECOLOGICAL CERTIFICATION (USA)
		Silla	BRC
			IFS
			KOSHER
			ISO 9001
		Algemesí (ready foods plant)	BRC
			ISO 9001
IFS			
Algemesí (rice plant)	BRC		
	ISO 9001		
Algemesí (flour mill)	KOSHER		
	IFS		
La Rinconada	ISO 9001		
Isla Mayor	KOSHER		
	IFS		
Los Palacios	ECOLOGICAL CERTIFICATION		
	ECOLOGICAL CERTIFICATION (USA)		
	ISO 9001		
	IFS		
Indo European Foods	United Kingdom	Felixtowe	KOSHER
			BRC
			FEMAS

COMPANY	COUNTRY	WORKPLACE	CERTIFICATION		
La Loma Alimentos	Argentina	Los Charrúas	HACCP		
			GLUTEN FREE CERTIFICATION		
			GMP + HACCP		
			VQIP		
		Chajarí	KOSHER		
			KOSHER		
			HACCP		
			VQIP		
Lustucru Frais	France	Saint Genis Laval	GMP + HACCP		
			GLUTEN FREE CERTIFICATION		
		Lorette	IFS		
			IFS		
		Communay	IFS		
			ECOLOGICAL CERTIFICATION		
		Mundi Riso	Italy	Vercelli	IFS
					BRC
ECOLOGICAL CERTIFICATION (EU)					
FSSC 22000					
KOSHER					
Mundi Riz	Morocco	Larache	ISO 22000		
Neofarms Bio	Argentina	Entre Ríos	ECOLOGICAL CERTIFICATION (CHINA)		
			KOSHER		
			ECOLOGICAL CERTIFICATION (JAPAN)		
			ECOLOGICAL CERTIFICATION (USA)		
			GLUTEN FREE CERTIFICATION		
Pastificio Lucio Garofalo	Italy	Gagnano	BRC		
			IFS		
			VQIP		
			VEGAN		
			KOSHER		
			HALAL		
			ECOLOGICAL CERTIFICATION		
			NO-GMO		
Riviana Foods Canada	Canada	Delta	BRC		
		Hamilton	BRC		

COMPANY	COUNTRY	WORKPLACE	CERTIFICATION
Riviana Foods	United States	Memphis	KOSHER
			SQF
			HALAL
			ECOLOGICAL CERTIFICATION
			GLUTEN FREE CERTIFICATION
		Brinkley	SQF
			KOSHER
			GLUTEN FREE CERTIFICATION
			HALAL
		Clearbrook	ECOLOGICAL CERTIFICATION
			GLUTEN FREE CERTIFICATION
			SQF
		Alvin	KOSHER
			SQF
			GLUTEN FREE CERTIFICATION
			ECOLOGICAL CERTIFICATION
			GLUTEN FREE CERTIFICATION
		Carlisle	KOSHER
			ECOLOGICAL CERTIFICATION
			GLUTEN FREE CERTIFICATION
HALAL			
Freeport	SQF		
	KOSHER		
	GLUTEN FREE CERTIFICATION		
Woodland (InHarvest)	BRC		
	ECOLOGICAL CERTIFICATION		
Colusa (InHarvest)	KOSHER		
	BRC		
S&B Herba Foods	United Kingdom	Cambridge	ECOLOGICAL CERTIFICATION
			KOSHER
S&B Herba Foods	United Kingdom	Liverpool	BRC
			KOSHER
Tilda	United Kingdom	Rainham (classic site)	BRC
			KOSHER
Tilda	United Kingdom	Rainham (Jazz site)	FEMAS
			BRC
Transimpex	Germany	Lambsheim	IFS
			ECOLOGICAL CERTIFICATION
			ORGANIC CERTIFICATION NATURLAND

CALORIFIC POWER OF FUELS, EMISSION FACTORS AND WATER STRESS CLASSIFICATION

Table 1. Net calorific value (NCV) of Fuels

FUEL IN STATIONARY SOURCES	NCV	UNIT NCV	SOURCE NCV
Natural Gas	0.03789	GJ/m3N	National GHG Inventory of Spain (Annex 7), based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Liquefied Petroleum Gas (LPG)	0.0473	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Propane	0.0462	GJ/kg	Version 15, June 2020 of the EF document of the Ministry for Ecological Transition and Demographic Challenge (MITERD), based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Liquefied Natural Gas (LNG)	0.0442	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Butane	0.04478	GJ/kg	Version 15, June 2020 of the EF document of the MITERD, based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Gasoline	0.0443	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Diesel	0.043	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Charcoal	0.0295	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1)
Biomass (wood chip)	0.0156	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 2)
Biomass (rice husk)	0.0116	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 2)

FUEL IN MOBILE SOURCES	NCV	UNIT NCV	SOURCE NCV
Liquefied Natural Gas (LNG)	0.0442	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Liquefied Petroleum Gas (LPG)	0.0473	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Gasoline	0.0443	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Diesel	0.043	GJ/kg	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)

Table 2. Emission Factors of fuels and activities

FUEL IN STATIONARY SOURCES	EF CO ₂ E (KGCO ₂ E/GJ _{NCV})	EF CO ₂ (KGCO ₂ /GJ _{NCV})	EF CH ₄ (KGCH ₄ /GJ _{NCV})	EF N ₂ O (KGN ₂ O/GJ _{NCV})	UNIT EF	SOURCE NCV
Natural Gas	56.1545	56.1	0.001	0.0001	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Liquefied Petroleum Gas (LPG)	63.1545	63.1	0.001	0.0001	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Propane	63.6000	63.6	0	0	kg CO ₂ /GJ _{NCV}	Version 15, June 2020 of the EF document of the MITERD, based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Liquefied Natural Gas (LNG)	64.4430	64.2	0.003	0.0006	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Butane	66.2000	66.2	0	0	kg CO ₂ /GJ _{NCV}	Version 15, June 2020 of the EF document of the MITERD, based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Gasoline	69.5430	69.3	0.003	0.0006	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Diesel	74.3430	74.1	0.003	0.0006	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.2)
Charcoal	6.66	0	0.2	0.004	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch. 1 & 2)
Biomass (wood chips)	1.90	0	0.03	0.004	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch. 1 & 2)
Biomass (rice husk)	1.90	0	0.03	0.004	kg CO ₂ /GJ _{NCV}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch. 1 & 2)

FUEL IN MOBILE SOURCES	EF CO ₂ E (KGCO ₂ E/GJ _{NCV})	EF CO ₂ (KGCO ₂ /GJ _{NCV})	EF CH ₄ (KGCH ₄ /GJ _{NCV})	EF N ₂ O (KGN ₂ O/GJ _{NCV})	UNIT EF	SOURCE NCV
Liquefied Natural Gas (LNG)	59.4710	56.1	0.092	0.003	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Liquefied Petroleum Gas (LPG)	64.8890	63.1	0.062	0.0002	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Gasoline	72.1200	69.3	0.025	0.008	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)
Diesel	75.2427	74.1	0.0039	0.0039	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch.1 & 3)

OTHER DATA ON ACTIVITY	EF CO ₂ E (KGCO ₂ E/GJ _{NCV})	EF CO ₂ (KGCO ₂ /GJ _{NCV})	EF CH ₄ (KGCH ₄ /GJ _{NCV})	EF N ₂ O (KGN ₂ O/GJ _{NCV})	UNIT EF	SOURCE NCV
Rice crop	33.32	0	1.1900	0	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.4, ch.5) IPCC for fields not flooded for less than 180 days prior to growth, permanently flooded during growth and without organic fertiliser
Elimination of N	2.0821	0	0	0.005	kg CO ₂ /GJ _{PCI}	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.5, ch.6)

Table 3. Emission Factor of biogenic CO₂

FUEL	EF	UNIT EF
Charcoal	112	kg CO ₂ e/GJ
Biomass (wood chips)	112	kg CO ₂ e/GJ
Biomass (rice husk)	100	kg CO ₂ e/GJ

Source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.2, ch. 1 & 2)

Table 4. Global Warming Potential of GHG

GHG	GWP	SOURCE GWP
CO ₂	1	IPPC fifth assessment report
CH ₄	28	IPPC fifth assessment report
N ₂ O	265	IPPC fifth assessment report

Table 5. Emission Factor Electricity (based on location)

COUNTRY	EF	UNIT EF	SOURCE EF
Spain	0.2580	kgCO ₂ e/kWh	Factores de emisión, Registro de Huella de Carbono, Compensación y Proyectos de Absorción de CO ₂ , MITERD, Julio 2022 V, 22
UK	0.19338	kgCO ₂ e/kWh	UK Government GHG Conversion Factors for Company Reporting, DEFRA 2022
France	0.0569	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME
Germany	0.4610	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Argentina	0.3670	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Belgium	0.2200	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Cambodia	0.8040	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Canada	0.1860	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Denmark	0.3600	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
UAE	0.5980	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
USA	0.5620	kgCO ₂ e/kWh	US EPA, Household Carbon Footprint Calculator
Morocco	0.7180	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Netherlands	0.4150	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Portugal	0.2550	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Romania	0.4990	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Hungary	0.3170	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
India	0.9120	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Italy	0.4060	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Thailand	0.5130	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre, Base Carbone, ADEME, Y Agencia Internacional de la Energía
Steam or heat purchased and consumed	0.17073	kgCO ₂ e/kWh	UK Government GHG Conversion Factors for Company Reporting, DEFRA 2022
Cooling purchased and consumed	0.12	kgCO ₂ e/kWh	Centre de ressources sur les bilans de gaz a effet de serre 2021, Base Carbone, ADEME

Table 6. Emission Factors of Coolants

NAME OF COOLANT	EF (KGC0 ₂ E/KG)
Carbon Dioxide	1
Desflurane	1,790
Hexafluoroethane	11,100
HFC-125	3,170
HFC-134	1,120
HFC-134a	1,300
HFC-143	328
HFC-143a	4,800
HFC-152	16
HFC-152a	138
HFC-161	4
HFC-227ea	3,350
HFC-23	12,400
HFC-236cb	1,210
HFC-236ea	1,330
HFC-236fa	8,060
HFC-245ca	716
HFC-245fa	858
HFC-32	677
HFC-365mfc	804
HFC-41	116
HFC-43-10mee	1,650
Isoflurane	491
Methane	28
Nitrogen trifluoride	16,100
Nitrous oxide	265
Octafluoropropane	8,900
Perfluorobutane (PFC-31-10)	9,200
Perfluorocyclobutane (PFC-318)	9,540
Perfluoroethane (PFC-116)	11,100
Perfluorohexane (PFC-51-14)	7,910
Perfluoromethane (PFC-14)	6,630

NAME OF COOLANT	EF (KGC0 ₂ E/KG)
Perfluoropentane (PFC-41-12)	8,550
Perfluoropropane (PFC-218)	8,900
R-403A	2,520
R-404A	3,943
R-407A	1,923
R-407B	2,547
R-407C	1,624
R-407F	1,674
R-408A	2,650
R-410A	1,924
R-410B	2,048
R-413A	1,945
R-417A	2,127
R-417B	2,742
R-422A	2,847
R-422D	2,473
R-424A	2,212
R-426A	1,371
R-427A	2,024
R-428A	3,417
R-434A	3,075
R-437A	1,639
R-438A	2,059
R-442A	1,754
R-448A	1,387
R-449A	1,282
R-452A	1,945
R-453A	1,636
R-507A	3,985
R-508B	11,850
Sevoflurane	216
Sulphur hexafluoride	23,500

Source: IPCC Fifth Assessment Report

Table 7. Emission Factors of Pollutants NOx, CO, SOx, COV, PM

GJ POLLUTANT	STATIONARY COMBUSTION		
	NATURAL GAS+LNG+LPG+BUTANE+PROPANE FC (G/GJ)	GASOLINE+DIESEL FC (G/GJ)	RICE HUSK +WOOD CHIPS +CHARCOAL FC (G/GJ)
NOX	74	513	91
CO	29	66	570
COV	23	25	300
SOx	0.67	47	11
PM10	0.78	20	143
PM2.5	0.78	20	140

GJ POLLUTANT	MOBILE COMBUSTION			
	GASOLINE FC (G/GJ)	DIESEL FC (G/GJ)	LPG, PROPANE & BUTANE FC (G/GJ)	LNG FC (G/GJ)
CO	1,911.96	77.44	1,790.70	128.96
COV	226.86	16.28	288.37	5.88
NOX	197.07	301.40	321.35	294.12
PM	0.68	25.58		49.77

Source: European Environment Agency (EMEP)

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters> [eea.europa.eu]

Table 8. Rice Crop Emission Factor

EF CH4 (KG/HA/DAY)	SOURCE NCV
1,19	2006 IPCC Guidelines for National Greenhouse Gas Inventories (vol.4, ch.5) IPCC for fields not flooded for less than 180 days prior to growth, permanently flooded during growth and without organic fertiliser



Table 9. Water stress classification (World Resources Institute)

COUNTRY	WATER STRESS CLASSIFICATION (WORLD RESOURCES INSTITUTE)
Argentina	Low-Medium
Belgium	High
Cambodia	Low
Canada	Low
Denmark	Medium-High
France	Medium-High
Germany	Medium-High
Hungary	Low
India	Extremely High
Italy	High
Morocco	High
Netherlands	Low-Medium
Portugal	High
Romania	Low-Medium
Spain	High
Thailand	Medium-High
United Arab Emirates	Extremely High
United Kingdom	Low-Medium
United States	Low-Medium