ESG Data (Environment)

UBE Corporation

Overview of Group Environmental Impact

Input

Category		Boundary	Unit	2019	2020	2021	2022	2023
Total energy		Group companies	thousands of MWh	22,140	20,920	21,340	7,841	7,486
Total raw materials			(thousands of tons	16,298	15,381	15,819	2,177	2,054
Water resources	Fresh water used		million m^3	97	94	96	68	71
	Seawater used		million m^3	115	108	116	302	343

Output

Category		Boundary	Unit	2019	2020	2021	2022	2023
Airborne emissions	GHG	Group companies	10,000 t - CO2 e/y	1,211	1,127	1,184	382	350
	SOx		t	2,652	2,589	2,296	1,095	959
	NOx		t	16,071	15,274	14,956	3,275	3,405
	Dust		t	371	392	364	115	66
	PRTR substances		t	226	238	194	143	164
Soil emissions	PRTR substances		t	0	0	0	0	0
Waterborne emissions	Wastewater		million m^3	163	152	159	345	385
	COD		t	705	658	687	1,347	1,433
	Total phosphorus		t	11	10	11	18	18
	Total nitrogen		t	466	420	455	466	471
	PRTR substances		t	112	82	91	72	27
Industrial waste emissions	Off-site disposal volume		t	6,463	6,347	5,892	5,159	4,887
	Recycled volume		t	389,000	339,834	378,917	214,755	200,151

UBE Group Water Resource Usage

Water resource inputs (Note)

Category		Boundary	Unit	2019	2020	2021	2022	2023
UBE	Tap water	Ube Corporation	Millions of cubic meters	0.4	0.4	0.4	0.2	0.17
	Groundwater			0	0	0	0	0
	Industrial water			73	71	64	54	57
	Seawater			115	108	116	302	342
Subtotal				188	179.4	180.4	357	399
Group companies	Tap water	Group companies		0.3	0.3	0.2	0.0	0.1
	Groundwater			2.1	2.1	2.2	2	2.1
	Industrial water			22	21	29	11	11
	Seawater			0.0	0.0	0.0	0.0	0.0
Subtotal				24	23	32	13	14
Total (UBE Group)		UBE Group		212	202	212.4	369	414

Water discharges

Category		Boundary	Unit	2019	2020	2021	2022	2023
UBE	Sewers	Ube Corporation	Millions of cubic meters	0.0	0.0	0.0	0.0	0.0
	Rivers and lakes			0.0	0.0	0.0	0.0	0.0
	Ocean areas			159	148	154	340	379
Subtotal				159	148	154	340	379
Group companies	Sewers	Group companies		0.1	0.1	0.0	0.0	0.0
	Rivers and lakes			2.1	2.1	2.2	2.1	2.2
	Ocean areas			2.0	1.9	2.9	2.7	3.6
Subtotal				4.2	4.1	5.1	4.8	5.8
Total (UBE Group)		UBE Group		163	152	159	345	385

Note: Water resource inputs are in keeping with the Ministry of the Environment's Environmental Reporting Guidelines 2018.
These inputs are withdrawal from external sources to business sites.

Environmental Preservation: Environmental Accounting

Environmental Preservation Costs

Category			Unit	2020	2021	2022	2023	2020	2021	2022	2023
Classification		Main Activity		Capital Investment				Costs			
Cost by business area	Pollution prevention	Investing in and maintaining energy-saving facilities	¥100 million	12.2	13.6	9.6	3.1	43.8	44.2	36.2	32.9
	Investing in and maintaining air and water pollution prevention facilities	Resource recycling		11.7	6.1	2.7	2.3	39.4	33.4	1.5	1.1
	Global environment preservation	Recycling and reducing industrial waste		3.4	2.6	0.1	0.0	34.6	32.1	8.7	7.7
Upstream/downstream costs		Container/packaging recycling, green purchasing		0.0	0.0	0.0	0.0	4.8	9.0	5.4	4.4
Costs of management activities		Acquiring, running, and maintaining environmental		0.1	0.0	0.0	0.1	5.8	5.1	3.1	2.9
Research and development costs		R&D of environmentally friendly products and technologies		0.0	0.0	0.0	0.0	2.9	1.7	0.8	0.8
Costs of social activities		Greening and beautifying offices/facilities and their surroundings		0.0	0.2	0.2	0.4	2.4	3.9	0.8	0.8
Costs of cleaning up environment damage		Payment of environment-related levy		0.0	0.0	0.0	0.0	1.4	1.3	0.9	0.8
total				27.4	22.5	12.6	5.9	135.1	130.7	57.4	51.4

Economic Effect

Category		Unit	2020	2021	2022	2023
Classification	Main Activity					
Income effect	Proceeds from sales of marketable waste products	¥100 million	45.0	42.1	6.7	2.1
Savings effect	Savings achieved through resource recycling and energy conservation		58.2	66.4	31.5	30.4

Environmental Preservation: Environmental Impact Data by Facility

Fiscal 2019 and 2020 EnvironmentalImpact Data by Facility

		Emissions into the Atmosphere											
		SOx*1 Emissions				NOx*4 Emissions				Dust Emissions			
Category	Unit	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
Sakai Factory / Osaka Research & Development Center		0.0	0.0	0.0	0.0	1.4	1.6	1.4	1.2	0.1	0.1	0.0	0.0
Ube Chemical Factory east and west area		1,572	1,495	17	14	3,331	3,327	59	58	118	97	2.1	1.5
Ube Chemical Factory Fujimagari area		451	335	530	453	295	363	333	301	1.3	1.5	2.5	1.8
Power Mnagement Dept.(private power generation)		-	-	532	477	-	-	2755	2809	-	-	100	57
Ube Electronic and Industrial Materials Factory (Former Meiwa Plastic Industries, Ltd.)		-	-	-	-	-	-	-	-	-	-	-	-
Ube Research Laboratory / Pharmaceuticals Research Laboratory		-	-	-	-	-	-	-	-	-	-	-	-
Future Tech Laboratory		-	-	-	-	-	-	-	-	-	-	-	-
Subtotal (UBE)		2,023	1,830	1,079	944	3,627	3,692	3,149	3,169	119	99	105	60
API Corporation				2.6	2.4			5.9	4.6			0.1	0.1
UBE Elastomer Co. Ltd.		-	0.7	0.6	0.8	-	37	31.7	29.7	-	0.2	0.2	0.2
UBE Film, Ltd.		-	-	-	-	-	-	-	-	-	-	-	-
UBE Hydrogen Peroxide Limited		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UBE EXSYMO CO., LTD.	t	0.0	0.0	0.0	0.0	0.5	0.6	0.6	0.6	0.1	0.1	0.1	0.1
UBE Machinery Corporation, Ltd.		0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-
UBE Steel Co., Ltd.		12	12	13	12	70	88	88	201	6.9	7.7	9.4	6.0
Fukushima, Ltd.		-	-	-	-	-	-	-	-	-	-	-	-
Subtotal (Group companies)		12	13	16	15	70.5	126	126	236	7	8	9.8	6.4
Total (UBE Group)	t	2,035	1,843	1,095	959	3,698	3,817	3,275	3,405	126	107	115	67
overseas													
UBE Corporation Europa, S.A. Unipersonal	t	80	84	8	9	497	443	442	347	9.0	8.6	5.5	4.3
UBE Chemical (Asia) Public Company Limited		4.8	6.8	3.5	4.9	40	32	20	20	5.1	3.3	4.7	6.2
THAI SYNTHETIC RUBBERS COMPANY LIMITED		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	1.1	0.009
UBE Fine Chemicals (Asia) Co., Ltd.		0.0	0.0	0.0	0.0	4.6	5.5	4.8	3	0.1	0.2	0.2	0.5
Total	t	85	91	11	14	542	481	468	370	15	13	11	11

		Emissions into Water											
		COD*3 Emissions				Total Phosphorus Emissions				Total Nitrogen Emissions			
Category	Unit	2020	2021	2022	2023	2020	2021	2022	2023	2020	2021	2022	2023
Sakai Factory / Osaka Research & Development Center		1.0	0.6	0.7	0.3	0.1	0.0	0.0	0.0	0.8	0.6	0.7	0.3
Ube Chemical Factory east and west area		415	424	398	393	5.1	5.3	5.5	5.6	359	393	352	357
Ube Chemical Factory Fujimagari area		205	226	203	241	4.3	5.1	5	5.1	51	53	50	63
Power Mnagement Dept.(private power generation)		-	-	713	767	-	-	6.4	6.5	-	-	48	34
Ube Electronic and Industrial Materials Factory (Former Meiwa Plastic Industries, Ltd.)		-	-	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0
Ube Research Laboratory / Pharmaceuticals Research Laboratory		0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.1
Future Tech Research Laboratory		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal (UBE)		621	651	1,315	1,401	10	10	17	17	411	447	451	455
API Corporation				12.6	12.7			0.3	0.3			10.2	11.5
UBE Elastomer Co. Ltd.		-	12	11.5	12.2	-	0.1	0.1	0.1	-	3.5	3.3	3.0
UBE Film, Ltd.		-	-	-	-	-	-	-	-	-	-	-	-
UBE Hydrogen Peroxide Limited		0.3	0.4	0.4	0.4	0.0	0.4	0.0	0.0	0.3	0.4	0.3	0.3
UBE EXSYMO CO., LTD.	t	3.5	3.4	3.7	3.3	-	-	0.0	0.0	-	-	0.0	0.0
UBE Machinery Corporation, Ltd.		1.4	1.2	1.1	1.1	0.3	0.2	0.2	0.2	2.1	1.7	1.4	1.4
UBE Steel Co., Ltd.		2.3	2.1	2.6	2.4	-	-	-	-	-	-	-	-
Fukushima, Ltd.		-	-	-	-	-	-	-	-	-	-	-	-
Subtotal (Group companies)		7.5	19	32	4	0.3	0.7	0.6	0.6	2.4	5.6	15.2	16.2
Total (UBE Group)	t	658	670	1,347	1,433	10	11	18	18	413	452	466	471
overseas													
UBE Corporation Europa, S.A. Unipersonal	t	277	145	130	108	1.4	0.9	1	0.8	170	31	58	50
UBE Chemical (Asia) Public Company Limited		42	36	29	39	1.3	0.6	0.7	0.3	8.6	2.7	1.9	3.7
THAI SYNTHETIC RUBBERS COMPANY LIMITED		19	21	18	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UBE Fine Chemicals (Asia) Co., Ltd.		-	-	-	-	-	-	-	-	-	-	-	-
Total	t	338	202	177	163	2.7	1.5	2	1	179	34	60	54

Environmental Preservation:PRTR

Total Volume of PRTR SubstancesEmitted/Transferred in Fiscal 2020

	Handling Volume	Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2019 (Total Emissions)	Transfer Volume (Tons)	Number of PRTR Substances
		Atmosphere	Public Water	Soil	Total			
UBE	274,401	78.9	71.7	0.0	150.6	(15.4)%	2142.4	56
Other Group companies	30,038	159.0	10.5	0.0	169.5	5.9%	1,218.4	25
Total (UBE Group)	304,439	237.9	82.2	0.0	320.1	-5.3%	3,360.8	66

Total Volume of PRTR SubstancesEmitted/Transferred in Fiscal 2021

	Handling Volume	Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2020 (Total Emissions)	Transfer Volume (Tons)	Number of PRTR Substances
		Atmosphere	Public Water	Soil	Total			
UBE	197,015	87.9	80.9	0.0	168.8	12.1%	1,999.0	40
Other Group companies	143,448	105.4	10.6	0.0	116.0	-31.6%	2,025.6	29
Total (UBE Group)	340,463	193.3	91.5	0.0	284.8	-11.0%	4,024.6	58

Total Volume of PRTR Substances Emitted/Transferred in Fiscal 2022

	Handling Volume	Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2020 (Total Emissions)	Transfer Volume (Tons)	Number of PRTR Substances
		Atmosphere	Public Water	Soil	Total			
UBE	186,418	94.4	71.6	0.0	166.0	10.2%	3,462.0	55
Other Group companies	107,397	49.0	0.0	0.0	49.0	-71.1%	262.0	13
Total (UBE Group)	293,816	143.4	71.6	0.0	215.0	-32.8%	3,724.0	68

Total Volume of PRTR Substances Emitted/Transferred in Fiscal 2023

	Handling Volume	Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2020 (Total Emissions)	Transfer Volume (Tons)	Number of PRTR Substances
		Atmosphere	Public Water	Soil	Total			
UBE	84,364	80.2	21.8	0.0	102.0	-38.6%	2,963.0	63
Other Group companies	107,452	83.6	4.8	0.0	88.4	80.4%	852.0	40
Total (UBE Group)	191,817	163.8	26.5	0.0	190.4	-11.4%	3,815.0	78

Volumes of Individual PRTR Substances Emitted/Transferred in Fiscal 2020(Top 10 by UBE's Emission Volumes and Dioxins)

Ordinance Designation No.	Chemical Substance	CAS No.	Unit	Handling Volume	Total Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2019 (Total Emissions)	Transfer Volume (Tons)
					Atmosphere	Public Water	Soil	Total		
300	Toluene	108-88-3	t	868	68.9	11.1	0.0	80.0	(9.3)%	361.5
76	Epsilon-caprolactam	105-60-2		116,231	0.0	64.1	0.0	64.1	(30.4)%	783.4
240	Styrene	100-42-5		253	42.8	0.0	0.0	42.8	7.5%	0.5
134	Vinyl acetate	108-05-4		6,246	24.8	0.0	0.0	24.8	22.8%	0.0
80	Xylene	-		155	21.2	0.0	0.0	21.2	1.1%	9.0
53	Ethylbenzene	100-41-4		23	17.3	0.0	0.0	17.3	15.3%	7.9
392	Normal hexane	110-54-3		189	14.7	0.0	0.0	14.7	-10.5%	51.1
104	Chlorodifl uoromethane	75-45-6		13	12.3	0.0	0.0	12.3	288.0%	1.1
400	Benzene	71-43-2		92	9.4	0.2	0.0	9.6	11.6%	3.3
213	N,N-dimethylacetamide	127-19-5		677	9.3	0.0	0.0	9.3	10.7%	287.7
243	Dioxins (Note) mg-TEQ/year	-		-	182.2	3.4	0.0	185.6	(40.7)%	0.0

Note: Contains various compounds

Volumes of Individual PRTR Substances Emitted/Transferred in Fiscal 2021(Top 10 by UBE's Emission Volumes and Dioxins)

Ordinance Designation No.	Chemical Substance	CAS No.	Unit	Handling Volume	Total Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2020 (Total Emissions)	Transfer Volume (Tons)
					Atmosphere	Public Water	Soil	Total		
300	Toluene	108-88-3	t	956	72.2	15.4	0.0	87.6	15.0%	284
76	Epsilon-caprolactam	105-60-2		136,689	0.0	67.5	0.0	67.5	5.3%	699
134	Ethenyl acetate	108-05-4		5,649	22.5	0.0	0.0	22.5	-9.3%	0.0
392	Normal hexane	110-54-3		185	15.7	0.0	0.0	15.7	6.8%	12.2
80	Xylene	-		160	13.1	0.0	0.0	13.1	-32.5%	9.9
104	Chlorodifl uoromethane	75-45-6		12.7	12.3	0.0	0.0	12.3	0.0%	0.4
128	Chloromethane	74-87-3		12.2	12.2	0.0	0.0	12.2	37.1%	0.0
53	Ethylbenzene	100-41-4		23.5	10.5	0.0	0.0	10.5	-32.7%	8.9
400	Benzene	71-43-2		72.1	10.3	0.1	0.0	10.4	8.3%	0.0
213	N,N-dimethylacetamide	127-19-5		755	9.8	0.0	0.0	9.8	5.4%	296
243	Dioxins (Note) mg-TEQ/year	-		-	444.2	8.9	0.0	453.1	144.1%	0.0

Note: Contains various compounds

Volumes of Individual PRTR Substances Emitted/Transferred in Fiscal 2022 (Top 10 by UBE's Emission Volumes and Dioxins)

Ordinance Designation No.	Chemical Substance	CAS No.	Unit	Handling Volume	Total Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2021 (Total Emissions)	Transfer Volume (Tons)
					Atmosphere	Public Water	Soil	Total		
300	Toluene	108-88-3	t	835	55.4	13.9	0.0	69.3	-13.3%	203
76	Epsilon-caprolactam	105-60-2		97,916	0.0	49.9	0.0	49.9	-22.2%	251
104	Chlorodifl uoromethane	75-45-6		20	20.3	0.0	0.0	20.3	17.2%	0.0
400	Benzene	71-43-2		66	12.9	0.1	0.0	13.0		0.0
128	Chloromethane	74-87-3		12	12.3	0.0	0.0	12.3	27.9%	0.0
80	Xylene	-		128.4	10.4	0.0	0.0	10.4		11.4
53	Ethylbenzene	100-41-4		23.5	9.4	0.0	0.0	9.4	-55.8%	10.7
213	N,N-dimethylacetamide	127-19-5		605.3	8.2	0.0	0.0	8.2	-33.5%	267.6
240	Styrene	100-42-5		185.7	4.9	0.0	0.0	4.9	-88.5%	0.6
405	Boron compound	-		27	0.1	4.3	0.0	4.4	-52.8%	6
243	Dioxins (Note) mg-TEQ/year	-		-	83.3	2.5	0.0	85.8	-53.8%	0.0

Note: Contains various compounds

Volumes of Individual PRTR Substances Emitted/Transferred in Fiscal 2023 (Top 10 by UBE's Emission Volumes and Dioxins)

Ordinance Designation No.	Chemical Substance	CAS No.	Unit	Handling Volume	Total Emissions Volume (Tons)				Increase/Decrease Rate Compared with Fiscal 2022 (Total Emissions)	Transfer Volume (Tons)
					Atmosphere	Public Water	Soil	Total		
300	Toluene	108-88-3	t	1,109	54	10	-	64	-8.1%	463
629	cyclohexane	110-82-7		542	38	0.0	-	38		0.2
400	benzene	71-43-2		66	14	0.2	-	14	5.5%	-
128	chloromethane	74-87-3		10	10	-	-	10	-22.3%	-
213	N,N-Dimethylacetamide	127-19-5		546	9	-	-	8.6	5.3%	278
80	xylene	1330-20-7		95	8	-	-	7.9	-24.3%	12
53	Ethylbenzene	100-41-4		19	7	-	-	6.8		11
595	Ethylenediaminetetraacetic acid and its pc	60-00-4		10	-	5.0	-	5.0		0.2
240	styrene	100-42-5		163	5	-	-	4.7	-4.5%	0.5
674	Tetrahydrofuran	109-99-9		549	5	-	-	4.6		281
405	Boron compounds	74-94-2		25	0	4.2	-	4.2	-3.6%	5.1
737	Methyl isobutyl ketone	108-10-1		513	3	1.0	-	3.7		300
731	heptane	142-82-5		122	3	-	-	3.0		119
349	phenol	108-95-2		70,808	2	0.1	-	2.3		1,059
624	Methyl salicylate	119-36-8		221	2	-	-	2.2		5.5
243	Dioxins (Note) mg-TEQ/year	-		-	131	3.0	-	134	56.2%	-

Note: Contains various compounds

Treatment of Industrial Waste

FY	Unit	Industrial waste generated	in-house			Waste discharged from factories	Contracted		
			reduction	recycling	On-site landfill amount		reduction	recycling	Waste for external final disposal
2019	t	561,591	145,425	247,568	263	168,335	20,440	141,432	6,463
2020	t	476,127	105,940	220,559	126	149,502	23,171	119,984	6,347
2021	t	522,644	114,866	233,175	127	174,476	22,732	145,849	5,895
2022	t	285,780	46,743	40,656	706	197,676	18,418	174,099	5,159
2023	t	277,386	55,485	34,914	130	186,858	16,734	165,237	4,887

Environmental Issues:Tackling Global Warming

GHG Emissions

Category	Boundary	Unit	2019	2020	2021	2022	2023	
Scope 1	*1	kt-CO2e	11,400 ※3	10,690	3,790 (11,250)	3,390	314	Direct GHG emissions from a reporting entity, due to fuel use, etc.
Scope 2	*1	kt-CO2e	700※3	580	520 (590)	430	37	Indirect GHG emissions from electricity and heat purchased from other entities
Scope 3	※2	kt-CO2e	15,100	13,470	2,480	12,230	1,199	Indirect GHG emissions throughout the supply chain, such as those that occur during material procurement, transport and product processing, use and disposal
Total		kt-CO2e	27,200	24,740	6,790	16,050	1,550	

Notes *1 Factories designated for energy management in scope of consolidation and major overseas factories (Thailand and Spain)

*2 Factories designated for energy management in scope of consolidation in Japan, calculated based on the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain (Ministry of the Environment and Ministry of Economy, Trade, and Industry)

The figures in parentheses are the figures aggregated in the same boundary as the previous year, including the former construction material Co of the in-house company.

GHG Emissions by Company in 2020

Category	Unit	Scope 1	Scope 2	Total
Chemicals Company	kt-CO2e	2,970	510	3,480
Domestic		2,150	200	2,350
Thailand		410	290	700
Spain		410	20	430
Construction Materials Company		7,530	70	7,600
Machinery Company		190	10	200
Total		10,690	580	11,270

GHG Emissions by Department in 2021

Category	Unit	Scope 1	Scope 2	Total
Chemicals Company	kt-CO2e	3,590	510	4,100
Domestic		2,790	200	2,990
Thailand		440	310	760
Spain		360	0	360
Machinery Company		200	10	210
Total		3,790	520	4,310

GHG Emissions by Department in 2022

Category	Unit	Scope 1	Scope 2	Total
Chemicals Company	kt-CO2e	3,220	410	3,630
Domestic		2,350	120	2,470
Thailand		600	280	880
Spain		270	10	280
Machinery Company		170	20	190
Total		3,390	430	3,820

GHG Emissions by Department in 2023

Category	Unit	Scope 1	Scope 2	Total
Chemicals Company	kt-CO2e	297	36	333
Domestic		229	11	241
Thailand		40	22	62
Spain		28	2	30
Machinery Company		16	1	17
Total		314	37	350

Scope 3 Emissions by Category

Category	Unit	2019	2020	2021	2022	2023
1 Purchased goods and services	kt-CO2e	2,180	2,040	1,100	2,490	2,460
2 Capital goods					70	90
3 Fuel and energy-related activities not included in Scope 1 or Scope 2					300	180
4 Upstream transportation & distribution					140	90
5 Waste generated in operations					40	40
6 Business trave					10	10
7 Employee commuting					10	10
8 Upstream leased assets					0	0
9 Downstream transportation & distribution					70	80
10 Processing of sold products		200	180	180	460	480
11 Use of sold products		8,960	7,650	1,200	1,630	2,080
12 End-of-life treatment of sold products					910	890
13 Downstream leased assets					-	-
14 Franchises					-	-
15 Investments					6,110	5,590
Total		11,340	9,870	2,480	12,230	11,990

※ The data after FY2021 is aggregated data of UBE Group offices in Japan, not including the in-house company of the former construction materials.

Emissions Data by GHG Category

Category	Unit	2019	2020	2021	2022	2023
CO_2	kt-CO2e	11,230	10,410	3,390	3,140	3,000
Breakdown						
Energy-derived CO2			-	●2,160	-	-
Non-energy-derived CO2 (including waste-derived CO2)		10	-	1,230	-	-
CH_4※1		870	10	-	-	0
N_2O		-	850	920	680	500
HFC※1		0	0	0	0	0
PFC		0	0	0	0	0
SF_6※1		0	0	0	0	0
NF_3		0	0	0	0	0
Total		12,110	11,270	4,310	3,820	3,500

※1 less than 10,000t-CO2e

※ The data after FY2021 is aggregated data of UBE Group offices in Japan, not including the in-house company of the former construction materials.

Figures marked with ● are guaranteed by third-party verification. For details, please refer to the guarantee document.

GHG Emission Intensity (GHG emissions per unit of production)

Category	Unit	2019	2020	2021	2022	2023
GHG emission intensity	t-CO2e/t-Lc	3.282	3.263	2.251	2.733	2.565

※ Construction Materials Company: CO2 emission intensity (excluding waste) for Ube, Kanda, and Isa cement factories totaled 710kg-CO2e/t-cement
Intensity for periodical reports of production value under Energy Conservation

Unit: t-CO_2/t-Lc is defined as CO_2 emissions (metric tons) per unit of lactam equivalent production volume (metric tons)

Energy Consumption Data

Category	Unit	2020		2021		2022		2023		
		Total	Derived from Renewable Energy	Total	Derived from Renewable Energy	Total	Derived from Renewable Energy	Total	Derived from Renewable Energy	Notes
Fuel consumption	MWh/year	19,030,000	670,000	8,417,000	0	6,131,000	0	6,066,000	0	Biomass
Purchased electricity consumption		840,000	60,000	800,000	176,000	629,000	160,000	633,000	168,000	Power from renewable energy
Purchased steam consumption		1,050,000	0	1,425,000	0	1,079,000	0	722,000	0	
Private power generation (renewable energy)		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	Solar power
Total		20,920,000	730,000	10,644,000	178,000	7,841,000	162,000	7,486,000	170,000	

Totals may not add up because numbers are rounded off.

※ The data after FY2021 is aggregated data of UBE Group offices in Japan, not including the in-house company of the former construction materials.

Energy Type Consumption Data

Category	Unit	2019	2020	2021	2022	2023
Thermal coal	MWh/year	17,400,000	16,170,000	6,963,000	5,144,000	5,127,000
Kerosene and light oil		400,000	370,000	263,000	157,000	155,000
Liquefied natural gas		590,000	650,000	626,000	391,000	340,000
Liquefied petroleum gas		150,000	130,000	138,000	129,000	123,000
Petroleum coke		550,000	520,000	0	0	0
Heavy oil		320,000	270,000	201,000	122,000	98,000
Gas and oil by-products		230,000	250,000	226,000	188,000	223,000
Biomass		500,000	670,000	0	0	0
Total		20,140,000	19,030,000	8,417,000	6,131,000	6,066,000

※ The data after FY2021 is aggregated data of UBE Group offices in Japan, not including the in-house company of the former construction materials.

UBE management system acquisitions for the environment were as shown in the table below.

***See here for the occupational safety and health management system (Society)**

Environmental Management System (EMS) Acquisitions (Acquisition rate*: 92%)

Companies	Business Sites	EMS	Year and Month of Acquisition	Registration Agencies
UBE Corporation	Ube Chemical Factory	ISO14001	March 2000	Lloyd's Register Quality Assurance Limited (LRQA)
	Ube Chemical Factory Fujimagari area	ISO14001	March 2001	Lloyd's Register Quality Assurance Limited (LRQA)
	Sakai Factory	ISO14001	February 2000	Lloyd's Register Quality Assurance Limited (LRQA)
	Ube Electric and Industrial Materials Factory	ISO14001	April 2002	The High Pressure Gas Safety Institute of Japan
	Power Management Dept.	ISO14001	January 2014	Japan Quality Assurance Organization (JQA)
	Ube Research Laboratory and Pharmaceutical Research Laboratory	ISO14001	December 1999	Lloyd's Register Quality Assurance Limited (LRQA)
	Future Tech Laboratory	ISO14001	December 1999	Lloyd's Register Quality Assurance Limited (LRQA)
Ube Logistics Service, Ltd.	Ube Site[1]	ISO14001	March 2000	Lloyd's Register Quality Assurance Limited (LRQA)
	Sakai Site[2] ・ Nagoya Site[2]	ISO14001	February 2000	Lloyd's Register Quality Assurance Limited (LRQA)
	Chiba Site[3]	ISO14001	July 1999	Japan Chemical Quality Assurance Ltd. (JCQA)
UBE FILM ,LTD.	Headquarters and Onoda Factory	ISO14001	April 2004	Perry Johnson Registrars, Inc.
	Narita Factory	ISO14001	October 2007	Perry Johnson Registrars, Inc.
	Sano Factory	ISO14001	April 2023	Perry Johnson Registrars, Inc.
UBE Hydrogen Peroxide, Ltd.	Ube Factory	ISO14001	December 2003	Japan Chemical Quality Assurance Ltd. (JCQA)
UBE EXSYMO CO., LTD.	Gifu Site	ISO14001	January 2003	Japan Quality Assurance Organization (JQA)
	Fukushima Site	ISO14001	December 2001	Japan Quality Assurance Organization (JQA)
Ube Maxell Co., Ltd.	Ube Site[1]	ISO14001	March 2000	Lloyd's Register Quality Assurance Limited (LRQA)
	Sakai Site[2]	ISO14001	February 2000	Lloyd's Register Quality Assurance Limited (LRQA)
API Corporation	Yoshitomi Plant	ISO14001	February 2001	Japan Chemical Quality Assurance Ltd. (JCQA)
Ems-Ube Ltd.	Laurolactam Factory[1]	ISO14001	March 2000	Lloyd's Register Quality Assurance Limited (LRQA)
UBE Elastomer Co. Ltd.	Chiba Factory	ISO14001	July 1999	Japan Chemical Quality Assurance Ltd. (JCQA)
UBE-MARUZEN POLYETHYLENE Co., Ltd.	Chiba Factory[3]	ISO14001	July 1999	Japan Chemical Quality Assurance Ltd. (JCQA)
MU Ionic Solutions Corporation	Sakai Factory[2]	ISO14001	February 2000	Lloyd's Register Quality Assurance Limited (LRQA)
UBE MACHINERY CORPORATION, Ltd.	Headquaters Factory and Nagoya Site	ISO14001	November 1999	Lloyd's Register Quality Assurance Limited (LRQA)
T&U ELECTRONICS CO.,LTD.	Headquaters Factory	ISO14001	October 2001	GCC Japan
UBE STEEL CO., LTD.	Headquaters Factory	ISO14001	March 2005	Lloyd's Register Quality Assurance Limited (LRQA)
FUKUSHIMA LTD.	Headquaters Factory and Tokyo Office	ISO14001	February 1998	Japan Quality Assurance Organization (JQA)

＊Percentage of domestic plants and laboratories of UBE Corporation, Ltd. and consolidated subsidiaries that operate this management system

1 Included in the certification scope of UBE Corporation Ube Chemical Factory
2 Included in the certification scope of UBE Corporation Sakai Factory
3 Included in the certification scope of UBE Elastomer Co., Ltd. Chiba Plant