

KUBOTA Group Production Sites Data (results from January to December 2016)

Data on KUBOTA production sites in Japan

Item	Business site	Hanshin Plant (Mukogawa, Marushima)		Hanshin Plant (Amagasaki)		Keiyo Plant (Funabashi, Distribution Center)		Ichikawa Plant		Hirakata Plant		Okajima Business Center		Sakai Plant		Sakai Rinkai Plant		Utsunomiya Plant		
		Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	
INPUT																				
Energy		Unit	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ		
	Fossil fuel	Crude oil equivalent kL	17,057	661,120	5,484	212,541	22,265	862,982	100	3,880	4,735	183,529	5,094	197,436	3,029	117,411	3,094	119,930	938	36,359
	Purchased electricity	MWh	44,988	439,619	30,430	293,901	46,977	453,991	5,396	52,237	35,343	345,733	36,870	357,794	26,368	257,064	17,870	174,161	6,268	61,872
	Total	Crude oil equivalent kL	28,399	1,100,739	13,066	506,442	33,978	1,316,973	1,448	56,117	13,655	529,261	14,325	555,230	9,661	374,475	7,588	294,091	2,534	98,232
Water usage		thousand m ³	789	242	954	15	203	73	121	62	71									
OUTPUT																				
CO ₂ emission	CO ₂ emissions from energy sources	tons CO _{2e}	75,435	26,105	101,178	2,951	27,586	38,078	20,089	16,632	5,095									
Waste	Discharge amount	tons	12,593	4,874	18,053	111	3,133	12,455	1,750	869	305									
	Recycling ratio	%	99.9	99.9	99.7	99.7	99.97	99.8	98.0	99.2										
Exhaust gas ^{*1}	Main smoke and soot generating facilities ^{*2}	Melting furnaces			Heating furnaces			Melting furnaces			Heating furnaces			Melting furnaces			Drying furnaces			
		Unit	Control content	Control value	Measurement	Control content	Control value	Measurement	Control content	Control value	Measurement	Control content	Control value	Measurement	Control content	Control value	Measurement	Control content	Control value	Measurement
	SOx	Total emission control and K-value control: m ³ N/h	K-value control	1.17	0.01	Use of town gas with zero sulfur content			Total emission control	39.8	6.9	Use of town gas with zero sulfur content			Total emission control	2.859	0.510	Total emission control	1.177	0.110
	NOx	Total emission control: m ³ N/h, Concentration control: ppm	Total emission control	24.75	3.80	Total emission control	2.24	0.29	Total emission control	26.7	3.6	Total emission control	1.189	0.042	Total emission control	2.4	0.2	Total emission control	1.097	0.248
	Soot and dust	Concentration control: g/m ³ N	Concentration control	0.1	0.001	Concentration control	0.1	0.001	Concentration control	0.1	0.002	Concentration control	0.1	0.005	Concentration control	0.05	0.01	Concentration control	0.1	0.005
Water discharge		thousand m ³	1,121	242	1,289	33	222	42	99	17	109									
Drainage ^{*3}		Unit	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement
	pH	Minimum value, Maximum value	5.8~8.6	6.9 , 7.8	—	—	5.0~9.0	6.6 , 7.8	5.0~9.0	6.9 , 7.7	5.8~8.6	6.6, 7.5	—	—	—	—	5.8~8.6	6.7 , 8.1	5.8~8.6	7.3, 7.8
	BOD	mg/L	30	6	—	—	—	—	—	—	25	8	—	—	—	—	30	13	25	8
	COD	mg/L	20	5	—	—	20	4	60	25	25	7	—	—	—	—	30	16	—	—
	Nitrogen	mg/L	120	9	—	—	20	3	70	14	120	4	—	—	—	—	120	36	—	—
	Phosphorus	mg/L	16	0.3	—	—	2	0.04	7	2	16	ND	—	—	—	—	16	4	—	—
	Hexavalent chromium	mg/L	0.35	0.02	—	—	0.05	0.02	—	—	0.05	ND	—	—	—	—	0.5	ND	—	—
	Lead	mg/L	0.1	0.01	—	—	0.1	0.01	—	—	0.01	ND	—	—	—	—	0.1	ND	—	—
	COD, total emission control	kg/day	97.44	13.76	—	—	110.5	19.2	4	1	37.59	2.55	—	—	—	—	3.3	0.9	—	—
	Nitrogen, total emission control	kg/day	40.51	26.44	—	—	114.7	10.3	2.865	0.570	38.30	3.17	—	—	—	—	13.2	2.3	—	—
	Phosphorus, total emission control	kg/day	1.424	1.157	—	—	11.65	0.18	0.391	0.072	4.41	0.24	—	—	—	—	1.76	0.24	—	—
	pH	Minimum value, Maximum value	5.7~8.7	6.8 , 8.2	5.7~8.7	6.6 , 7.8	—	—	—	—	5.0~9.0	6.9 , 7.8	5.0~9.0	6.5 , 7.4	—	—	—	—	—	—
	BOD	mg/L	300	43	300	7	—	—	—	—	600	3	600	85	—	—	—	—	—	—
	COD	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	—	—	—
	SS	mg/L	300	3	300	22	—	—	—	—	600	10	600	30	—	—	—	—	—	—
VOC emission		tons	112	—	—	—	172	—	—	5	—	—	—	5	—	—	5	—	14	

Item	Business site	Tsukuba Plant ^{*4}	Kyuhoji Business Center ^{*4}	Shiga Plant
------	---------------	-----------------------------	---------------------------------------	-------------

INPUT								
Energy		Unit	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ
	Fossil fuel	Crude oil equivalent kL	6,061	234,913	248	9,614	579	22,450
	Purchased electricity	MWh	45,683	445,559	2,117	20,786	3,233	32,069
	Total	Crude oil equivalent kL	17,556	680,472	784	30,400	1,407	54,519
Water usage		thousand m ³	182		11		67	
OUTPUT								
CO ₂ emission	CO ₂ emissions from energy sources	tons CO _{2e}	36,088		1,616		2,694	
Waste	Discharge amount	tons	2,713		85		192	
	Recycling ratio	%	99.8		99.2		97.2	
Exhaust gas ^{*1}	Main smoke and soot generating facilities ^{*2}		Boilers			No smoke and soot generating facilities	Boilers	
		Unit	Control content	Control value	Measurement		Control content	Control value
	SOx	Total emission control and K-value control: m ³ N/h	K-value control	10.4	0.1		Use of town gas with zero sulfur content	
	NOx	Total emission control: m ³ N/h, Concentration control: ppm	Concentration control	230	100		Concentration control	—
	Soot and dust	Concentration control: g/m ³ N	Concentration control	0.25	0.01		—	—
							28 ^{*5}	—
Water discharge		thousand m ³	287		10		23	
Drainage ^{*3}		Unit	Control value	Measurement	Control value	Measurement	Control value	Measurement
	pH	Minimum value, Maximum value	5.8~8.6	7.4 , 7.8	—	—	6.0~8.5	7.5 , 7.9
	BOD	mg/L	10	6	—	—	30	1
	COD	mg/L	20	12	—	—	30	3
	Nitrogen	mg/L	60	15	—	—	12	1
	Phosphorus	mg/L	8	2	—	—	1.2	0.1
	Hexavalent chromium	mg/L	0.5	ND	—	—	0.05	ND
	Lead	mg/L	0.1	ND	—	—	0.1	ND
	COD, total emission control	kg/day	—	—	—	—	—	—
	Nitrogen, total emission control	kg/day	—	—	—	—	—	—
	Phosphorus, total emission control	kg/day	—	—	—	—	—	—
Sewerage lines	pH	Minimum value, Maximum value	—	—	5.7~8.7	6.9 , 7.6	—	—
	BOD	mg/L	—	—	300	3	—	—
	COD	mg/L	—	—	—	—	—	—
	SS	mg/L	—	—	300	3	—	—
VOC emission		tons	116		—		28	

*1 Total emission control: Control value (including agreed value) by plant or facility and the measurement value. K-value control and concentration control: Control value (including agreed value) of major smoke and soot generating facilities and the measurement value (maximum value).

*2 Smoke and soot generating facilities: Those subject to the laws concerning emissions into the atmosphere.

*3 Total emission control: Control value (including agreed value) by plant and the measurement value. Concentration control: Control value (including agreed value) by plant and the measurement value (pH shows the minimum value and maximum value, other items show the maximum value).

*4 Includes Group company data within the same site

*5 This old-type boiler is not applied to the Japanese laws. However we are obligated by the administration to measure its NOx emission.

KUBOTA Group Production Sites Data (results from January to December 2016)

Data on KUBOTA Group production sites in Japan

Item	Business site	Kubota-ChemiX (Sakai)		Kubota-ChemiX (Odawara)		Kubota-ChemiX (Tochigi)		KUBOTA Air Conditioner (Tochigi)		KUBOTA Precision Machinery		Nippon Plastic Industry		Kyushu KUBOTA Chemical	
INPUT															
Energy		Unit	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	
	Fossil fuel	Crude oil equivalent kL	102	3,970	101	3,926	27	1,036	261	10,123	683	26,455	128	4,965	
	Purchased electricity	MWh	13,729	133,993	27,625	267,609	21,298	205,228	2,766	27,189	13,042	126,693	14,594	141,399	
	Total	Crude oil equivalent kL	3,559	137,964	7,006	271,535	5,322	206,264	963	37,312	3,980	153,147	3,776	146,364	
Water usage		thousand m ³	17		31		280		76		17		136		5
OUTPUT															
CO ₂ emission	CO ₂ emissions from energy sources	tons CO _{2e}	6,008		14,020		10,716		1,892		8,063		7,362		3,476
Waste	Discharge amount	tons	94		66		123		137		430		18		9
	Recycling ratio	%	99.8		99.8		99.96		99.9		99.9		99.2		99.9
Exhaust gas ¹	Main smoke and soot generating facilities ²	Unit	No smoke and soot generating facilities	No smoke and soot generating facilities	No smoke and soot generating facilities	Drying furnaces	Control content	Control value	Measurement	No smoke and soot generating facilities					
	SOx	K-value control													
	NOx	Concentration control: ppm													
	Soot and dust	Concentration control: g/m ³ N													
Water discharge		thousand m ³	17		10		280		76		10		136		2
Drainage ³		Unit	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	
	pH	Minimum value, Maximum value	5.8~8.6	7.0	5.8~8.6	7.4 , 8.4	5.8~8.6	8.1 , 8.3	5.8~8.6	7.2 , 7.6	—	—	5.8~8.6	7.7	
	BOD	mg/L	25	2	60	2	20	4	30	4	—	—	160	4	
	COD	mg/L	25	4	60	3	—	—	—	—	—	—	160	2	
	Nitrogen	mg/L	60	—	120	1	60	1	—	—	—	—	—	—	
	Phosphorus	mg/L	8	—	16	0.1	1	0.1	—	—	—	—	—	—	
	Hexavalent chromium	mg/L	0.5	—	0.5	0.1	0.1	0.02	0.1	ND	—	—	—	—	
	Lead	mg/L	0.1	0.02	0.1	0.02	0.1	0.01	0.1	ND	—	—	0.1	0.02	
	COD, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	
	Nitrogen, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	
	Phosphorus, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	
	pH	Minimum value, Maximum value	—	—	—	—	—	—	—	—	5.0~9.0	6.9 , 8.5	—	—	
	BOD	mg/L	—	—	—	—	—	—	—	—	600	540	—	—	
	COD	mg/L	—	—	—	—	—	—	—	—	—	230	—	—	
	SS	mg/L	—	—	—	—	—	—	—	—	600	82	—	—	
VOC emission		tons	0.1		—		—		9		—	—	—	—	

Data on KUBOTA Group Overseas production sites

Region	North America						Europe								
Item	Business site	Kubota Manufacturing of America Corporation		Kubota Industrial Equipment Corporation		Kubota Materials Canada Corporation		Kubota Baumaschinen GmbH		Kubota Farm Machinery Europe SAS		Kverneland Group Operations Norway AS	Kverneland Group Soest GmbH	Kverneland Group Nieuw-Vennep B.V.	
INPUT															
Energy		Unit	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	
	Fossil fuel	Crude oil equivalent kL	4,389	170,132	3,219	124,776	3,775	146,304	733	28,405	364	14,104	1,992	77,206	
	Purchased electricity	MWh	25,524	254,474	29,197	291,095	19,024	189,672	3,124	31,142	1,944	19,383	31,892	2,864	
	Total	Crude oil equivalent kL	10,955	424,606	10,729	415,871	8,668	335,976	1,536	59,547	864	33,487	10,195	395,165	
Water usage		thousand m ³	68		40		338		7		3		62		3
Drainage ³		Unit	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	
	pH	Minimum value, Maximum value	—	—	—	—	—	—	—	—	5.5~8.5	7.9	—	—	
	BOD	mg/L	—	—	—	—	—	—	—	—	800	67	—	—	
	COD	mg/L	—	—	—	—	—	—	—	—	600	604	—	—	
	Nitrogen	mg/L	—	—	—	—	—	—	—	—	150	26	—	—	
	Phosphorus	mg/L	—	—	—	—	—	—	—	—	50	2	—	—	
	Hexavalent chromium	mg/L	—	—	—	—	—	—	—	—	0.1	0.07	—	—	
	Lead	mg/L	—	—	—	—	—	—	—	—	0.5	0.02	—	—	
	COD, total emission control	kg/day	—	—	—	—	—	—	—	—	3.6	3.6	—	—	
	Nitrogen, total emission control	kg/day	—	—	—	—	—	—	—	—	0.9	0.2	—	—	
	Phosphorus, total emission control	kg/day	—	—	—	—	—	—	—	—	0.3	0.01	—	—	
	pH	Minimum value, Maximum value	6.0~9.5	6.7 , 8.8	6.0~9.0	6.8 , 7.5	5.5~9.5	8.0	6.5~9.0	9.0	5.5~8.5	7.8	6.2~9.5	8.4	
Sewage lines	BOD	mg/L	900	202	250	35	300	ND	—	—	30	3	30	10	
	COD	mg/L	—	—	—	—	—	ND	1,000	976	125	26	—	—	
	SS	mg/L	900	172	250	26	350	ND							

KUBOTA Group Production Sites Data (results from January to December 2016)

Data on KUBOTA Group Overseas production sites(Continued from page 2/3)

Region		Europe, Russia										Asia										
Item	Business site	Kverneland Group Kerteminde AS		Kverneland Group Les Landes Génusson SAS		Kverneland Group Ravenna S.r.l.		Kverneland Group Manufacturing Lipetsk		Kubota Agricultural Machinery (SUZHOU) Co., Ltd.		Kubota Construction Machinery (WUXI) Co., Ltd.		Kubota Engine (WUXI) Co., Ltd.		Kverneland Agricultural Equipment Daqing Ltd						
INPUT																						
Energy		Unit	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ	Volume of use	Heat conversion GJ		
	Fossil fuel	Crude oil equivalent kL	675	26,163	11	428	464	17,997	12	457	2,127	82,437	318	12,328	320	12,398	70	2,731				
	Purchased electricity	MWh	4,871	48,569	715	7,124	1,488	14,832	111	1,105	14,508	144,644	2,358	23,512	3,580	35,695	128	1,279				
	Total	Crude oil equivalent kL	1,928	74,732	195	7,552	847	32,828	40	1,563	5,859	227,082	925	35,840	1,241	48,093	103	4,010				
Water usage		thousand m ³	32		2		6		0.4		122		8		6		0.3					
OUTPUT																						
CO ₂ emission	CO ₂ emissions from energy sources	tons CO _{2e}	2,841		58		1,410		73		14,847		2,278		3,223		227					
Waste	Discharge amount	tons	511		48		183		4		1,086		64		131		-					
	Recycling ratio	%	95.8		93.0		66.0		53.4		98.7		97.7		84.6		-					
Exhaust gas ¹	Main smoke and soot generating facilities ²	Unit	No smoke and soot generating facilities		No smoke and soot generating facilities		No smoke and soot generating facilities		No smoke and soot generating facilities		Boilers		Heating furnaces		Engine test		No smoke and soot generating facilities					
	SOx	Concentration control: mg/m ³									Control content	Control value	Measurement	Control content	Control value	Measurement	Control content	Control value	Measurement			
	NOx	Concentration control: mg/m ³									Concentration control	100	8	Concentration control	550	1	Concentration control	550	2			
	Soot and dust	Concentration control: mg/m ³									Concentration control	400	159	Concentration control	240	30	Concentration control	240	12			
											Concentration control	30	12	Concentration control	120	5	Concentration control	120	2			
Water discharge		thousand m ³	32		1		6		0.4		73		3		16		0.3					
Drainage ³	Public water areas	Unit	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement	Control value	Measurement
		pH	Minimum value, Maximum value	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		BOD	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		COD	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	100	17	—	—	—	—
		Nitrogen	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Phosphorus	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Hexavalent chromium	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Lead	mg/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		COD, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Nitrogen, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		Phosphorus, total emission control	kg/day	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sewage lines	Discharge to sewerage line	Minimum value, Maximum value	6.5~9.5	6.5 , 9.0	Discharge to sewerage line		5.5~9.5	7.0 , 8.1	Discharge to sewerage line		6.5~9.5	7.5 , 8.6	6.0~9.0	7.7	6.0~9.0	6.7 , 7.2	Discharge to sewerage line					
		BOD	mg/L	—	—	250	12	300	124	300	0	—	—									
		COD	mg/L	—	—	500	85	500	239	500	10	500	69									
		SS	mg/L	—	—	200	53	400	32	400	0	400	1									
VOC emission		tons	—	—	6		—	—	—	—	6		8		3		—	—	—	—	—	—

Region		Asia																			
Item	Business site	SIAM KUBOTA Corporation (Headquarter)		SIAM KUBOTA Corporation (Amata Nakorn Plant)		SIAM KUBOTA Metal Technology		KUBOTA Engine (Thailand)		Kubota Precision Machinery (Thailand)		P.T.Kubota Indonesia		P.T.Metec Semarang		Kubota Saudi Arabia Company					
INPUT																					
Energy																					