36 Conditions for the Establishment of a System

ISO 14001 Certified Locations

Certification covering multiple units

Country	Name of plants and companies		Certified initially in:	Certification organization
Japan	NGK SPARK PLUG CO., LTD.	Headquarters and Nagoya Plant	'99. 8	JQA
		Komaki Plant, Miyanojo Plant, Ise Plant	'00.12	
		Takenami Plant	'07. 1	
	Nittoku Alfa Service Co., Ltd.		'99. 8	
	Nittoku Unyu Co., Ltd.		'00.12	
	Ceramic Sensor Co., Ltd.		'00.12	
	NTK Ceramic Co., Ltd.	Komaki Plant	'00.12	
		Nakatsugawa Plant, Iijima Plant, Kani Plant	'00.12	
	Nansei Ceramic Co., Ltd.		'00.12	
	Kamioka Ceramic Co., Ltd.		'04. 1	
	Nittoku Seisakusho Co., Ltd.	Head Office Plant, Oguchi Plant	'04. 1	
		Satsuma Plant	'09.12	
	Nichiwa Kiki Co., Ltd.		'04. 1	
	Tono Ceramic Co., Ltd.		'04. 1	
	Tokai Taima Kogu Co., Ltd.		'09. 1	

Certification obtained individually

Country	Name of companies		Certified initially in:	Certification organization
U.S.A.	NGK Spark Plugs (U.S.A.),Inc.	WV Plant	'00. 7	TUV
France	NGK Spark Plugs (France)S.A.S		'00. 5	AFAQ
U.K.	NGK Spark Plugs (U.K.) Ltd.		'01.12	BSI
Germany	NGK Spark Plug Europe GmbH		'04.11	TUV
Brazil	Ceramica e Velas de Ignicao NGK do Brazil Ltda.		'01.12	ABS QE
Thailand	Siam NGK Spark Plug Co.,Ltd.		'02.11	TUV NORD
South Korea	Woo Jin Industry Co.,Ltd.		'05. 4	KFQ
	NTK Technical Ceramics Korea Co.,Ltd.		'06. 4	ISC
Malaysia	NGK Spark Plugs Malaysia Berhad.		'06. 3	SIRIM QAS
China	NGK Spark Plug (Shanghai) Co.,Ltd.		'07. 4	SGS
Indonesia	P.T. NGK Busi Indonesia		'07.10	Bureau Veritas
India	NGK Spark Plugs (India)Pvt.Ltd.		'10.12	ASR
South Africa	NGK Spark Plugs SA (Pty) Ltd.		'08. 4	Bureau Veritas

36 Environmental Education

Numbers of Official Qualification Holders and Internal Auditors

According to business operation, we bring up employees with public qualification and technical knowledge.

(people)

		NGK SPARK PLUG CO., LTD.	Affiliates
Pollution control manager	Air	37	1
	Water	66	6
	Noise	32	2
	Vibration	15	2
	Noise and Vibration *	4	0
Work environment measurement engineer		2	1
Environment measurement engineer		2	0
Energy manager		38	0
Specially controlled industrial waste manager		42	2
Energy administrator		8	1
ISO14001 assistant examiners		2	0
ISO14001 Internal auditors		390	250

(As of March 2012)

*The 2006 revision of the pollution control managers qualification system has integrated the noise control manager category and the vibration control manager category into one.

37 Environmental Accounting

Environment Conservation Costs

(Unit: million yen)

Items			Non-consolidated				NGK SPARK PLUG Group*			
Classification		Major efforts	Investment		Expense		Investment		Expense	
			2010	2011	2010	2011	2010	2011	2010	2011
Costs within the business area	Pollution prevention cost	Air/water pollution prevention and noise reduction	29	35	419	696	53	40	860	1,146
	Global environmental conservation cost	Global warming prevention, energy conservation	11	92	304	417	32	106	347	477
	Resource circulation cost	Effective resource utilization, industrial waste treatment/disposal	17	9	374	301	24	12	507	452
		Sub-total	57	136	1,096	1,414	109	157	1,714	2,075
Upstream & downstream cost		Employee environmental education, EMS construction and operation	0	0	0	0	0	0	5	13
Management activity cost		Employee environmental education, EMS construction and operation	25	16	323	328	25	17	400	420
R&D cost		R&D of products promoting environment preservation	372	645	6,004	6,517	372	645	6,004	6,517
Social activity cost		Nature protection, afforestation, environmental ads	1	0	152	159	1	0	158	165
Environment damage correction cost		Repair of soil contamination, disrupted nature	0	0	6	10	0	0	6	11
Other costs		–	0	0	0	0	0	0	10	0
		Total	454	798	7,581	8,428	507	819	8,297	9,200

●Any inconsistency between an aggregate of all itemized figures and a "Total" figure is due to rounding of fractions.
*Excluding Nittoku Alpha Service Co., Ltd.

Value of Environmental Preservation Impact

(Unit: million yen)

Area of recognized effect		Non-consolidated
Revenue	Revenue generated from the recycling of waste generated in operations or used products	203
Cost saving	Energy cost saving achieved from energy conservation efforts	116
	Reduction of water expenses through water saving	4
	Waste disposal cost saving achieved by resource conservation and recycling efforts	8
	Total	331

Quantity of Environmental Preservation Impact

Classification			Non-consolidated			NGK SPARK PLUG Group		
Effect measured in the business area	Types of effect		2010	2011	Difference from the previous fiscal yea	2010	2011	Difference from the previous fiscal yea
Effect measured with respect to resource input into operations	Energy consumption	Purchased electricity (GWh)	23,264	23.316	52	36,960	34,941	-2,019
		Gas (million m³)	1,391	1,421	30	1,621	1,506	-115
		LPG (tons)	3,313	3,182	-131	8,015	7,361	-654
		Heavy oil A (kL)	0	0	0	0	0	0
	Water consumption	Tap water (m³)	772,868	681,298	-91,570	990,315	895,960	-94,355
		Well water (m³)	412,697	401,720	-10,977	879,603	794,088	-85,515
	Quantity of PRTR law-regulated substances handled (tons)		671	619	-52	917	823	-94
Effect measured with respect to environmental load and waste from business activities	CO2 emission from energy consumption (tons)		122,294	116,663	-5,631	187,512	177,435	-10,077
	Recycled plant wastewater *(m³)		607,824	344,903	-262,921	848,629	570,710	-277,919
	Waste	Effectively utilized mass (tons)	12,757	11,745	-1,012	16,678	14,887	-1,791
		Buried, incineration (tons)	126	155	29	141	172	31
	PRTR law-regulated substances released into air and water (tons)		3.5	1.5	-2	141	112	-29

*Definition of recycled plant wastewater: Recycled water is defined as water that is reused after treatment of waste water.

41 Waste

Volumes of Waste Generated at Each Business Site

The volume of waste generated in fiscal 2011 in the plants and the affiliated companies is listed in the table as follows.

Name of Plants and companies		Volume of emissions (tons)	Volume effectively Recovery rate used (tons)	Volume of buried and incineration (tons)	Recovery rate (%)
NGK SPARK PLUG CO., LTD.	Headquarters and Nagoya Plant	913	904	9.3	99.0%
	Komaki Plant	7,396	7,275	122	98.4%
	Miyanojo Plant	3,429	3,408	21	99.4%
	Ise Plant	156	155	1.5	99.1%
	Takenami Plant	5.0	4.2	0.9	82.9%
	Subtotal	11,900	11,745	155	98.7%
Affiliates	NTK Ceramic Co., Ltd. (Iijima Plant)	306	299	6.9	97.7%
	NTK Ceramic Co., Ltd. (Nakatsugawa Plant)	320	319	1.3	99.6%
	NTK Ceramic Co., Ltd. (Kani Plant)	32	32	0.2	99.3%
	NTK Ceramic Co., Ltd. (Komaki Plant)	1,060	1,056	4.2	99.6%
	Nansei Ceramic Co., Ltd.	8.5	8.5	0.03	99.6%
	Kamioka Ceramic Co., Ltd.	43	43	0.2	99.4%
	Nittoku Seisakusho Co., Ltd.	258	256	1.7	99.3%
	Nichiwa Kiki Co., Ltd.	6.4	6.4	0.1	99.2%
	Tono Ceramic Co., Ltd.	45	44	0.6	98.6%
	Ceramic Sensor Co., Ltd.	1,074	1,072	1.8	99.8%
	Tokai Taima Kogu Co., Ltd.	5.1	4.7	0.4	91.7%
	Nittoku Unyu Co., Ltd.	0.3	0.3	0.004	98.7%
	Subtotal	3,159	3,142	18	99.4%
	Total	15,059	14,887	172	98.9%

44 Hazardous Substances

PRTR data for Each Business Site

The table contains the substances that each business location was required to report

(kg)

Name of plants and companies	Cabinet order No.	Name of chemical substance	Quantity handled	Quantity released			Quantity transferred			Quantity processed		Quantity taken out
				Atmosphere	Public water area	Soil	Public sewer	Buried and incineration	Effective use	Incineration on the premises	Disassociation reaction	Product/ Sold
Headquarters and Nagoya Plant	53	Ethylbenzene	4,488	0							4,488	
	80	Xylene	19,234	0							19,234	
	87	Chromium and chromium (Ⅲ) compounds	13,675				1		469			13,205
	144	Inorganic cyanide compounds (except complex salts and cyanates)	1,210				9				1,201	
	296	1,2,4-trimethylbenzene	7,528	0							7,528	
	297	1,3,5-trimethylbenzene	2,467	0							2,467	
	300	Toluene	56,526	50							56,476	0
	308	Nickel	84,981						166			84,815
	392	n-hexane	4,184	0							4,184	
	400	Benzene	2,410	1							2,409	
	405	Boron compounds	1,312					1	122			1,190
	412	manganese and its compounds	1,532						2			1,529
Komaki Plant ※Including NTK ceramic (Komaki plant)	20	2-aminoethanol	16,575						16,398		177	
	31	Antimony and its compounds	1,073					53	120			901
	53	Ethylbenzene	2,584	11					628		1,946	
	80	Xylene	12,760	157					3,770		8,833	
	87	Chromium and chromium (Ⅲ) compounds	1,763						705			1,058
	132	Cobalt and its compounds	1,884					0	46			1,838
	144	Inorganic cyanide compounds (except complex salts and cyanates)	4,287						183		1,883	2,221
	272	Copper salts (water-soluble,except complex salts)	67,631		31				1,930		65,670	
	297	1,3,5-Trimethylbenzene	1,036	0					0		1,035	
	300	Toluene	26,536	327					19		26,190	
	308	Nickel	34,415					1	1,325			33,090
	309	Nickel compounds	2,790		134			0	494		2,161	
	384	1-Bromopropane	1,209	637					176			396
	400	Benzene	659	0							659	
	405	Boron compounds	28,342		120			15	2,097		58	26,052
	407	poly (oxyethylene) alkyl ether (alkyl C=12-15)	2,327						2,291		36	
	410	Poly (oxyethylene) nonylphenyl ether	1,008						983		25	
	411	Formaldehyde	4,863						4,814		49	
	412	Manganese and its compounds	4,405		2			1	4,307		1	94
	453	Molybdenum and its compounds	1,135					1	43		0	1,092
Miyanojo Plant	87	Chromium and chromium (Ⅲ) compounds	9,677					0	1,789			7,887
	144	Inorganic cyanide compounds (except complex salts and cyanates	1,958						24		1,935	
	308	Nickel	152,394									152,396
	405	Boron compounds	6,651		35				139		3	6,474
	412	manganese and its compounds	1,101									1,102
Ise Plant	305	Lead compounds	30,154					63	4,668			25,423
		Subtotal	618,768	1,185	322		10	135	47,708		208,647	360,763
NTK Ceramic (Iijima Plant)	53	Ethylbenzene	6,937	1,876					5,061			
	80	Xylene	3,735	1,010					2,725			
	87	Chromium and chromium (Ⅲ) compounds	1,111						634			478
	144	Inorganic cyanide compounds (except complex salts and cyanates)	2,113		0				1,582		171	360
	300	Toluene	6,051	6,051								
	308	Nickel	1,528									1,528
	309	Nickel compounds	962						962			
	354	di-n-butyl phthalate	3,892						1,167		2,725	
NTK Ceramic (Nakatsugawa Plant)	53	Ethylbenzene	1,021	387					601			33
	80	Xylene	5,785	2,192					3,408			185
	87	Chromium and chromium (Ⅲ) compounds	5,220						1,935			3,285
	300	Toluene	101,197	97,765					3,431			
	305	Lead compounds	4,483						1,985			2,497
	354	di-n-butyl phthalate	22,238						8,639		3,306	10,293
	355	Molybdenum and its compounds	3,944						2,769		684	491
	453	Molybdenum and its compounds	1,868						229			1,639
NTK Ceramic (Kani Plant)	354	di-n-butyl phthalate	1,206						729		478	
Nansei Ceramic	305	Lead compounds	1,425						1,425			1
	384	1-bromopropane	2,934	1,027								1,907
Nittoku Seisakusho (Oguchi Plant)	308	Nickel	11,302									11,302
Ceramic Sensor	333	Hydrazine	11,345						9,849		1,490	6
	374	Hydrogen fluoride and its water-soluble salts	2,851						2,795		56	
	405	Boron compounds	1,223					1			651	571
		Subtotal	204,373	110,308	0			1	49,925		9,561	34,576
		Total	823,141	111,493	322		10	137	97,634		218,209	395,340

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

We measure regularly the atmosphere, the water, the noise, the vibration, and manage them to observe laws and regulations.

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Headquarters and Nagoya Plant	Atmosphere	Soot and dust	Boiler (No.10)	mg/Nm³	50	–	40	2	2
			Boiler (No.11)		50	–	40	2	2
			Boiler (No.12)		50	–	40	2	2
			Firing furnace (PR-2)		150	–	120	4.5	7
		NOx	Boiler (No.10)	ppm	150	–	120	36	36
			Boiler (No.11)		150	–	120	56	56
			Boiler (No.12)		150	–	120	46	46
			Firing furnace (PR-2)		180	–	144	60	65
	Drain (sewer)	pH		–	5.0~9.0	–	5.4~8.6	6.9	7.3
		SS		mg/l	600	–	480	24.1	170
		BOD		mg/l	600	–	480	39.1	320
		n-hexane extract		mg/l	30	–	24	1.7	21.0
		Cyanogen		mg/l	1	–	0.8	0.15	0.3
		Total chromium		mg/l	2	–	1.6	0.06	0.16
		Hexavalent chromium		mg/l	0.5	–	0.4	0.04	0.05
		Zinc		mg/l	2	–	1.6	0.43	1.50
		Lead		mg/l	0.1	–	0.08	<0.02	<0.02
		Nitrogen		mg/l	120	–	96	25.88	44
		Phosphor		mg/l	16	–	12.8	0.69	4.20
		Fluorine		mg/l	8	–	6.4	0.35	0.6
		Boron		mg/l	10	–	8	1.1	2.0
	Noise	Morning	R spot	dB	70	–	68	57.9	57.9
			T spot	dB	65	–	63	60.4	60.4
		Daytime	R spot	dB	70	–	68	60.2	60.2
			T spot	dB	65	–	63	65.9	65.9 *
		Evening	R spot	dB	70	–	68	58.7	58.7
			T spot	dB	65	–	63	61.1	61.1
		Night	R spot	dB	65	–	64	57.6	57.6
			T spot	dB	55	–	54	53.2	53.2
	Vibration	Daytime	R spot	dB	70	–	65	42.0	42.0
			T spot					42.0	42.0
		Night	R spot	dB	65	–	60	43.0	43.0
			T spot					40.0	40.0

* : These values apply to the background noise level. The background noise level is the noise when machines, and so on, are not operating. It is affected by traffic noise, noise from adjacent plants, and so on.

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Komaki Plant	Atmosphere	Soot and dust	Boiler (No.1-6)	mg/Nm³	200	200	160	<2	<2
			Firing furnace (No.9-10)	mg/Nm³	200	200	160	4.0	8.0
		NOx	Boiler (No.1-6)	ppm	250	–	200	28.0	28.0
			Firing furnace (No.9-10)	ppm	200	–	160	62.0	64.0
		SOx	Boiler (No.1-6)	Nm³/h	8.379	–	6.703	<2	<2
			Firing furnace (No.9-10)	Nm³/h	8.379	–	6.703	<2	<2
	Drain (public water area)	pH	East	–	6.0~8.0	6.0~8.0	6.2~7.8	7.4	7.6
			West					7.2	7.3
			North					No drainage	No drainage
		SS	East	mg/l	30	–	24	1.6	3.0
			West					0.3	4.0
			North					No drainage	No drainage
		BOD	East	mg/l	25	–	20	3.8	6.5
			West					1.1	2.9
			North					No drainage	No drainage
		COD	East	mg/l	–	–	–	4.2	6.3
			West					3.5	6.0
			North					No drainage	No drainage
		COD(total)	Komaki Prant total	kg/day	160.22	–	–	10.9	28.8
		n-hexane extract	East	mg/l	5.0	5.0	4.0	0.3	3.8
			West					0.1	0.7
			North					No drainage	No drainage
		Cyanogen	East	mg/l	0.5	0.5	0.4	<0.1	<0.1
			West					<0.1	<0.1
			North					No drainage	No drainage
		Total chromium	East	mg/l	2.0	1.0	0.8	0.0	0.1
			West					<0.04	<0.04
			North					No drainage	No drainage
		Copper	East	mg/l	1.0	1.0	0.8	0.0	0.1
			West					0.1	0.1
			North					No drainage	No drainage
		Zinc	East	mg/l	1.8	1.8	1.6	0.1	0.3
			West					0.0	0.1
			North					No drainage	No drainage
		Lead	East	mg/l	0.1	–	0.08	<0.02	<0.02
			West					<0.02	<0.02
			North					No drainage	No drainage
		Nitrogen	East	mg/l	120	–	60	8.4	15.0
			West					4.3	7.4
			North					No drainage	No drainage
		Nitrogen(total)	Komaki Prant total	kg/day	119.21	–	–	14.6	31.9
		Phosphorus	East	mg/l	16	–	8.0	0.4	0.7
			West					0.6	1.1
			North					No drainage	No drainage
		Phosphorus(total)	Komaki Prant total	kg/day	11.901	–	–	1.1	4.0
		Nickel	East	mg/l	–	–	–	0.2	0.4
			West					<0.1	<0.1
			North					No drainage	No drainage
		Manganese	East	mg/l	10	–	8	<0.1	<0.1
			West					0.0	0.1
			North					No drainage	No drainage
		Fluorine	East	mg/l	8	–	6.4	0.5	0.8
			West					1.3	2.0
			North					No drainage	No drainage
		Boron	East	mg/l	10	–	8	0.3	2.0
			West					<1	<1
			North					No drainage	No drainage
	Noise	Morning	Fifth spot	dB	65	–	63	43.1	43.1
		Daytime	Fifth spot	dB	70	–	68	49.7	49.7
		Evening	Fifth spot	dB	65	–	63	36.7	36.7
		Night	Fifth spot	dB	60	–	58	37.6	37.6
	Vibration	Daytime	Fifth spot	dB	70	–	–	<45.0	<45.0
		Night	Fifth spot	dB	65	–	–	<45.0	<45.0

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Miyanojo Plant	Atmosphere	Soot and dust	Absorption heater/chiller	mg/Nm³	300	–	240	N/A	N/A
			3T water boiler	mg/Nm³	100	–	80	<0.007	<0.007
		NOx	Absorption heater/chiller	ppm	180	–	144	N/A	N/A
			3T water boiler	ppm	150	–	120	72.0	72.0
	Drain (public water area)	pH		–	6.0~8.0	6.0~8.0	6.5~7.8	7.4	7.6
		SS		mg/l	35	35	28	7.5	15.0
		BOD		mg/l	20	20	16	3.8	12.0
		COD		mg/l	160	–	128	13.0	18.0
		n-hexane extract		mg/l	5	≦5	4	<2.5	<2.5
		Cyanogen		mg/l	1	–	0.8	<0.05	<0.05
		Hexavalent chromium		mg/l	0.5	–	0.4	<0.05	<0.05
		Copper		mg/l	3	–	2.4	<0.05	<0.05
		Zinc		mg/l	2	–	1.4	<0.05	0.1
		Lead		mg/l	0.1	–	0.08	<0.01	<0.01
		Fluorine		mg/l	8	–	6.4	<0.2	0.2
		Boron		mg/l	10	–	8	2.6	5.6
		Coli bacteria		counts/cm³	3000	–	2400	0.0	0.0
	Noise	Morning		dB	60	–	55	47.6	51.0
		Daytime		dB	65	–	60	51.0	52.4
		Evening		dB	60	–	55	48.7	51.2
		Night		dB	50	–	50	45.2	46.4
	Vibration	Daytime		dB	60	–	52	32.5	32.5
		Night		dB	55	–	48	30.0	30.0
Ise Plant	Atmosphere	Soot and dust	Firing furnace	mg/Nm³	250	–	100	<5	<5
	Drain (public water area)	pH		–	5.8~8.6	–	6.0~8.4	7.6	8.2
		SS		mg/l	90	–	45	1.6	6.0
		BOD		mg/l	25	–	20	1.1	2.0
		COD		mg/l	25	–	20	4.0	7.0
		COD(total)		kg/day	3.4	–	3.4	0.1	0.2
		n-hexane extract		mg/l	30	–	15.0	<1	<1
		Phenols		mg/l	1		0.5	<0.1	<0.1
		Total chromium		mg/l	2	–	1	<0.04	<0.04
		Copper		mg/l	1	–	0.5	<0.02	<0.02
		Zinc		mg/l	2	–	1	0.0	0.1
		iron		mg/l	10	–	5	0.0	0.2
		Lead		mg/l	0.1	–	0.05	<0.01	<0.01
		Nitrogen		mg/l	120	–	60	6.7	13.0
		Nitrogen(total)		kg/day	4.1		4.1	0.2	0.3
		Phosphorus		mg/l	16	–	8	0.7	1.2
		Phosphorus(tota)		kg/day	0.39	–	0.39	0.02	0.03
		Manganese		mg/l	10	–	5	0.0	0.3
		Coli bacteria		counts/cm³	3000	–	1500	6.9	26.0
	Noise	Morning	East	dB	55	–	55	41.6	41.6
		Daytime	East	dB	60	–	58	48.6	48.6
		Evening	East	dB	55	–	55	48.9	48.9
		Night	East	dB	50	–	50	48.8	48.8
	Vibration	Daytime (all directions)		dB	65	–	60	<50	<50
		Night (all directions)			60	–	55	<50	<50

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Takenami Plant	Drain (public water area)	pH		–	5.8~8.6	5.8~8.6	–	7.3	7.5
		SS		mg/l	200	200	100	2.3	3.0
		BOD		mg/l	160	160	130	21.5	55.0
		COD		mg/l	160	160	80	7.5	14.0
		n-hexane extract		mg/l	5	-	4	<0.5	<0.5
		Nitrogen		mg/l	120	-	–	4.2	6.3
		Phosphorus		mg/l	16	-	–	0.18	0.42
		Coli bacteria		counts/cm³	3000	-	2000	25.8	72.0
	Noise	Morning	Fourth spot	dB	50	50	–	43.5	44.0
		Daytime	Fourth spot	dB	55	55	–	44.0	44.5
		Evening	Fourth spot	dB	50	50	–	43.3	43.5
		Night	Fourth spot	dB	45	45	–	43.3	43.5
	Vibration	Daytime	Fourth spot	dB	55	55	–	<45.0	<45.0
		Night	Fourth spot	dB	50	50	–	<45.0	<45.0
NTK Ceramic Co., Ltd. (Iijima Plant)	Atmosphere	Soot and dust	Firing furnace: YA-5,6	mg/Nm³	250	–	250	<5	<5
			Firing furnace: YA-7,8					<5	<5
			Absorption heater/chiller: FGL		100		100	<5	<5
			Absorption heater/chiller: FGDL					<5	<5
		NOx	Firing furnace: YA-5,6	ppm	180	–	180	<10	<10
			Firing furnace: YA-7,8					<10	<10
			Absorption heater/chiller: FGL		150		150	34.0	34.0
			Absorption heater/chiller: FGDL					37.5	40.0
	Drain (public water area)	pH		–	5.8~8.6	5.8~8.6	6.0~8.0	7.2	7.3
		SS		mg/l	50	50	50	1.7	8.0
		BOD		mg/l	30	30	25	1.1	2.4
		COD		mg/l	30	30	30	3.0	6.5
		n-hexane extract		mg/l	5	5	5	<1	<1
		Cyanogen		mg/l	0.5	0.5	0.2	<0.01	<0.01
		Copper		mg/l	2	2	2	0.03	0.05
		Zinc		mg/l	3	3	3	<0.05	<0.05
		Lead		mg/l	0.1	0.1	0.1	<0.05	<0.05
		Fluorine		mg/l	15	15	15	0.7	0.8
		Boron		mg/l	50	50	50	1.18	2.60
		Phenols		mg/l	5	5	5	<0.02	<0.02
		Ammonia		mg/l	500	500	500	9.2	12.0
		Coli bacteria		counts/cm³	3000	3000	3000	35.8	84.0
	Noise	Morning	First spot	dB	65	65	65	47.0	47.0
		Daytime	First spot	dB	65	65	65	47.0	47.0
		Evening	First spot	dB	65	65	65	48.0	48.0
		Night	First spot	dB	55	55	55	44.0	44.0
NTK Ceramic Co., Ltd. (Nakatsugawa Plant)	Atmosphere	Soot and dust	Firing furnace(NN-1)	mg/Nm³	50	50	20	6.0	6.0
		SOx	Firing furnace(NN-1)	Nm³/h	–	0	–	0.0	–
	Drain (public water area)	pH	Factory 1&2	–	5.8~8.6	5.8~8.6	6.2~8.6	7.5	8.1
			Factory 3					7.4	8.1
		SS	Factory 1&2	mg/l	50	50	35	4.7	17.0
			Factory 3					3.6	10.0
		BOD	Factory 1&2	mg/l	15	15	13	3.6	9.9
			Factory 3					3.5	8.5
		COD	Factory 1&2	mg/l	40	40	30	10.2	17.0
			Factory 3					8.6	14.0
		n-hexane extract	Factory 1&2	mg/l	5	5	4	<0.5	<0.5
			Factory 3					<0.5	<0.5
		Nitrogen	Factory 1&2	mg/l	10	10	–	4.7	8.7
			Factory 3					6.2	8.6
		Phosphorus	Factory 1&2	mg/l	3	3	2.5	0.05	0.14
			Factory 3					0.48	1.1
		Coli bacteria	Factory 1&2	counts/cm³	3000	3000	1000	183.7	430.0
			Factory 3					0.0	0.0
	Noise	Morning	Fourth spot	dB	60	60	58	45.5	47.0
		Daytime	Fourth spot	dB	65	65	63	52.0	53.0
		Evening	Fourth spot	dB	60	60	58	52.0	57.0
		Night	Fourth spot	dB	50	50	50	46.0	48.0
	Vibration	Daytime	Fourth spot	dB	65	–	63	20.0	20.0
		Night	Fourth spot	dB	60	–	58	19.0	19.0

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX	
					Low/Local regulation	Agreement with the city				
NTK Ceramic Co., Ltd. (Kani Plant)	Atmosphere	Soot and dust		mg/Nm³	100	–	90	9.0	9.0	
		NOx		ppm	150	–	135	35.0	35.0	
	Drain (sewer)	pH		–	5.8～8.6	–	5.9～8.5	7.2	7.2	
		SS		mg/l	200	–	180	2.0	2.0	
		BOD		mg/l	160	–	144	9.0	9.0	
		COD		mg/l	160	–	30	6.6	6.6	
		n-hexane extract		mg/l	5	–	4.5	1.0	1.0	
	Noise	Morning	First spot	dB	50	–	50	47.7	47.7	
		Daytime	First spot	dB	60	–	60	50.2	50.2	
		Evening	First spot	dB	50	–	50	48.9	48.9	
		Night	First spot	dB	45	–	45	44.8	44.8	
Nansei Ceramic Co., Ltd.	Drain (public water area)	pH		–	–	–	5.8～8.6	7.1	7.2	
		SS		mg/l	–	–	90	0.3	1.0	
		BOD		mg/l	20	20	20	<1	1.0	
		COD		mg/l	–	–	40	<1	1.0	
		n-hexane extract		mg/l	–	–	1	<1	<1	
		Lead		mg/l	–	–	0.1	<0.01	<0.01	
		Nitrogen		mg/l	–	–	100	1.2	2.8	
		Phosphorus		mg/l	–	–	16	0.1	0.3	
		Coli bacteria		counts/cm³	–	–	1000	<1	<1	
	Noise	Morning	North	dB	55	–	55	51.8	52.2	
		Daytime	North	dB	60	–	60	58.9	59.3	
		Evening	North	dB	55	–	55	54.0	54.7	
		Night	North	dB	50	–	50	47.4	47.9	
Kamioka Ceramic Co., Ltd.	Drain (public water area)	pH	①	–	5.8～8.6	–	6.2～8.2	7.7	7.8	
			②					7.6	7.6	
			③					7.5	7.6	
		SS	①	mg/l	200	–	50	4.5	8.4	
			②					9.2	16.0	
			③					5.1	5.6	
		BOD	①	mg/l	160	–	40	0.6	0.6	
			②					11.3	16	
			③					5.9	1.8	
		COD	①	mg/l	160	–	40	1.6	2.4	
			②					28.0	42.0	
			③					12.5	14.0	
		n-hexane extract	①	mg/l	5	–	2.5	<0.5	<0.5	
			②					<0.5	<0.5	
			③					<0.5	<0.5	
		Coli bacteria	①	mg/l	3000		300	<30	<30	
			②					<30	<30	
			③					<30	<30	
	Noise	Morning	Fourth spot	dB	60	–	60	37.0	37.0	
		Daytime	Fourth spot	dB	65	–	65	45.0	45.0	
		Evening	Fourth spot	dB	60	–	60	40.0	40.0	
		Night	Fourth spot	dB	50	–	50	40.0	40.0	
Nittoku Seisakusho Co., Ltd. (Head Office Plant)	Drain (sewer)	pH	① Office building	–	5.0以上	–	5.8～9.0	7.5	7.5	
			② Head factory					7.4	7.4	
			③ West factory					7.5	7.5	
		SS	① Office building	mg/l	–	–	600	<1	<1	
			② Head factory					3	3	
			③ West factory					18	18	
		BOD	① Office building	mg/l	–	–	600	<0.5	<0.5	
			② Head factory					15	15	
			③ West factory					9.8	9.8	
		n-hexane extract	① Office building	mg/l	50	–	50	–	–	
			② Head factory					<0.5	<0.5	
			③ West factory					<0.5	<0.5	
	Noise	Morning	Second spot	dB	60	–	60	63	63	*
		Daytime	Second spot	dB	65	–	65	63	63	
		Evening	Second spot	dB	60	–	60	61	61	*
	Vibration	Daytime	Second spot	dB	65	–	65	<45	<45	
		Night	Second spot	dB	60	–	60	<45	<45	

＊: These values apply to the background noise level. The background noise level is the noise when machines, and so on, are not operating. It is affected by traffic noise, noise from adjacent plants, and so on.

45 Compliance Status

Data on Atmosphere, Water Quality, Noise and Vibration

Name of plants and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX	
					Low/Local regulation	Agreement with the city				
Nittoku Seisakusho Co., Ltd. (Oguchi Plant)	Drain (public water area)	pH	Oguchi ①	–	5.8~8.6	–	5.8~8.6	8.3	8.3	
			Oguchi ②					7.2	7.2	
		SS	Oguchi ①	mg/l	–	–	200	7.0	7.0	
			Oguchi ②					7.0	7.0	
		BOD	Oguchi ①	mg/l	–	–	160	0.9	0.9	
			Oguchi ②					1.0	1.0	
		n-hexane extract	Oguchi ①	mg/l	5	–	5	1.0	1.0	
			Oguchi ②					1.0	1.0	
	Noise	Morning	First spot	dB	55	55	55	55.0	55.0	
		Daytime	First spot	dB	60	60	60	59.0	59.0	
		Evening	First spot	dB	55	55	55	50.0	50.0	
		Night	First spot	dB	50	50	50	50.0	50.0	
	Vibration	Daytime	First spot	dB	65	60	60	53.0	53.0	
		Night	First spot	dB	60	55	55	44.0	44.0	
Nittoku Seisakusho Co., Ltd. (Satsuma Plant)	Drain (public water area)	pH		–	–	–	–	7.0	7.0	
		SS		mg/l	–	–	–	4.0	4.0	
		BOD		mg/l	–	–	–	3.0	3.0	
		n-hexane extract		mg/l	–	–	–	2.5	2.5	
		Coli bacteria		counts/cm³	–	–	–	500.0	500.0	
	Noise	Morning	First spot	dB	50	–	50	65	65	*
		Daytime	First spot	dB	60	–	50	65	65	*
		Evening	First spot	dB	50	–	50	65	65	*
		Night	First spot	dB	45	–	45	66	66	*
	Vibration	Daytime	First spot	dB	65	–	60	47.0	47.0	
		Night	First spot	dB	60	–	55	47.0	47.0	
Nichiwa Kiki Co., Ltd.	Drain (sewer)	pH		–	5.0~	–	6.0~8.0	6.9	7.1	
		n-hexane extract		mg/l	50	–	40	1.0	1.0	
	Noise	Daytime	Cooling tower north side	dB	65	–	63	61.2	61.2	
Tono Ceramic Co., Ltd.	Atmosphere	Soot and dust		mg/Nm³	–	–	200	47.5	75.0	
		NOx		ppm	–	–	400	15.0	20.0	
	Drain (public water area)	pH		–	–	–	5.8~8.6	7.4	7.4	
		SS		mg/l	–	–	200	1.0	1.0	
		BOD		mg/l	–	–	160	1.8	1.8	
		n-hexane extract		mg/l	–	–	5	0.5	0.5	
	Noise	Morning		dB	50	–	50	44	45	
		Daytime		dB	60	–	60	55	58	
		Evening		dB	50	–	50	45	47	
		Night		dB	45	–	45	44	45	
Ceramic Sensor Co., Ltd.	Atmosphere	Soot and dust		mg/Nm³	200	200	200	0.0	0.0	
		NOx		ppm	–	–	–	58.0	62.0	
	Drain (public water area)	pH		–	6.0~8.0	6.0~8.0	6.0~8.0	7.3	7.6	
		SS		mg/l	18	18	18	3.7	16.0	
		BOD		mg/l	18	18	18	3.1	14.0	
		COD		mg/l	18	18	18	7.7	14.0	
		n-hexane extract		mg/l	2	2	2	1.0	1.0	
		Nitrogen		mg/l	30	30	30	6.7	26.0	
		Phosphorus		mg/l	4	–	4	0.1	0.5	
		Fluorine		mg/l	8	–	8	2.5	5.9	
		Boron		mg/l	10	–	10	2.4	6.4	
	Noise	Daytime		dB	70	70	70	56.4	60.8	
		Night		dB	60	60	60	55.3	58.4	
Tokai Taima Kogu Co., Ltd.	Noise	Morning	east	dB	60	–	60	43.7	43.7	
		Daytime	east	dB	65	–	65	45.2	45.2	
		Evening	east	dB	60	–	60	44.0	44.0	
		Night	east	dB	50	–	50	40.8	40.8	
	Vibration	Daytime	east	dB	65	–	65	48.0	48.0	
		Night	east	dB	60	–	60	48.0	48.0	

* : These values apply to the background noise level. The background noise level is the noise when machines, and so on, are not operating. It is affected by traffic noise, noise from adjacent plants, and so on.

47 Local Cean-Up Activities

Clean-Up Activities around our Business Sites

(people)

Name of plants and companies			Number of operations implemented	Total number of participants
NGK SPARK PLUG CO., LTD.		Headquarters and Nagoya Plant	5	66
		Komaki Plant	6	175
		Miyanojo Plant	3	104
		Ise Plant	2	40
		Subtotal	16	385
Affiliates	NTK Ceramic Co., Ltd.	Iijima Plant	3	61
		Nakatsugawa Plant	2	22
		Kani Plant	3	46
		Komaki Plant	2	10
	Nansei Ceramic Co., Ltd.		4	45
	Kamioka Ceramic Co., Ltd.		2	35
	Nittoku Seisakusho Co., Ltd.	Head Office Plant	4	48
		Oguchi Plant	4	41
		Satsuma Plant	4	40
	Nichiwa Kiki Co., Ltd.		2	56
	Tono Ceramic Co., Ltd.		12	75
	Ceramic Sensor Co., Ltd.		4	74
	Tokai Taima Kogu Co., Ltd.		2	12
		Subtotal	48	565
		Total	64	950

Clean-Up Activities Initiated by a Local Government, etc.

(people)

Name of plants and companies	Event name	Held by	Location	Number of participants
NGK SPARK PLUG CO., LTD. (Komaki Plant), Ceramic Sensor Co., Ltd.	Mt. Komaki Beautification Activities	Komaki City	Mt. Komaki	18
NGK SPARK PLUG CO., LTD. (Komaki Plant), Ceramic Sensor Co., Ltd.	Citizens Action Day for prevention of garbage scattered & Komaki Beautification Walk for COP10	Council for Comfortable & Clean Town, Komaki City	Area around the Komaki City Hall	17
NTK Ceramic Co., Ltd. (Iijima Plant)	Picnic for the Environment of the Tenryu River System	Ina Techno Valley Regional Center of the Nagano Techno Foundation, etc.	Area where the Ohtagiri River and the Tenryu River meet	20
NTK Ceramic Co., Ltd. (Kani Plant)	Kani River mass cleanup (Pre-Event of Kani City Environmental Festa)	Kani City	Kani River	16
Nittoku Seisakusho Co., Ltd. (Oguchi Plant)	Oguchi Town cleanup activities	Oguchi Town	Oguchi Town	10