34 Environmental Education

Number of Publicly Certified Personnel 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	42	1
	Water	71	12
	Noise	37	2
	Vibration	21	1
Work environment measurement engineer		4	0
Environment measurement engineer		2	0
Energy manager		39	8
Specially controlled industrial waste manager		45	20
Energy administrator		0	12
ISO14001 assistant examiners		2	0
ISO14001 Internal auditors		358	242

(As of March 2011)

34 Conditions for the Establishment of a System

ISO 14001 Certified Sites

Certification covering multiple units

Country	Name of factories and companies		Certified initially in:	Certification organization
Japan	NGK Spark Plug Co., Ltd.	Head office/factory	'99. 8	JQA
		Komaki Factory, Miyanojo Factory, Ise Factory	'00.12	
		Takenami Factory	'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 Factory	'00.12	
		Nakatsugawa Factory, Iijima Factory, Kani Factory	'02.12	
	Nansei Ceramic Co., Ltd.		'02.12	
	Kamioka Ceramic Co., Ltd.		'04. 1	
	Nittoku Seisakusho Co., Ltd.	Head Office Factory, Oguchi Factory	'04. 1	
		Satsuma Factory	'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 factories and companies		Certified initially in:	Certification organization
U.S.A.	NGK Spark Plugs (U.S.A.),Inc.	WV Factory	'00. 7	TUV
France	NGK Spark Plugs (France) S.A.S		'00. 5	AFAQ
U.K.	NGK Spark Plugs (UK) 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	Woojin 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

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Compliance Status

Data on Air, 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 factories and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX	
					Low/Local regulation	Agreement with the city				
Head Office/ Factory	Atmosphere	Soot and dust	Boiler (No.12)	mg/Nm³	50	–	40	2	2	
			Firing furnace (PR-2)	mg/Nm³	150	–	120	6.5	7	
		NOx	Boiler (No.12)	ppm	150	–	120	53	53	
			Firing furnace (PR-2)	ppm	180	–	144	106	160	
	Drain (sewer)	pH		–	5.0~9.0	–	5.4~8.6	6.9	7.3	
		SS		mg/l	600	–	480	23.3	49	
		BOD		mg/l	600	–	480	15.0	50	
		n-hexane extract		mg/l	30	–	24	2.1	7.6	
		Cyanogen		mg/l	1	–	0.8	0.22	0.4	
		Total chromium		mg/l	2	–	1.6	0.05	0.08	
		Hexavalent chromium		mg/l	0.5	–	0.4	<0.04	<0.04	
		Zinc		mg/l	2	–	1.6	0.42	0.81	
		Lead		mg/l	0.1	–	0.08	<0.02	<0.02	
		Nitrogen		mg/l	120	–	96	22.43	37	
		Phosphor		mg/l	16	–	12.8	0.42	0.78	
		Fluorine		mg/l	8	–	6.4	0.29	0.5	
		Boron		mg/l	10	–	8	<1	<1	
	Noise	Morning	R spot	dB	70	–	68	59.1	59.1	
			T spot	dB	65	–	63	66.1	66.1	∗1
		Daytime	R spot	dB	70	–	68	59.2	59.2	
			T spot	dB	65	–	63	61.0	61.0	
		Evening	R spot	dB	70	–	68	62.3	62.3	
			T spot	dB	65	–	63	65.6	65.6	∗1
		Night	R spot	dB	65	–	64	62.2	62.2	
			T spot	dB	55	–	54	61.9	61.9	∗1
	Vibration	Daytime	R spot	dB	70	–	65	40.0	40.0	
			T spot					40.0	40.0	
		Night	R spot	dB	65	–	60	40.0	40.0	
			T spot					40.0	40.0	

∗1 : 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 fr om adjacent factories, and so on.

35 Compliance Status

Data on Air, Water quality, noise and vibration

Name of factories and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Komaki Factory	Atmosphere	Soot and dust	Boiler (No.1-5)	mg/Nm³	200	200	160	2.0	2.0
			Firing furnace (No.9-10)	mg/Nm³	200	200	160	5.0	7.0
		NOx	Boiler (No.1-5)	ppm	250	–	200	16.0	16.0
			Firing furnace (No.9-10)	ppm	200	–	160	73.5	82.0
		SOx	Boiler (No.1-5)	Nm³/h	8.379	–	6.703	<0.2	<0.2
			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	7.5
			West					7.3	7.4
			North					7.2	7.3
		SS	East	mg/l	30	–	24	2.9	5.0
			West					1.1	2.0
			North					4.1	9.0
		BOD	East	mg/l	25	–	20	3.9	8.2
			West					1.1	2.2
			North					0.9	2.0
		COD	East	mg/l	–	–	–	4.5	7.2
			West					3.5	4.3
			North					3.9	4.6
		COD(total)	Komaki Factory total	kg/day	166.32	–	166.32	9.5	20.1
		n-hexane extract	East	mg/l	5	5	4	<0.5	0.8
			West					<0.5	0.9
			North					<0.5	<0.5
		Cyanogen	East	mg/l	0.5	0.5	0.4	<0.1	<0.1
			West					<0.1	<0.1
			North					<0.1	<0.1
		Total chromium	East	mg/l	2	1	0.8	<0.04	<0.04
			West					<0.04	<0.04
			North					<0.04	<0.04
		Copper	East	mg/l	1	1	0.8	0.05	0.09
			West					0.07	0.08
			North					0.03	0.11
		Zinc	East	mg/l	1.8	1.8	1.6	0.09	0.15
			West					0.03	0.05
			North					0.07	0.12
		Lead	East	mg/l	0.1	–	0.08	<0.02	<0.02
			West					<0.02	<0.02
			North					<0.02	<0.02
		Nitrogen	East	mg/l	120	–	60	7.3	10.0
			West					3.3	7.9
			North					7.2	14.0
		Nitrogen(total)	Komaki Factory total	kg/day	122.51	–	122.51	12.6	28.9
		Phosphorus	East	mg/l	16	–	8	0.48	0.78
			West					0.85	1.2
			North					0.92	1.5
		Phosphorus(total)	Komaki Factory total	kg/day	12.256	–	12.256	1.1	3.2
		Nickel	East	mg/l	–	–	–	0.2	0.4
			West					<0.1	<0.1
			North					<0.1	<0.1
		Manganese	East	mg/l	10	–	8	<0.1	<0.1
			West					<0.1	<0.1
			North					<0.1	<0.1
		Fluorine	East	mg/l	8	–	6.4	0.6	0.8
			West					1.2	1.4
			North					0.3	0.6
		Boron	East	mg/l	10	–	8	1.1	2.0
			West					<1	<1
			North					<1	<1
	Noise	Morning	Fifth spot	dB	65	–	63	44.5	44.5
		Daytime	Fifth spot	dB	70	–	68	45.0	45.0
		Evening	Fifth spot	dB	65	–	63	44.0	44.0
		Night	Fifth spot	dB	60	–	58	46.1	46.1
	Vibration	Daytime	Fifth spot	dB	70	–	70	≦40	≦40
		Night	Fifth spot	dB	65	–	65	≦40	≦40

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Compliance Status

Data on Air, Water quality, noise and vibration

Name of factories and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Miyanojo Factory	Atmosphere	Soot and dust	Absorption heater/chiller	mg/Nm³	300	–	240	N/A	N/A
			3T water boiler	mg/Nm³	100	–	80	<0.006	<0.006
		NOx	Absorption heater/chiller	ppm	180	–	144	N/A	N/A
			3T water boiler	ppm	150	–	120	68.0	68.0
	Drain (public water area)	pH		–	6.0~8.0	6.0~8.0	6.5~7.8	7.3	7.5
		SS		mg/l	35	35	28	6.2	11.0
		BOD		mg/l	20	20	16	2.9	6.0
		COD		mg/l	160	–	128	8.0	9.0
		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	<0.05
		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	2.8	6.4
		Coli bacteria		counts/cm³	3000	–	2400	0	0
	Noise	Morning		dB	60	–	55	44.5	45.9
		Daytime		dB	65	–	60	52.9	54.2
		Evening		dB	60	–	55	47.4	51.8
		Night		dB	50	–	50	45.5	46.6
	Vibration	Daytime		dB	60	–	52	29.5	29.5
		Night		dB	55	–	48	30.5	30.5
Ise Factory	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	7.4	7.9
		SS		mg/l	90	–	45	2.7	10.0
		BOD		mg/l	25	–	20	1.7	6.0
		COD		mg/l	25	–	20	4.3	10.0
		COD(total)		kg/day	3.4	–	3.4	0.1	0.2
		n-hexane extract		mg/l	30	–	15	<1	<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	0.054	0.071
		Lead		mg/l	0.1	–	0.05	<0.01	<0.01
		鉄		mg/l	10		5	0.11	0.34
		Phenols		mg/l	1		0.5	0.0	0.0
		Nitrogen		mg/l	120	–	60	7.7	17.0
		Nitrogen(total)		kg/day	4.1	–	4.1	0.2	0.4
		Phosphorus		mg/l	16	–	8	0.76	2.0
		Phosphorus(tota)		kg/day	0.39	–	0.39	0.02	0.04
		Manganese		mg/l	10	–	5	0.4	2.3
		Coli bacteria		counts/cm³	3000	–	1500	26	70
	Noise	Morning	East	dB	55	–	55	43.2	43.2
		Daytime	East	dB	60	–	58	44.3	44.3
		Evening	East	dB	55	–	55	45.7	45.7
		Night	East	dB	50	–	50	45.5	45.5
	Vibration	Daytime (all directions)		dB	65	–	60	<50	<50
		Night (all directions)			60	–	55	<50	<50

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Compliance Status

Data on Air, Water quality, noise and vibration

Name of factories and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Takenami Factory	Drain (public water area)	pH		–	5.8~8.6	5.8~8.6	5.8~8.6	7.3	7.7
		SS		mg/l	200	200	100	5.3	12.0
		BOD		mg/l	160	160	130	13.3	35.0
		COD		mg/l	160	160	80	5.6	12.0
		n-hexane extract		mg/l	5	–	4	<0.5	<0.5
		Nitrogen		mg/l	120	–	120	4.3	7.7
		Phosphorus		mg/l	16	–	16	0.22	0.80
		Coli bacteria		counts/cm³	3000	–	2000	2.8	11
	Noise	Morning	Fourth spot	dB	50	50	50	42.5	42.5
		Daytime	Fourth spot	dB	55	55	55	44.0	45.0
		Evening	Fourth spot	dB	50	50	50	42.8	43.0
		Night	Fourth spot	dB	45	45	45	42.0	42.0
	Vibration	Daytime	Fourth spot	dB	55	55	55	18.2	18.2
		Night	Fourth spot	dB	50	50	50	15.0	15.0
NTK Ceramic Co., Ltd. (Iijima Factory)	Atmosphere	Soot and dust	Firing furnace: YA-5,6	mg/Nm³	250	–	250	<5	<5
			Firing furnace: YA-7,8					–	<5
			Absorption heater/chiller: FGL		100	–	100	<5	<5
			Absorption heater/chiller: FGDL					–	<5
		NOx	Firing furnace: YA-5,6	ppm	180	–	180	<10	<10
			Firing furnace: YA-7,8					–	<10
			Absorption heater/chiller: FGL		150	–	150	19.0	24.0
			Absorption heater/chiller: FGDL					–	34.0
	Drain (public water area)	pH		–	5.8~8.6	5.8~8.6	6.0~8.0	7.3	7.3
		SS		mg/l	50	50	50	2.7	17.0
		BOD		mg/l	30	30	25	1.5	2.7
		COD		mg/l	30	30	30	3.2	8.2
		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	0.1	0.1
		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	0.4	0.6
		Boron		mg/l	50	50	50	0.8	1.1
		Phenols		mg/l	5	5	5	<0.02	<0.02
		Ammonia		mg/l	500	500	500	13.0	18.0
		Coli bacteria		counts/cm³	3000	3000	3000	2.8	8
	Noise	Morning	First spot	dB	65	65	65	50.2	50.2
		Daytime	First spot	dB	65	65	65	48.5	48.5
		Evening	First spot	dB	65	65	65	45.5	45.5
		Night	First spot	dB	55	55	55	47.0	47.0
NTK Ceramic Co., Ltd. (Nakatsugawa Factory)	Atmosphere	Soot and dust	Firing furnace(NN-1)	mg/Nm³	50	50	20	5.0	5.0
		SOx	Firing furnace(NN-1)	Nm³/h	–	0	–	0.0	0.0
	Drain (public water area)	pH	Factory 1&2	–	5.8~8.6	5.8~8.6	6.2~8.6	7.6	7.8
			Factory 3					7.3	7.7
		SS	Factory 1&2	mg/l	50	50	35	4.8	16.0
			Factory 3					1.7	3.0
		BOD	Factory 1&2	mg/l	15	15	13	2.7	6.4
			Factory 3					4.5	7.4
		COD	Factory 1&2	mg/l	40	40	30	7.7	24.0
			Factory 3					9.1	19.0
		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	–	4.3	7.6
			Factory 3					4.2	8.3
		Phosphorus	Factory 1&2	mg/l	3	3	2.5	0.08	0.36
			Factory 3					0.22	1.5
		Coli bacteria	Factory 1&2	counts/cm³	3000	3000	1000	219.5	840
			Factory 3					16.3	180
	Noise	Morning	Fourth spot	dB	60	60	58	45.0	47.0
		Daytime	Fourth spot	dB	65	65	63	50.0	51.0
		Evening	Fourth spot	dB	60	60	58	48.0	50.0
		Night	Fourth spot	dB	50	50	50	46.0	48.0
	Vibration	Daytime	Fourth spot	dB	65	–	63	20.4	20.4
		Night	Fourth spot	dB	60	–	58	19.9	19.9

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Compliance Status

Data on Air, Water quality, noise and vibration

Name of factories and companies	Item	Type		Unit	Regulation value: Low/Local regulation	Regulation value: Agreement with the city	Voluntary standard value	Average	MAX	
NTK Ceramic Co., Ltd. (Kani Factory)	Atmosphere	Soot and dust		mg/Nm³	100	–	90	5.0	5.0	
		NOx		ppm	150	–	135	130.0	130.0	
	Drain (sewer)	pH		–	5.8～8.6	–	5.9～8.5	7.2	7.2	
		SS		mg/l	200	–	180	1.0	1.0	
		BOD		mg/l	160	–	144	0.5	0.5	
		COD		mg/l	160	–	30	2.7	2.7	
		n-hexane extract		mg/l	5	–	4.5	1.0	1.0	
	Noise	Morning	First spot	dB	50	–	50	46.5	46.5	
		Daytime	First spot	dB	60	–	60	47.1	47.1	
		Evening	First spot	dB	50	–	50	46.8	46.8	
		Night	First spot	dB	45	–	45	44.3	44.3	
Nansei Ceramic Co., Ltd.	Drain (public water area)	pH		–	–	–	5.8～8.6	6.7	7.1	
		SS		mg/l	–	–	90	0.7	1.0	
		BOD		mg/l	20	20	20	<1	<1	
		COD		mg/l	–	–	40	<1	<1	
		n-hexane extract		mg/l	–	–	1	<1	<1	
		Lead		mg/l	–	–	0.1	<0.01	<0.01	
		Nitrogen		mg/l	–	–	100	0.3	0.4	
		Phosphorus		mg/l	–	–	16	<0.05	<0.05	
		Coli bacteria		counts/cm³	–	–	1000	1.0	3	
	Noise	Morning	North	dB	55	–	55	53.0	53.8	
		Daytime	North	dB	60	–	60	56.8	57.3	
		Evening	North	dB	55	–	55	53.9	54.2	
		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	7.6	7.9	
			②					7.4	7.7	
			③					7.6	7.9	
		SS	①	mg/l	200	–	50	3.0	4.2	
			②					18.0	26.0	
			③					7.8	14.0	
		BOD	①	mg/l	160	–	40	0.8	1.1	
			②					21.0	30	
			③					1.9	3.2	
		COD	①	mg/l	160	–	40	1.0	1.5	
			②					24.0	36.0	
			③					4.4	6.1	
		n-hexane extract	①	mg/l	5	–	2.5	<0.5	<0.5	
			②					<0.5	<0.5	
			③					0.6	0.7	
		Coli bacteria	①	mg/l	3000	–	300	<30	<30	
			②					34	38	
			③					<30	<30	
	Noise	Morning	Fourth spot	dB	60	–	60	39.0	39.0	
		Daytime	Fourth spot	dB	65	–	65	45.0	45.0	
		Evening	Fourth spot	dB	60	–	60	43.0	43.0	
		Night	Fourth spot	dB	50	–	50	42.0	42.0	
Nittoku Seisakusho Co., Ltd. (Head Office Factory)	Drain (sewer)	pH	① Office building	–	5.0以上	–	5.8～9.0	7.4	7.4	
			② Head factory					7.0	7.0	
			③ West factory					7.2	7.2	
		SS	① Office building	mg/l	–	–	500	1	1	
			② Head factory					36	36	
			③ West factory					3	3	
		BOD	① Office building	mg/l	–	–	500	0.9	0.9	
			② Head factory					7.2	7.2	
			③ West factory					7.2	7.2	
		n-hexane extract	① Office building	mg/l	50	–	50	–	–	
			② Head factory					<0.5	<0.5	
			③ West factory					6.6	6.6	
	Noise	Morning	Second spot	dB	60	–	60	61	61	*1
		Daytime	Second spot	dB	65	–	65	61	61	
		Evening	Second spot	dB	60	–	60	60	60	
	Vibration	Daytime	Second spot	dB	–	–	–	<45	<45	
		Night	Second spot	dB	–	–	–	<45	<45	

*1 : 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 fr om adjacent factories, and so on.

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Compliance Status

Data on Air, Water quality, noise and vibration

Name of factories and companies	Item	Type		Unit	Regulation value		Voluntary standard value	Average	MAX
					Low/Local regulation	Agreement with the city			
Nittoku Seisakusho Co., Ltd. (Oguchi Factory)	Drain (public water area)	pH	Oguchi ①	–	5.8~8.6	–	6.0~8.4	7.8	7.8
			Oguchi ②					7.1	7.1
		SS	Oguchi ①	mg/l	30	–	–	1.0	1.0
			Oguchi ②					4.0	4.0
		BOD	Oguchi ①	mg/l	25	–	20	0.5	0.5
			Oguchi ②					1.1	1.1
		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	50.0	50.0
		Daytime	First spot	dB	60	60	60	58.0	58.0
		Evening	First spot	dB	55	55	55	53.0	53.0
		Night	First spot	dB	50	50	50	46.0	46.0
	Vibration	Daytime	First spot	dB	–	60	–	51.0	51.0
		Night	First spot	dB	–	55	–	50.0	50.0
Nittoku Seisakusho Co., Ltd. (Satsuma Factory)	Drain (public water area)	pH		–	5.8~8.6	–	6.0~8.4	6.3	6.3
		SS		mg/l	–	–	200	40.0	40.0
		BOD		mg/l	–	–	160	41.0	41.0
		n-hexane extract		mg/l	5	–	5	2.5	2.5
		Coli bacteria		counts/cm³	3000	–	3000	89	89
	Noise	Morning	First spot	dB	60	–	60	45.5	45.5
		Daytime	First spot	dB	65	–	65	44.8	44.8
		Evening	First spot	dB	60	–	60	43.1	43.1
		Night	First spot	dB	50	–	50	47.2	47.2
	Vibration	Daytime	First spot	dB	65	–	60	46.0	46.0
		Night	First spot	dB	60	–	55	47.0	47.0
Nichiwa Kiki Co., Ltd.	Drain (sewer)	pH		–	5.0~	–	6.0~8.0	6.6	6.7
		n-hexane extract		mg/l	50	–	40	4.3	14.0
	Noise	Daytime	Cooling tower north side	dB	65	–	63	60.9	60.9
Tono Ceramic Co., Ltd.	Atmosphere	Soot and dust		mg/Nm³	–	–	200	20.0	26.0
		NOx		ppm	–	–	400	100.0	150.0
	Drain (public water area)	pH		–	–	–	5.8~8.6	7.5	7.5
		SS		mg/l	–	–	200	1.0	1.0
		BOD		mg/l	–	–	160	0.8	0.8
		n-hexane extract		mg/l	–	–	5	0.5	0.5
	Noise	Morning		dB	50	–	50	46.0	47.0
		Daytime		dB	60	–	60	54.0	58.0
		Evening		dB	50	–	50	46.0	47.0
		Night		dB	45	–	45	44.0	44.0
Ceramic Sensor Co., Ltd.	Atmosphere	Soot and dust		mg/Nm³	200	200	200	0.002	0.002
		NOx		ppm	–	–	–	36.0	65.0
	Drain (public water area)	pH		–	6.0~8.0	6.0~8.0	6.0~8.0	7.3	7.7
		SS		mg/l	18	18	18	3.6	8.0
		BOD		mg/l	18	18	18	3.9	6.2
		COD		mg/l	18	18	18	9.9	14.0
		n-hexane extract		mg/l	2	2	2	1.0	1.0
		Nitrogen		mg/l	30	30	30	10.0	26.0
		Phosphorus		mg/l	4	–	4	0.2	0.6
		Fluorine		mg/l	8	–	8	2.9	5.2
		Boron		mg/l	10	–	10	2.3	5.6
	Noise	Daytime		dB	70	70	70	56.2	60.1
		Night		dB	60	60	60	55.0	59.4
Tokai Taima Kogu Co., Ltd.	Noise	Morning	east	dB	60	–	60	43.4	43.4
		Daytime	east	dB	65	–	65	45.1	45.1
		Evening	east	dB	60	–	60	44.1	44.1
		Night	east	dB	50	–	50	40.5	40.5
	Vibration	Daytime	east	dB	65	–	65	48.0	48.0
		Night	east	dB	60	–	60	48.0	48.0

36 Environmental Accounting

Environment Preservation Costs

(Unit: million yen)

Items			Non-consolidated				NGK Spark Plug Group*			
Classification		Major efforts	Investment		Expense		Investment		Expense	
			2009	2010	2009	2010	2009	2010	2009	2010
Costs within the business area	Pollution prevention cost	Air/water pollution prevention and noise reduction	53	29	693	419	55	53	990	860
	Global environmental conservation cost	Global warming prevention, energy conservation	30	11	208	304	41	32	239	347
	Resource circulation cost	Effective resource utilization, industrial waste treatment/disposal	36	17	454	374	37	24	581	507
		Subtotal	120	57	1,355	1,096	133	109	1,810	1,714
Upstream & downstream cost		Employee environmental education, EMS construction and operation	0	0	3	0	0	0	5	5
Management activity cost		Employee environmental education, EMS construction and operation	4	25	364	323	4	25	435	400
R&D cost		R&D of products promoting environment preservation	132	372	3,950	6,004	132	372	3,950	6,004
Social activity cost		Nature protection, afforestation, environmental ads	0	1	176	152	1	1	185	158
Environment damage correction cost		Repair of soil contamination, disrupted nature	0	0	6	6	0	0	6	6
Other costs		–	0	0	1	0	0	0	1	10
		Total	256	454	5,854	7,581	271	507	6,391	8,297

●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	222
Cost saving	Energy cost saving achieved from energy conservation efforts	45
	Reduction of water expenses through water saving	2
	Waste disposal cost saving achieved by resource conservation and recycling efforts	5
	Total	274

Quantity of Environmental Preservation Impact

Classification			Non-consolidated			NGK Spark Plug Group		
Effect measured in the business area	Types of effect		2009	2010	Difference from the previous fiscal yea	2009	2010	Difference from the previous fiscal year
Effect measured with respect to resource input into operations	Energy consumption	Purchased electricity (GWh)	218.40	232.64	14.24	330.21	369.62	39.41
		Gas (million m³)	12.83	13.91	1.08	14.39	16.21	1.82
		LPG (tons)	3,700	3,313	-387	8,312	8,015	-297
		Heavy oil A (kL)	36	0	-36	36	0	-36
	Water consumption	Tap water (m³)	751,864	772,868	21,004	938,113	990,315	-52,202
		Well water (m³)	570,580	412,697	-157,883	850,653	879,603	-28,950
	Quantity of PRTR law-regulated substances handled (tons)		494	671	177	706	917	211
Effect measured with respect to environmental load and waste from business activities	CO2 emission from energy consumption (tons)		116,078	122,294	6,216	170,853	187,547	16,694
	Recycled plant wastewater *(m³)		940,985	607,824	-333,161	1,125,536	848,629	-276,907
	Waste	Effectively utilized mass (tons)	12,839	12,757	-82	16,026	16,678	652
		Buried, incineration (tons)	98	126	28	111	141	30
	PRTR law-regulated substances released into air and water (tons)		6.5	3.5	-3	131	141	11

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

39 Waste

Volume of Waste Generated at Each Business Site

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

Name of factories 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.	Head Office / Factory		949	939	10	98.9%
	Komaki Factory		8,288	8,190	98	98.8%
	Miyanojo Factory		3,455	3,438	16	99.5%
	Ise Factory		189	188	1.4	99.3%
	Takenami Factory		2.7	2.3	0.4	84.2%
		Subtotal	12,884	12,757	126	99.0%
Affiliates	NTK Ceramic Co., Ltd.	Iijima Factory	650	646	3.8	99.4%
		Nakatsugawa Factory	436	431	5.0	98.8%
		Kani Factory	65	65	0.3	99.5%
		Komaki Factory	1,468	1,468	0.4	100.0%
	Nansei Ceramic Co., Ltd.		5.4	5.4	0.02	99.6%
	Kamioka Ceramic Co., Ltd.		40	40	0.3	99.4%
	Nittoku Seisakusho Co., Ltd.		273	271	1.9	99.3%
	Nichiwa Kiki Co., Ltd.		8.8	8.7	0.1	99.4%
	Tono Ceramic Co., Ltd.		34	34	0.2	99.5%
	Ceramic Sensor Co., Ltd.		949	947	2.0	99.8%
	Tokai Taima Kogu Co., Ltd.		5.4	5.0	0.4	92.4%
	Nittoku Unyu Co., Ltd.		0.3	0.3	0.004	98.7%
		Subtotal	3,935	3,921	14	99.6%
		Total	16,819	16,678	141	99.2%

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Hazardous Substances

PRTR data for Each Business Site

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

(kg)

Name of factories 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
Head Office/ Factory	53	Ethylbenzene	5,675	0							5,675	
	80	Xylene	24,569	0				0			24,569	
	87	Chromium and chromium (Ⅲ) compounds	12,639				1	0	638			12,000
	144	Inorganic cyanide compounds (except complex salts and cyanates)	1,321				10				1,311	
	296	1,2,4-trimethylbenzene	10,967	0							10,967	
	297	1,3,5-trimethylbenzene	2,890	0							2,890	
	300	Toluene	69,337	67				0			69,271	
	308	Nickel	79,495						127			79,369
	392	n-hexane	6,041	0							6,041	
	400	Benzene	2,501	1							2,500	
	412	manganese and its compounds	1,162						0			1,162
Komaki Factory ※Including NTK ceramic (Komaki Factory)	20	2-aminoethanol	18,072						17,879		193	
	30	n-alkylbenzenesulfonic acid and its salts (alkyl C=10-14)	1,026						1,016		10	
	31	Antimony and its compounds	1,950					51	269			1,631
	53	Ethylbenzene	3,013	30					1,152		1,830	
	80	Xylene	19,965	2,259					9,397		8,308	
	87	Chromium and chromium (Ⅲ) compounds	1,253					1	627			625
	132	Cobalt and its compounds	1,789					2	49		0	1,739
	144	Inorganic cyanide compounds (except complex salts and cyanates)	5,028						237		2,069	2,723
	272	Copper salts (water-soluble,except complex salts)	76,823		44				1,436		75,343	
	300	Toluene	24,586	619					29		23,937	
	308	Nickel	18,896					1	75			18,820
	309	Nickel compounds	6,694		102				2,179		4,412	
	400	Benzene	642	0							642	
	405	Boron compounds	34,513		323			42	2,091		18	32,039
	407	poly (oxyethylene) alkyl ether (alkyl C=12-15)	1,957						1,955		2	
	410	Poly (oxyethylene) nonylphenyl ether	1,338						1,305		33	
	411	Formaldehyde	4,475						4,431		45	
	453	Molybdenum and its compounds	1,061						66		0	995
Miyanojo Factory	71	ferric chloride	40,341						40,341			
	87	Chromium and chromium (Ⅲ) compounds	1,846					0	1,818			27
	144	Inorganic cyanide compounds (except complex salts and cyanates	1,882						70		1,811	
	308	Nickel	151,195									151,195
	405	Boron compounds	7,577		55				211		5	7,307
Ise Factory	132	Cobalt and its compounds	1,042						127			916
	305	Lead compounds	40,653					8	8,436			32,209
Subtotal			684,216	2,977	524		11	106	95,963		241,881	342,755
NTK Ceramic (Iijima Factory)	53	Ethylbenzene	10,528	3,625					6,903			
	80	Xylene	5,669	1,952					3,717			
	87	Chromium and chromium (Ⅲ) compounds	1,296						388			908
	144	Inorganic cyanide compounds (except complex salts and cyanates)	2,750		1				2,071		238	440
	300	Toluene	20,369	20,369								
	308	Nickel	1,778									1,778
	354	di-n-butyl phthalate	6,116						1,398		4,718	
NTK Ceramic (Nakatsugawa Factory)	53	Ethylbenzene	1,429	537					794			98
	80	Xylene	8,098	3,044					4,498			556
	87	Chromium and chromium (Ⅲ) compounds	6,505						3,098			3,407
	300	Toluene	110,581	106,797					3,784			
	305	Lead compounds	6,177						3,068			3,109
	354	di-n-butyl phthalate	24,729						10,799		3,796	10,134
	355	Molybdenum and its compounds	4,721						3,317		822	582
	453	bis (2-ethylhexyl) phthalate	2,735						309			2,425
NTK Ceramic (Kani Factory)	80	Xylene	1,701	1,361					340			
	354	di-n-butyl phthalate	2,497						1,625		872	
Nansei Ceramic	384	1-bromopropane	1,533									1,533
Nittoku Seisakusho (Oguchi Factory)	308	Nickel	10,905									10,905
Ceramic Sensor	333	Hydrazine	10,989						9,538		1,443	9
	374	Hydrogen fluoride and its water-soluble salts	3,546						3,476		71	
	405	Boron compounds	1,357					1			638	717
Subtotal			246,009	137,686	1			1	59,123		12,598	36,600
Total			930,225	140,663	525		11	107	155,086		254,479	379,355

44 Local clean-up activities

Clean-up Activities around our Business Sites

(people)

	Name of factories and companies		Number of operations implemented	Total number of participants
	NGK Spark Plug Co., Ltd.	Head Office/Factory	7	84
		Komaki Factory	4	177
		Miyanojo Factory	3	94
		Ise Factory	2	43
		Subtotal	16	398
Affiliates	NTK Ceramic Co., Ltd.	Iijima Factory	2	42
		Nakatsugawa Factory	2	19
		Kani Factory	2	27
		Komaki Factory	2	10
	Nansei Ceramic Co., Ltd.		4	45
	Kamioka Ceramic Co., Ltd.		2	51
	Nittoku Seisakusho Co., Ltd.	Head Office/Factory	3	38
		Oguchi Factory	4	42
		Satsuma Factory	4	40
	Nichiwa Kiki Co., Ltd.		2	57
	Tono Ceramic Co., Ltd.		2	115
	Ceramic Sensor Co., Ltd.		3	46
	Tokai Taima Kogu Co., Ltd.		2	12
		Subtotal	34	544
		Total	50	942

Clean-up activities initiated by a local government, etc.

(people)

Name of factories and companies	Event name	Held by	Location	Number of participants
NGK Spark Plug Co., Ltd. (Komaki Factory), Ceramic Sensor Co., Ltd.	Mt. Komaki Beautification Activities	Komaki City	Mt. Komaki	17
NGK Spark Plug Co., Ltd. (Komaki Factory), 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	19
NTK Ceramic Co., Ltd. (Iijima Factory)	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 Factory)	Kani River mass cleanup	Kani City	Kani River	19
Nittoku Seisakusho Co., Ltd. (Oguchi Factory)	Oguchi Town cleanup activities	Oguchi Town	Oguchi Factory area	9