

# Environmental Management Data

1. Environmental management data about water quality, air quality, etc.

Values exceeding the legal and regulatory standards: None

Values exceeding the site standards: Indicated in red (countermeasures already taken).

1.1 Production site: Katsuta Plant

- Address: 1060 Takeda Hitachinaka City, Ibaraki Prefecture
- Business activities: Manufacture of life-science instruments and printers
- Site area: 279,000 m<sup>2</sup> Note 1) Printing Systems Group was divided and transferred as of the 1st of October 2002.
- Founded: 1948
- Zones designation: Exclusive industrial zone

## ■ Air quality: Boilers (heaters)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	120	88
SOx (Nm <sup>3</sup> /h)	1.47~0.41	0.4	0.02
Smoke particulates (g/Nm <sup>3</sup> )	0.3	0.2	0.005

## ■ Air quality: Boilers (Steam boilers)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	145	91
SOx (Nm <sup>3</sup> /h)	0.85~0.80	0.4	0.02
Smoke particulates (g/Nm <sup>3</sup> )	0.3	0.2	0.001

## ■ Air quality: Smelting furnaces (Electric aluminum smelting furnaces)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	120	19
Smoke particulates (g/Nm <sup>3</sup> )	0.2	0.13	0.002

## ■ Water quality

	Item	Unit	Legal and regulatory standard	Site standard	Actual result max.	
Health	Cadmium and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	
	Cyan compounds	(mg/l)	≤1	≤0.1	<0.01	
	Organic phosphorous compounds	(mg/l)	≤1	≤0.1	<0.1	
	Lead and its compounds	(mg/l)	≤0.1	≤0.05	<0.05	
	Hexavalent chromium compounds	(mg/l)	≤0.5	≤0.05	0.06	
	Arsenic and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	
	Total mercury	(mg/l)	≤0.005	≤0.0005	<0.0005	
	Alkyl mercury compounds	(mg/l)	Not detected	Not detected	Not detected	
	PCBs	(mg/l)	≤0.003	≤0.0005	<0.0005	
	Dichloromethane	(mg/l)	≤0.2	≤0.02	<0.002	
	Carbon tetrachloride	(mg/l)	≤0.02	≤0.002	<0.0002	
	1,2-dichloroethane	(mg/l)	≤0.04	≤0.004	<0.0004	
	1,1-dichloroethylene	(mg/l)	≤0.2	≤0.02	<0.002	
	Cis-1,2-dichloroethylene	(mg/l)	≤0.4	≤0.04	<0.004	
	1,1,1-trichloroethane	(mg/l)	≤3	≤0.3	<0.005	
	1,1,2-trichloroethane	(mg/l)	≤0.06	≤0.006	<0.0006	
	Trichloroethylene	(mg/l)	≤0.3	≤0.03	<0.001	
	Tetrachloroethylene	(mg/l)	≤0.1	≤0.01	<0.001	
	1,3-dichloropropane	(mg/l)	≤0.02	≤0.002	<0.0002	
	Thiuram	(mg/l)	≤0.06	≤0.006	<0.006	
	Simazine	(mg/l)	≤0.03	≤0.003	<0.003	
	Benzene	(mg/l)	≤0.1	≤0.01	<0.001	
	Selenium and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	
	Fluorine and its compounds	(mg/l)	≤10	≤5	3.82	
	Boron and its compounds	(mg/l)	≤8	≤2	0.3	
	Ammonia, ammonia compounds, nitrous acid compounds and nitric acid compounds	(mg/l)	≤380	≤100	19.5	
	Living environment	Hydrogen ion exponent (pH)	-	Over 5 and under 9	5.8-8.6	6.71-6.93
		Biological oxygen demand (BOD)	(mg/l)	<600	≤60	36
		Chemical oxygen demand (COD)	(mg/l)	No regulation	No regulation	8.6
		Suspended solids (SS)	(mg/l)	<600	≤15	11
		n-hexane extract (mineral oil)	(mg/l)	≤5	≤2	1
		n-hexane extract (fauna/flora oil)	(mg/l)	≤30	≤3	1
		Phenol	(mg/l)	≤5	≤0.05	<0.01
Copper		(mg/l)	≤3	≤0.3	0.06	
Zinc		(mg/l)	≤5	≤0.5	0.29	
Soluble iron		(mg/l)	≤10	≤0.3	0.15	
Soluble manganese		(mg/l)	≤10	≤0.1	<0.02	
Total chromium		(mg/l)	≤2	≤0.1	0.2	
Total phosphorus		(mg/l)	No regulation	No regulation	5.27	
Total nitrogen		(mg/l)	No regulation	No regulation	10.3	
Iodine consumption		(mg/l)	<220	<20	3	

## ■ Noise level

(Unit: dB)

Category	Legal and regulatory standard	Site standard	Actual result max.
Morning	45	45	40
	60	60	58
Daytime	50	50	47
	65	65	59
Evening	45	45	40
	60	60	52
Nighttime	40	40	38
	50	50	45

Upper column: Class-1 zones (exclusive residential zones for low-rise buildings (Class 1 and 2))  
Lower column: Class-3 zones (commercial and semi-industrial zones)

## ■ Vibration and noxious odors

Since the site is not covered by regulations, measurements were not taken in fiscal 2002.

1.2 Production site: Hitachi Koki Sawa Co., Ltd.

- Address: 1450 Tarazaki, Hitachinaka City, Ibaraki Prefecture
- Business activities: Manufacture of electric power tools
- Site area: 187,000 m<sup>2</sup>
- Founded: 2000
- Zone designation: Exclusive industrial zone

■ Air quality: Boilers (heaters)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	120	82
SOx (Nm <sup>3</sup> /h)	0.68~0.87	0.4	0.02
Smoke particulates (g/Nm <sup>3</sup> )	0.3	0.2	0.01

■ Air quality: Boilers (Small once-through boilers)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	145	79
SOx (Nm <sup>3</sup> /h)	0.72~2.19	0.4	0.01
Smoke particulates (g/Nm <sup>3</sup> )	0.3	0.2	0.005

■ Vibration and noxious odors

Since the site was not covered by regulations, measurements were not taken in fiscal 2002.

■ Water quality (public waterways and sewerage system)

	Item	Unit	Legal and regulatory standard	Public waterways		Public sewerage system	
				Site standard	Actual result max.	Site standard	Actual result max.
Health	Cadmium and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	≤0.01	<0.01
	Cyan compounds	(mg/l)	≤1	≤0.1	<0.01	≤0.1	<0.01
	Organic phosphorous compounds	(mg/l)	≤1	≤0.1	<0.1	≤0.1	<0.1
	Lead and its compounds	(mg/l)	≤0.1	≤0.05	<0.05	≤0.05	<0.05
	Hexavalent chromium compounds	(mg/l)	≤0.5	≤0.05	<0.05	≤0.05	<0.05
	Arsenic and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	≤0.01	<0.01
	Total mercury	(mg/l)	≤0.005	≤0.0005	<0.0005	≤0.0005	<0.0005
	Alkyl mercury compounds	(mg/l)	Not detected.	Not detected.	Not detected.	Not detected.	Not detected.
	PCBs	(mg/l)	≤0.003	≤0.0005	<0.0005	≤0.0005	<0.0005
	Dichloromethane	(mg/l)	≤0.2	≤0.02	<0.002	≤0.02	<0.002
	Carbon tetrachloride	(mg/l)	≤0.02	≤0.002	<0.0002	≤0.002	<0.0002
	1,2-dichloroethane	(mg/l)	≤0.04	≤0.004	<0.0004	≤0.004	<0.0004
	1,1-dichloroethylene	(mg/l)	≤0.2	≤0.02	<0.002	≤0.02	<0.002
	Cis-1,2-dichloroethylene	(mg/l)	≤0.4	≤0.04	<0.004	≤0.04	<0.004
	1,1,1-trichloroethane	(mg/l)	≤3	≤0.3	<0.005	≤0.3	<0.005
	1,1,2-trichloroethane	(mg/l)	≤0.06	≤0.006	<0.0006	≤0.006	<0.0006
	Trichloroethylene	(mg/l)	≤0.3	≤0.03	<0.001	≤0.03	0.002
	Tetrachloroethylene	(mg/l)	≤0.1	≤0.01	<0.001	≤0.01	<0.001
	1,3-dichloropropane	(mg/l)	≤0.02	≤0.002	<0.0002	≤0.002	<0.0002
	Thiuram	(mg/l)	≤0.06	≤0.006	<0.006	≤0.006	<0.006
	Simazine	(mg/l)	≤0.03	≤0.003	<0.003	≤0.003	<0.003
	Benzene	(mg/l)	≤0.1	≤0.01	<0.001	≤0.01	<0.001
	Selenium and its compounds	(mg/l)	≤0.1	≤0.01	<0.01	≤0.01	<0.01
	Fluorine and its compounds	(mg/l)	≤10	≤2	0.07	≤2	0.09
	Boron and its compounds	(mg/l)	≤8	≤2	0.2	≤2	0.1
	Ammonia, ammonia compounds, nitrous acid compounds and nitric acid compounds	(mg/l)	≤100	≤20	1.28	≤100	56
Living environment	Hydrogen ion exponent (pH)	-	5.8~8.6	5.8~8.6	6.4~7.45	-	-
	Biological oxygen demand (BOD)	(mg/l)	<25 (average 20per day)	≤20	6	-	-
	Chemical oxygen demand (COD)	(mg/l)	No regulation	No regulation	6.2	-	-
	Suspended solids (SS)	(mg/l)	<40 (average 30 per day)	≤15	26	-	-
	n-hexane extract (mineral oil)	(mg/l)	≤5	≤2	1	-	-
	n-hexane extract (fauna/flora oil)	(mg/l)	≤10	≤3	1	-	-
	Phenol	(mg/l)	≤1	≤0.05	<0.01	-	-
	Copper	(mg/l)	≤3	≤0.3	0.03	-	-
	Zinc	(mg/l)	≤5	≤0.5	0.11	-	-
	Soluble iron	(mg/l)	≤10	≤0.3	0.14	-	-
	Soluble manganese	(mg/l)	≤1	≤0.1	0.05	-	-
	Total chromium	(mg/l)	≤2	≤0.1	<0.02	-	-
	Total phosphorus	(mg/l)	No regulation	No regulation	0.01	-	-
	Total nitrogen	(mg/l)	No regulation	No regulation	1.2	-	-
Number of coliforms	(coliforms/cm <sup>3</sup> )	Average ≤3,000 per day	≤1,000	950	-	-	
Living environment	Hydrogen ion exponent (pH)	-	Over 5 and under 9	-	-	Over 5 and under 9	6.59~8.37
	Biological oxygen demand (BOD)	(mg/l)	<600	-	-	≤480	410
	Chemical oxygen demand (COD)	(mg/l)	No regulation	-	-	No regulation	21.4
	Suspended solids (SS)	(mg/l)	<600	-	-	≤100	42.6
	n-hexane extract (mineral oil)	(mg/l)	≤5	-	-	≤2	1
	n-hexane extract (fauna/flora oil)	(mg/l)	≤30	-	-	≤24	23
	Phenol	(mg/l)	≤5	-	-	≤0.05	<0.01
	Copper	(mg/l)	≤3	-	-	≤0.3	<0.02
	Zinc	(mg/l)	≤5	-	-	≤0.5	0.06
	Soluble iron	(mg/l)	≤10	-	-	≤0.3	0.11
	Soluble manganese	(mg/l)	≤10	-	-	≤0.1	<0.02
	Total chromium	(mg/l)	≤2	-	-	≤0.1	<0.02
	Total phosphorus	(mg/l)	No regulation	-	-	No regulation	6.3
	Total nitrogen	(mg/l)	No regulation	-	-	No regulation	61.6
Iodine consumption	(mg/l)	<220	-	-	<70	37	

■ Noise level

(Unit: dB)

Category	Legal and regulatory standard	Site standard	Actual result max.
Morning	50	50	49
	60	60	53
Daytime	55	55	54
	65	65	63
Evening	50	50	49
	60	60	59
Nighttime	45	45	44
	50	50	49

Upper column: Class-2 zones (residential and semi-residential zones (Class 1 and 2))  
Lower column: Class-3 zones (commercial and semi-industrial zones)

1.3 Production site: Hitachi Koki Haramachi Co., Ltd.

- Address: 70 Aza-minamiharada, Kitanagano, Haramachi City, Fukushima Prefecture
- Business activities: Manufacture of electric power tools
- Site area: 69,000 m<sup>2</sup>
- Founded: 1970
- Zone designation: Undesignated zone (Class 3)

■ Air quality: Boilers (heaters)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	180	144	85.0
SOx (Nm <sup>3</sup> /h)	1.54	0.77	0.027
	5.50	2.57	0.052
Smoke particulates (g/Nm <sup>3</sup> )	0.30	0.15	0.007

■ Noise level

(Unit: dB)

Category	Legal and regulatory standard	Site standard	Actual result max.
Morning	55	55	45
Daytime	60	60	57
Evening	55	55	42
Nighttime	50	50	42

■ Air quality: Low-frequency furnaces

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	200	160	3.0
SOx (Nm <sup>3</sup> /h)	1.12	0.56	0.000
Smoke particulates (g/Nm <sup>3</sup> )	0.20	0.10	0.01

■ Vibration and noxious odors

Since the site was not covered by regulations, measurements were not taken in fiscal 2002.

■ Water quality

	Item	Unit	Legal and regulatory standard	Site standard	Actual result max.
Health	Cadmium	(mg/l)	≤0.1	-	<0.01
	Cyanogen	(mg/l)	≤0.5	≤0.4	<0.01
	Organic phosphorus	(mg/l)	≤0.1	-	<0.1
	Lead	(mg/l)	≤0.1	-	<0.01
	Hexavalent chromium	(mg/l)	≤0.2	-	<0.05
	Arsenic	(mg/l)	≤0.01	-	<0.01
	Total mercury	(mg/l)	Not detected.	-	Not detected.
	Alkyl mercury	(mg/l)	Not detected.	-	Not detected.
	PCBs	(mg/l)	≤0.003	-	<0.0005
	Dichloromethane	(mg/l)	≤0.2	-	<0.002
	Carbon tetrachloride	(mg/l)	≤0.02	-	<0.0002
	1,2-dichloroethane	(mg/l)	≤0.04	-	<0.0004
	1,1-dichloroethylene	(mg/l)	≤0.2	-	<0.002
	Cis-1,2-dichloroethylene	(mg/l)	≤0.4	-	<0.004
	1,1,1-trichloroethane	(mg/l)	≤3	-	<0.001
	1,1,2-trichloroethane	(mg/l)	≤0.06	-	<0.0006
	Trichloroethylene	(mg/l)	≤0.3	-	<0.001
	Tetrachloroethylene	(mg/l)	≤0.01	-	<0.001
	1,3-dichloropropane	(mg/l)	≤0.02	-	<0.0002
	Thiuram	(mg/l)	≤0.06	-	<0.006
	Simazine	(mg/l)	≤0.03	-	<0.003
	Benzene	(mg/l)	≤0.1	-	<0.001
	Selenium	(mg/l)	≤0.1	-	<0.01
Living environment	Fluorine and its compounds	(mg/l)	≤8	≤6.4	<0.05
	Boron and its compounds	(mg/l)	≤10	≤8	<0.1
	Ammonia and ammonia compounds (ammonium nitrogen)	(mg/l)	≤100	≤80	<0.1
	Nitrous acid compounds (nitrite nitrogen)	(mg/l)	≤100	≤80	<0.1
	Nitric acid compounds (nitrate nitrogen)	(mg/l)	≤100	≤80	2.8
	Hydrogen ion exponent (pH)	-	5.8~8.6	6.3~7.7	7.4
	Biological oxygen demand (BOD)	(mg/l)	≤20	≤16	1
	Chemical oxygen demand (COD)	(mg/l)	≤30	≤24	2
	Suspended solids (SS)	(mg/l)	≤50	≤40	2
	n-hexane extract (mineral oil)	(mg/l)	≤1	≤0.8	<1
	n-hexane extract (fauna/flora oil)	(mg/l)	≤10	≤8	-
	Phenol	(mg/l)	≤1	≤0.8	<0.01
	Copper	(mg/l)	≤1	≤0.8	<0.01
	Zinc	(mg/l)	≤2	≤1.6	0.03
	Soluble iron	(mg/l)	≤10	≤8	0.07
Soluble manganese	(mg/l)	≤10	≤8	<0.01	
Total chromium	(mg/l)	≤2	≤1.6	<0.05	
Total phosphorus	(mg/l)	≤8	≤6.4	0.31	
Total nitrogen	(mg/l)	≤60	≤48	3.2	
Number of coliforms	(coliforms/cm <sup>3</sup> )	≤3,000	≤2,400	28	

1.4 Production site: Hitachi Koki Yamagata Co., Ltd.

- Address: 1784 Ohaza-Urushiyama, Yamagata City, Yamagata Prefecture
- Business activities: Manufacture of electric power tools and printers
- Site area: 144,000 m<sup>2</sup>
- Founded: 1984
- Zone designation: Exclusive industrial zone

Note 1) Printing Systems Group was divided and transferred as of the 1st of October 2002.

Note 2) Hitachi Koki Yamagata Co., Ltd. was dissolved as of the 31st March 2003 and liquidation procedures have been completed.

■ Air quality: Boilers (heaters)

Item	Legal and regulatory standard	Site standard	Actual result max.
NOx (ppm)	–	–	86
SOx (Nm <sup>3</sup> /h)	0.74	0.59	0.25
Smoke particulates (g/Nm <sup>3</sup> )	0.20	0.16	0.002

■ Noxious odor (Unit: Odor concentration)

Category	Legal and regulatory standard	Site standard	Actual result max.
At boundaries of the site	20	20	14
At gas outlets such as chimneys	1,000	1,000	730

It is mandatory to measure the malodor level of gases emitted from an outlet at the time such an outlet is under consideration under an agreement between Yamagata City and Hitachi Koki Yamagata Co., Ltd. The measurements shown above are the maximum values up to fiscal 2002.

■ Water quality

	Item	Unit	Legal and regulatory standard	Site standard	Actual result max.
Health	Fluorine and its compounds	(mg/l)	≤15	≤6	<0.8
	Boron and its compounds	(mg/l)	≤10	≤8	1.4
Living environment	Hydrogen ion exponent (pH)	–	5.8~8.6	6.0~8.1	6.9~7.1
	Biological oxygen demand (BOD)	(mg/l)	≤25	≤20	7.4
	Chemical oxygen demand (COD)	(mg/l)	≤25	≤20	12.6
	Suspended solids (SS)	(mg/l)	≤50	≤40	6.6
	n-hexane extract (mineral oil)	(mg/l)	≤3	≤2.4	<1.0
	n-hexane extract (fauna/flora oil)	(mg/l)	≤10	≤8	<1.0
	Phenol	(mg/l)	≤5	≤4	<0.5
	Copper	(mg/l)	≤0.5	≤0.4	<0.1
	Zinc	(mg/l)	≤3	≤2.4	<0.5
	Soluble iron	(mg/l)	≤10	≤8	1.1
	Soluble manganese	(mg/l)	≤5	≤4	<0.5
	Chromium	(mg/l)	≤1	≤0.8	<0.2
Number of coliforms	(coliforms/cm <sup>3</sup> )	≤3,000	≤2,400	95	

■ Noise level

(Unit: dB)

Category	Legal and regulatory standard	Site standard	Actual result max.
Morning	50	50	–
Daytime	70	70	56
Evening	50	50	–
Nighttime	50	50	–

It is difficult to measure the level of noise generated from Hitachi Koki Yamagata Co., Ltd. during morning, evening and nighttime correctly because this production site is near several arterial roads such as Route 13 and the high background traffic noise makes accurate measurement difficult. Therefore, measurement has been conducted only during daytime hours under the agreement with Yamagata City.

■ Vibration

Category	Legal and regulatory standard	Site standard	Actual result max.
Daytime	65	65	33
Nighttime	55	55	–

Measurement has been conducted only during daytime hours for the same reason as the noise level.

Please answer the questions below and mail or fax your completed questionnaire to the address/facsimile number below.

Facsimile number:81-29-276-7424  
 Address: Environmental Protection Promotion Center, Corporate Environmental Policy Division, Hitachi Koki Co., Ltd.  
 1060, Takeda Hitachinaka-city Ibaraki Pref. 312-8502, Japan

How would you assess Hitachi Koki's environmental activities?

- Excellent       Good       Average       Not very good       Poor

Explain the reason(s) for your selection for the above.

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How would you rate the Hitachi Koki Environmental Sustainability Report?

- |                     |   |                                     |   |
|---------------------|---|-------------------------------------|---|
| ● Contents          | <input type="checkbox"/> Satisfactory   | <input type="checkbox"/> Average    | <input type="checkbox"/> Insufficient     |
| ● Number of pages   | <input type="checkbox"/> Too many       | <input type="checkbox"/> Just right | <input type="checkbox"/> Not enough       |
| ● Design            | <input type="checkbox"/> Good           | <input type="checkbox"/> Average    | <input type="checkbox"/> Poor             |
| ● Comprehensibility | <input type="checkbox"/> Comprehensible | <input type="checkbox"/> Fair       | <input type="checkbox"/> Incomprehensible |

What impressed you most about the Hitachi Koki Environmental Sustainability Report? Give reason(s) for your selection.

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From what standpoint did you read the Hitachi Koki Environmental Sustainability Report?

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Customer                                    | <input type="checkbox"/> Business partner     | <input type="checkbox"/> Government/Public administrator |
| <input type="checkbox"/> Researcher/Educator                         | <input type="checkbox"/> Press                | <input type="checkbox"/> Non-profit organization (NPO)   |
| <input type="checkbox"/> Resident near a Hitachi Koki Group facility | <input type="checkbox"/> Other (            ) |  |

How did you find out about the Hitachi Koki Environmental Sustainability Report?

- |  |   |                                   |   |
|--|---|-----------------------------------|---|
| <input type="checkbox"/> Exhibition            | <input type="checkbox"/> Newspaper            | <input type="checkbox"/> Magazine | <input type="checkbox"/> Mailed by Hitachi Koki |
| <input type="checkbox"/> Hitachi Koki Web site | <input type="checkbox"/> Other (            ) |                                   |   |

If you would like to comment in any way on the Hitachi Koki Environmental Sustainability Report, please feel free to do so and let us know your thoughts and opinions. We value your feedback.

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Thank you for your cooperation. Please fill in your personal details below. (Optional)

Name	Male / Female		Age
Address			
Contact inf.	Telephone number :	FAX :	
	E-mail :		
Occupation/ Name of company			



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For inquiries contact :  
Environmental Activity Promotion Center, Corporate Environmental  
Policy Division, Hitachi Koki Co., Ltd.

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