Emissions Data for the Kobe Steel Group's Business Locations in Fiscal 2017

Air and water quality data from all of Kobe Steel's business locations as well as its major group companies are reported below.

For exhaust gases, NOx, dust and dioxins from representative facilities are included, along with regulation values.

For wastewater, COD (or BOD in some cases), SS, oil and dioxins are included, along with regulation values.

Regulation values are based on the Air Pollution Control Act, prefectural ordinances, conventions, and the Act on Special Measures against Dioxins.

Water Quality Data

Regulation values are based on the Water Pollution Prevention Act, the Sewerage Act, prefectural ordinances, conventions, and the Act on Special Measures against Dioxins. ND: Below quantitative limits (Not Detected)

Iron & Steel

Kakogawa Works

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	250	33
	Boiler	60	18
	Heating furnace	100	49
Dust (mg/Nm ³)	Boiler	100	12
	Boiler	50	2
	Heating furnace	100	1
Dioxins (ng-TEQ/Nm ³)	Industrial waste	5	0.05
	incinerator	5	0.05
	Sintering plant	1	0.0006

water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	10	3.7
SS (mg/L)	25	11
Oil (Mineral oil) (mg/L)	1	<1
Dioxins (pg-TEQ/L)	10	0.0076

The latest environmental data from Kakogawa Works can be viewed at our Japanese website (updated monthly). (http://www.kobelco.co.jp/about_kobelco/csr/information)

Kobe Works

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	250	137
	Heating furnace	130	101
	Heating furnace	100	77
Dust (mg/Nm ³)	Boiler	200	8
	Heating furnace	100	<1
	Heating furnace	100	<1
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

The latest environmental data from Kobe Works can be viewed at our Japanese website (updated monthly). (http://www.kobelco.co.jp/about_kobelco/csr/information)

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Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	15	4.9
SS (mg/L)	30	13
Oil (Mineral oil) (mg/L)	1	<1
Dioxins (pg-TEQ/L)	_	ı

Kobelco Engineered Construction

Materials Co., Ltd.

All			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	150	23
	Boiler	150	24
	Drying furnace	230	20
Dust (mg/Nm ³)	Boiler	50	5
	Boiler	50	10
	Drying furnace	100	5
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

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Trato.		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	200	17
SS (mg/L)	200	7.5
Oil (mg/L)	5	2.1
Dioxins (pg-TEQ/L)	-	_

Shinko Wire Company, Ltd. (Amagasaki Works)

Air			
Substance	Facility	Regulation Value	Actual Measureme
NOx (ppm)	Boiler	150	
	Heating furnace	130	
	Heating furnace	180	
Dust (mg/Nm ³)	Boiler	50	
	Heating furnace	100	
	Heating furnace	100	
Dioxins (ng-TEQ/Nm ³)	N/A	_	

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	20	4.1
SS (mg/L)	30	9.0
Oil (mg/L)	5	<1
Dioxins (pg-TEQ/L)	_	_

Shinko Wire Company, Ltd. (Onoe Works)

ormine vine company, Etc. (Once vicine)					
Air					
Substance	Facility	Regulation Value	Actual Measurement (Max.)		
NOx (ppm)	Heating furnace	170	12		
	Boiler	150	97		
	Cogeneration equipment	600	280		
Dust (mg/Nm ³)	Heating furnace	250	90		
	Boiler	100	2		
	Cogeneration equipment	50	2		
Diovine (ng TEO/Nm ³)	N/A	-			

vvater		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	15	6.7
SS (mg/L)	25	12
Oil (mg/L)	2	<0.5
Dioxins (pg-TEQ/L)	_	

Shinko Wire Company, Ltd. (Nishikinohama Works)

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	
Dust (mg/Nm³)	N/A	_	-
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	_	_
SS (mg/L)	300	2
Oil (mg/L)	5	<0.5
Dioxins (pg-TEQ/L)	_	1

Kobelco Steel Tube Co., Ltd.

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Heating furnace	180	38
	Heating furnace	180	48
	Heating furnace	180	43
Dust (mg/Nm ³)	Heating furnace	200	2.5
,	Heating furnace	200	7
	Heating furnace	200	2.5
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	25	6.8
SS (mg/L)	50	13
Oil (mg/L)	5	0.5
Dioxins (pg-TEQ/L)	_	

Shinko Bolt, Ltd.

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	_
Dust (mg/Nm ³)	N/A	_	_
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Trato.		
Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	25	7
SS (mg/L)	70	2
Oil (mg/L)	_	_
Dioxins (pg-TEQ/L)	_	_

Nippon Koshuha Steel Co., Ltd.

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	150	43
	Melting furnace	_	45
	Heating furnace	130	75
Dust (mg/Nm ³)	Boiler	200	13
	Melting furnace	100	1.1
	Heating furnace	200	16
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	20	3
SS (mg/L)	50	16
Oil (mg/L)	3	0.5
Dioxins (pg-TEQ/L)	_	

Welding

Fujisawa Plant Air

All			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	_
Dust (mg/Nm³)	N/A	_	_
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	60	4.5
SS (mg/L)	90	17.0
Oil (mg/L)	10	1
Dioxins (pg-TEQ/L)	_	_

Ibaraki Plant

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Drying furnace	230	21
	Boiler	150	36
	Calcining furnace	200	44
	(firing furnace)	200	44
Dust (mg/Nm ³)	Drying furnace	200	1
	Boiler	100	0.5
	Calcining furnace	200	2
	(firing furnace)	300	2
Dioxins (na-TEO/Nm ³)	N/A	_	_

Water

vater		
Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	300	76
SS (mg/L)	300	36
Oil (mg/L)	5	3.8
Dioxins (pg-TFQ/L)	_	_

Saijo Plant

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Drying furnace	250	45
	Drying furnace	230	38
Dust (mg/Nm ³)	Drying furnace	350	9.5
	Drying furnace	200	4.8
	- 3		
Dioxins (na-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	-	_
SS (mg/L)		_
Oil (mg/L)	5	0.5
Dioxins (pg-TEQ/L)	10	0.0002

Fukuchiyama Plant

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Heating furnace	160	111
	Heating furnace	160	56.9
	Boiler	135	26.1
Dust (mg/Nm ³)	Heating furnace	20	5
	Heating furnace	20	1
	Boiler	10	5
Dioxins (ng-TEQ/Nm ³)	N/A	-	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	300	6.4
SS (mg/L)	300	5.5
Oil (mg/L)	3.0	<0.5
Dioxins (pg-TEQ/L)		ı

Shinko Actec Co., Ltd.

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	_
Dust (mg/Nm ³)	N/A	_	_
,			
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	300	ND
SS (mg/L)	600	5
Oil (mg/L)	5	ND
Dioxins (pg-TEQ/L)	_	-

Hanshin Yosetsu Kizai Co., Ltd.

1		_
	Air	

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Melting furnace	180	48
	Drying furnace	150	32
	Firing furnace	175	30
Dust (mg/Nm ³)	Melting furnace	100	<60
	Drying furnace	100	<20
	Firing furnace	100	<20
Dioxins (ng-TEQ/Nm ³)	N/A		

Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	30	4.4
SS (mg/L)	30	10.0
Oil (mg/L)		
Dioxins (pg-TEQ/L)	_	_

Aluminum & Copper

Moka Plant

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Melting furnace	180	66
	Boiler	180	26
	Incinerator	300	<39
Dust (mg/Nm ³)	Melting furnace	300	5
,	Boiler	300	4
	Incinerator	250	<3
Dioxins (ng-TEQ/Nm ³)	Melting furnace	5	3.8
	Boiler	10	0.00055
	Incinerator	10	0.0062

Water

Water

Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	25	12.4
SS (mg/L)	50	57.6
Oil (mg/L)	5	<1.0
Dioxins (pg-TEQ/L)	_	

In August 2017 SS values exceeded regulation. After investigating the cause and implementing countermeasures, values returned to below regulation.

Chofu Works Air

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	150	18
	Melting furnace	180	63
	Melting furnace	180	27
Dust (mg/Nm ³)	Boiler	100	<5
	Melting furnace	300	24
	Melting furnace	200	49
Dioxins (ng-TEQ/Nm ³)	50m smoke stack	5	2.7
Company included in air quality data: Shinko Fab Tech, Ltd.			

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	30	5.7
SS (mg/L)	50	4
Oil (mg/L)	2.5	<1
Dioxins (pg-TEQ/L)	10	0.78

Company included in water quality data: Shinko Fab Tech, Ltd.

Daian Works

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Melting furnace	120	110
	Boiler	110	44
	Heating furnace	120	46
Dust (mg/Nm ³)	Melting furnace	100	35
, ,,	Boiler	100	ND
	Heating furnace	100	4
Dioxins (ng-TEQ/Nm ³)	Melting furnace	5	0.041
	Melting furnace	1	0.025

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	10	5
SS (mg/L)	10	4
Oil (mg/L)	2(Mineral oil 1)	ND
Dioxins (pa-TEQ/L)	_	_

Shinko Metal Products Co., Ltd.

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Preheating furnace	170	30
	Heating furnace	200	39
	Preheating furnace	180	36
Dust (mg/Nm ³)	Preheating furnace	200	<5
	Heating furnace	250	<5
	Preheating furnace	100	<5
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	30	4.5
SS (mg/L)	100	28.0
Oil (mg/L)	5	<1
Dioxins (pg-TFQ/L)	_	ı

Company included in water quality data: Japan Superconductor Technology, Inc. Wire Rod Plant

Shinko Aluminum Wire Co., Ltd.

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Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Heating furnace	180	26
	Heating furnace	180	45
	Heating furnace	180	31
Dust (mg/Nm ³)	Heating furnace	100	2
	Heating furnace	100	3
	Heating furnace	100	2
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	25	5.4
SS (mg/L)	90	1.2
Oil (mg/L)	5	<0.5
Dioxins (pg-TEQ/L)	-	1

Shinko-North Co., Ltd.

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	Exempt	100
Dust (mg/Nm³)	Boiler	Exempt	6
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	15	3.7
SS (mg/L)	20	15
Oil (mg/L)	5	1
Dioxins (pg-TEQ/L)	-	_

Shinko Leadmikk Co., Ltd.

Facility	Regulation Value	Actual Measurement (Max.)
N/A	_	-
N/A	_	_
N/A	_	_
	N/A	N/A —

Water		
Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	1500	18.3
SS (mg/L)	1500	16
Oil (mg/L)	5	<1
Dioxins (pg-TEQ/L)	10	0.00018

Kobelco & Materials Copper Tube, Ltd.

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Melting furnace	200	26
	Melting furnace	200	27
	Heating furnace	180	16
Dust (mg/Nm ³)	Melting furnace	200	3.6
	Melting furnace	200	6.3
	Heating furnace	200	28
Dioxins (ng-TEQ/Nm ³)	N/A	_	ı

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	25	4.1
SS (mg/L)	70	4.8
Oil (mg/L)	5	1.3
Dioxins (pg-TEQ/L)	_	_

Machinery

Harima Plant

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	_
Dust (mg/Nm ³)	N/A	_	_
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Trato.		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	50	13
SS (mg/L)	90	32
Oil (mg/L)	5.0	0.6
Dioxins (pg-TEQ/L)	_	_

Shinko Engineering Co., Ltd.

Air				
Substance	Facility	Regulation Value	Actual Measurement (Max.)	
NOx (ppm)	N/A	_	-	
Dust (mg/Nm ³)	Melting furnace	200	39	
,	Melting furnace	200	850	
Dioxins (ng-TEQ/Nm ³)	N/A	_	ı	
*In January 2010 dust values avecad	ad vaculation. After increationtic			

^{*}In January 2018 dust values exceeded regulation. After investigating the cause and implementing countermeasures, values returned to below regulation.

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	1.65 (kg/day)	1.39
SS (mg/L)	40	2
Oil (mg/L)	5	<1
Dioxins (pg-TEQ/L)	_	_

Company included in water quality data:Kobelco Construction Machinery Co., Ltd. Ogaki Factory

Engineering

Kobelco Eco-Solutions Co., Ltd. (Harima Plant)

Air				
Substance	Facility	Regulation Value	Actual Measurement (Max.)	
NOx (ppm)	Firing furnace	180	114	
	Firing furnace	180	90	
	Firing furnace	180	44	
Dust (mg/Nm ³)	Firing furnace	250	53	
	Firing furnace	250	3	
	Firing furnace	250	1	
Dioxins (ng-TEQ/Nm ³)	N/A	_	_	

/ater		
Substance	Regulation Value	Actual Measuremen
OD (ma/L)	15	

	Substance	Regulation Value	Actual Measurement (Max.)
CC	OD (mg/L)	15	5.9
SS	S (mg/L)	28	8
Oi	I (mg/L)	5	ND
Di	oxins (pg-TEQ/L)	_	_

Kobelco Eco-Solutions Co., Ltd. (Technical Research Center)

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	_
(1-1-1-1)			
D. 104 (100 to (N lone 3)	N/A	_	_
Dust (mg/Nm ³)	14/74		
Dioxins (ng-TEQ/Nm ³)	N/A	_	_
	•		

Nater	
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Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	2,000	7.8
SS (mg/L)	2,000	10
Oil (mg/L)	5	2
Dioxins (pg-TEQ/L)	10	0.22

Electric Power

Kobelco Power Kobe Inc.

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	24	16
	Boiler	24	19
Dust (mg/Nm ³)	Boiler	10	11
	Boiler	10	4
Dioxins (ng-TEQ/Nm ³)	N/A	_	_
+			

Water		
Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	15	2.8
SS (mg/L)	30	12
Oil (mg/L)	1	<1
Dioxins (pg-TEQ/L)	_	_

^{*}The latest environmental data from Kobelco Power Kobe Inc. can be viewed from our website (updated monthly). (http://www.kobelco.co.jp/about_kobelco/csr/information)

In March 2018 dust exceeded agreed upon values. After investigating the cause and implementing countermeasures, values returned to levels below those agreed upon.

■ Head Office

Takasago Works

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	130	34
	Heating furnace	170	88
	Steel powder	150	53
	reduction furnace	130	
Dust (mg/Nm ³)	Boiler	100	0.6
	Heating furnace	250	17.5
	Steel powder	200	3
	reduction furnace	200	3
Dioxins (ng-TEQ/Nm ³)	Steel powder	5	0.0004
, ,	reduction furnace	٦	0.0004

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	15	5.9
SS (mg/L)	26	13
Oil (mg/L)	1.5	<0.5
Dioxins (pg-TEQ/L)	-	_

Company included in water quality data: Sputtering Target Division of Kobelco Research Institute,

Kobe Corporate Research Laboratories

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Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Water heating/cooling	150	32
	unit	100	02
	Boiler	150	28
Dust (mg/Nm ³)	Water heating/cooling	100	<2
, ,	unit	100	\2
	Boiler	100	<1
Dioxins (ng-TFQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	2,000	4.4
SS (mg/L)	2,000	4
Oil (mg/L)	5	<1
Dioxins (pg-TFQ/L)	10	0.019

Kobelco Research Institute, Inc. (Sputtering Target Division)

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A		1
,			
Dust (mg/Nm ³)	N/A	_	1
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Water quality data is included in Takasago Works.

Kobelco Construction Machinery Co., Ltd. (Hiroshima Factory)

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Frame undercoating	230	28
	Frame coat finishing	230	33
	ATT coating	230	13
Dust (mg/Nm ³)	Frame undercoating	200	4
	Frame coat finishing	200	8
	ATT coating	200	4
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water

Substance	Regulation Value	Actual Measurement (Max.)
COD (mg/L)	_	_
SS (mg/L)	_	_
Oil (mg/L)	35	30
Dioxins (pg-TEQ/L)	_	_

Kobelco Construction Machinery Co., Ltd. (Ogaki Factory)

Air			
Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	
(FEIII)			
Dust (mg/Nm³)	N/A	_	_
Dioxins (ng-TEQ/Nm ³)	N/A	_	I

Water
Water quality data is included in Shinko Engineering Co., Ltd. Head Office.

Kobelco Construction Machinery Co., Ltd. (Okubo factory)

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	_	
Dust (mg/Nm ³)	N/A	_	
,			
Dioxins (ng-TEQ/Nm ³)	N/A	_	-

Water	·	·
Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	600	2400
SS (mg/L)	600	3200
Oil (mg/L)	5	4.4
Dioxine (pg-TEO/L)		

Dioxins (pg-TEQ/L) — — — Regarding BOD and SS values in excess of standards, sources and causes are being investigated and measures are being pursued to prevent reoccurrence.

Japan Superconductor Technology, Inc. (Moji Factory)

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	N/A	- Trogulation value	
Dust (mg/Nm ³)	N/A	_	
Dioxins (ng-TEQ/Nm ³)	N/A	_	

Water
Water quality data is included in Shinko Metal Products Co., Ltd. Head Office.

Shinko Industrial Co., Ltd.

Substance	Facility	Regulation Value	Actual Measurement (Max.)
NOx (ppm)	Boiler	260	70
Dust (mg/Nm ³)	Boiler	300	g
,			
Dioxins (ng-TEQ/Nm ³)	N/A	_	_

Water		
Substance	Regulation Value	Actual Measurement (Max.)
BOD (mg/L)	160	2.1
SS (mg/L)	200	1.7
Oil (mg/L)	5	<0.5
Dioxins (pa-TEQ/L)	_	_