

Fatal and non-fatal accidents in steel making in Japan in 1999-2022

steel making industry Code No.0110

Type of accidents in steel making in 1999-2022

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
fall from height	100	119	98	90	102	93	109	87	125	116	69	63	86	85	64	65	82	77	66	80	60	68	67	78	2,049
falling to same level	80	74	94	78	66	71	80	77	83	68	44	77	65	63	68	44	57	56	55	56	65	70	64	68	1,623
crash	51	51	52	37	36	49	47	40	55	44	23	27	34	31	25	26	30	26	29	40	26	24	29	29	861
struck by flying or falling object	226	249	198	172	176	205	204	201	168	176	108	144	143	131	102	118	98	102	105	108	90	76	97	104	3,501
collapse	53	60	59	45	48	50	49	40	46	45	26	34	41	35	19	27	26	24	23	37	29	16	29	29	890
crashed by	109	92	84	65	62	72	74	79	63	71	45	56	47	52	49	54	42	39	55	44	58	43	54	37	1,446
caught in/between	371	383	358	338	303	335	326	315	327	324	204	254	246	242	236	257	195	191	200	213	207	155	176	213	6,369
cut	77	62	74	60	46	52	54	39	55	55	53	38	47	40	31	35	30	32	32	27	25	23	36	27	1,050
injury to the sole of the foot	4	4	3	2	2	3	3	1	2	2	3	1	1	3	1	2	2	1	4	2					46
drown					1							1	6												8
contact to high/low-temperature	90	102	100	78	70	91	78	91	73	82	49	73	82	71	66	75	42	78	56	62	57	63	43	54	1,726

contact to harmful substance	7	1	8	8	7	10	19	9	5	8	5	5	3	7	4	4	6	7	6	6	8	2	7	4	156
electric shock	4	2	5	2	1	3	4	3	2	2	2	2	4	1	2	2		1		2	1	1	2		48
explosion	11	6	1	2	3	4		8	8	9	4	5	1	5		11			2	3	5	6			94
burst	1	3		1		1		2		2	1	1	1	1					1	1		1			17
fire	3		1	3	5	3	6	4	4	4	2	4	2	3	3	1	5	3	2	3	1	2	5		69
traffic accident (public road)	3	4	4	8	2	7	7	5	7	4	4	7	6	6	6	4	8	14	1	4	3	4	5	8	131
traffic accident (others)		1	2		1	1	1	2				1		1				1	1						12
reaction to motion/improper motion	58	58	64	53	47	50	52	44	56	60	28	44	38	31	34	40	34	30	46	51	54	43	40	48	1,103
others	2	3	6	7	2	5	3	5	1	4	4	1	7	3	5	3	2	4		8	4	7	62	4	152
unclassifiable	1	2	1				1	1	1				2			1	1	1		1	1	1		1	16
total	1,251	1,276	1,212	1,049	980	1,105	1,117	1,053	1,081	1,076	674	838	862	811	715	769	660	687	684	748	694	605	716	704	21,367

Causal agents (large) of fatal and non-fatal accidents in steel making in 1999-2022

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
machine	267	247	264	257	197	221	218	216	219	236	143	187	162	171	137	167	134	138	148	139	143	104	118	138	4,371
crane, conveying machine	202	249	205	172	199	196	221	214	218	214	153	158	181	164	141	151	133	136	132	147	126	114	114	127	4,067



metal manufacturing machine	150	145	150	140	109	132	121	129	116	138	77	95	91	100	80	87	76	73	83	72	76	55	67	80	2,442
general machine	96	89	101	78	72	72	70	68	85	71	47	68	54	51	44	60	39	52	49	52	53	34	38	46	1,489
mobile silviculture machine																									
crane	98	122	102	89	101	99	108	96	95	79	64	60	85	74	56	66	57	55	50	77	61	48	58	66	1,866
conveying machine	99	121	98	74	91	87	103	104	109	124	83	89	87	83	82	80	66	66	76	62	61	61	48	53	2,007
vehicle	5	6	5	9	7	10	10	14	14	11	6	9	9	7	3	5	10	15	6	8	4	5	8	8	194
pressure vessel		2	1			2	2	1	1	1			2	1	1				1	3					18
chemical facilities					2		1							2									1		6
welding equipment	4	7	11	7	5	12	15	10	12	9	11	10	6	13	5	10	2	5	2	3	7	3	9	9	187
kiln, caldron	18	26	20	16	21	35	19	29	22	24	20	23	23	21	20	16	14	16	20	13	21	23	8	14	482
electric equipment	4	3	3	2	4	4	4	3	2	1	1	4	5		2	4	2	2		4		1	1	2	58
human power machine, tools	30	47	36	36	25	41	32	37	39	27	17	18	31	29	26	21	27	15	19	16	24	20	30	17	660
tools	105	99	115	85	78	81	93	69	94	95	56	74	79	69	71	62	67	61	64	65	58	46	56	51	1,793
other equipments, facilities	30	37	33	28	31	43	57	35	26	32	26	33	30	31	25	27	18	25	23	28	17	25	33	21	714
temporary buildings,	105	103	109	96	75	98	110	104	108	105	65	79	87	84	77	66	76	88	74	92	84	82	82	95	2,144



machine						1					1					1								3	
hollow chisel mortiser, wood borer			1			1					1	1												4	
chamfering machine, router, woodworking milling machine																									
chain saw										1											1	1		3	
other woodworking machines			1		1		1		2						2		1							8	
leveling, transporting or loading machine			2		3		3	1		2	3	2	1	4	2	1	2	3	2	2	1	3	1	3	41
excavating machine			1		2		4	2	2	3	4	5	1			1	1	1		1		2	1	1	32
foundation work machine													1						1					2	
hardening machine											1													1	
demolition machine								2		1						2		2	1	1	3	2	1	2	17
vehicle for high lift work							2	1	1	1	1						1							7	
other construction machines					2				1	1		1		2		2	1			1	2	1		14	



other general power machines			64		46		47	54	58	51	28	51	36	32	32	35	24	40	34	36	37	23	26	39	793
felling machine																									
mobile logging machine																									
skyline yarding machine																									
other mobile silviculture machine																									
crane			92		92		101	88	86	71	59	57	75	70	49	61	49	53	43	69	52	41	53	55	1,316
mobile crane			6		3		2		3	4	3	1	6	1	2	1	2	1	4	3	2	4	3	2	53
derrick crane																									
elevator, lift					3			1		1			2	1	2	3	1				1	2		1	18
cargo lifting appliance																									
gondola														1											1
lumberyard equipment, logging cableway																									
simple skyline yarding equipment																									
other powered crane			4		3		5	7	6	3	2	2	2	1	3	1	5	1	3	5	6	1	2	8	70



truck			28		30		27	26	29	30	28	20	30	21	26	21	19	20	23	22	19	18	10	17	464	
forklift			25		18		28	18	32	32	21	21	14	18	11	16	14	13	19	13	20	16	14	14	377	
railway equipment			4		1		1	2	4	4	1	3		2	3	5	2	2	1			1			36	
conveyor			34		31		43	44	32	44	25	37	37	33	33	32	26	27	24	20	17	21	17	15	592	
loader			2							1								1	1	2		1	2		10	
straddle carrier												1													1	
rough terrain hauler																										
other powered conveying machines			5		11		4	14	12	13	8	7	6	9	9	6	5	3	8	5	5	4	5	7	146	
cars, bus, motorcycle			3		6		9	14	13	9	6	9	8	6	3	3	9	15	4	8	4	4	4	7	7	147
railway vehicle			1							1						1			1				1		5	
other vehicles			1		1		1		1	1			1	1		1	1		1			1		1	12	
boiler							1						1							1					3	
pressure vessel														1	1										2	
other pressure vessels			1				1	1	1	1			1						1	2					9	
chemical facilities					2		1							2								1			6	
gas welding equipment			6		2		8	4	10	4	9	5	5	10	3	4	2	3	2	2	4	2	6	5	96	
arc welding equipment			3		3		6	4	2	1	2	5	1	1	2	4		2				1	2	2	41	

other welding equipment			2			1	2		4				2		2				1	3		1	2	20	
kiln, caldron			19		20		17	27	19	21	16	23	22	18	17	15	12	13	18	12	21	21	8	13	352
industrial dryer						1		1	1	2			3	1				1						10	
other kiln, caldron			1		1		1	2	2	2	2		1		2	1	2	3	1	1		2		1	25
transmission					1		2	2	1				1		1								2	10	
electric power facilities			1		1			1	1	1		2	1			1	1			3		1	1	15	
other electrical equipment			2		2		2				1	2	3		1	3	1	2		1				20	
human power cranes			3		2		2	1		1		1	3	1	1		3	1			2	1	1	23	
human power hauling equipment			8		7		6	12	12	6	5	6	10	8	12	9	7	3	4	9	8	8	13	6	159
human power machine			3					2	2	2			2			1	2		3		2	1		1	21
hand tool			22		16		24	22	25	18	12	11	16	20	13	11	15	11	12	7	12	10	16	10	303
ladder			23		20		12	18	29	28	17	16	16	10	14	10	15	10	18	12	9	18	14	15	324
slinging tool			54		34		53	27	35	33	17	27	37	31	29	31	24	25	26	27	28	13	22	22	595
other tools			38		24		28	24	30	34	22	31	26	28	28	21	28	26	20	26	21	15	20	14	504
other equipment, facilities			33		31		57	35	26	32	26	33	30	31	25	27	18	25	23	28	17	25	33	21	576
scaffolding					2		3	4	4	1	2	2	2	1	2		3	1	3	1	1			4	36



metal material			267		203		200	204	231	208	108	164	147	142	128	141	104	107	104	129	115	96	121	133	3,052
lumber, bamboo			4		8		6	3	3	4	4	3	3	1	3	3	5	7	3	3	2	6	4	5	80
stone, sand, substance			8		6		9	6	5	5	3	2	2	4	2	3	6	2	5	2			3	4	77
other materials			18		12		9	13	13	6	9	10	14	7	7	5	4	7	8	9	4	8	7	4	174
load			44		45		41	36	32	44	18	23	22	24	25	35	25	21	19	26	27	26	25	25	583
machine/equipment as load			12		7		10	8	4	6	2	2	5	3	1	1	5	5	4	4	5	3	4	2	93
natural ground, rock							1			1	1		1		1					2					7
standing tree								1		1										1	1				4
water			1						1			1	9					1	1				1		15
abnormal environment							1	2			1			1		1				1		1		2	10
high/cold temperature environment			4		3		6	12	4	8	5	13	10	3	7	9	4	10	10	12	8	10	4	12	154
other environments			7				3	2	3		2	4	6	1	2	4	2	3	2	2	1	3	2	4	53
other causal agent			6		10		7	7	5	3	4	2	8	6	3	6	3	6	5	7	4	6	61	3	162
no causal agent			24		27		26	22	20	21	12	18	14	17	16	17	10	16	21	19	29	20	17	22	388
unclassifiable			1		1		1			1			3	2	1	1	1	2		1	2			3	20
total	1,251	1,276	1,212	1,049	980	1,105	1,117	1,053	1,081	1,076	674	838	862	811	715	769	660	687	684	748	694	605	716	704	21,367

Workers age of fatal and non-fatal accidents in steel making in 1999-2022

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
19 years old or less	29	38	30	22	30	31	36	21	34	28	20	19	26	21	19	20	13	12	18	21	16	12	12	8	536
20-29	210	220	212	204	171	215	184	189	186	216	122	153	190	169	125	159	134	133	120	137	122	113	122	119	3,925
30-39	181	188	193	194	151	208	254	216	222	213	135	191	200	179	173	177	144	160	166	155	135	128	154	141	4,258
40-49	275	234	213	185	200	182	190	205	204	199	132	152	170	188	153	173	151	172	158	187	196	156	183	163	4,421
50-59	413	424	402	321	309	322	314	282	270	254	176	183	159	157	132	141	126	118	136	151	121	106	148	179	5,344
60 years old or more	143	172	162	123	119	147	139	140	165	166	89	140	117	97	113	99	92	92	86	97	104	90	97	94	2,883
total	1,251	1,276	1,212	1,049	980	1,105	1,117	1,053	1,081	1,076	674	838	862	811	715	769	660	687	684	748	694	605	716	704	21,367

Workers' number of workplace of fatal and non-fatal accidents in steel making in 1999-2022

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
9 workers or less	276	266	265	239	234	233	197	192	177	153	95	99	105	102	105	92	85	79	76	89	90	59	72	63	3,443
10-29	382	417	371	294	299	327	329	292	309	296	204	239	246	203	210	193	201	179	205	200	203	162	186	165	6,112
30-49	173	208	208	159	116	164	182	172	173	218	92	144	152	166	106	132	99	135	79	122	101	107	152	129	3,489
50-99	167	157	159	148	135	161	173	151	159	161	104	153	141	131	123	154	106	114	112	117	108	114	108	122	3,278
100-299	158	145	133	136	118	136	138	152	161	159	108	123	118	131	109	117	111	127	129	134	113	91	132	134	3,113
300 workers or more	95	83	76	73	78	84	98	94	102	89	71	80	100	78	62	81	58	53	83	86	79	72	66	91	1,932



Hokkaido	19	17	33		22		20	25	23	18	15	26	26	23	13	21	24	22	24	27	18	18	17	17	468
Aomori	2	3	6		1		5	3	11	4	4	4	2	8	2	6	5	4	6	4	4	2	5	2	93
Iwate	18	14	16		11		17	16	11	20	11	6	6	8	6	9	5	7	5	9	2	7	13	5	222
Miyagi	6	5	12		11		12	7	9	9	7	5	11	5	5	4	4	3	9	7	8	8	10	8	165
Akita	4	8	7		7		10	11	8	8	6	9	5	5	5		6	5	5	7	2	6	7	2	133
Yamagata	22	25	20		14		23	20	16	15	13	13	18	14	15	10	8	15	5	9	12	11	6	10	314
Fukushima	18	16	15		17		20	23	13	12	5	10	8	11	6	9	14	13	9	9	9	11	13	15	276
Ibaraki	25	18	32		18		18	24	20	28	14	33	21	21	15	21	26	13	31	26	12	11	18	22	467
Tochigi	22	22	14		13		15	10	14	17	11	11	9	12	16	11	4	5	10	13	13	7	7	9	265
Gunma	32	20	18		14		23	25	16	23	18	16	14	18	22	16	13	15	11	18	20	6	12	10	380
Saitama	87	136	88		62		68	52	60	52	37	42	47	39	37	42	35	30	35	39	41	38	33	32	1,132
Chiba	69	66	86		26		43	42	42	44	32	23	27	32	22	28	26	27	24	27	20	24	40	38	808
Tokyo	35	38	37		25		24	15	27	18	18	14	17	12	13	9	11	13	9	9	11	9	8	8	380
Kanagawa	41	40	33		30		32	44	32	28	15	23	20	21	14	20	17	15	35	24	21	13	21	17	556
Niigata	31	41	22		23		43	46	43	55	26	42	48	30	24	25	36	28	37	35	29	20	26	38	748
Toyama	29	19	27		12		11	29	16	27	10	20	10	5	17	11	11	8	5	11	11	13	9	10	321
Ishikawa	13	14	12		7		13	16	14	14	8	11	24	15	11	15	12	10	6	17	10	6	13	12	273
Fukui	6	5	8		7		3	5	5	4	8	3	4	6	4	4	5	4	7	5	8	2	4	3	110
Yamanashi	10	3	1		2		3	4	3	9	1	2	7		6	8	2	4		3	4	2		2	76
Nagano	14	13	16		3		9	13	10	14	4	10	4	8	8	6	6	6	4	5	7	3	4	7	174
Gifu	14	24	16		22		30	24	32	21	17	16	20	15	19	20	12	17	15	14	17	12	10	18	405
Shizuoka	49	51	34		28		28	32	33	32	18	23	44	29	22	27	25	21	22	30	21	24	31	26	650

































Ibaraki	3	1	2			2	1			1				1		1	1	1		1		1		16	
Tochigi												1							1			1		3	
Gunma			1	2									1	1								2		7	
Saitama		1		1	3	1	1	1				1	1	2		1			1			1		15	
Chiba	3	2	1	5	1	3		3	1			1	1	2	1	4	2	2		1		1		34	
Tokyo	1				1	1	1																	4	
Kanagawa	1			2	1										1			1	1	1			1	9	
Niigata	1						1	1	1				2							3			1	10	
Toyama	1	1		1						1	1													5	
Ishikawa				1					1															2	
Fukui																					1			1	
Yamanashi										1														1	
Nagano								1															1	2	
Gifu		1		1				1		1	1								1	1				7	
Shizuoka	2			1								1									1			5	
Aichi	1	1		2	6	2	3	5	4	3		1	1	4	1	5	1	3	2	3	1	1	2	1	53
Mie	1		1					1						1										4	
Shiga					3	1			1		1		1											7	
Kyoto										1					1									2	
Osaka	2		1	1	4	2		2		2	2	3		2	2		2	2			1	1	2	31	
Hyogo	2		9	2			4	3	1	2		2	2	1		3	3	1		1	1		1	38	
Nara			1									1						1						3	

Wakayama	2	1		1		1	1	2	2	3													1	14	
Tottori																									
Shimane			1										1					1					2	5	
Okayama		1	1				3		3	1		1	1	1	2			1			1		1	17	
Hiroshima	3			2		1		1		2		2	1		1		1	1	2	2	1	1		21	
Yamaguchi	2		1	2	1				1				1					1					2	11	
Tokushima															1									1	
Kagawa																									
Ehime																1	1							2	
Kochi									1															1	
Fukuoka	1		1		6	1		3			1	1	1		2		1				1	2	1	22	
Saga																				1				1	
Nagasaki											1													1	
Kumamoto																									
Oita					1		1			1			2		1	1		2	1				1	11	
Miyazaki																			1					1	
Kagoshima																									
Okinawa													1											1	
total	26	9	23	24	28	16	17	27	20	19	7	13	23	17	13	17	12	17	14	16	12	7	14	11	402

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