Fatal and non-fatal accidents in gravel digging in Japan in 1999-2022

gravel digging industry Code No.020202

Type of accidents in gravel digging 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	31	35	34	23	25	23	31	21	26	25	16	14	23	13	17	17	23	17	16	20	20	22	25	18	535
falling to same level	15	18	14	10	9	7	11	8	8	10	11	4	10	11	10	15	9	5	6	7	8	6	9	15	236
crash	6	14	6	7	4	4	5	7	2	1	4	5	5	1	2	1	1	2	1	6	3	2	1	2	92
struck by flying or falling object	15	12	15	15	12	5	9	8	6	6	8	8	6	3	4	5	6	8	1	6	3	8	1	2	172
collapse	5	2	5	6	1	3	1	3	3		1	1	2	1			2	1	2	2	1			1	43
crashed by	9	7		5	9	1	7	7	7	4	5	5	2	2	4	3	2	3	2	2	3	5	3	3	100
caught in/between	22	31	35	37	31	36	30	25	26	20	16	17	16	22	18	24	12	6	12	12	18	13	15	12	506
cut		2	3	6		2		4	2					3		2	1	1	3	1	2	1		1	34
injury to the sole of the foot	1						1		1																3
drown		1			1	1		1							1	1		1							7
contact to high/low-	4		5	1	1	1	1		1								1		2		1	1			19

temperature																									
contact to harmful substance																1					1				2
electric shock		1				1																			2
explosion			2											2											4
burst								1							1										2
fire																									
traffic accident (public road)	2	4	6	6	2		1		5	1	4		3	2	1		2	4	3	3	1	1	3	2	56
traffic accident (others)																	2								2
reaction to motion/improper motion	10	9	3	1	6	11	3	3	2	1	2	3	3	2	4	5	1		1	1	4	3	6	5	89
others	1	1					1	1	1								2		1	1				1	10
unclassifiable			1																						1
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Causal agents (large) of fatal and non-fatal accidents in gravel digging 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	23	28	41	33	22	25	28	18	21	9	12	15	16	11	11	16	10	7	11	19	14	16	11	13	430

crane, conveying machine	33	34	30	37	33	32	23	30	34	31	28	15	26	22	23	25	31	23	19	23	21	20	25	17	635
other equipment	14	17	11	10	12	4	13	11	11	8	6	8	6	6	6	8	6	3	8	5	7	7	6	5	198
temporary buildings, establishments	21	24	19	15	16	14	19	14	9	8	12	7	16	9	12	15	9	7	7	5	14	9	9	16	306
substance, material	13	16	17	12	10	7	13	6	6	10	3	5	2	8	3	4	3	4	3	7	5	3	2	3	165
load	1	3	2		1	1	1	1	2		1	1					1							1	16
environment	9	11	6	7	3	9	3	6	7	2	3	4	4	4	5	3	3	4	2	1	4	4	5	4	113
others	7	4	3	3	4	3	1	3			2	2		2	2	3	1			1		3	5	3	52
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Causal agents (middle) of fatal and non-fatal accidents in gravel digging in 1999-2022

Causal (M) 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
engine				1										1											2
power transmission mechanism	3	3	5	2	3	3	4	1	1	2					1		1	1	2		3	2	1	2	40
woodworking machine		1	1	2					1				1	1		2	1				1				11

construction machine	13	12	22	10	13	15	16	9	7	4	6	8	11	6	8	9	5	5	6	12	7	9	7	9	229
metal manufacturing machine				2		3		1		1	1		1			1				1				1	12
general machine	7	12	13	16	6	4	8	7	12	2	5	7	3	3	2	4	3	1	3	6	3	5	3	1	136
mobile silviculture machine																									
crane	3		2	4	1	1		2	4	2	2		4			3	2	3	1		1	4	1	2	42
conveying machine	28	30	25	32	31	31	19	28	27	28	26	14	20	19	21	21	27	18	18	21	20	16	21	14	555
vehicle	2	4	3	1	1		4		3	1		1	2	3	2	1	2	2		2			3	1	38
pressure vessel												1								1					2
chemical facilities																									
welding equipment	1																					1			2
kiln, caldron																									
electric equipment		1							1			1				1			1				1		6
human power machine, tools	4	4	3	4	3		2	3	1	2	2	2	1	1	1	3	3	1	1		2	1		1	45
tools	7	6	5	6	5	1	8	5	7	5	4	1	3	4	4	2	2	2	6	3	4	5	3	3	101
other equipments,																									

facilities	2	6	3		4	3	3	3	2	1		3	2	1	1	2	1			1	1		2	1	42
temporary buildings, establishments	21	24	19	15	16	14	19	14	9	8	12	7	16	9	12	15	9	7	7	5	14	9	9	16	306
hazards, harmful substances			1			1								2							2				6
materials	13	16	16	12	10	6	13	6	6	10	3	5	2	6	3	4	3	4	3	7	3	3	2	3	159
load	1	3	2		1	1	1	1	2		1	1					1							1	16
natural environment	9	11	6	7	3	9	3	6	7	2	3	4	4	4	5	3	3	4	2	1	4	4	5	4	113
other causal agent	1	1					1										1					1			5
no causal agent	5	3	2	2	4	3		3			2	2		2	2	3				1		2	5	3	44
unclassifiable	1		1	1																					3
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Causal agents (small) of fatal and non-fatal accidents in gravel digging in 1999-2022

Causal (S) 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
engine														1											1
power transmission mechanism			5		3		4	1	1	2					1		1	1	2		3	2	1	2	29

circular sawing machine																	1				1				2
band sawing machine																									
wood planer machine																									
hollow chisel mortiser, wood borer																									
chamfering machine, router, woodworking milling machine																									
chain saw			1						1					1		1									4
other woodworking machines													1			1									2
leveling, transporting or loading machine			14		5		9	6	3	2	4	5	4	3	4	4	3	2	3	8	3	8	4	5	99
excavating machine			7		8		5	2	4	2	2	2	7	3	3	4	2	2	2	2	4	1	2	4	68
foundation work machine							1																		1
hardening machine																									

demolition machine												1			1					1					3
vehicle for high lift work																									
other construction machines			1				1	1								1		1	1	1			1		8
lathe																									
drill press, milling machine																									
grinding machine, buffing machine								1					1							1				1	4
power press																									
forging pressure hammer																									
shearing machine																									
other metal manufacturing machines										1	1					1									3
centrifugal machine																									
mixer, grinder			4		4		2	4	3		3	2	1	1		1	2			1	3	1	1		33
roll machine (except printingroll machine)							1																		1

injection molding machine																									
food manufacturing machine																									
printing machine																									
industrial robot																									
other general power machines			9		2		5	3	9	2	2	5	2	2	2	3	1	1	3	5		4	2	1	63
felling machine																									
mobile logging machine																									
skyline yarding machine																									
other mobile silviculture machine																									
crane					1					2			1			2	1	2	1					1	11
mobile crane								2	3		1		3			1	1				1	2		1	15
derrick crane																									
elevator, lift																									
cargo lifting appliance																									
gondola																									

lumberyard equipment, logging cableway																									
simple skyline yarding equipment																									
other powered crane			2						1		1							1				2	1		8
truck			10		8		5	10	11	16	13	7	9	7	11	7	18	15	10	8	10	11	16	5	207
forklift					1				1												1				3
railway equipment																									
conveyor			15		20		12	17	13	12	10	7	9	11	10	14	8	3	6	8	7	5	5	9	201
loader							1	1	1		2		2	1			1		1	3	2				15
straddle carrier																									
rough terrain hauler																			1	1					2
other powered conveying machines					2		1		1		1									1					6
cars, bus, motorcycle			2		1		3		3				2	2	1	1	1	2		1			3	1	23
railway vehicle																									
other vehicles			1				1			1		1		1	1		1			1					8
boiler																									

pressure vessel																				1					1
other pressure vessels												1													1
chemical facilities																									
gas welding equipment																						1			1
arc welding equipment																									
other welding equipment																									
kiln, caldron																									
industrial dryer																									
other kiln, caldron																									
transmission																							1		1
electric power facilities									1			1							1						3
other electrical equipment																1									1
human power cranes					2			1	1						1	1		1							7
human power hauling equipment																					1				1

human power machine			1																						1
hand tool			2		1		2	2		2	2	2	1	1		2	3		1		1	1		1	24
ladder			2		5		4	2	1	3	1	1	2	2	3	1	2	1	3		3	1	1	1	39
slinging tool			2				2		3		2		1	1				1	2	1	1	2			18
other tools			1				2	3	3	2	1			1	1	1			1	2		2	2	2	24
other equipment, facilities			3		4		3	3	2	1		3	2	1	1	2	1			1	1		2	1	31
scaffolding			1		1			1		2		1	1	1			2	1			1				12
timbering																									
stairs, landing stage			1		2		5	2	3	1	4	1	1	2	2	2	2	3	2		2	2	2	1	40
opening								2					1				1				1				5
roof, beam, haze, crossbeam, principal rafter			2				1	1					2	1						1					8
working platform, boot board			1		3		2		1	1	3	3	1			2		1			1	3	2	4	28
passage			5		3		5	2	1	3	3	1	5	2	6	7	2	2	2	3	3	1	5	9	70
building, establishment			5		3		3	5	2	1	1	1	4	2	1	2			3	1	5	3		1	43
other temporary buildings,			4		4		3	1	2		1		1	1	3	2	2				1			1	26

establishments																									
explosive substance																									
inflammable substance			1																		1				2
inflammable gas														2											2
harmful substance																									
radiation																									
other hazards, harmful substances																					1				1
metal material			3		8		6	2	3	5		3	1	1	2	2	1	2	3	7	1	1	2		53
lumber, bamboo			2		1				1		1						1	1			1				8
stone, sand, substance			10		1		5	3	1	5	1	2	1	5		2	1	1			1	1		2	42
other materials			1				2	1	1		1				1							1		1	9
load			1		1		1	1	2		1	1												1	9
machine/equipment as load			1														1								2
natural ground, rock			2		2		1	2	4		1	2		1	1	1	1	1	1		2	1	2	1	26
standing tree								1	2		2	1		1				1					1		9
water								1							1			1							3
abnormal																									

environment															1										1
high/cold temperature environment			1		1												1					1			4
other environments			3				2	2	1	2		1	4	2	2	2	1	1	1	1	2	2	2	3	34
other causal agent							1										1					1			3
no causal agent			2		4			3			2	2		2	2	3				1		2	5	3	31
unclassifiable			1																						1
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Workers age of fatal and non-fatal accidents in gravel digging 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	1	2	2					1	1						1	1	1								10
20-29	8	22	9	10	4	8	6	5	6	2	4	3	2	3	3	1	2	5	2	2	4	3	4	3	121
30-39	12	14	17	22	10	9	18	16	10	12	8	9	10	7	4	7	6	6	3	2	9	6	9	5	231
40-49	32	25	28	18	22	16	16	15	17	10	11	9	15	17	12	11	13	8	8	17	12	9	11	11	363
50-59	39	44	45	43	40	35	35	32	30	26	27	12	18	19	20	26	13	10	12	16	14	16	12	17	601
60 years old or more	29	30	28	24	25	27	26	20	26	18	17	24	25	16	22	28	29	19	25	24	26	28	27	26	589
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Workers' number of workplace of fatal and non-fatal accidents in gravel digging 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	50	60	49	53	44	51	39	43	44	34	30	27	38	30	25	31	29	20	23	17	22	22	22	24	827
10-29	54	58	58	44	40	32	49	38	33	30	31	25	28	24	25	40	31	23	27	36	35	36	33	31	861
30-49	13	14	16	16	13	8	9	4	13	4	5	5	4	5	9	2	4	5		7	8	4	5	6	179
50-99	3	5	5	4	4	4	4	3			1			2	2	1				1			3	1	43
100-299	1		1					1						1	1										5
300 workers or more																									
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Month of fatal and non-fatal accidents in gravel digging in 1999-2022

Month	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
January	11	10	18	6	13	11	3	8	8	5	12	3	7	5	4	4	6	3	4	5	9	5	6	6	172
February	7	16	9	8	14	11	9	11	12	8	1	3	5	9	6	5	6	5	1	5	5	9	4	8	177
March	8	5	13	11	10	6	5	7	8	5	4	7	8	7	6	7	8	4	5	6	4	7	5	6	162
April	7	15	10	8	6	11	11	7	8	9	5	6	8	7	4	9	3	2	6	4	2	6	4	6	164
May	10	12	6	7	8	4	8	8	5	7	6	6	2	4	6	5	9	2	3	3	3	6	4	5	139
June	15	10	10	16	4	6	11	9	8	5	8	4	11	2	7	7	4	2	5	8	3	3	7	6	171

July	16	16	12	6	9	9	12	9	13	5	8	7	7	5	3	7	5	8	4	4	10	4	11		190
August	9	12	8	9	12	6	8	10	8	6	4	5	3	3	4	6	6	3	2	5	5	5	1	3	143
September	14	9	13	11	6	12	7	8	6	3	5	3	5	2	5	6	4	3	6	3	4	4	4	6	149
October	9	12	7	6	6	8	9	3	5	6	7	6	2	4	6	6	2	5	2	10	6	6	6	5	144
November	8	11	14	14	9	6	9	9	5	4	3	3	5	7	5	8	4	6	9	4	7	3	6	4	163
December	7	9	9	15	4	5	9		4	5	4	4	7	7	6	4	7	5	3	4	7	4	5	7	141
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Prefecture of fatal and non-fatal accidents in gravel digging in 1999-2022

Prefecture	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
Hokkaido	24	25	11		14		13	13	14	9	17	11	15	11	14	12	17	9	5	10	14	15	14	9	296
Aomori	2	2	3		1		2	2	2	1	1	1	2	1		1	1			1	2			1	26
Iwate	3	1	3		3		1	1	3	1	2	1			1	2	2	1			1	2	1	3	32
Miyagi	1	1	4		2		3	3	1	1	2	1	1	1	1	3	6	1	2	3		1	1	2	41
Akita	2	4	3		3		2	6				2	1		1	2	1		1	2	2	1	1		34
Yamagata	5	7	5		2		2		2	1		1	2	3	2			2	1		1	2	1	5	44
Fukushima	3	2	1		1			4			1		1	1	3	3			4	3	2	3	1	1	34
Ibaraki	7	8	4		3		6	3	2	5	2	4	2	3	1	2	2	2	1		2	4	1	1	65
Tochigi	3	4	4		3		6	2	5	5		3	2	2	4	2			1	1	1	2	2	3	55
Gunma	2	2	4		1		2			2	1	1	2	1	1			1	2	1					23

Saitama	2	3			1		2		4			1	2	1					1	2			1		20
Chiba	4	5	2		2		1	2	3	1	1	2	2	2	4	1	1	2	4	4	4	2		4	53
Tokyo									1										1						2
Kanagawa	2	2	1		3		1	1		1		1	1			1		1		1		2	1	2	21
Niigata	9	8	9		12		9	7	8	6	3	4	5	8	6	5	5	5	3	5	5	3	11	6	142
Toyama	3	3	5		2		6	1		3	5	4	3	1	3	2	3	1	1	2	1	1	2	4	56
Ishikawa			1		1						1		4	1			1	1	2		1	1			14
Fukui	1	2			1								1	1	1	1	2	2	1			2			15
Yamanashi	6	2	6		4		6	3	6	3		3		2	2	4	1		1	2		1	2	2	56
Nagano	10	2	10		7		3	1	2	2	3	1	3	1	1	3			2	2	6	3	4	4	70
Gifu	4	7	6		5		8	5	4	5	3	2	3	2		5	2	4	3	8	4	2	4	2	88
Shizuoka	11	2	7		6		3	9	9	6	8	1	5	4	4	3	1	2	3	3	3	2	4	4	100
Aichi	1	1	3				1	1	1		2	1	1	1	1	3		1	1			1	2		22
Mie		9	6		7		3	2	4	3			2	2	3	4	3	2		4		3	2		59
Shiga	2		4		3			1				1	2				1							1	15
Kyoto	1	1	3		3		2	1	1				1	1			2		2	1	1	1	1		22
Osaka	2								1	1				2				1		1					8
Hyogo	2	4	4				1	1	1		3	1		1	1	1			1		3	3	1	1	29
Nara		1						1										1							3
Wakayama		3	2		1				2		1		1	1	2	1	1	3	1	1	1	2	1	2	26
Tottori																									

Shimane		2	1		1														1					1	6
Okayama	1	2	2				2		2					1		1									11
Hiroshima		2	1		2		1	1		1	1		1			1	1								12
Yamaguchi		2	2				1							1		1	1				1				9
Tokushima		5	2		2		1	2	2				1	1	1	1			1	1	2	1	2		25
Kagawa								2																	2
Ehime		1					1	1	1	1	1	1	1	1	1	1					1	1			13
Kochi	2	1							1					1		1				1	1				8
Fukuoka	1	3	5		1			1		1	2	1			1	2	2	1			1			1	23
Saga	1																							1	2
Nagasaki																									
Kumamoto	1	4	2		1		1	3	1	4	5	3	1	2		1	2	3	1	1	4	1			41
Oita	1	1	2		2		3	3	1	3		1	1		1	2	3	2	1	1					28
Miyazaki	1	2	1		1		3	5	4	2	1	4		1	2	2	3		2				2	1	37
Kagoshima	1	1					4	1	2		1		1								1			1	13
Okinawa							1																1		2
total	121	137	129	117	101	95	101	89	90	68	67	57	70	62	62	74	64	48	50	61	65	62	63	62	1,915

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more.

Data of 2022 year do not include Covid-19 cases. Data of 2020 & 2021 year include Covid-19 cases. Fatal and non-fatal data are same situation.

Data of 2011 year include fatal and non-fatal accidents caused by Great East Japan Earthquake in 2011.

Data sources: https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.html (MHLW, Japan)

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Fatal accidents in gravel digging in Japan in 1999-2022

gravel digging industry Code No.020202

Type of fatal accidents in gravel digging 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	2		4			4	1	2	1		1		3			1	1		2				1		23
falling to same level															1									1	2
crash																									
struck by flying or falling object							1															1			2
collapse	2		1		1	1		1			1			1				1	1		1				11
crashed by				1					1			1										1			4
caught in/between		3	1		1	1	1		1	2		1	1	1	1	3					1		2		20
cut																									
injury to the sole of the foot																									

drown		1			1	1		1							1	1		1							7
contact to high/low-temperature																	1								1
contact to harmful substance																									
electric shock																									
explosion														1											1
burst																									
fire																									
traffic accident (public road)				1	1				1								1				1				5
traffic accident (others)																									
reaction to motion/improper motion																									
others																									
unclassifiable																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Causal agents (large) of fatal accidents in gravel digging 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	2		3		1	3		1	2	1	1		2			4						1	2	1	24
crane, conveying machine		3		2	1	1	1		2	1		1	1	1	1	1	1		2		2		1		22
other equipment		1	1		1																				3
temporary buildings, establishments						1	2						1	1	1		1		1						8
substance, material	1		1		1			1				1		1				1				1			8
load																									
environment	1		1			2		2			1				1		1	1			1				11
others																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Causal agents (middle) of fatal accidents in gravel digging in 1999-2022

Causal (M) 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
engine																									
power transmission mechanism																									

woodworking machine																									
construction machine	1		2			3		1	2	1	1		2			3						1	1	1	19
metal manufacturing machine																									
general machine	1		1		1											1							1		5
mobile silviculture machine																									
crane				1																					1
conveying machine		3		1		1	1		2	1		1	1	1	1	1	1		2		2		1		20
vehicle					1																				1
pressure vessel																									
chemical facilities																									
welding equipment																									
kiln, caldron																									
electric equipment																									
human power machine, tools																									
tools																									
other equipments,																									

facilities		1	1		1																				3
temporary buildings, establishments						1	2						1	1	1		1		1						8
hazards, harmful substances														1											1
materials	1		1		1			1				1						1				1			7
load																									
natural environment	1		1			2		2			1				1		1	1			1				11
other causal agent																									
no causal agent																									
unclassifiable																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Causal agents (small) of fatal accidents in gravel digging in 1999-2022

Causal (S) 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
engine																									
power transmission mechanism																									

circular sawing machine																									
band sawing machine																									
wood planer machine																									
hollow chisel mortiser, wood borer																									
chamfering machine, router, woodworking milling machine																									
chain saw																									
other woodworking machines																									
leveling, transporting or loading machine			2			1		1	1	1			1			2						1			10
excavating machine	1					2			1		1		1			1							1	1	9
foundation work machine																									
hardening machine																									

demolition machine																									
vehicle for high lift work																									
other construction machines																									
lathe																									
drill press, milling machine																									
grinding machine, buffing machine																									
power press																									
forging pressure hammer																									
shearing machine																									
other metal manufacturing machines																									
centrifugal machine																									
mixer, grinder	1				1											1							1		4
roll machine (except printingroll machine)																									

injection molding machine																									
food manufacturing machine																									
printing machine																									
industrial robot																									
other general power machines			1																						1
felling machine																									
mobile logging machine																									
skyline yarding machine																									
other mobile silviculture machine																									
crane																									
mobile crane				1																					1
derrick crane																									
elevator, lift																									
cargo lifting appliance																									
gondola																									

lumberyard equipment, logging cableway																									
simple skyline yarding equipment																									
other powered crane																									
truck				1			1		1				1			1	1				1		1		8
forklift									1																1
railway equipment																									
conveyor		3				1				1		1		1	1				1		1				10
loader																									
straddle carrier																									
rough terrain hauler																			1						1
other powered conveying machines																									
cars, bus, motorcycle					1																				1
railway vehicle																									
other vehicles																									
boiler																									

pressure vessel																									
other pressure vessels																									
chemical facilities																									
gas welding equipment																									
arc welding equipment																									
other welding equipment																									
kiln, caldron																									
industrial dryer																									
other kiln, caldron																									
transmission																									
electric power facilities																									
other electrical equipment																									
human power cranes																									
human power hauling equipment																									

human power machine																									
hand tool																									
ladder																									
slinging tool																									
other tools																									
other equipment, facilities		1	1		1																				3
scaffolding																									
timbering																									
stairs, landing stage																									
opening						1											1								2
roof, beam, haze, crossbeam, principal rafter																									
working platform, boot board							1								1										2
passage																									
building, establishment													1	1					1						3
other temporary buildings,							1																		1

establishments																									
explosive substance																									
inflammable substance																									
inflammable gas														1											1
harmful substance																									
radiation																									
other hazards, harmful substances																									
metal material	1																								1
lumber, bamboo												1													1
stone, sand, substance			1		1			1										1				1			5
other materials																									
load																									
machine/equipment as load																									
natural ground, rock	1		1			1		1			1										1				6
standing tree																									
water						1		1							1			1							4
abnormal																									

environment																									
high/cold temperature environment																	1								1
other environments																									
other causal agent																									
no causal agent																									
unclassifiable																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Workers age of fatal accidents in gravel digging 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																									
20-29					1									1											2
30-39		1	1			2	1				1										1				7
40-49	1	2		2	2					1			1	1			1						1		12
50-59	2	1	2			2	1	3	4	1		1				2	1	2						1	23
60 years old or more	1		3		1	3	1	1			1	1	3	1	3	3	1		3		2	2	2		32
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Workers' number of workplace of fatal accidents in gravel digging 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	1	2	1	1	1	5		1	2			2	3	2	2	3	1	2	2		1	1		1	34
10-29	2	2	3	1	1	2	3	2	1	2	2		1		1	2	2		1		2	1	1		32
30-49	1		2		2				1					1									1		8
50-99								1															1		2
100-299																									
300 workers or more																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Month of fatal accidents in gravel digging in 1999-2022

Month	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
January	2	2				1		2			1				1								1		10
February		1	2		1		1								1				1		1				8
March																2	1								3
April					1	1	1							1			1		1			1			7
May						1				1		1													3
June	1								1				1	1				1					1	1	7

July					1			1	2				1			1					1				7
August				2		1				1			1				1								6
September			2			2	1		1				1												7
October								1				1			1	1					1				5
November	1	1	1		1	1										1		1	1			1	1		10
December			1								1			1											3
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Prefecture of fatal accidents in gravel digging in 1999-2022

Prefecture	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
Hokkaido	2		3	1	1	1		1		1			3		1	1		1	1			1	1		19
Aomori																								1	1
Iwate																									
Miyagi											1														1
Akita	1							1																	2
Yamagata		1	1											1											3
Fukushima							1																		1
Ibaraki		1										1													2
Tochigi	1														1										2
Gunma																									

Saitama																									
Chiba		2				1						1			1	1			1		1				8
Tokyo																									
Kanagawa					1													1							2
Niigata			1		2			1	2				1												7
Toyama																									
Ishikawa																			1						1
Fukui						1																			1
Yamanashi			1																				1		2
Nagano				1												1									2
Gifu									1																1
Shizuoka																						1			1
Aichi							1									1									2
Mie														1			1								2
Shiga																									
Kyoto							1										1						1		3
Osaka														1											1
Hyogo																									
Nara																									
Wakayama																									
Tottori																									

Shimane																									
Okayama																									
Hiroshima																									
Yamaguchi																									
Tokushima																									
Kagawa																									
Ehime																					1				1
Kochi						1															1				2
Fukuoka						1																			1
Saga																									
Nagasaki																									
Kumamoto						1				1	1														3
Oita																	1								1
Miyazaki						1			1							1									3
Kagoshima								1																	1
Okinawa																									
total	4	4	6	2	4	7	3	4	4	2	2	2	4	3	3	5	3	2	3		3	2	3	1	76

Data sources: https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.html (MHLW, Japan)

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