Fatal and non-fatal accidents in city gas service in Japan in 1999-2021

city gas service industry Code No.011602

Type of accidents in city gas service in 1999-2021

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	total	Type of accidents
fall from height	11	11	15	19	16	11	16	6	7	6	12	3	7	4	10	3	11	3	2	6	12	11	9	211	fall from height
falling to same level	21	23	20	24	24	14	22	12	18	17	10	12	11	10	16	8	8	9	11	13	7	16	20	346	falling to same
crash	6	6		4	6	3	4	2	2	3	3	1	3	2	1	2	2	2	1	7		1	5	66	crash
struck by flying or falling object	3	3	5	3	1	2		3	5	2	1	1	4	2		2	2	1		1	1	2		44	struck by flying or falling object
collapse			1	3		1						1	1	1		2		1		1			2	14	collapse
crashed by		3	4	1	1			1	1			2		1	1	1		2	2	1	2	2	3	28	crashed by
caught in/between	7	3	4	4	6	1	3	6	1	2	3	1	3			1	1	4	2	2		1	2	57	caught in/between
cut	4	1	2	1	1		1		3	1	1		1	2		1								19	cut
injury to the sole of the foot	1				1																		1	3	injury to the sole
drown													1											1	drown
contact to high/low- temperature	1	1	1	4		2	1	1	2	3	2			1	1	3		2	2		2	1	3	33	contact to high/low- temperature

contact to harmful substance	1	3	1	5			1	1				1	1				1		1					16	contact to harmful substance
electric shock							1																	1	electric shock
explosion	4	1																						5	explosion
burst																									burst
fire			3								1											1		5	fire
traffic accident (public road)	17	18	21	20	17	9	15	7	12	15	8	7	5	10	7	13	12	9	7	7	7	6	5	254	traffic accident (public road)
traffic accident (others)			1	1						1		1								1				5	traffic accident (others)
reaction to motion/improper motion	5	12	14	10	10	3	5	7	6	8	7	10	9	4	3	2	5	4	4	6	17	9	8		reaction to motion/improper motion
others	3	1	2			3							2		1				1					13	others
unclassifiable			1	1								1												3	unclassifiable
total	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total

Causal agents (large) of fatal and non-fatal accidents in city gas service in 1999-2021

Causal (L) agents	1000	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		Causal (L)
Causar (L) agents		2000	2001	2002	2003	2004	2003	2000	2007	2000	2007	2010	2011	2012	2013	2014	2013	2010	2017	2010	2019	2020	2021		agents
machine		3	1	2	2	1	1	2	2	4	1	3	1	3		1	1	2		1			2	33	machine
crane, conveying																									crane,

machine	24	24	22	26	24	12	16	9	18	17	11	9	9	9	9	14	12	9	8	9	9	9	10	319	conveying
macrime																									machine
ath or a guinm ant		0	17	11		3	11	5	8		6	2	4	5	7	3	5		4	5	3	6	8	146	other
other equipment	4	8	17		8	3	11	3	0	9	0		4	3		3	3	4	4	3	3	6	0		equipment
to man a warm, buildings																									temporary
temporary buildings, establishments	30	30	29	37	40	22	22	17	17	18	18	13	21	14	17	11	18	12	12	19	20	26	26	489	buildings,
establistiments																									establishments
substance, material	8	6	8	11	1	3	4	3	4		1	1	2	1	2	1	1	1	2		2	2	3	67	substance,
substance, material		6	0	1 1			4	3			ľ					ľ							3	67	material
load	6	4	8	6	2	1	1	3	4	3	6	6	4	2		2	2	4	1	4	6	4	2	81	load
environment	7	3	4	1	1	2	9	4	2	3	1		2	1	3	2	1	3	4	5	2	1	4	65	environment
others	5	8	6	6	5	5	5	3	2	4	4	7	5	2	2	4	2	2	2	2	6	2	3	92	others
total	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total

Causal agents (middle) of fatal and non-fatal accidents in city gas service in 1999-2021

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	total	Causal (M) agents
engine													1											1	engine
power transmission mechanism										1														1	power transmission mechanism
woodworking machine									2					1										3	woodworking machine

construction machine			1		1	1		1		1	1	1											2	9	construction machine
metal manufacturing		1										1													metal
machine		l I		I																				4	manufacturing machine
general machine		2		1	1		1	1		1		1		2		1	1	2		1				15	general
																									machine
mobile silviculture																									mobile
machine																									silviculture
																									machine
crane	2				1															1				4	crane
conveying machine	3	3	2	6	4	3	6	4	5	2	2	1	5		1	1	1				1	1	4	55	conveying
, 3					<u> </u>																				machine
vehicle	19	21	20	20	19	9	10	5	13	15	9	8	4	9	8	13	11	9	8	8	8	8	6	260	vehicle
pressure vessel				2	1	1	2	2	2		1	1		1		1		1					3	18	pressure vessel
chemical facilities																									chemical
chemical facilities																									facilities
																									welding
welding equipment																									equipment
kiln, caldron			1							2	1													4	kiln, caldron
																									electric
electric equipment			1				1	1																3	equipment
human power machine,																									human power
tools	3	2	4	1	3		4		1		2	1	1	1	1			1		2				27	machine, tools

tools		3	5	4	2	2	2		1	4			1	3	4		3	2	1	3	3	6	3	52	tools
other equipments,	1	3	6	4	2		2	2	4	3	2		2		2	2	2		3				2	42	other equipments, facilities
temporary buildings, establishments	30	30	29	37	40	22	22	17	17	18	18	13	21	14	17	11	18	12	12	19	20	26	26	489	temporary buildings, establishments
hazards, harmful substances	5	5	6	9		2	2	2	2		1	1	1	1		1		1	2		1	2	2	46	hazards, harmful substances
materials	3	1	2	2	1	1	2	1	2				1		2		1				1		1	21	materials
load	6	4	8	6	2	1	1	3	4	3	6	6	4	2		2	2	4	1	4	6	4	2	81	load
natural environment	7	3	4	1	1	2	9	4	2	3	1		2	1	3	2	1	3	4	5	2	1	4	65	natural environment
other causal agent	2	6		2		2	1	1			2	1	2		1	2			2		1		1	26	other causal agent
no causal agent	2	2	5	4	5	2	4	2	2	4	2	6	3	2	1	2	2	2		2	5	2	2	63	no causal agent
unclassifiable	1		1			1																		3	unclassifiable
total	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total

Causal agents (small) of fatal and non-fatal accidents in city gas service in 1999-2021

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	total	Causal (S) agents

engine										1							1	engine
power transmission mechanism							1										1	power transmission mechanism
circular sawing						2					1						3	circular sawing
band sawing machine																		band sawing machine
wood planer machine																		wood planer machine
hollow chisel mortiser, wood																		hollow chisel mortiser, wood
borer chamfering																		borer chamfering
machine, router, woodworking milling machine																		machine, router, woodworking milling machine
chain saw																		chain saw
other woodworking machines																		other woodworking
leveling, transporting or					1													leveling, transporting or
loading machine					_												-	loading machine
excavating machine		1	1					1	1							2	6	excavating machine
foundation work machine																		foundation work machine

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hardening machine																	hardening machine
demolition machine							1									1	demolition machine
vehicle for high lift																	vehicle for high lift
work																	work
other construction																	other construction
machines																	machines
lathe																	lathe
drill press, milling																	drill press, milling
machine																	machine
grinding machine,								1								1	grinding machine,
buffing machine																<u> </u>	buffing machine
power press																	power press
forging pressure																	forging pressure
hammer																	hammer
shearing machine																	shearing machine
other metal																	other metal
manufacturing							1									1	manufacturing
machines																	machines
centrifugal machine																	centrifugal machine
mixer, grinder																	mixer, grinder
roll machine (except																	roll machine (excep
printingroll												1				1	printingroll
machine)																	machine)
injection molding																	injection molding

machine															machine
food manufacturing															food manufacturing
printing machine															printing machine
industrial robot															industrial robot
other general power machines			1	1	1	1	1	2	1	1	1	1		11	other general power machines
felling machine															felling machine
mobile logging machine															mobile logging
skyline yarding machine															skyline yarding machine
other mobile															other mobile
silviculture machine															silviculture machine
crane			1									1		2	crane
mobile crane															mobile crane
derrick crane															derrick crane
elevator, lift															elevator, lift
cargo lifting															cargo lifting
appliance															appliance
gondola															gondola
lumberyard															lumberyard
equipment, logging															equipment, logging

cableway																						cableway
simple skyline																						simple skyline
yarding equipment																						yarding equipment
other powered																						other powered
crane																						crane
truck		2	3	6	4	4	2	2		3		1		1				1	1	3	33	truck
forklift																						forklift
railway equipment																						railway equipment
conveyor			1						1	2										1	5	conveyor
loader						1															1	loader
straddle carrier																						straddle carrier
rough terrain hauler																						rough terrain hauler
other powered													1								1	other powered
conveying machines													ı								I	conveying machines
cars, bus,		10	10	10		12	12			,		6	12	11							105	cars, bus,
motorcycle		19	19	10	5	13	13	9	8	3	9	б	13	11	9	8	8	8	8	6	185	motorcycle
railway vehicle																						railway vehicle
other vehicles		1					2			1		2									6	other vehicles
boiler																						boiler
pressure vessel				1																	1	pressure vessel
other pressure			1	1	2			1	1		1		1		1					2	1.4	other pressure
vessels				I	2	2		I L	I		ı		I		I					3	14	vessels
chemical facilities																						chemical facilities

gas welding																					gas welding
equipment																					equipment
arc welding																					arc welding
equipment																					equipment
other welding																					other welding
equipment																					equipment
kiln, caldron		1					2	1												4	kiln, caldron
industrial dryer																					industrial dryer
other kiln, caldron																					other kiln, caldron
transmission		1			1															2	transmission
electric power				1																1	electric power
facilities				<u> </u>																	facilities
other electrical																					other electrical
equipment																					equipment
human power																					human power
cranes																					cranes
human power		4	2	4				1	1	1	1	1		1		2				18	human power
hauling equipment										<u> </u>	•	•		<u> </u>							hauling equipment
human power																					human power
machine																					machine
hand tool			1			1		1												3	hand tool
ladder		4	2	2			2				2	3	2	1		3	2	2	1	26	ladder
slinging tool							1													1	slinging tool
other tools		1				1	1			1	1	1	1	1	1		1	4	2	16	other tools

other equipment,	6	2	2	2	4	3	2		2		2	2	2		3				2	34	other equipment,
scaffolding					1			1	1	1										4	scaffolding
timbering		1																		1	timbering
stairs, landing stage	10	10	5	6	4	5	2	3	8	3	6	3	8	1	1	6	9	8	8	106	stairs, landing stage
opening	1	2	1						1		1								1	7	opening
roof, beam, haze, crossbeam, principal rafter		1		1			1											1	1	5	roof, beam, haze, crossbeam, principal rafter
working platform,		1	2	3	2		3	1		2	2				1	1		2		20	working platform, boot board
passage	11	12	9	6	5	7	6	6	3	6	2	5	7	5	7	5	7	10	6	125	passage
building, establishment	6	9	4	1	2	6	4	2	6	1	5	2	2	3	2	3	2	3	5	68	building, establishment
other temporary buildings, establishments	1	4	1		3		2		2	1	1	1	1	3	1	4	2	2	5	34	other temporary buildings, establishments
explosive substance	1																			1	explosive substance
inflammable substance																					inflammable substance
inflammable gas	4		1	1	1			1		1		1		1	1		1	2	1	16	inflammable gas
harmful substance	1		1	1																3	harmful substance
radiation																					radiation
other hazards,																					other hazards,

harmful substances						1		1		1						1				1	5	harmful substances
metal material		2	1			1						1						1		1	7	metal material
lumber, bamboo						1				1		1									3	lumber, bamboo
stone, sand, substance				1	1																2	stone, sand, substance
other materials				1										1							2	other materials
load		6	2	1	2	4	3	4	5	4	2		2	2	4	1	3	5	4	2	56	load
machine/equipment as load		2			1			2	1								1	1			8	machine/equipment as load
natural ground, rock					1						1	1								1	4	natural ground,
standing tree																						standing tree
water										1											1	water
abnormal environment														1							1	abnormal environment
high/cold temperature environment					1		1	1					1		1	1		1			7	high/cold temperature environment
other environments		4	1	9	2	2	2			1		2	1		2	3	5	1	1	3	39	other environments
other causal agent				1	1			2	1	2		1	2			2		1		1	14	other causal agent
no causal agent		5	5	4	2	2	4	2	6	3	2	1	2	2	2		2	5	2	2	53	no causal agent
unclassifiable		1																			1	unclassifiable
total		95	83	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	973	total

Workers age of fatal and non-fatal accidents in city gas service in 1999-2021

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Age
19 years old or less		1							1	1	1		1	1				1					1	8	19 years old or less
20-29	10	13	18	9	5	5	3	7	4	6	5	3	3	4	5	9	8	6	6	3	5	8	9	154	20-29
30-39	19	17	18	20	13	9	19	8	16	7	13	9	10	11	9	6	5	5	2	6	9	4	9	244	30-39
40-49	25	21	17	36	17	13	16	11	12	16	9	11	13	4	11	8	13	8	8	11	16	14	15	325	40-49
50-59	27	32	39	32	41	18	27	17	20	19	13	11	13	14	9	12	10	11	12	17	11	18	14	437	50-59
60 years old or more	3	2	3	3	7	4	4	3	4	9	7	7	8	3	6	3	6	6	5	8	7	6	10	124	60 years old or more
total	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total

Workers' number of workplace of fatal and non-fatal accidents in city gas service in 1999-2021

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	total	Workers scale
9 workers or less	12	4	11	8	4	5	7	6	8		6	5	2	5	5		3	3	5	3	7	6	6	121	9 workers or less
10-29	14	12	15	9	10	7	10	7	14	9	12	13	13	3	5	8	5	10	3	9	9	11	16	224	10-29
30-49	14	5	4	9	9	6	15	8	3	12	4	2	5	2	4	7	7	3	2	4	6	5	8	144	30-49
50-99	16	17	11	20	25	12	12	5	11	10	11	4	10	7	12	4	8	9	5	6	10	9	5	239	50-99
100-299	21	27	37	40	18	11	16	12	12	12	9	10	9	14	9	12	14	8	11	16	6	10	11	345	100-299
300 workers or	7	21	17	14	17	8	9	8	9	15	6	7	9	6	5	7	5	4	7	7	10	9	12	219	300 workers or
more		_ '	.,																						more

tota	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total
					-				-		-			-		-		-	-			-		′	

Month of fatal and non-fatal accidents in city gas service in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month
January	4	6	9	7	7	2	8	5	5	6	5	3	5	5	5	2	8	3	4	3	3	3	10	118	January
February	15	7	5	5	3	5	5	5	5	6	3	1	3	6	6	4	1	3	3	12	3	6	4	116	February
March	7	6	14	7	9	3	6	5	6	2	4	3	5	6	2	7	4	4	2	3	9	3	4	121	March
April	2	10	8	9	11	4	4		6	7	6	6	6	5	1	2	2		2	3	3	2	6	105	April
May	6	4	7	9	10	2	6	8	6	8	3	3	3	1	4	3	1	4	2		2	4	5	101	May
June	8	9	10	5	9	3	5	3	2	5	4	3	4	2	4	4	2	3	4	4	3	6	3	105	June
July	5	5	10	15	5	9	8	2	5	4	6	6	4	2	1	5	6	3	1	3	8	5	7	125	July
August	10	3	9	6	3	4	5	2	5	3	3			1	2	2	9	3	3	2	5	3	1	84	August
September	13	6	7	8	8	5	4	4	2	3	4	4	7	3	3	1	2		1	5	5	8	2	105	September
October	4	10	6	13	10	2	6	1	6	6	2	4	3	3	3	2	4	7	4		2	3	4	105	October
November	2	7	6	11	4	5	2	3	5	1	5	5	4	2	3	2		3	4	6	4	2	5	91	November
December	8	13	4	5	4	5	10	8	4	7	3	3	4	1	6	4	3	4	3	4	1	5	7	116	December
total	84	86	95	100	83	49	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,292	total

Prefecture of fatal and non-fatal accidents in city gas service in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture
Hokkaido	3	3	3		6		7	2	2	1		1				1		2	1	1	3	3	1	40	Hokkaido

Aomori	2	1		1	1						1		2			1		1		1		11	Aomori
lwate				1			1		1			1						1	1			6	lwate
Miyagi	1	1	1	2	5	1	3	5	1		4			3	1	1	2	5	5	4	4	49	Miyagi
Akita									1		1											2	Akita
Yamagata	5							1	1		1	1										9	Yamagata
Fukushima			1	2		1		2		1	2	4				2					1	16	Fukushima
lbaraki	1		1	1		1	2	2			3		2	1		1			1	1		17	Ibaraki
Tochigi			2								1	1	2	1			2			1	4	14	Tochigi
Gunma	1		2	1		2	1		1	1		3		1	1	1	1			1	1	18	Gunma
Saitama	2	4	5	1	4	3	4	2	2	8	3	2	2	1	2	2	2	2	1	4	3	59	Saitama
Chiba	7	12	5	7	8	2	9	1	6	2	3	3	1	7	8	4	4	3	4	6	5	107	Chiba
Tokyo	13	21	23	14	10	1	3	3	3	11	7	6	6	7	4	1	1		3	5	1	143	Tokyo
Kanagawa	7	8	12	2	1	1	1	3	1		2		5	1	1	1	5	7	2	1	1	62	Kanagawa
Niigata	1								2	1			1	1	2	1	1			1	1	12	Niigata
Toyama			1	1		1			1												2	6	Toyama
Ishikawa	1								1									1	2		3	8	Ishikawa
Fukui	2					1			1													4	Fukui
Yamanashi			1															1	1			3	Yamanashi
Nagano	1		2		1	2	1	1					1				1		1	1	1	13	Nagano
Gifu	2	5	2	2				2	2							1		1	2	1	2	22	Gifu
Shizuoka	4	1	7	3	4	1	5	4	3		2	1		1	4	3		4	1	1		49	Shizuoka
Aichi	5	3	3	7	7	5	3	6	1	5	1	1	4	2	3	1	3	4	1	2	1	68	Aichi
Mie	1	2	1			2		1	3			1		1			2	1		2		17	Mie

	i====	_	-	i====	i===	 -	-	i===	i===	-	i===	-	i====		-	1	-	i===	-	i===	-	1	-	i
Shiga					1	3	1					1					1				1	1	9	Shiga
Kyoto	2	1	1		2											1	1			1	1		10	Kyoto
Osaka	3	12	4		7	1	2	4	4	4	2	5	3	1		2	1	2	4	3		3	67	Osaka
Hyogo	5	1	2		5	2	3	3	1				1	1		1	2			2	4	1	34	Hyogo
Nara	1	1						1	1	2			1	1	1	2		2				1	14	Nara
Wakayama		1																					1	Wakayama
Tottori		1			1		1											1					4	Tottori
Shimane																								Shimane
Okayama			1		2				3						1	1			1		1	2	12	Okayama
Hiroshima	1	3	2		1	2	4	3	3	1	1			3	2	1	1		2	1	2	3	36	Hiroshima
Yamaguchi					1	4				1	1	1					1						9	Yamaguch
Tokushima									1											1	1		3	Tokushima
Kagawa		1							1	1													3	Kagawa
Ehime	2				1				1				1				1						6	Ehime
Kochi	1				1	1									1	1				2		1	8	Kochi
Fukuoka	2	3	3		8	4	4	5	6	5	3	4	2	3	1	2	5	3	5	5	3	7	83	Fukuoka
Saga			2		1	1		2						2	1					1	1		11	Saga
Nagasaki	1	1	3			1	3	1	2	1		1			1					1		2	18	Nagasaki
Kumamoto	4									1							1		1			4	11	Kumamoto
Oita						1					3	3	4			1				2	1		15	Oita
Miyazaki	1		1				1															1	4	Miyazaki
Kagoshima	1		4		1	1	1	1	1	1	1	2	1	3	2	4	1			1		1	27	Kagoshima

Okinaw	va	1						2															3	Okinawa
total		84	86	95	83	69	46	57	58	48	41	48	37	40	38	42	37	33	45	48	50	58	1,143	total

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more. 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.htm (MHLW, Japan)

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Fatal accidents in city gas service in Japan in 1999-2021

city gas service industry Code No.011602

Type of fatal accidents in city gas service in 1999-2021

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	total	Type of accidents
fall from height												1												1	fall from height
falling to same level																									falling to same
luming to sume level																									level
crash																									crash
struck by flying or																									struck by flying
falling object																									or falling object
collapse																									collapse
crashed by																									crashed by

caught in/between																	caught in/between
cut																	cut
injury to the sole of the foot																	injury to the sole
drown									1							1	drown
contact to high/low- temperature																	contact to high/low- temperature
contact to harmful substance	1	1				1						1				4	contact to harmful substance
electric shock																	electric shock
explosion																	explosion
burst																	burst
fire			1													1	fire
traffic accident (public road)										1						1	traffic accident (public road)
traffic accident (others)																	traffic accident (others)
reaction to motion/improper motion																	reaction to motion/improper motion
others		1		1													others

unclassifiable																	unclassifiable	
total	1	1	1			1		1	1	1		1				8	total	

Causal agents (large) of fatal accidents in city gas service in 1999-2021

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	total	Causal (L) agents
machine																									machine
crane, conveying machine														1										1	crane, conveying machine
other equipment																									other equipment
temporary buildings, establishments												1												1	temporary buildings, establishments
substance, material	1	1	1					1																4	substance, material
load																									load
environment													1				1							2	environment
others																									others
total	1	1	1					1				1	1	1			1							8	total

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 t	otal	Causal (M) agents
engine																									engine
power transmission mechanism																									power transmission mechanism
woodworking machine																									woodworking machine
construction machine																									construction machine
metal manufacturing machine																									metal manufacturin machine
general machine																									general machine
mobile silviculture machine																									mobile silviculture machine
crane																									crane
conveying machine																									conveying machine
vehicle														1										l	vehicle
pressure vessel																									pressure ves

chemical facilities																chemical
																facilities
welding equipment																welding equipment
kiln, caldron																kiln, caldron
electric equipment																electric equipment
human power machine, tools																human power
tools																tools
other equipments,																other equipments, facilities
temporary buildings, establishments								1							1	temporary buildings, establishments
hazards, harmful substances	1	1	1			1									4	hazards, harmful substances
materials																materials
load																load
natural environment									1		1				2	natural environment
other causal agent																other causal

																	agent
no sausal agent																	no causal
no causal agent																	agent
unclassifiable																	unclassifiable
total	1	1	1			1		1	1	1		1				8	total

Causal agents (small) of fatal accidents in city gas service in 1999-2021

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	total	Causal (S) agents
engine																									engine
power transmission																									power transmission
mechanism																									mechanism
circular sawing																									circular sawing
machine																									machine
band sawing																									band sawing
machine																									machine
wood planer																									wood planer
machine																									machine
hollow chisel																									hollow chisel
mortiser, wood																									mortiser, wood
borer																									borer
chamfering																									chamfering
machine, router,																									machine, router,
woodworking																									woodworking

milling machine													milling machine
chain saw													chain saw
other woodworking													other woodworking
machines													machines
leveling,													leveling,
transporting or													transporting or
loading machine													loading machine
excavating machine													excavating machine
foundation work													foundation work
machine													machine
hardening machine													hardening machine
demolition machine													demolition machine
vehicle for high lift													vehicle for high lift
work													work
other construction													other construction
machines													machines
lathe													lathe
drill press, milling													drill press, milling
machine													machine
grinding machine,													grinding machine,
buffing machine													buffing machine
power press													power press
forging pressure													forging pressure
hammer													hammer

shearing machine													shearing machine
other metal													other metal
manufacturing													manufacturing
machines													machines
centrifugal machine													centrifugal machine
mixer, grinder													mixer, grinder
roll machine (except													roll machine (except
printingroll													printingroll
machine)													machine)
injection molding													injection molding
machine													machine
food manufacturing													food manufacturing
machine													machine
printing machine													printing machine
industrial robot													industrial robot
other general													other general
power machines													power machines
felling machine													felling machine
mobile logging													mobile logging
machine													machine
skyline yarding													skyline yarding
machine													machine
other mobile													other mobile
silviculture machine													silviculture machine

crane													crane
mobile crane													mobile crane
derrick crane													derrick crane
elevator, lift													elevator, lift
cargo lifting													cargo lifting
appliance													appliance
gondola													gondola
lumberyard													lumberyard
equipment, logging													equipment, logging
cableway													cableway
simple skyline													simple skyline
yarding equipment													yarding equipment
other powered													other powered
crane													crane
truck													truck
forklift													forklift
railway equipment													railway equipment
conveyor													conveyor
loader													loader
straddle carrier													straddle carrier
rough terrain hauler													rough terrain hauler
other powered													other powered
conveying machines													conveying machines
cars, bus,													cars, bus,

motorcycle							1					1	motorcycle
railway vehicle													railway vehicle
other vehicles													other vehicles
boiler													boiler
pressure vessel													pressure vessel
other pressure vessels													other pressure vessels
chemical facilities													chemical facilities
gas welding equipment													gas welding equipment
arc welding equipment													arc welding equipment
other welding equipment													other welding equipment
kiln, caldron													kiln, caldron
industrial dryer													industrial dryer
other kiln, caldron													other kiln, caldron
transmission													transmission
electric power facilities													electric power facilities
other electrical equipment													other electrical equipment
human power													human power

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

buildings,																buildings,
establishments																establishments
explosive substance																explosive substance
inflammable																inflammable
substance																substance
inflammable gas			1												1	inflammable gas
harmful substance	1	1				1									3	harmful substance
radiation																radiation
other hazards,																other hazards,
harmful substances																harmful substances
metal material																metal material
lumber, bamboo																lumber, bamboo
stone, sand,																stone, sand,
substance																substance
other materials																other materials
load																load
machine/equipment																machine/equipment
as load																as load
natural ground,																natural ground,
rock																rock
standing tree																standing tree
water									1						1	water
abnormal											1				1	abnormal
environment											1				'	environment

high/cold																	high/cold
temperature																	temperature
environment																	environment
other environments																	other environments
other causal agent																	other causal agent
no causal agent																	no causal agent
unclassifiable																	unclassifiable
total	1	1	1			1		1	1	1		1				8	total

Workers age of fatal accidents in city gas service in 1999-2021

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Age
19 years old or less																									19 years old or less
20-29	1																							1	20-29
30-39			1																					1	30-39
40-49												1		1			1							3	40-49
50-59								1					1											2	50-59
60 years old or		1																						1	60 years old or
more																									more
total	1	1	1					1				1	1	1			1							8	total

Workers' number of workplace of fatal accidents in city gas service in 1999-2021

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	total	Workers scale
9 workers or less	1		1					1				1	1	1										6	9 workers or less
10-29																									10-29
30-49																									30-49
50-99		1																						1	50-99
100-299																									100-299
300 workers or																	1							1	300 workers or
more																								•	more
total	1	1	1					1				1	1	1			1							8	total

Month of fatal accidents in city gas service in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month
January		1																						1	January
February																									February
March	1												1	1										3	March
April																									April
May																									May
June			1																					1	June
July												1												1	July
August																	1							1	August
September								1																1	September
October																									October
									\vdash						\vdash						\vdash				

November																	November
December																	December
total	1	1	1			1		1	1	1		1				8	total

Prefecture of fatal accidents in city gas service in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture
Hokkaido																									Hokkaido
Aomori																									Aomori
lwate																									lwate
Miyagi																									Miyagi
Akita																									Akita
Yamagata																									Yamagata
Fukushima													1											1	Fukushima
Ibaraki																									Ibaraki
Tochigi																									Tochigi
Gunma																									Gunma
Saitama														1										1	Saitama
Chiba	1																							1	Chiba
Tokyo																									Tokyo
Kanagawa																									Kanagawa
Niigata																									Niigata
Toyama																									Toyama

Ishikawa														Ishikawa
Fukui														Fukui
Yamanashi														Yamanashi
Nagano				1									1	Nagano
Gifu														Gifu
Shizuoka														Shizuoka
Aichi														Aichi
Mie														Mie
Shiga														Shiga
Kyoto														Kyoto
Osaka	1												1	Osaka
Hyogo														Hyogo
Nara														Nara
Wakayama														Wakayama
Tottori														Tottori
Shimane														Shimane
Okayama														Okayama
Hiroshima									1				1	Hiroshima
Yamaguchi														Yamaguch
Tokushima														Tokushima
Kagawa														Kagawa
Ehime														Ehime
Kochi														Kochi

Fukuoka								1								1	Fukuoka
Saga																	Saga
Nagasaki																	Nagasaki
Kumamoto																	Kumamoto
Oita																	Oita
Miyazaki																	Miyazaki
Kagoshima			1													1	Kagoshima
Okinawa																	Okinawa
total	1	1	1			1		1	1	1		1				8	total

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

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