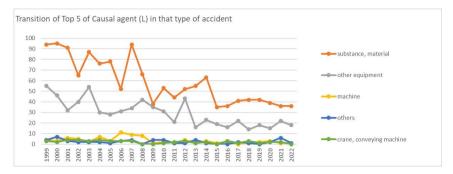
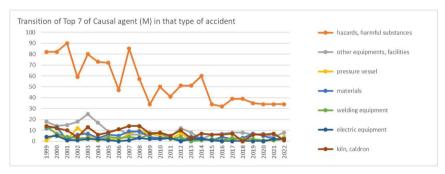
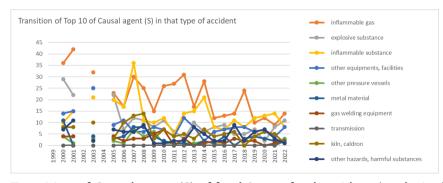
Transition of Causal agent (L, M, S) of fatal & non-fatal accident (explosion) in 1999-2022



Transition of Causal agent (L) of fatal & non-fatal accident (explosion) in 1999-2022



Transition of Causal agent (M) of fatal & non-fatal accident (explosion) in 1999-2022



Transition of Causal agent (S) of fatal & non-fatal accident (explosion) in 1999-2022

Causal agent (L)	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
substance, material	94	95	91	65	87	76	78	52	94	66	38	53	44	52	55	63	35	36	41	42	42	39	36	36	1,410
other equipment	55	46	32	40	54	30	28	31	34	42	35	31	21	43	16	23	19	16	22	14	18	15	22	18	705
machine	4	3	6	5	2	7	3	11	9	8	1	2	1	4	1	3	1	2		2	2	3	1	1	82
others	4	7	3	2	2	2	1	3	4		4	4	1	1	4	1			2	1		2	6	1	55
crane, conveying machine	3	2	4	4	3	4	3	3	3			1	2	3	1	2		3	1	3	1	2	2		50
load	3	1	2		2	1	3		1	3	1	1		1		1	1		1	1	2	2			27
temporary buildings, establishments		1		1	6	2	3		1		1	1		3	1			1		1	1		1		24
environment	2	1	1	2		1	2				1											1	2		13
total	165	156	139	119	156	123	121	100	146	119	81	93	69	107	78	93	56	58	67	64	66	64	70	56	2,366

Transition of Causal agent (M) of fatal & non-fatal accident (explosion) in 1999-2022

Causal agent (M)	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
hazards, harmful	82	82	90	59	80	73	72	47	85	57	34	50	41	51	51	60	34	32	39	39	35	34	34	34	1,295
substances																									

other equipments,	18	14	15	18	25	17	9	11	6	6	8	7	4	12	8	2	6	7	8	8	6	7	4	8	234
pressure vessel	1	7	1	12	5	1	2	1	7	10	7	5	2	7	2	2	1		1		1		1	4	80
materials	12	13	1	6	7	3	6	5	9	9	4	3	3	1	4	3	1	4	2	3	7	5	2	2	115
welding equipment	13	7	4	3	3	1	4	3	4	3	6	8	2	4		1	2	1	3	2	2	1	1	2	80
electric equipment	4	5	1	1	2	2	1		1	3	2	2	3		2	2	1						2	2	36
kiln, caldron	14	12	10	4	13	6	8	11	14	14	7	8	5	10	3	7	6	6	7		6	6	7	1	185
other causal agents	2	6	2		2	1	1	2	2		3	1			3				1				1	1	28
tools	1						1	1	1	1			2	1			1	1	2		1		2	1	16
metal manufacturing machine	2			2		2			1			1		1										1	10
chemical facilities	4	1	1	2	6	3	3	3	1	4	5	1	3	9	1	9	2	1	1	4	2	1	5		72
general machine	1	2	2	2	2	5	3	11	3	7	1	1	1	3	1	3		2		2	2	2	1		57
conveying machine	2		4	3	2	3	1	2	2			1	1	2		1		2		1		1	2		30
load	3	1	2		2	1	3		1	3	1	1		1		1	1		1	1	2	2			27
temporary buildings,		1		1	6	2	3		1		1	1		3	1			1		1	1		1		24

establishments																								
no causal agent	1		1					1	1			2		1	1				1	1		1	5	16
vehicle	1	2		1	1		2	1	1				1	1	1	1				1	1			15
natural environment	2	1	1	2		1	2				1											1	2	13
unclassifiable	1	1		2		1			1		1	1	1			1						1		11
construction machine	1	1	4						1								1					1		9
engine				1					4	1														6
crane						1												1	1	1		1		5
human power								1		1														2
power transmission mechanism																								
woodworking machine																								
mobile silviculture machine																								

Transition of Causal agent (S) of fatal & non-fatal accident (explosion) in 1999-2022

Causal agent (S)	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
inflammable gas		36	42		32		23	17	30	25	15	26	27	31	17	28	12	13	14	24	10	12	9	14	457
explosive substance		29	22		25		22	7	12	11	8	11	6	3	10	6	8	9	5	5	7	2	8	11	227
inflammable substance		10	15		21		20	17	36	11	10	12	5	14	15	21	8	7	11	8	12	13	14	8	288
other equipments,		14	15		25		9	11	6	6	8	7	4	12	8	2	6	7	8	8	6	7	4	8	181
other pressure vessels		4	1		3		2	1	7	4	6	1	1	1	1	2	1						1	3	39
metal material		11			4		3	4	8	8	4	2	1	1		2	1	4		3	4	3	2	2	67
gas welding equipment		4	4		2		4	2	3	3	5	7		3		1	2	1	3	2	2		1	2	51
transmission																								2	2
kiln, caldron		8	8		10		3	10	13	14	3	7	4	5	3	7	4	5	6		4	6	5	1	126
other hazards, harmful substances		7	11		2		7	6	6	9	1	1	2	2	8	5	2	2	9	2	6	7	3	1	99
other causal agents		6	2		2		1	2	2		3	1			3				1				1	1	25
other tools							1	1	1	1			2	1			1	1	2		1		2	1	15
boiler		1			2					1		1	1		1				1					1	9
other metal manufacturing machines												1		1										1	3

chemical facilities	1	1	6	3	3	1	4	5	1	3	9	1	9	2	1	1	4	2	1	5	63
industrial dryer	3	2	2	5	1	1		2	1	1	3			1	1	1		2		2	28
other general power machines	1	1		2	2	2	6	1	1		2		2		1			2	1	1	25
load	1	2	2	3		1	3	1	1		1		1	1		1	1	2	2		23
other materials	2		3	2	1	1	1		1	2		2	1			1		3	2		22
pressure vessel	2						5	1	3		6							1			18
other electrical equipment	4	1	1			1	2	1	2	3				1						1	17
truck		3	2	1	1	1			1	1	2				1		1			1	15
no causal agent		1			1	1			2		1	1				1	1		1	5	15
building, establishment	1		5	3							2	1								1	13
food manufacturing machine			1	1	5	1					1	1	1						1		12
cars, bus, motorcycle	1		1	2	1	1				1	1	1	1				1	1			12
arc welding equipment	3		1		1	1			1	2	1								1		11
electric power	1		1	1			1	1				2	2							1	10

harmful substance						1	1			1	1	1		4	1						10
mixer, grinder		1	1		3		1										2				8
other kiln, caldron	1		1					2			2			1							7
unclassifiable	1					1		1	1	1			1						1		7
engine						4	1														5
lumber, bamboo		1		1								2				1					5
excavating machine	1	2																	1		4
passage			1			1		1										1			4
high/cold temperature environment	1							1												2	4
leveling, transporting or loading machine		2												1							3
forklift		1				1									1						3
centrifugal machine					1										1						2
mobile crane															1		1				2
conveyor													1							1	2
hand tool					1		1														2
other temporary buildings, establishments									1		1										2

other environments					2														2
other construction machines							1												1
grinding machine, buffing machine							1												1
injection molding machine	1	I																	1
printing machine										1									1
crane																1			1
other powered														1					1
loader						1													1
other powered conveying machines																1			1
other vehicles	1	l																	1
other welding equipment									1										1
stairs, landing stage															1				1
working platform, boot board													1						1
				 	_	_		=		=	 	—— i-	 			=	==	=	=

water		1											1
power transmission mechanism													
circular sawing machine													
band sawing machine													
wood planer machine													
hollow chisel mortisers, wood borer													
chamfering machine, router, woodworking milling machine													
chain saw													
other woodworking machines													
foundation work machine													
hardening machine													

demolition machine												
vehicle for high lift												
work												
lathe												
drill press, milling												
machine												
power press												
forging pressure												
hammer												
shearing machine												
roll machine (except												
printingroll												
machine)												
industrial robot												
felling machine												
mobile logging												
machine												
skyline yarding												
machine												
other mobile												
silviculture machine												
derrick crane												

elevator, lift													
cargo lifting													
appliance													
gondola													
lumberyard													
equipment, logging													
cableway													
simple skyline													
yarding equipment													
railway equipment													
straddle carrier													
rough terrain hauler													
railway vehicle													
human power													
cranes													
human power													
hauling equipment													
human power													
machine													
ladder													
slinging tool													
scaffolding													

timbering													
opening													
roof, beam, haze,													
crossbeam,													
principal rafter													
radiation													
stone, sand,													
substance													
machine/equipment													
as load													
natural ground,													
rock													
abnormal													
environment													

Data Source: https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.html

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