Fatal and non-fatal accidents in railway vehicle products in Japan in 1999-2021

railway vehicle products industry Code No.011503

Type of accidents in railway vehicle products 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	7	14	6	12	12	7	13	5	9	11	14	4	4	7	7	8	7	10	2	4	9	7	8	187	fall from height
falling to same level	6	4	8	11	3	5	6	5	8	3	9	5	6	6	5	9	4	8	6	6	4	10	9	146	falling to same
crash	1	3	3	3	1	5	1	2	5	2	4	1	2	1	2	2	1	4	1	1	5	2	7	59	crash
struck by flying or falling object	11	5	7	8	10	3	3	4	8	7	5	3	1	3	3	3	3	7	7	4	4	2	2	113	struck by flying or falling object
collapse	2	2	2	1	2	1	4		2	1	2				1		2	2	1			1		26	collapse
crashed by	2	1	3	2		2	4	3	3	7	3		1	3		2	1	2		1	1	2	1	44	crashed by
caught in/between	14	13	11	13	20	20	10	14	13	10	8	13	6	6	7	7	9	9	9	7	10	12	4	245	caught in/between
cut	7	5	4	1	2	2		4	4	3	4	1	3	1	4	2	4	5	3	2	4	2	4	71	cut
injury to the sole of the foot																				1				1	injury to the sole of the foot
drown																									drown
contact to high/low- temperature	1	1	2		1	1	2					1			1	1			1	3	1	3	1	20	contact to high/low- temperature

contact to harmful substance				1		1	1														1	2	2	8	contact to harmful substance
electric shock		1				1									1			1		1	1		1	7	electric shock
explosion																									explosion
burst																									burst
fire																									fire
traffic accident (public road)	2								1		1				1		1	1	1	2				10	traffic accident (public road)
traffic accident (others)																									traffic accident (others)
reaction to motion/improper motion	7	7	2	4	13	10	4	6	3	6	7	2	4	2	2	4	4	5	10	7	10	8	7	134	reaction to motion/improper motion
others			1					1			2	2								1			9	16	others
unclassifiable								1																1	unclassifiable
total	60	56	49	56	64	58	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	1,088	total

Causal agents (large) of fatal and non-fatal accidents in railway vehicle products 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)
causai (2) agents	.,,,,	2000	2001	2002	2003		2003		2007			2010			2013	2011	2013	2010	2017	2010				Lotai	agents
machine	14	8	13	7	12	10	7	10	9	11	10	8	5	3	7	5	8	11	9	8	4	6	6	191	machine
crane, conveying																									crane,

machine	8	7	5	9	7	10	7	9	6	10	14	6	4	5	10	3	5	7	5	3	6	5	4	155	conveying
macmine																									machine
ather equipment	14	16	13	11	13	13	5	8	17	9	7	5	3	6	5	13	8	16	7	12	20	10	10	241	other
other equipment	14	10	13	11	13	13	3	0	17		/	3	3		3	13	0	10		12	20	10	10		equipment
to man a ram, huildin as																									temporary
temporary buildings, establishments	8	11	8	17	12	9	14	5	13	7	15	7	6	9	7	12	9	13	9	8	7	12	16	234	buildings,
establishments																									establishments
substance, material	11	9	5	7	10	11	7	6	6	8	6	2	4	3	4	2	4	4	3		6	6	7	131	substance,
substance, material		9		,			,																/	131	material
load	2	1	4	2	4	1	4	2	2	3	3						1	1	4	1		3	1	39	load
environment									1			1	1	1		1			1	4	1	3		14	environment
others	3	4	1	3	6	4	4	5	2	2	4	3	4	2	1	2	1	2	3	4	6	6	11	83	others
total	60	56	49	56	64	58	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	1,088	total

Causal agents (middle) of fatal and non-fatal accidents in railway vehicle products 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																									engine
power transmission mechanism					1	1		1	1			1							1					6	power transmission mechanism
woodworking machine								1	1	1	1		1		1	1				1	1			9	woodworking machine

construction machine																									construction machine
metal manufacturing	10	7	11	7	9	8	4	4	6	8	8	5	4	2	5	2	5	9	7	5	2	3	5	136	metal manufacturing
machine																									machine
																									general
general machine	4	1	2		2	1	3	4	1	2	1	2		1	1	2	3	2	1	2	1	3	1	40	machine
mobile silviculture																									mobile
machine																									silviculture
The chine																									machine
crane	2	2	1	2	2	4	1	4		3	3	2	1	2	4	1			4	1	3		1	43	crane
conveying machine	1	3	3	6	3	2	3	3	3	4	10	3	2		3	2	2	3	1		1	2		60	conveying
conveying machine																									machine
vehicle	5	2	1	1	2	4	3	2	3	3	1	1	1	3	3		3	4		2	2	3	3	52	vehicle
pressure vessel			1																					1	pressure vessel
chemical facilities																									chemical
Chemical racings																									facilities
welding equipment		1	1			1	2		2			1				2				1		1		12	welding
werding equipment		<u> </u>																		Ľ					equipment
kiln, caldron																									kiln, caldron
electric equipment		1			1	1		1												1	2		1	8	electric
electric equipment																								0	equipment
human power machine,	4	1	2	3	1	2		1	5	1	1	1	1	1	4	6		6	1	4	6	4	3	58	human power
tools																				<b>T</b>				30	machine, tools

tools	6	11	4	5	10	6	2	5	9	8	6	1	1	4		2	5	9	5	6	7	5	5	122	tools
other equipments,	4	2	5	3	1	3	1	1	1			2	1	1	1	3	3	1	1		5		1	40	other equipments, facilities
temporary buildings, establishments	8	11	8	17	12	9	14	5	13	7	15	7	6	9	7	12	9	13	9	8	7	12	16	234	temporary buildings, establishments
hazards, harmful substances		1		1		1									1						1	2	3	10	hazards, harmful substances
materials	11	8	5	6	10	10	7	6	6	8	6	2	4	3	3	2	4	4	3		5	4	4	121	materials
load	2	1	4	2	4	1	4	2	2	3	3						1	1	4	1		3	1	39	load
natural environment									1			1	1	1		1			1	4	1	3		14	natural environment
other causal agent	1	1				1	2	2			1									1			9	18	other causal agent
no causal agent	1	3	1	3	5	2	2	2	2	2	3	3	4	2	1	2	1	2	3	3	6	6	2	61	no causal agent
unclassifiable	1				1	1		1																4	unclassifiable
total	60	56	49	56	64	58	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	1,088	total

Causal agents (small) of fatal and non-fatal accidents in railway vehicle products 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 mechanism			1		1	1			1					1				5	power transmission mechanism
circular sawing machine					1		1	1				1				1		5	circular sawing
band sawing machine																			band sawing machine
wood planer machine						1				1								2	wood planer machine
hollow chisel mortiser, wood borer																			hollow chisel mortiser, wood borer
chamfering machine, router, woodworking milling machine											1							1	chamfering machine, router, woodworking milling machine
chain saw																			chain saw
other woodworking															1			1	other woodworking
leveling, transporting or loading machine																			leveling, transporting or loading machine
excavating machine																			excavating machine
foundation work																			foundation work

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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		3	2				2	2							1	3	1	1				15	lathe
drill press, milling		2					1		1	2		1	1				1	1				10	drill press, milling
machine																							machine
grinding machine,		3	2				1	1	2	1	1		1	2		3	4		1	1	2	25	grinding machine,
buffing machine								•		•													buffing machine
power press			1		2		1	2		1	2		2		2	1	1		1	2	2	20	power press
forging pressure							1															1	forging pressure
hammer																							hammer
shearing machine		1	1			1			1									1				5	shearing machine
other metal																							other metal
manufacturing		2	3		2	3		3	4	1	1	1	1		2	2		2			1	28	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
printing machine																						printing machine
industrial robot													1								1	industrial robot
other general power machines		2	2	3	4	1	2	1	2		1	1	1	3	2	1	2	1	3	1	33	other general power machines
felling machine																						felling machine
mobile logging machine																						mobile logging machine
skyline yarding machine																						skyline yarding machine
other mobile																						other mobile
silviculture machine																						silviculture machine
crane		1	2	1	3		3	3	1	1	1	4	1			4	1	1		1	28	crane
mobile crane																						mobile crane
derrick crane																						derrick crane
elevator, lift									1									1			2	elevator, lift
cargo lifting appliance																						cargo lifting appliance
gondola																						gondola
lumberyard																						lumberyard
equipment, logging																						equipment, logging

cableway																					cableway
simple skyline yarding equipment																					simple skyline yarding equipment
other powered crane				1						1							1			3	other powered crane
truck	1	1	1			2	4	1			2	1			1					14	truck
forklift			1	1	3	1	3		1				1	1				1		13	forklift
railway equipment	1			2					1		1		1							6	railway equipment
conveyor		2						1												3	conveyor
loader																					loader
straddle carrier																					straddle carrier
rough terrain hauler																					rough terrain haule
other powered conveying machines	1		1			1	3	1				1		2			1	1		12	other powered conveying machine
cars, bus, motorcycle					1						1		1	1		2				6	cars, bus, motorcycle
railway vehicle	1	2	3	2	2	3	1	1	1	3	2		2	3			2	3	3	34	railway vehicle
other vehicles																					other vehicles
boiler																					boiler
pressure vessel																					pressure vessel
other pressure vessels	1																			1	other pressure vessels
chemical facilities																					chemical facilities

gas welding				1																	1	gas welding
equipment															<u> </u>	<u> </u>		<u> </u>		<u> </u>	<u> </u>	equipment
arc welding		1		1									2				1				5	arc welding
equipment																						equipment
other welding						_																other welding
equipment						2													ı		4	equipment
kiln, caldron																						kiln, caldron
industrial dryer																						industrial dryer
other kiln, caldron																						other kiln, caldron
transmission					1															1	2	transmission
electric power																						electric power
facilities			I																		2	facilities
other electrical																						other electrical
equipment																		2			2	equipment
human power																				1		human power
cranes																			I	I	3	cranes
human power						_															12	human power
hauling equipment						2		1				3	3					2			12	hauling equipment
human power																						human power
machine																						machine
hand tool		2	1		1	3	1			1	1	1	3		5	1	4	4	3	2	33	hand tool
ladder		1	6	1	2	5	4	3		1	2		2	1	4	2	2	3	2	3	44	ladder
slinging tool		1	1		1	2	2		1					1		1		2	2		14	slinging tool
other tools		2	3	1	2	2	2	3			2			3	5	2	4	2	1	2	36	other tools

other equipment,		5	1	1	1	1			2	1	1	1	3	3	1	1		5		1	28	other equipment,
facilities																						facilities
scaffolding			2	1		1		1		1			2	2	1			2		2	15	scaffolding
timbering																						timbering
stairs, landing stage		2	3	1	1	1	2		1	2	1	1		3	3	1	2	1	1	3	29	stairs, landing stage
opening		1		2		1		1				1	1		1		1	1	1		11	opening
roof, beam, haze,																						roof, beam, haze,
crossbeam,																						crossbeam,
principal rafter																						principal rafter
working platform,		1	2	4		3	2	2	2		2	1	2	1	4	2			2	2	32	working platform,
boot board		•													Ľ							boot board
passage		2	2	4	2	4	1	5	4	1	6	3	4	3	2	5	4	2	6	5	65	passage
building,		2	1	1	1	2	2	4		2			2				1		1	3	22	building,
establishment			<b>'</b>	<u> </u>	<u> </u>												'					establishment
other temporary																						other temporary
buildings,			2	1	1	1		2				1	1		2	1		1	1	1	15	buildings,
establishments																						establishments
explosive substance																						explosive substance
inflammable																						inflammable
substance																						substance
inflammable gas																						inflammable gas
harmful substance																			1	2	3	harmful substance
radiation																						radiation
other hazards,																						other hazards,

harmful substances												1						1	1	1	4	harmful substances
metal material		5	9	7	6	5	8	6	2	4	3	3	2	4	3	3		5	4	4	83	metal material
lumber, bamboo																						lumber, bamboo
stone, sand, substance						1															1	stone, sand, substance
other materials			1												1						2	other materials
load		2	4	3	2	1	1	2						1		4	1		1		22	load
machine/equipment as load		2		1		1	2	1							1				2	1	11	machine/equipment as load
natural ground, rock																						natural ground,
standing tree																						standing tree
water																						water
abnormal environment																						abnormal environment
high/cold temperature environment									1							1	2	1	3		8	high/cold temperature environment
other environments						1				1	1		1				2				6	other environments
other causal agent				2	2			1									1			9	15	other causal agent
no causal agent		1	5	2	2	2	2	3	3	4	2	1	2	1	2	3	3	6	6	2	52	no causal agent
unclassifiable			1		1																2	unclassifiable
total		49	64	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	858	total

## Workers age of fatal and non-fatal accidents in railway vehicle products 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	5	3			1	3	1	1	5		5	2	1	1	1	2		3	1	2	3	1		41	19 years old or less
20-29	16	9	10	8	10	6	7	8	8	11	10	3		3	4	4	2	9	11	4	12	8	12	175	20-29
30-39	5	7	7	6	13	7	10	10	12	8	9	4	7	4	7	8	6	10	8	9	11	8	7	183	30-39
40-49	11	8	9	11	14	14	7	8	15	6	8	9	4	6	6	8	8	11	6	8	10	16	6	209	40-49
50-59	15	21	18	23	17	16	12	14	6	12	17	9	11	12	8	13	11	14	7	7	4	9	18	294	50-59
60 years old or more	8	8	5	8	9	12	11	4	10	13	10	5	4	3	8	3	9	7	8	10	10	9	12	186	60 years old or more
total	60	56	49	56	64	58	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	1,088	total

Workers' number of workplace of fatal and non-fatal accidents in railway vehicle products 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	8	5	7	14	9	6	7	6	6	7	6	3	4	6	3	3	1	5	6	4	2	2	132	9 workers or less
10-29	12	6	15	8	15	10	7	7	7	10	9	4	1	2	8	1	7	9	7	7	12	15	6	185	10-29
30-49	7	9	2	4	6	7	9	4	6	8	4	7	4	6	4	6	7	9	6	5	3	5	7	135	30-49
50-99	5	9	13	9	3	8	8	7	9	8	6	6	2	4	4	6	5	7	9	6	10	13	10	167	50-99
100-299	7	7	7	8	13	10	10	12	15	8	13	7	11	8	7	11	8	14	6	12	11	4	12	221	100-299
300 workers or	17	17	7	20	13	14	8	8	13	10	20	2	6	5	5	11	6	14	8	4	10	12	18	248	300 workers or
more																									more

total	60	56	49	56	64	58	48	45	56	50	59	32		29	34	38	36	54	41	40	50	51	55	1,088 to	otal
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Month of fatal and non-fatal accidents in railway vehicle products 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	2	5	6	6	4	5	5	3	3	5	5	2	7	2	6	6	1	5	5	4	4	4	5	100	January
February	6	4	5	10	5	6	4	5	7	6	3	2	2	5	3	2	1	4	2	3	4		6	95	February
March	8	5	6	2	4	3	7	3	2	2	3	2	1	3	4	4		4	3	2	3	3	5	79	March
April	7	2	1	7	5	6	3	4	5		8	1	1	3	1	2	3	2	1	3	5	5	12	87	April
May	5	4	3	2	7	5	3	6	7	3	5	3	1	1	1	4	4	3	2	2	4	3	2	80	May
June	6	4	4	1	5	4	3	6	3	3	11	2	3	4	5		4	4	3	5	5	6	4	95	June
July	4	6		7	5	2	3	5	4	7	5		2	2	2	5	4	3	6	4	3	6	6	91	July
August	5	7	2	8	6	3	7	3	6	5	3	4	2	4	1	3	2	9	4	3	2	9	3	101	August
September	4	7	5	3	1	6	4		6	4	1	5	1	1	3	2	3	6	2	1	6	4	1	76	September
October	4	6	7	2	10	6	1	4	3	4	5	5	2	2	3	2	3	7	4	4	7	5	3	99	October
November	7	1	1	5	11	7	4	4	6	7	5	3	4		3		7	3	1	5	5	1	4	94	November
December	2	5	9	3	1	5	4	2	4	4	5	3	1	2	2	8	4	4	8	4	2	5	4	91	December
total	60	56	49	56	64	58	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	1,088	total

Prefecture of fatal and non-fatal accidents in railway vehicle products 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	2	4	1		2					1		3		2	2		2	2			5	2	3	31	Hokkaido

Aomori				1																		1	Aomori
lwate																1						1	lwate
Miyagi	3				2	1	2	2				1	1					1		1		14	Miyagi
Akita			2	1	2	1	1	1							1		1	1	1		2	14	Akita
Yamagata																							Yamagata
Fukushima	2	2		1			3				2			2			1	2	1	1		17	Fukushima
lbaraki		2	1		1				1	2		1	2						2	1	1	14	Ibaraki
Tochigi																					1	1	Tochigi
Gunma	1								1				1		1	2		1			2	9	Gunma
Saitama		2	4	5	4		3	3	3	2	1	1	2	3	1	2	1	1	4	7	1	50	Saitama
Chiba							2								1					1		4	Chiba
Tokyo	3	5	2	5	4		4	1	1	2	1	2	3	1	4	1		2	4		6	51	Tokyo
Kanagawa	8	9	6	7	11	14	5	4	2	4	1		3	5	2	7	7	7	8	1	6	117	Kanagawa
Niigata		2	2	1	3	2	3	2		2				2	5	1	5	1	2	3	1	37	Niigata
Toyama				1				1														2	Toyama
Ishikawa	2			1				1			1				1							6	Ishikawa
Fukui																							Fukui
Yamanashi												1		1						1		3	Yamanashi
Nagano	2							1			2	1			1	1	1					9	Nagano
Gifu	2	1	3					2								1						9	Gifu
Shizuoka			2	1	1	1			1					2	2	3		1		1	1	16	Shizuoka
Aichi	3	6	6	4	3	3	5	5	10	2	3	3	4	1	3	5		2	1	4	2	75	Aichi
Mie	1		2			1		1									1			1		7	Mie

Shiga	2			1	1						1		1									6	Shiga
Kyoto	1				1																	2	Kyoto
Osaka	12	8	7	13	2	12	10	5	14	6	5	4	3	6	5	7	12	7	4	7	15	164	Osaka
Hyogo	3	4	3	8	4	2	7	6	7	2		4	5	3	4	6	2	5	5	10	4	94	Hyogo
Nara		1				1	2		2				1			1					2	10	Nara
Wakayama								1				1		1					1	1		5	Wakayama
Tottori				1				1	2		1	1	1	2						1	1	11	Tottori
Shimane																							Shimane
Okayama									1	1	1	1		1			2			1	1	9	Okayama
Hiroshima	1		1			1		3	1			1	1			1	3	1	1		1	16	Hiroshima
Yamaguchi	5	4	5	6		1	3	4	4	1	1		2	5		6	1	3	6	4	2	63	Yamaguchi
Tokushima																							Tokushima
Kagawa	1	2		1	2	1		3	1	2	1	2	2	1		1		2	1		2	25	Kagawa
Ehime																1					1	2	Ehime
Kochi																3		1		1		5	Kochi
Fukuoka	5	3	2	4	7	4	6	1	7	3	6	3		2	3	2	3	2	4	2		69	Fukuoka
Saga								1														1	Saga
Nagasaki		1																				1	Nagasaki
Kumamoto																							Kumamoto
Oita																	1					1	Oita
Miyazaki																							Miyazaki
Kagoshima	1								1													2	Kagoshima

Okinawa																							Okinawa
total	60	56	49	64	48	45	56	50	59	32	27	29	34	38	36	54	41	40	50	51	55	974	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: <a href="https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm">https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm</a> (MHLW, Japan)

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Fatal accidents in railway vehicle products in Japan in 1999-2021

railway vehicle products industry Code No.011503

Type of fatal accidents in railway vehicle products 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		1											1							4	fall from height
falling to same level																									falling to same
laining to same level																									level
crash																									crash
struck by flying or														1				1						2	struck by flying
falling object														ı				1						2	or falling object
collapse																									collapse
crashed by																									crashed by
1		=		=	=		=		=	=		=										=		_	

caught in/between	1			1	1	1		1						5	caught in/between
cut															cut
injury to the sole of the foot															injury to the sole of the foot
drown															drown
contact to high/low- temperature															contact to high/low- temperature
contact to harmful substance															contact to harmful substance
electric shock															electric shock
explosion															explosion
burst															burst
fire															fire
traffic accident (public road)															traffic accident (public road)
traffic accident (others)															traffic accident (others)
reaction to motion/improper motion															reaction to motion/improper motion
others															others

unclassifiable																	unclassifiable	
total	1	1	1	1	1	1	1		1	1		1	1			11	total	

Causal agents (large) of fatal accidents in railway vehicle products 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		Causal (L) agents
machine							1			1								1						3	machine
crane, conveying machine				1				1					1				1							4	crane, conveying machine
other equipment		1																						1	other equipment
temporary buildings, establishments	1					1																		2	temporary buildings, establishments
substance, material														1										1	substance, material
load																									load
environment																									environment
others																									others
total	1	1		1		1	1	1		1			1	1			1	1						11	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	total	Causal (M) agents
engine																									engine
power transmission mechanism																									power transmission mechanism
woodworking machine																									woodworking machine
construction machine																									construction machine
metal manufacturing machine							1			1														2	metal manufacturin machine
general machine																		1						1	general machine
mobile silviculture machine																									mobile silviculture machine
crane													1											1	crane
conveying machine				1				1																2	conveying machine
vehicle																	1							1	vehicle
pressure vessel																									pressure vess

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,		1											1	other equipments, facilities
temporary buildings, establishments	1			1									2	temporary buildings, establishments
hazards, harmful substances														hazards, harmful substances
materials								1					1	materials
load														load
natural environment														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	1		1	1			11	total

Causal agents (small) of fatal accidents in railway vehicle products 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					1							1	power press
forging pressure													forging pressure
hammer													hammer

shearing machine														shearing machine
other metal manufacturing machines				1									1	other metal manufacturing machines
centrifugal machine														centrifugal machine
mixer, grinder														mixer, grinder
roll machine (except printingroll machine)														roll machine (except printingroll machine)
injection molding														injection molding machine
food manufacturing machine														food manufacturing machine
printing machine														printing machine
industrial robot														industrial robot
other general power machines										1			1	other general power machines
felling machine														felling machine
mobile logging machine														mobile logging machine
skyline yarding machine														skyline yarding machine
other mobile silviculture machine														other mobile silviculture machine

crane							1						1	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		1											1	forklift
railway equipment				1									1	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														motorcycle
railway vehicle									1				1	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														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,		1											1	other equipment,
facilities														facilities
scaffolding														scaffolding
timbering														timbering
stairs, landing stage														stairs, landing stage
opening														opening
roof, beam, haze,														roof, beam, haze,
crossbeam,	1												1	crossbeam,
principal rafter														principal rafter
working platform,				1									1	working platform,
boot board				I									ľ	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													inflammable gas
harmful substance													harmful substance
radiation													radiation
other hazards,													other hazards,
harmful substances													harmful substances
metal material							1					1	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													water
abnormal													abnormal
environment													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	1		1	1			11	total

Workers age of fatal accidents in railway vehicle products 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														2	20-29
30-39							1	1																2	30-39
40-49						1																		1	40-49
50-59		1		1									1	1			1	1						6	50-59
60 years old or																									60 years old or
more																									more
total	1	1		1		1	1	1		1			1	1			1	1						11	total

Workers' number of workplace of fatal accidents in railway vehicle products 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																									9 workers or less
10-29	1									1														2	10-29
30-49		1																						1	30-49
50-99														1										1	50-99
100-299							1	1					1											3	100-299
300 workers or				1		1											1	1						4	300 workers or
more				•		•											•	•						•	more
total	1	1		1		1	1	1		1			1	1			1	1						11	total

Month of fatal accidents in railway vehicle products 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																									January
February						1																		1	February
March																									March
April							1						1	1				1						4	April
May										1														1	May
June	1																							1	June
July		1																						1	July
August								1																1	August
September																									September
October																									October

November			1													1	November
December												1				1	December
total	1	1	1	1	1	1	1		1	1		1	1			11	total

Prefecture of fatal accidents in railway vehicle products 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	1																1							2	Hokkaido
Aomori																									Aomori
lwate																									lwate
Miyagi								1																1	Miyagi
Akita																									Akita
Yamagata																									Yamagata
Fukushima																									Fukushima
lbaraki																									lbaraki
Tochigi																									Tochigi
Gunma																									Gunma
Saitama																									Saitama
Chiba																									Chiba
Tokyo																									Tokyo
Kanagawa							1																	1	Kanagawa
Niigata																									Niigata
Toyama																									Toyama

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

Fukuoka																	Fukuoka
Saga																	Saga
Nagasaki																	Nagasaki
Kumamoto																	Kumamoto
Oita																	Oita
Miyazaki																	Miyazaki
Kagoshima																	Kagoshima
Okinawa																	Okinawa
total	1	1	1	1	1	1	1		1	1		1	1			11	total

Data sources: <a href="https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm">https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm</a> (MHLW, Japan)

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