

Fatal and non-fatal accidents in chemical products in Japan in 1999-2021

chemical products industry Code No.0108

Type of accidents in chemical 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	313	300	351	279	311	264	313	284	273	321	229	228	264	236	204	244	221	227	239	247	247	243	235	6,073	fall from height
falling to same level	327	324	308	247	294	322	323	314	308	347	272	259	316	306	299	319	274	352	361	386	367	344	378	7,347	falling to same level
crash	124	115	116	106	104	91	115	102	111	102	82	95	96	79	79	87	88	90	92	115	103	95	118	2,305	crash
struck by flying or falling object	203	186	168	143	148	146	131	137	122	131	111	111	123	103	98	112	108	94	100	105	84	103	85	2,852	struck by flying or falling object
collapse	41	58	39	28	42	41	38	52	46	47	24	29	32	32	36	27	40	29	21	31	24	29	27	813	collapse
crashed by	101	111	85	97	84	69	77	83	99	89	47	65	69	53	81	73	58	79	75	72	73	65	75	1,780	crashed by
caught in/between	1,075	1,073	1,006	898	901	867	843	855	809	778	629	631	642	649	565	584	584	543	561	579	598	520	594	16,784	caught in/between
cut	279	264	264	250	268	243	246	212	226	202	147	141	182	168	171	155	153	140	140	159	129	141	132	4,412	cut
injury to the sole of the foot	5	3	6	6	2	2	4		5	2	1	2	4	3		5	8	4	3	5		4	2	76	injury to the sole of the foot
drown		2	2										9					1		1			1	16	drown
contact to high/low-temperature	92	90	99	85	70	87	83	74	78	73	60	74	67	54	66	62	46	54	77	70	77	59	78	1,675	contact to high/low-temperature
contact to harmful	49	63	71	62	52	77	59	58	73	41	40	47	43	45	26	45	51	53	48	54	45	45	45	1,192	contact to harmful

substance																										substance
electric shock	2	3	6	4	5	5	1	3	4	1	4	2	3	5	3	4	3	6	4	4	4	3	2	81	electric shock	
explosion	11	23	11	22	10	18	12	8	19	12	11	12	16	22	13	9	3	5	5	10	14	5	9	280	explosion	
burst	3	3	3	2	7		2	2	3	5	1		2	2	1	2		3	4	3	1			49	burst	
fire	12	10	11	8	9	6	9	18	13	6	10	8	4	5	3	6	5	6	2	4	3	13	4	175	fire	
traffic accident (public road)	26	30	24	25	33	23	23	17	24	10	25	22	18	21	16	12	10	17	15	22	25	18	9	465	traffic accident (public road)	
traffic accident (others)	1	1	1			1	1	1	2	1	1	2					2		4			2	1	21	traffic accident (others)	
reaction to motion/improper motion	238	218	205	173	207	210	221	242	266	239	194	220	227	212	196	187	180	208	233	234	229	262	294	5,095	reaction to motion/improper motion	
others	11	11	8	5	7	7	11	7	19	8	6	10	11	3	7	10	8	6	6	15	12	39	210	437	others	
unclassifiable	3	3	7	3	4	3	5		8	2	1	1	2	3	5	6	2	2		4	4	3	2	73	unclassifiable	
total	2,916	2,891	2,791	2,443	2,558	2,482	2,517	2,469	2,508	2,417	1,895	1,959	2,130	2,001	1,869	1,949	1,844	1,919	1,990	2,120	2,039	1,993	2,301	52,001	total	

Causal agents (large) of fatal and non-fatal accidents in chemical 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) agents
machine	1,176	1,146	1,089	912	1,002	947	902	870	870	809	678	632	678	665	621	583	620	557	548	597	568	520	576	17,566	machine
crane, conveying machine	298	327	302	278	274	266	282	269	274	265	187	216	215	190	190	191	182	217	202	215	230	205	195	5,470	crane, conveying machine
other equipment	477	419	446	442	409	397	443	387	440	459	337	368	386	360	348	390	345	404	399	412	384	411	446	9,309	other

																									equipment
temporary buildings, establishments	381	375	387	306	355	351	401	402	358	417	292	301	368	348	288	365	307	369	379	411	408	367	388	8,324	temporary buildings, establishments
substance, material	247	285	245	232	211	237	192	215	249	168	165	180	174	149	156	160	161	143	176	141	155	142	155	4,338	substance, material
load	197	189	203	174	171	149	140	188	167	158	130	142	166	156	135	130	124	109	132	163	124	144	160	3,551	load
environment	28	25	26	15	28	25	29	26	17	29	14	31	45	32	28	44	16	35	45	51	43	30	43	705	environment
others	112	125	93	84	108	110	128	112	133	112	92	89	98	101	103	86	89	85	109	130	127	174	338	2,738	others
total	2,916	2,891	2,791	2,443	2,558	2,482	2,517	2,469	2,508	2,417	1,895	1,959	2,130	2,001	1,869	1,949	1,844	1,919	1,990	2,120	2,039	1,993	2,301	52,001	total

Causal agents (middle) of fatal and non-fatal accidents in chemical 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	1	2	3		1	4		1	3	1	1			2	1	2			1			1	3	27	engine
power transmission mechanism	45	38	31	28	31	28	36	24	23	27	26	26	21	19	32	28	22	17	18	19	17	13	18	587	power transmission mechanism
woodworking machine	41	37	25	22	43	23	37	34	31	17	22	17	26	21	23	18	24	19	14	18	18	14	16	560	woodworking machine
construction machine	9	5	12	4	8	5	3	3	3	5	7	5	4	4	3	9	3	1	3		6	3	6	111	construction machine
metal manufacturing machine	161	142	120	99	102	87	101	78	75	64	45	47	67	61	57	59	56	56	54	61	55	60	50	1,757	metal manufacturing machine

general machine	919	922	898	759	817	800	725	730	735	695	577	537	560	558	505	467	515	464	458	499	472	429	483	14,524	general machine	
mobile silviculture machine																										mobile silviculture machine
crane	39	40	31	28	29	28	34	27	26	29	17	17	27	20	18	17	23	22	14	22	24	25	22	579	crane	
conveying machine	234	251	242	224	206	207	219	222	226	221	147	177	161	149	157	161	151	175	166	169	181	159	157	4,362	conveying machine	
vehicle	25	36	29	26	39	31	29	20	22	15	23	22	27	21	15	13	8	20	22	24	25	21	16	529	vehicle	
pressure vessel	8	8	9	16	10	6	10	9	8	12	12	9	5	13	5	1	6	7	5	4	4	1	7	175	pressure vessel	
chemical facilities	23	19	9	16	17	22	18	18	18	10	10	10	17	16	9	17	8	11	8	19	12	8	24	339	chemical facilities	
welding equipment	6		1			3	1					3		1		1		4	1	4		2		27	welding equipment	
kiln, caldron	15	9	14	17	8	5	10	7	5	11	12	9	7	3	8	13	5	5	4	6	8	8	7	196	kiln, caldron	
electric equipment	6	4	7	6	8	5	3	1	3	3	8	5	1	9	6	4	1	5	10	5	4	10	6	120	electric equipment	
human power machine, tools	144	117	148	142	117	125	131	119	137	134	85	115	124	106	111	103	92	121	128	112	129	116	120	2,776	human power machine, tools	
tools	200	174	174	172	179	166	190	169	195	207	145	145	163	141	149	169	161	184	190	194	176	192	202	4,037	tools	
other equipments, facilities	75	88	84	73	70	65	80	64	74	82	65	72	69	71	60	82	72	67	53	68	51	74	80	1,639	other equipments, facilities	
temporary buildings, establishments	381	375	387	306	355	351	401	402	358	417	292	301	368	348	288	365	307	369	379	411	408	367	388	8,324	temporary buildings, establishments	

hazards, harmful substances	92	113	108	100	80	112	82	88	115	63	64	69	63	59	56	63	66	68	70	69	70	60	62	1,792	hazards, harmful substances
materials	155	172	137	132	131	125	110	127	134	105	101	111	111	90	100	97	95	75	106	72	85	82	93	2,546	materials
load	197	189	203	174	171	149	140	188	167	158	130	142	166	156	135	130	124	109	132	163	124	144	160	3,551	load
natural environment	28	25	26	15	28	25	29	26	17	29	14	31	45	32	28	44	16	35	45	51	43	30	43	705	natural environment
other causal agent	39	44	22	14	33	30	22	21	34	20	15	18	21	18	26	11	16	17	18	29	26	44	213	751	other causal agent
no causal agent	67	76	58	65	71	74	102	89	87	83	75	71	74	81	75	69	70	64	87	97	99	129	123	1,886	no causal agent
unclassifiable	6	5	13	5	4	6	4	2	12	9	2		3	2	2	6	3	4	4	4	2	1	2	101	unclassifiable
total	2,916	2,891	2,791	2,443	2,558	2,482	2,517	2,469	2,508	2,417	1,895	1,959	2,130	2,001	1,869	1,949	1,844	1,919	1,990	2,120	2,039	1,993	2,301	52,001	total

Causal agents (small) of fatal and non-fatal accidents in chemical 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			3		1			1	3	1	1			2	1	2			1			1	3	20	engine
power transmission mechanism			31		31		36	24	23	27	26	26	21	19	32	28	22	17	18	19	17	13	18	448	power transmission mechanism
circular sawing machine			19		23		29	28	18	12	14	14	22	12	12	11	20	13	14	15	12	10	13	311	circular sawing machine
band sawing machine			2		6		4	2	4		1	1		3	5	1	3	2		3	3	1	2	43	band sawing machine
wood planer machine			3		4		3	2	4	2	2		3	3	3	2		1			2			34	wood planer machine





machine																									machine
other mobile silviculture machine																									other mobile silviculture machine
crane		20		22		27	18	17	17	10	11	21	13	13	11	20	14	9	13	16	17	17	306	crane	
mobile crane						2	1		2	2		1			1		2					1	12	mobile crane	
derrick crane																									derrick crane
elevator, lift		10		7		3	4	8	4	2	2	3	5	3	4	3	4	3	5	7	5	3	85	elevator, lift	
cargo lifting appliance																									cargo lifting appliance
gondola									1														1	gondola	
lumberyard equipment, logging cableway																									lumberyard equipment, logging cableway
simple skyline yarding equipment																									simple skyline yarding equipment
other powered crane		1				2	4	1	5	3	4	2	2	2	1		2	2	4	1	3	1	40	other powered crane	
truck		54		44		44	44	42	31	36	39	24	35	30	40	25	37	24	37	46	34	27	693	truck	
forklift		105		83		107	100	98	99	61	74	81	62	72	71	70	84	96	74	72	55	64	1,528	forklift	
railway equipment								1	2			2		1	1		1		1	1			10	railway equipment	
conveyor		71		70		55	71	70	74	38	52	48	47	49	38	48	42	32	46	47	54	53	1,005	conveyor	
loader		4		1		1	1	2	3	3		1	1	1			1		1	1	1		22	loader	
straddle carrier																									straddle carrier
rough terrain hauler						1									1								2	rough terrain hauler	
other powered		8		8		11	6	13	12	9	12	5	4	4	10	8	10	14	10	14	15	13	186	other powered	



conveying machines																									conveying machines
cars, bus, motorcycle			23		34		28	17	20	14	21	20	23	20	12	10	7	19	20	20	23	21	14	366	cars, bus, motorcycle
railway vehicle					1		1					1			1									4	railway vehicle
other vehicles			6		4			3	2	1	2	1	4	1	2	3	1	1	2	4	2		2	41	other vehicles
boiler					1		3	1	2	2	2	1			1		2	1			1			17	boiler
pressure vessel			5		7		5	8	2	7	7	7	4	10	3		3	3	2	1	1		2	77	pressure vessel
other pressure vessels			4		2		2		4	3	3	1	1	3	1	1	1	3	3	3	2	1	5	43	other pressure vessels
chemical facilities			9		17		18	18	18	10	10	10	17	16	9	17	8	11	8	19	12	8	24	259	chemical facilities
gas welding equipment			1																	1				2	gas welding equipment
arc welding equipment							1					1						2		3				7	arc welding equipment
other welding equipment												2		1		1		2	1			2		9	other welding equipment
kiln, caldron			10		2		5	1	3	7	3	4	4	1	4	6	3	3	2	4	4	4	2	72	kiln, caldron
industrial dryer			3		6		5	3	1	3	7	3	3	2	4	6	2		2	2	4	4	4	64	industrial dryer
other kiln, caldron			1					3	1	1	2	2				1		2					1	14	other kiln, caldron
transmission			3		2		1	1	1		5	1		3	3	2		3	5	1	1	5	4	41	transmission
electric power facilities			2		5		1		1	1	1	2		4	1	1		2	3	2	1	1		28	electric power facilities
other electrical equipment			2		1		1		1	2	2	2	1	2	2	1	1		2	2	2	4	2	30	other electrical equipment
human power			3		2		1	4	6	3	2	3	2		1	1	3	2	3	2	9	6	17	70	human power

cranes																									cranes
human power hauling equipment			49		63		56	36	64	58	36	49	62	48	49	45	48	60	64	57	69	52	48	1,013	human power hauling equipment
human power machine			8		1		3	1	6	2	2	4	3	2	5	5	5	2	4	4	2	1	2	62	human power machine
hand tool			88		51		71	78	61	71	45	59	57	56	56	52	36	57	57	49	49	57	53	1,103	hand tool
ladder			91		91		89	77	92	101	67	74	78	77	68	84	77	76	80	97	84	96	91	1,590	ladder
slinging tool			9		8		7	9	6	4	6	9	4	4	2	6	5	8	6	6	7	3	11	120	slinging tool
other tools			74		80		94	83	97	102	72	62	81	60	79	79	79	100	104	91	85	93	100	1,615	other tools
other equipment, facilities			84		70		80	64	74	82	65	72	69	71	60	82	72	67	53	68	51	74	80	1,338	other equipment, facilities
scaffolding			4		4		3	5	4	6	2	4	5	3	6	3	3	2	5	4	5	2	2	72	scaffolding
timbering													1											1	timbering
stairs, landing stage			97		87		101	87	81	94	75	60	74	69	51	94	69	74	92	86	96	92	90	1,569	stairs, landing stage
opening			3		3		6	5	9	10	2	8	7	8	4	7	2	8	3	2	8	8	4	107	opening
roof, beam, haze, crossbeam, principal rafter			3		9		10	7	6	9	5	3	5	3	4	4	6	4	2	4	5	5	3	97	roof, beam, haze, crossbeam, principal rafter
working platform, boot board			57		64		53	62	51	68	52	52	69	62	40	54	51	56	46	47	56	38	37	1,015	working platform, boot board
passage			130		110		153	153	131	140	96	104	124	133	111	136	115	143	145	196	164	158	193	2,635	passage
building, establishment			56		49		38	51	47	60	41	43	54	50	43	32	39	52	45	41	35	34	32	842	building, establishment
other temporary buildings, establishments			37		29		37	32	29	30	19	27	29	20	29	35	22	30	41	31	39	30	27	573	other temporary buildings, establishments

explosive substance			6		5		7	2	6	2	2	3	5	2	7	2		1	2	3	2	2	5	64	explosive substance
inflammable substance			12		13		7	15	26	7	19	14	8	11	7	6	7	9	9	6	11	11	7	205	inflammable substance
inflammable gas			3		4		5	2		1	5	3	4	1	4	1	2	2	1	3	1		3	45	inflammable gas
harmful substance			43		30		39	39	47	26	21	26	26	28	14	38	36	34	24	26	27	21	20	565	harmful substance
radiation																									radiation
other hazards, harmful substances			44		28		24	30	36	27	17	23	20	17	24	16	21	22	34	31	29	26	27	496	other hazards, harmful substances
metal material			71		68		49	59	62	41	47	40	44	41	43	40	42	33	41	35	41	41	40	878	metal material
lumber, bamboo			9		8		10	6	5	3	2	5	5	3	3	4	5	5	5	4		2	6	90	lumber, bamboo
stone, sand, substance			3		1		1		1	2		1	1	2	2	1	1		1	1	2		2	22	stone, sand, substance
other materials			54		54		50	62	66	59	52	65	61	44	52	52	47	37	59	32	42	39	45	972	other materials
load			177		153		125	167	158	150	113	132	154	138	122	115	116	103	126	159	114	140	151	2,613	load
machine/equipment as load			26		18		15	21	9	8	17	10	12	18	13	15	8	6	6	4	10	4	9	229	machine/equipment as load
natural ground, rock			2		2		3	1	2		1	3		1	1		1	1	1	2	2	1	2	26	natural ground, rock
standing tree							1		1	1	1	1	1	1	3				2	1	1	1		14	standing tree
water					3		5		3	2	2		7	1	1	5	2	2	2	2	2	3	3	45	water
abnormal environment			3		2		2	1	1	2		1	1						2	1	1	2	2	21	abnormal environment
high/cold temperature environment			7		5		9	13	5	11	3	15	16	11	8	14	9	10	18	23	29	16	21	243	high/cold temperature environment

other environments			14		16		10	10	6	13	7	11	20	18	15	25	4	22	20	22	8	7	15	263	other environments
other causal agent			22		33		22	21	34	20	15	18	21	18	26	11	16	17	18	29	26	44	213	624	other causal agent
no causal agent			58		71		102	89	87	83	75	71	74	81	75	69	70	64	87	97	99	129	123	1,604	no causal agent
unclassifiable			13		4		4	2	12	9	2		3	2	2	6	3	4	4	4	2	1	2	79	unclassifiable
total			2,791		2,558		2,517	2,469	2,508	2,417	1,895	1,959	2,130	2,001	1,869	1,949	1,844	1,919	1,990	2,120	2,039	1,993	2,301	41,269	total

#### Workers age of fatal and non-fatal accidents in chemical 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	91	75	60	62	67	62	65	64	55	60	38	42	34	40	50	46	32	46	34	48	39	40	41	1,191	19 years old or less
20-29	578	584	594	542	497	485	477	492	480	420	357	339	365	350	324	339	305	301	330	298	358	319	380	9,514	20-29
30-39	504	578	549	522	596	587	618	584	597	564	455	503	490	488	420	470	398	418	353	429	376	366	453	11,318	30-39
40-49	662	599	572	465	504	442	477	486	492	480	374	429	481	445	431	473	446	475	508	545	522	497	524	11,329	40-49
50-59	828	810	745	626	646	642	626	586	608	584	441	413	490	407	393	394	395	428	468	497	445	452	569	12,493	50-59
60 years old or more	253	245	271	226	248	264	254	257	276	309	230	233	270	271	251	227	268	251	297	303	299	319	334	6,156	60 years old or more
total	2,916	2,891	2,791	2,443	2,558	2,482	2,517	2,469	2,508	2,417	1,895	1,959	2,130	2,001	1,869	1,949	1,844	1,919	1,990	2,120	2,039	1,993	2,301	52,001	total

#### Workers' number of workplace of fatal and non-fatal accidents in chemical 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	543	520	510	459	508	489	450	441	379	307	280	251	254	231	222	242	210	209	210	214	175	165	191	7,460	9 workers or less
10-29	770	772	743	648	663	615	649	618	554	578	436	454	524	494	470	472	466	427	470	452	416	417	445	12,553	10-29
30-49	466	487	445	383	376	393	376	361	401	406	280	287	327	335	276	265	303	289	311	345	309	303	358	8,082	30-49





Mie	85	86	93		88		80	88	93	100	55	66	62	62	77	80	56	62	66	64	57	52	126	1,598	Mie
Shiga	60	65	62		74		58	59	57	77	50	47	49	48	67	64	41	57	68	55	66	56	51	1,231	Shiga
Kyoto	49	31	27		47		39	42	31	28	16	11	28	23	18	14	30	20	24	29	30	31	21	589	Kyoto
Osaka	326	305	284		252		233	279	239	206	204	190	179	183	169	188	157	164	175	200	157	155	168	4,413	Osaka
Hyogo	226	211	163		194		163	146	132	149	90	107	135	117	109	114	113	101	114	123	126	114	118	2,865	Hyogo
Nara	78	72	92		71		79	81	73	68	63	56	62	67	68	58	50	51	74	62	61	52	59	1,397	Nara
Wakayama	53	36	42		32		37	40	35	22	18	32	35	20	31	15	21	12	27	31	28	28	27	622	Wakayama
Tottori	8	6	12		4		8	6	9	6	6	3	7	2	3	3	5	3	2	6	6	4	11	120	Tottori
Shimane	9	9	7		9		14	7	13	5	5	5	15	8	7	6	4	11	12	12	10	12	16	196	Shimane
Okayama	59	54	50		55		57	49	74	66	39	52	56	49	47	58	50	48	46	59	66	58	50	1,142	Okayama
Hiroshima	48	61	73		59		46	40	50	61	46	44	52	56	38	46	38	40	44	40	49	32	46	1,009	Hiroshima
Yamaguchi	55	59	52		45		53	39	48	46	34	29	35	34	33	36	35	35	28	36	43	43	35	853	Yamaguchi
Tokushima	32	25	23		23		30	22	29	29	26	15	24	21	16	14	26	18	24	18	25	12	25	477	Tokushima
Kagawa	44	29	32		25		31	20	29	23	19	19	27	28	20	19	28	19	21	38	26	23	27	547	Kagawa
Ehime	20	23	35		12		18	14	16	16	12	15	20	21	21	11	13	16	17	13	13	15	19	360	Ehime
Kochi	3	4	5		4		2	2	6	3	4	3	4	6	6	5	3	5	6	1	6	7	7	92	Kochi
Fukuoka	97	95	85		82		70	67	82	65	73	52	71	56	50	53	64	58	57	68	52	62	70	1,429	Fukuoka
Saga	15	22	15		16		19	15	16	27	12	16	17	11	20	14	13	12	18	33	24	20	17	372	Saga
Nagasaki	6	2	7		5			8	7	5	3	3	4	3	2	2	4	2	6	2	3	2	5	81	Nagasaki
Kumamoto	21	27	14		13		20	22	39	17	15	10	16	14	16	21	25	23	18	22	20	14	15	402	Kumamoto
Oita	24	18	16		9		6	15	11	13	9	11	11	14	7	16	12	12	15	15	8	9	20	271	Oita
Miyazaki	13	15	23		9		18	15	13	14	9	6	4	10	9	9	13	6	13	8	11	21	12	251	Miyazaki
Kagoshima	8	11	10		5		9	8	7	4	3	3	4	3	5	5	7	4	5	12	8	11	10	142	Kagoshima
Okinawa	3	5	4		3		2	6	3	4	2	4	3	2	5	2	2	3	5	5	3	1	6	73	Okinawa





injury to the sole of the foot									1														1	injury to the sole of the foot	
drown		1	2									9					1		1			1	15	drown	
contact to high/low-temperature	1	1				1									1		1	2					7	contact to high/low-temperature	
contact to harmful substance	3	2	5	1	1	2	1	4		3	1	2	1	2		2	1	2	1	2	1	1	1	39	contact to harmful substance
electric shock		1			1						1			1			1						5	electric shock	
explosion	2	5		1		2	1	1		1	6	1	1	1	2	3			1	4	2	1		35	explosion
burst																	1						1	burst	
fire	1		1		1	1		1	2				3			1		2			2		15	fire	
traffic accident (public road)		1	1	4	2	1			1	1	1		2		2		1		2		1		20	traffic accident (public road)	
traffic accident (others)							1																1	traffic accident (others)	
reaction to motion/improper motion																								reaction to motion/improper motion	
others	1		1													2		1	2				7	others	
unclassifiable			1		1		1			1				1		1							6	unclassifiable	
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	433	total

Causal agents (large) of fatal accidents in chemical 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) agents
-------------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	-------	-------------------





load	1			2		1	1	1	2	1		1		2						2	1			15	load
natural environment	1	1	2	1		2	1	1					9			1	1	2	1	3		1		27	natural environment
other causal agent	4																							4	other causal agent
no causal agent														1			2		1	2				6	no causal agent
unclassifiable			1		1		1			1				1		1			1	1				8	unclassifiable
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	433	total

Causal agents (small) of fatal accidents in chemical 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											3	power transmission mechanism
circular sawing machine																										circular sawing machine
band sawing machine																										band sawing machine
wood planer machine																										wood planer machine
hollow chisel mortiser, wood borer																										hollow chisel mortiser, wood borer
chamfering machine, router, woodworking milling machine																										chamfering machine, router, woodworking milling machine







pressure vessel														1										1	pressure vessel					
other pressure vessels				1																				1	other pressure vessels					
chemical facilities				1						2	5		1			3	1						1	14	chemical facilities					
gas welding equipment																									gas welding equipment					
arc welding equipment																								1	arc welding equipment					
other welding equipment																									other welding equipment					
kiln, caldron				1						1														3	kiln, caldron					
industrial dryer										1														1	industrial dryer					
other kiln, caldron																									other kiln, caldron					
transmission																									transmission					
electric power facilities																								1	electric power facilities					
other electrical equipment																								1	other electrical equipment					
human power cranes																									human power cranes					
human power hauling equipment																								1	1	1	3	human power hauling equipment		
human power machine																									human power machine					
hand tool																									hand tool					
ladder	1																							2	1	1	1	1	7	ladder





other hazards, harmful substances		4	1		1			1	2					1				1	1	2			14	other hazards, harmful substances	
metal material			1						1					2									4	metal material	
lumber, bamboo																								lumber, bamboo	
stone, sand, substance																								stone, sand, substance	
other materials			1		2			1		1													5	other materials	
load	1			2		1	1	1	2	1		1		2					2	1			15	load	
machine/equipment as load																								machine/equipment as load	
natural ground, rock																								natural ground, rock	
standing tree																								standing tree	
water													7					1		1			9	water	
abnormal environment	1	1	2	1		1	1	1							1				1		1		11	abnormal environment	
high/cold temperature environment						1										1		1	1				4	high/cold temperature environment	
other environments													2					1					3	other environments	
other causal agent	4																						4	other causal agent	
no causal agent														1		2		1	2				6	no causal agent	
unclassifiable			1		1		1			1				1		1			1	1			8	unclassifiable	
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	433	total



January	1	3	4		5		2	4	2	2	1	1	2	1	1	4	2	1	1	2	2	1		42	January	
February	3	2	2	2	1	1		2	1	3	1	1	2	4	2		1		1	1			1	31	February	
March	6	2	2	6		3	2	1	1	1		2	9	4	1		2	1	1	2				46	March	
April		1	1	2	3	5	2	3		6	2		1	1				1		3		2	1	34	April	
May	3	1	1				1			1		2	2	1	2	1	5	2	2		2			26	May	
June	3	7		2	2	3	1	2	2	1	2	1			1	1		2		2	2	1	1	36	June	
July	1	3	2	1	1	2	1	5			3				1	1	2	1		3	1		2	30	July	
August	4	1	3	3	3	1	5	3	1	2	1			1	1	1	1	2	1	1	1	1	2	39	August	
September	1	3	3		4	1	3		5	3	1		2	1	3	1	3	2	2		3	2	4	47	September	
October	2		3	2	3	2	2	2	1	4		2	1		3	1	4		1	2		1		36	October	
November	2	1	2	3	1		1		3	1	4	1	2	3	2	1	1		1	1				30	November	
December	2	2	1	1	2	4	2	3	1	4	4	1	1	1			1		1	1	1	1	2	1	36	December
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	433	total	

Prefecture of fatal accidents in chemical 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			2													1			1	6	Hokkaido	
Aomori																							1	1	Aomori	
Iwate								1				1									1				3	Iwate
Miyagi	1		1	1									7				2								12	Miyagi
Akita	1								1	1			2												5	Akita
Yamagata						1					1														2	Yamagata
Fukushima		1		2	1	1															1				6	Fukushima
Ibaraki	2	1	2		1	2	2		1	3	2	1		2	2										21	Ibaraki



Okayama	1														1								2	Okayama	
Hiroshima				1		2		1		2													1	7	Hiroshima
Yamaguchi		1		2	1		1	1					1	1			2					1	1	12	Yamaguchi
Tokushima				1																1				2	Tokushima
Kagawa					1									2		1	1						1	6	Kagawa
Ehime		1				1														1				3	Ehime
Kochi														1										1	Kochi
Fukuoka	2			1	1	2		2	1	4		1				3			3					20	Fukuoka
Saga																									Saga
Nagasaki				1																				1	Nagasaki
Kumamoto																1								1	Kumamoto
Oita																				1			1	2	Oita
Miyazaki					1																			1	Miyazaki
Kagoshima																							1	1	Kagoshima
Okinawa																									Okinawa
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	433	total

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

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