Fatal and non-fatal accidents in chemical products in Japan in 1999-2022

chemical products industry Code No.0108

Type of accidents in chemical products in 1999-2022

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
fall from height	313	300	351	279	311	264	313	284	273	321	229	228	264	236	204	244	221	227	239	247	247	243	235	251	6,324
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	414	7,761
crash	124	115	116	106	104	91	115	102	111	102	82	95	96	79	79	87	88	90	92	115	103	95	118	100	2,405
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	97	2,949
collapse	41	58	39	28	42	41	38	52	46	47	24	29	32	32	36	27	40	29	21	31	24	29	27	29	842
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	79	1,859
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	502	17,286
cut	279	264	264	250	268	243	246	212	226	202	147	141	182	168	171	155	153	140	140	159	129	141	132	138	4,550
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	4	80
drown		2	2										9					1		1			1	1	17
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	55	1,730
contact to harmful																									

substance	49	63	71	62	52	77	59	58	73	41	40	47	43	45	26	45	51	53	48	54	45	45	45	48	1,240
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	3	84
explosion	11	23	11	22	10	18	12	8	19	12	11	12	16	22	13	9	3	5	5	10	14	5	9	2	282
burst	3	3	3	2	7		2	2	3	5	1		2	2	1	2		3	4	3	1			2	51
fire	12	10	11	8	9	6	9	18	13	6	10	8	4	5	3	6	5	6	2	4	3	13	4	2	177
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	18	483
traffic accident (others)	1	1	1			1	1	1	2	1	1	2					2		4			2	1	1	22
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	289	5,384
others	11	11	8	5	7	7	11	7	19	8	6	10	11	3	7	10	8	6	6	15	12	39	210	21	458
unclassifiable	3	3	7	3	4	3	5		8	2	1	1	2	3	5	6	2	2		4	4	3	2	1	74
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	2,057	54,058

Causal agents (large) of fatal and non-fatal accidents in chemical products in 1999-2022

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
machine	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	525	18,091
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	184	5,654
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	418	9,727

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	419	8,743
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	162	4,500
load	197	189	203	174	171	149	140	188	167	158	130	142	166	156	135	130	124	109	132	163	124	144	160	158	3,709
environment	28	25	26	15	28	25	29	26	17	29	14	31	45	32	28	44	16	35	45	51	43	30	43	44	749
others	112	125	93	84	108	110	128	112	133	112	92	89	98	101	103	86	89	85	109	130	127	174	338	147	2,885
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	2,057	54,058

Causal agents (middle) of fatal and non-fatal accidents in chemical products in 1999-2022

Causal (M) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
engine	1	2	3		1	4		1	3	1	1			2	1	2			1			1	3		27
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	17	604
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	10	570
construction machine	9	5	12	4	8	5	3	3	3	5	7	5	4	4	3	9	3	1	3		6	3	6	3	114
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	69	1,826

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	426	14,950
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	17	596
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	146	4,508
vehicle	25	36	29	26	39	31	29	20	22	15	23	22	27	21	15	13	8	20	22	24	25	21	16	21	550
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	4	179
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	12	351
welding equipment	6		1			3	1					3		1		1		4	1	4		2		1	28
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	7	203
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	4	124
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	124	2,900
tools	200	174	174	172	179	166	190	169	195	207	145	145	163	141	149	169	161	184	190	194	176	192	202	197	4,234
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	69	1,708
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	419	8,743
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	53	1,845
materials	155	172	137	132	131	125	110	127	134	105	101	111	111	90	100	97	95	75	106	72	85	82	93	109	2,655

load	197	189	203	174	171	149	140	188	167	158	130	142	166	156	135	130	124	109	132	163	124	144	160	158	3,709
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	44	749
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	19	770
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	125	2,011
unclassifiable	6	5	13	5	4	6	4	2	12	9	2		3	2	2	6	3	4	4	4	2	1	2	3	104
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	2,057	54,058

Causal agents (small) of fatal and non-fatal accidents in chemical products in 1999-2022

Causal (S) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
engine			3		1			1	3	1	1			2	1	2			1			1	3		20
power transmission mechanism			31		31		36	24	23	27	26	26	21	19	32	28	22	17	18	19	17	13	18	17	465
circular sawing machine			19		23		29	28	18	12	14	14	22	12	12	11	20	13	14	15	12	10	13	7	318
band sawing machine			2		6		4	2	4		1	1		3	5	1	3	2		3	3	1	2	1	44
wood planer machine			3		4		3	2	4	2	2		3	3	3	2		1			2				34
hollow chisel mortiser, wood borer								1		1	1		1		1							1		1	7
chamfering																									

machine, router, woodworking milling machine					1				1		1	1		1											5
chain saw					1						1					2					1		1		6
other woodworking machines			1		8		1	1	4	2	2	1		2	2	2	1	3				2		1	33
leveling, transporting or loading machine			9		3		1		1	2	6	2	3	2		3	3		2		4		5	1	47
excavating machine			1		5			2	1	2		1	1		2	5					1	3	1		25
foundation work machine																									
hardening machine			1																						1
demolition machine									1										1					1	3
vehicle for high lift work										1		2		1							1			1	6
other construction machines			1				2	1			1			1	1	1		1							9
lathe			21		19		15	9	6	14	6	8	11	10	6	10	6	11	9	9	7	8	13	12	210
drill press, milling machine			18		13		6	7	8	12	7	5	8	9	9	9	10	9	4	12	9	13	8	8	184
grinding machine, buffing machine			7		7		11	14	12	7	4	4	9	9	6	9	6	8	10	6	7	5	5	9	155
power press			27		29		26	22	17	16	16	14	13	18	14	12	17	11	17	19	17	16	14	20	355

forging pressure hammer							1		1																2
shearing machine			11		14		11	7	7	4	5	4	3	6	5	6	3	6	3	5	5	5	2	7	119
other metal manufacturing machines			36		20		31	19	24	11	7	12	23	9	17	13	14	11	11	10	10	13	8	13	312
centrifugal machine					1			2	4	2	1		3				3	4	1	7		1	1	1	31
mixer, grinder			82		79		56	72	77	52	50	37	46	60	44	45	52	55	47	47	49	41	51	45	1,087
roll machine (except printingroll machine)			139		114		87	96	92	99	91	93	91	89	92	75	72	65	71	62	88	71	73	67	1,727
injection molding machine			132		132		121	103	111	75	76	81	57	70	56	49	51	52	45	52	42	43	55	36	1,439
food manufacturing machine			1		1		2	1	2		4		1	1	1		2	1		2		1	1	2	23
printing machine			14		19		16	10	11	10	13	8	9	15	7	6	8	11	10	12	5	5	13	12	214
industrial robot			2		2		2	3	3	4	5	3	5	4	2	2	4	4		5	4	2	5	3	64
other general power machines			528		469		441	443	435	453	337	315	348	319	303	290	323	272	284	312	284	265	284	260	6,965
felling machine																									
mobile logging machine																									
skyline yarding 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	12	318
mobile crane							2	1		2	2		1			1		2					1		12
derrick crane																									
elevator, lift			10		7		3	4	8	4	2	2	3	5	3	4	3	4	3	5	7	5	3	2	87
cargo lifting appliance																									
gondola										1															1
lumberyard equipment, logging cableway																									
simple skyline yarding equipment																									
other powered crane			1				2	4	1	5	3	4	2	2	2	1		2	2	4	1	3	1	3	43
truck			54		44		44	44	42	31	36	39	24	35	30	40	25	37	24	37	46	34	27	31	724
forklift			105		83		107	100	98	99	61	74	81	62	72	71	70	84	96	74	72	55	64	72	1,600
railway equipment									1	2			2		1	1		1		1	1				10
conveyor			71		70		55	71	70	74	38	52	48	47	49	38	48	42	32	46	47	54	53	37	1,042
loader			4		1		1	1	2	3	3		1	1	1			1		1	1	1		3	25
straddle carrier																									
rough terrain hauler							1									1									2
other powered																									

conveying machines			8		8		11	6	13	12	9	12	5	4	4	10	8	10	14	10	14	15	13	3	189
cars, bus, motorcycle			23		34		28	17	20	14	21	20	23	20	12	10	7	19	20	20	23	21	14	21	387
railway vehicle					1		1					1			1										4
other vehicles			6		4			3	2	1	2	1	4	1	2	3	1	1	2	4	2		2		41
boiler					1		3	1	2	2	2	1			1		2	1			1				17
pressure vessel			5		7		5	8	2	7	7	7	4	10	3		3	3	2	1	1		2	2	79
other pressure vessels			4		2		2		4	3	3	1	1	3	1	1	1	3	3	3	2	1	5	2	45
chemical facilities			9		17		18	18	18	10	10	10	17	16	9	17	8	11	8	19	12	8	24	12	271
gas welding equipment			1																	1					2
arc welding equipment							1					1						2		3					7
other welding equipment												2		1		1		2	1			2		1	10
kiln, caldron			10		2		5	1	3	7	3	4	4	1	4	6	3	3	2	4	4	4	2	3	75
industrial dryer			3		6		5	3	1	3	7	3	3	2	4	6	2		2	2	4	4	4	1	65
other kiln, caldron			1					3	1	1	2	2				1		2					1	3	17
transmission			3		2		1	1	1		5	1		3	3	2		3	5	1	1	5	4	3	44
electric power facilities			2		5		1		1	1	1	2		4	1	1		2	3	2	1	1			28
other electrical			2		1		1		1	2	2	2	1	2	2	1	1		2	2	2	4	2	1	31

equipment																									
human power cranes			3		2		1	4	6	3	2	3	2		1	1	3	2	3	2	9	6	17	20	90
human power hauling equipment			49		63		56	36	64	58	36	49	62	48	49	45	48	60	64	57	69	52	48	50	1,063
human power machine			8		1		3	1	6	2	2	4	3	2	5	5	5	2	4	4	2	1	2	2	64
hand tool			88		51		71	78	61	71	45	59	57	56	56	52	36	57	57	49	49	57	53	52	1,155
ladder			91		91		89	77	92	101	67	74	78	77	68	84	77	76	80	97	84	96	91	92	1,682
slinging tool			9		8		7	9	6	4	6	9	4	4	2	6	5	8	6	6	7	3	11	6	126
other tools			74		80		94	83	97	102	72	62	81	60	79	79	79	100	104	91	85	93	100	99	1,714
other equipment, facilities			84		70		80	64	74	82	65	72	69	71	60	82	72	67	53	68	51	74	80	69	1,407
scaffolding			4		4		3	5	4	6	2	4	5	3	6	3	3	2	5	4	5	2	2	2	74
timbering													1												1
stairs, landing stage			97		87		101	87	81	94	75	60	74	69	51	94	69	74	92	86	96	92	90	91	1,660
opening			3		3		6	5	9	10	2	8	7	8	4	7	2	8	3	2	8	8	4	3	110
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	6	103
working platform, boot board			57		64		53	62	51	68	52	52	69	62	40	54	51	56	46	47	56	38	37	59	1,074
passage			130		110		153	153	131	140	96	104	124	133	111	136	115	143	145	196	164	158	193	191	2,826
building,																									

establishment			56		49		38	51	47	60	41	43	54	50	43	32	39	52	45	41	35	34	32	35	877
other temporary buildings, establishments			37		29		37	32	29	30	19	27	29	20	29	35	22	30	41	31	39	30	27	32	605
explosive substance			6		5		7	2	6	2	2	3	5	2	7	2		1	2	3	2	2	5	3	67
inflammable substance			12		13		7	15	26	7	19	14	8	11	7	6	7	9	9	6	11	11	7	4	209
inflammable gas			3		4		5	2		1	5	3	4	1	4	1	2	2	1	3	1		3	1	46
harmful substance			43		30		39	39	47	26	21	26	26	28	14	38	36	34	24	26	27	21	20	26	591
radiation																									
other hazards, harmful substances			44		28		24	30	36	27	17	23	20	17	24	16	21	22	34	31	29	26	27	19	515
metal material			71		68		49	59	62	41	47	40	44	41	43	40	42	33	41	35	41	41	40	46	924
lumber, bamboo			9		8		10	6	5	3	2	5	5	3	3	4	5	5	5	4		2	6	3	93
stone, sand, substance			3		1		1		1	2		1	1	2	2	1	1		1	1	2		2	2	24
other materials			54		54		50	62	66	59	52	65	61	44	52	52	47	37	59	32	42	39	45	58	1,030
load			177		153		125	167	158	150	113	132	154	138	122	115	116	103	126	159	114	140	151	147	2,760
machine/equipment as load			26		18		15	21	9	8	17	10	12	18	13	15	8	6	6	4	10	4	9	11	240
natural ground, rock			2		2		3	1	2		1	3		1	1		1	1	1	2	2	1	2	1	27
standing tree								1		1	1	1	1	1	3				2	1	1	1			14

water					3		5		3	2	2		7	1	1	5	2	2	2	2	2	3	3	2	47
abnormal environment			3		2		2	1	1	2		1	1						2	1	1	2	2	2	23
high/cold temperature environment			7		5		9	13	5	11	3	15	16	11	8	14	9	10	18	23	29	16	21	14	257
other environments			14		16		10	10	6	13	7	11	20	18	15	25	4	22	20	22	8	7	15	25	288
other causal agent			22		33		22	21	34	20	15	18	21	18	26	11	16	17	18	29	26	44	213	19	643
no causal agent			58		71		102	89	87	83	75	71	74	81	75	69	70	64	87	97	99	129	123	125	1,729
unclassifiable			13		4		4	2	12	9	2		3	2	2	6	3	4	4	4	2	1	2	3	82
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	2,057	54,058

Workers age of fatal and non-fatal accidents in chemical products in 1999-2022

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
19 years old or less	91	75	60	62	67	62	65	64	55	60	38	42	34	40	50	46	32	46	34	48	39	40	41	34	1,225
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	313	9,827
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	349	11,667
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	507	11,836
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	508	13,001
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	346	6,502
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	2,057	54,058

Workers' number of workplace of fatal and non-fatal accidents in chemical products in 1999-2022

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
9 workers or less	543	520	510	459	508	489	450	441	379	307	280	251	254	231	222	242	210	209	210	214	175	165	191	184	7,644
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	398	12,951
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	315	8,397
50-99	460	412	441	386	410	404	418	417	433	389	314	325	411	323	318	343	290	347	364	382	400	360	383	373	9,103
100-299	476	452	427	392	431	387	414	421	517	490	406	450	408	381	390	416	401	448	438	467	502	489	639	519	10,761
300 workers or more	201	248	225	175	170	194	210	211	224	247	179	192	206	237	193	211	174	199	197	260	237	259	285	268	5,202
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	2,057	54,058

Month of fatal and non-fatal accidents in chemical products in 1999-2022

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
January	239	259	215	189	207	200	202	214	189	230	182	187	175	158	147	171	139	179	187	204	155	170	183	175	4,556
February	264	256	276	213	219	195	205	235	217	225	146	155	182	178	169	182	161	164	181	188	189	181	202	161	4,744
March	263	258	251	210	198	206	224	223	239	223	156	180	182	167	136	164	149	141	189	185	167	166	188	181	4,646
April	226	214	248	220	223	212	198	194	220	214	149	149	172	174	156	148	153	165	132	163	164	152	189	157	4,392
May	221	233	223	186	225	185	185	212	212	184	140	150	166	181	155	152	136	148	147	174	150	138	177	175	4,255
June	274	269	241	181	204	256	239	206	202	204	167	183	180	173	148	179	184	152	160	178	182	172	204	202	4,740
July	231	259	274	238	229	236	232	224	217	230	192	176	195	166	193	161	180	152	171	182	194	159	186	173	4,850
August	260	213	211	196	220	197	220	200	209	209	156	166	170	170	153	150	145	181	170	176	178	178	215	149	4,492

September	254	262	197	222	242	219	220	190	198	190	139	169	169	160	149	162	139	154	158	166	190	183	242	198	4,572
October	249	236	255	212	221	218	202	184	215	204	156	167	193	165	159	181	168	182	171	176	161	193	185	172	4,625
November	219	242	211	204	198	182	190	201	211	167	156	148	164	171	168	159	156	162	159	193	169	155	170	160	4,315
December	216	190	189	172	172	176	200	186	179	137	156	129	182	138	136	140	134	139	165	135	140	146	160	154	3,871
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	2,057	54,058

Prefecture of fatal and non-fatal accidents in chemical products in 1999-2022

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
Hokkaido	54	44	53		31		30	31	43	35	38	35	32	37	38	36	22	40	32	30	29	32	56	36	814
Aomori	10	7	9		3		1	3	1	3	3	3	4	5	1	2	3	1	5	2	2	3	9	4	84
Iwate	17	22	18		16		26	19	23	19	9	10	24	19	15	14	13	22	14	16	13	22	19	17	387
Miyagi	31	24	23		40		36	21	23	29	25	23	29	25	19	18	25	20	19	20	16	28	23	11	528
Akita	11	8	13		11		7	5	12	19	7	5	5	10	8	9	7	3	4	12	13	9	13	9	200
Yamagata	9	23	16		24		20	23	15	18	15	17	23	15	22	10	17	17	22	13	12	13	15	19	378
Fukushima	47	33	48		38		46	50	51	38	41	41	37	36	33	31	25	32	44	47	40	40	57	55	910
Ibaraki	94	101	113		79		116	103	97	96	84	73	99	70	60	68	84	70	86	85	88	103	83	106	1,958
Tochigi	74	75	75		73		70	72	65	67	59	48	65	79	58	46	48	56	56	63	73	45	76	49	1,392
Gunma	69	83	73		78		75	67	86	69	48	61	56	54	57	63	58	75	49	65	61	76	86	74	1,483
Saitama	186	183	167		191		152	162	164	148	130	151	121	133	117	128	129	122	133	119	126	114	132	149	3,157
Chiba	96	98	107		61		95	89	102	110	91	102	66	81	88	73	75	76	69	85	83	89	88	81	1,905
Tokyo	129	119	118		103		84	67	63	63	44	57	53	37	46	48	32	45	51	37	46	36	31	34	1,343
Kanagawa	116	104	118		91		113	87	81	86	69	81	84	78	69	79	59	79	67	74	70	79	115	69	1,868

Niigata	50	38	43		45		45	54	52	46	29	28	36	28	30	39	22	28	20	30	28	35	41	35	802
Toyama	44	62	35		65		42	55	69	48	54	39	45	49	27	55	46	49	40	47	38	36	42	44	1,031
Ishikawa	8	12	15		17		5	12	11	9	7	9	7	11	8	11	6	13	15	13	13	10	17	14	243
Fukui	23	21	42		12		27	22	29	35	15	27	29	29	15	24	24	31	26	28	20	24	33	23	559
Yamanashi	15	15	11		17		18	20	18	21	29	6	15	10	8	15	13	12	15	12	20	10	18	13	331
Nagano	41	46	31		20		32	27	29	36	16	22	32	23	15	35	39	42	24	23	25	35	26	30	649
Gifu	74	106	93		73		86	85	90	71	43	75	71	55	64	59	54	59	50	66	64	67	80	66	1,551
Shizuoka	145	163	155		127		120	123	128	130	98	111	123	103	87	93	91	118	125	118	108	99	119	123	2,607
Aichi	231	233	189		207		179	182	144	167	128	136	154	156	140	140	142	127	139	163	153	154	161	164	3,589
Mie	85	86	93		88		80	88	93	100	55	66	62	62	77	80	56	62	66	64	57	52	126	72	1,670
Shiga	60	65	62		74		58	59	57	77	50	47	49	48	67	64	41	57	68	55	66	56	51	49	1,280
Kyoto	49	31	27		47		39	42	31	28	16	11	28	23	18	14	30	20	24	29	30	31	21	33	622
Osaka	326	305	284		252		233	279	239	206	204	190	179	183	169	188	157	164	175	200	157	155	168	158	4,571
Hyogo	226	211	163		194		163	146	132	149	90	107	135	117	109	114	113	101	114	123	126	114	118	104	2,969
Nara	78	72	92		71		79	81	73	68	63	56	62	67	68	58	50	51	74	62	61	52	59	43	1,440
Wakayama	53	36	42		32		37	40	35	22	18	32	35	20	31	15	21	12	27	31	28	28	27	22	644
Tottori	8	6	12		4		8	6	9	6	6	3	7	2	3	3	5	3	2	6	6	4	11	3	123
Shimane	9	9	7		9		14	7	13	5	5	5	15	8	7	6	4	11	12	12	10	12	16	8	204
Okayama	59	54	50		55		57	49	74	66	39	52	56	49	47	58	50	48	46	59	66	58	50	60	1,202
Hiroshima	48	61	73		59		46	40	50	61	46	44	52	56	38	46	38	40	44	40	49	32	46	48	1,057
Yamaguchi	55	59	52		45		53	39	48	46	34	29	35	34	33	36	35	35	28	36	43	43	35	28	881
Tokushima	32	25	23		23		30	22	29	29	26	15	24	21	16	14	26	18	24	18	25	12	25	21	498
Kagawa	44	29	32		25		31	20	29	23	19	19	27	28	20	19	28	19	21	38	26	23	27	24	571

Ehime	20	23	35		12		18	14	16	16	12	15	20	21	21	11	13	16	17	13	13	15	19	12	372
Kochi	3	4	5		4		2	2	6	3	4	3	4	6	6	5	3	5	6	1	6	7	7	5	97
Fukuoka	97	95	85		82		70	67	82	65	73	52	71	56	50	53	64	58	57	68	52	62	70	50	1,479
Saga	15	22	15		16		19	15	16	27	12	16	17	11	20	14	13	12	18	33	24	20	17	23	395
Nagasaki	6	2	7		5			8	7	5	3	3	4	3	2	2	4	2	6	2	3	2	5	6	87
Kumamoto	21	27	14		13		20	22	39	17	15	10	16	14	16	21	25	23	18	22	20	14	15	18	420
Oita	24	18	16		9		6	15	11	13	9	11	11	14	7	16	12	12	15	15	8	9	20	16	287
Miyazaki	13	15	23		9		18	15	13	14	9	6	4	10	9	9	13	6	13	8	11	21	12	17	268
Kagoshima	8	11	10		5		9	8	7	4	3	3	4	3	5	5	7	4	5	12	8	11	10	7	149
Okinawa	3	5	4		3		2	6	3	4	2	4	3	2	5	2	2	3	5	5	3	1	6	5	78
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	2,057	54,058

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

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

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

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

Return to https://www.jisha.or.jp/english/statistics/2022e_industry.html

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Fatal accidents in chemical products in Japan in 1999-2022

chemical products industry Code No.0108

Type of fatal accidents in chemical products in 1999-2022

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
fall from height	3		2	1	3	3	5	3	3	6	2	2	2	4	2	2	1	2	1		4	1	1	2	55
falling to same level	1			1	1	1	1	2		1				2			2	1		1	1	1			16
crash					1										1										2
struck by flying or falling object	3	1	3	2	1	4	2	2	1	2	1			1	2			1			1		1	3	31
collapse	1	1	1	1			1	1	2	1		1		1	2					2					15
crashed by	1					2			2	2						1	2						1	1	12
caught in/between	11	13	7	11	13	5	9	11	5	10	7	5	7	3	4	3	10	3	2	4	2	4	7	6	162
cut																									
injury to the sole of the foot									1																1
drown		1	2										9					1		1			1	1	16
contact to high/low-temperature	1	1				1											1		1	2					7
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	1	40
electric shock		1			1						1				1			1							5
explosion	2	5		1		2	1	1		1	6	1	1	1	2	3			1	4	2	1		1	36
burst																		1							1
fire	1		1		1	1		1	2					3			1		2			2		1	16
traffic accident (public road)		1	1	4	2	1			1	1	1		2		2		1		2		1			3	23
traffic accident (others)							1																		1
reaction to motion/improper motion																									

others	1		1														2		1	2					7
unclassifiable			1		1		1			1					1		1								6
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Causal agents (large) of fatal accidents in chemical products in 1999-2022

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
machine	9	9	8	7	7	4	7	8	3	9	7	4	5	5	4	3	8	3		3	1	6	3	7	130
crane, conveying machine	7	7	2	9	10	7	5	6	6	4	3	1	4		4	1	5	1	4	3	2	2	6	5	104
other equipment	1	2	4	2	2	3	3		2	7	6	1	1	2	3	4	3	2	1		1	1		1	52
temporary buildings, establishments	2	1	1		2	1	3	3	1	2	1	1	2	4	1	1	1	2			3		2	2	36
substance, material	3	6	6	1	3	4	1	6	3	4	2	3	1	3	4	1	1	2	4	4	3		1	3	69
load	1			2		1	1	1	2	1		1		2						2	1				15
environment	1	1	2	1		2	1	1					9			1	1	2	1	3		1			27
others	4		1		1		1			1				1	1		3		1	3	1			1	19
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Causal agents (middle) of fatal accidents in chemical products in 1999-2022

Causal (M) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
engine																									
power transmission mechanism			1		1									1											3

woodworking machine																									
construction machine								1		1	1				1										4
metal manufacturing machine			1							1															2
general machine	9	9	6	7	6	4	7	7	3	7	6	4	5	4	3	3	8	3		3	1	6	3	7	121
mobile silviculture machine																									
crane	1	1		1			1	1	1				1		2						1		2	1	13
conveying machine	6	6	2	5	8	6	3	5	5	3	3	1	1		1	1	5	1	4	3		2	4	2	77
vehicle				3	2	1	1			1			2		1						1			2	14
pressure vessel				1										1											2
chemical facilities				1						2	5		1			3	1					1			14
welding equipment																		1							1
kiln, caldron			1				1		1								1								4
electric equipment					1						1														2
human power machine, tools			1				1			1															3
tools	1		1			2			1	1		1							1					1	9
other equipments, facilities		2	1		1	1	1			3				1	3	1	1	1			1				17
temporary buildings, establishments	2	1	1		2	1	3	3	1	2	1	1	2	4	1	1	1	2			3		2	2	36
hazards, harmful substances	3	6	4	1	1	4	1	5	2	3	2	3	1	3	2	1	1	2	4	4	3		1	2	59
materials			2		2			1	1	1					2									1	10
load	1			2		1	1	1	2	1		1		2						2	1				15
natural environment	1	1	2	1		2	1	1					9			1	1	2	1	3		1			27
other causal agent	4																								4

no causal agent														1			2		1	2					6
unclassifiable			1		1		1			1					1		1			1	1			1	9
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Causal agents (small) of fatal accidents in chemical products in 1999-2022

Causal (S) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
engine																									
power transmission mechanism			1		1									1											3
circular sawing machine																									
band sawing machine																									
wood planer machine																									
hollow chisel mortiser, wood borer																									
chamfering machine, router, woodworking milling machine																									
chain saw																									
other woodworking machines																									
leveling, transporting or loading machine											1														1
excavating machine															1										1
foundation work machine																									
hardening machine																									

demolition machine																									
vehicle for high lift work										1															1
other construction machines								1																	1
lathe			1							1															2
drill press, milling machine																									
grinding machine, buffing machine																									
power press																									
forging pressure hammer																									
shearing machine																									
other metal manufacturing machines																									
centrifugal machine					1																				1
mixer, grinder	1	2	1	2	1		3	2	2	1		1		1	2	1	2	2		1	1	1	1	2	30
roll machine (except printingroll machine)	1	3	1		1		1	1		1	1	1				1	1							1	14
injection molding machine	2	1		2				1		1	2		1	1	1		1			1			1		15
food manufacturing machine																									
printing machine																									
industrial robot					1						1		1				1								4
other general power machines	5	3	4	3	2	4	3	3	1	4	2	2	3	2		1	3	1		1		5	1	4	57
felling machine																									
mobile logging machine																									

skyline yarding machine																									
other mobile silviculture machine																									
crane	1	1					1	1					1		2								1		8
mobile crane																									
derrick crane																									
elevator, lift				1					1												1		1	1	5
cargo lifting appliance																									
gondola																									
lumberyard equipment, logging cableway																									
simple skyline yarding equipment																									
other powered crane																									
truck		2	1	1		1		1	4		1						1		3			1	1		17
forklift	3	2	1	1	4	4	2	2	1	1	2					1	2	1		1		1	1	2	32
railway equipment																									
conveyor	3	2		2	3		1	1		2			1		1		2		1	2			2		23
loader				1		1		1																	3
straddle carrier																									
rough terrain hauler																									
other powered conveying machines					1							1													2
cars, bus, motorcycle				3	2	1				1			2		1						1			2	13
railway vehicle							1																		1

other vehicles																									
boiler																									
pressure vessel														1											1
other pressure vessels				1																					1
chemical facilities				1						2	5		1			3	1					1			14
gas welding equipment																									
arc welding equipment																		1							1
other welding equipment																									
kiln, caldron			1						1								1								3
industrial dryer							1																		1
other kiln, caldron																									
transmission																									
electric power facilities					1																				1
other electrical equipment											1														1
human power cranes																									
human power hauling equipment			1				1			1															3
human power machine																									
hand tool																									
ladder	1					2			1	1		1							1					1	8
slinging tool			1																						1
other tools																									
other equipment, facilities		2	1		1	1	1			3				1	3	1	1	1			1				17
scaffolding															1										1

timbering																									
stairs, landing stage																1									1
opening							1				1			1							1				4
roof, beam, haze, crossbeam, principal rafter		1								1			1				1	2			1			1	8
working platform, boot board	1						1	1				1													4
passage							1		1					1							1		1	1	6
building, establishment	1		1		2	1		2		1			1	2									1		12
other temporary buildings, establishments																									
explosive substance	1			1		1	1	1			1								1	2				1	10
inflammable substance		1	1			2		1				1			2				1						9
inflammable gas																									
harmful substance	2	1	2			1		2		3	1	2	1	2		1	1	2	1	1	1		1		25
radiation																									
other hazards, harmful substances		4	1		1			1	2					1					1	1	2			1	15
metal material			1						1						2										4
lumber, bamboo																									
stone, sand, substance																								1	1
other materials			1		2			1		1															5
load	1			2		1	1	1	2	1		1		2						2	1				15
machine/equipment as load																									
natural ground, rock																									

standing tree																									
water													7					1		1					9
abnormal environment	1	1	2	1		1	1	1								1				1		1			11
high/cold temperature environment						1											1		1	1					4
other environments													2					1							3
other causal agent	4																								4
no causal agent														1			2		1	2					6
unclassifiable			1		1		1			1					1		1			1	1			1	9
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Workers age of fatal accidents in chemical products in 1999-2022

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
19 years old or less				1			1			1	2	1	1			1									8
20-29	1	4	6	2	4	5	3	5	4	2	4	1	1	1	4	2	3	2		2	1	2	2	4	65
30-39	6	9	3	5	6	3	4	8	3	5	5	3	8	3	2	3	4	2	3	5	2	1	3	3	99
40-49	9	7	7	6	3	2	4	4	4	4	4	2	5	1	3	2	4	3	2	7	2		2	4	91
50-59	7	6	6	7	11	8	8	6	3	12	1	1	4	8	4	3	7	3	3	2	4	5	2	2	123
60 years old or more	5		2	1	1	4	2	2	3	4	3	3	3	4	4		4	2	3	2	3	2	3	6	66
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Workers' number of workplace of fatal accidents in chemical products in 1999-2022

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
9 workers or less	4	1	3	1	3	2	2	3	3	3	2	2	3		2		3	4	1	3	1	3	3	3	55
10-29	8	10	5	8	4	7	4	5	6	3	2	2	4	5	3	1	10	3	4	5	3	1	2	5	110
30-49	7	1	5	3	5	3	5	6	2	8		2	4		2	1	4	1	1	3	3		2	4	72
50-99	4	3	2	6	5	3	3	5	3	3	4	1	4	4	3	2		1	3	1	3		1	3	67
100-299	2	2	5	1	7	6	3	4	2	5	9	2	4	4	7	6	3	3	2	2	1	2	2	2	86
300 workers or more	3	9	4	3	1	1	5	2	1	6	2	2	3	4		1	2			4	1	4	2	2	62
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Month of fatal accidents in chemical products in 1999-2022

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
January	1	3	4		5		2	4	2	2	1	1	2	1	1	4	2	1	1	2	2	1		2	44
February	3	2	2	2	1	1		2	1	3	1	1	2	4	2		1		1	1			1	2	33
March	6	2	2	6		3	2	1	1	1		2	9	4	1		2	1	1	2				6	52
April		1	1	2	3	5	2	3		6	2		1	1				1		3		2	1	4	38
May	3	1	1				1			1		2	2	1	2	1	5	2	2		2				26
June	3	7		2	2	3	1	2	2	1	2	1			1	1		2		2	2	1	1	1	37
July	1	3	2	1	1	2	1	5			3				1	1	2	1		3	1		2	1	31
August	4	1	3	3	3	1	5	3	1	2	1			1	1	1	1	2	1	1	1	1	2		39
September	1	3	3		4	1	3		5	3	1		2	1	3	1	3	2	2		3	2	4	2	49
October	2		3	2	3	2	2	2	1	4		2	1		3	1	4		1	2		1			36

November	2	1	2	3	1		1		3	1	4	1	2	3	2	1	1		1	1				1	31
December	2	2	1	1	2	4	2	3	1	4	4	1	1	1			1		1	1	1	2	1		36
total	28	26	24	22	25	22	22	25	17	28	19	11	22	17	17	11	22	12	11	18	12	10	12	19	452

Prefecture of fatal accidents in chemical products in 1999-2022

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
Hokkaido				2			2													1			1		6
Aomori																							1		1
Iwate								1				1								1				1	4
Miyagi	1		1	1									7				2								12
Akita	1								1	1			2											1	6
Yamagata						1					1														2
Fukushima		1		2	1	1														1				1	7
Ibaraki	2	1	2		1	2	2		1	3	2	1		2	2									1	22
Tochigi	1		1			1		1			3			1		1	1					1		1	12
Gunma	1	7	2	1				2	1				1		2		1		2			1		1	22
Saitama			1		1	1		1	1			2			3	1	1	2						1	15
Chiba	1	1	1	1	2			1	4	3	1	3			5	1	2	1	1		1	1		1	31
Tokyo	2	1	1												1						2			1	8
Kanagawa			3		2	1	1		2	1			1	3	1				2	2	1				20
Niigata	1	1		1	2	1	2				1														9
Toyama	1	2		1				1									1	2			2				10

Ishikawa			1	1		1												1							4
Fukui	1			1					1									1		2				1	7
Yamanashi	1						1			2			1												5
Nagano	1	1	1					1						1				1							6
Gifu	1	1	2	2		1	2			1	1			1			2	1						1	16
Shizuoka		1	1		1	1	1	2	1	2			2						1	2				1	16
Aichi		2	2	1	3		3	3	2	2	2			3	1	1			3	1		3	1		33
Mie	1				2	1	1				3		2			4			1					1	16
Shiga		1			1	1	2	3		1				1							1		2	2	15
Kyoto	1	1						1		1		1													5
Osaka	2	2	1	1	2	3		2	1	3	5	1	3	1	1		1	1	1	2	3	1		1	38
Hyogo	2		3	1	3		2	1	1	1		1	1		1	2	1	1			1	1	3	2	28
Nara	3	1				1	1			1							1			1					9
Wakayama	1		1					1								1	1								5
Tottori																									
Shimane							1						1												2
Okayama	1																1								2
Hiroshima				1		2		1		2													1		7
Yamaguchi		1		2	1		1	1					1	1			2					1	1		12
Tokushima				1																	1				2
Kagawa					1									2			1	1					1		6
Ehime		1				1														1					3
Kochi														1											1

Fukuoka	2			1	1	2		2	1	4		1					3			3					20
Saga																									
Nagasaki				1																					1
Kumamoto																	1								1
Oita																				1			1		2
Miyazaki					1																			1	2
Kagoshima																						1			1
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	19	452

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

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