

Tephra	Local name	Area or Formation	Glass type*	Refractive index	Heavy minerals**	Chemical composition of volcanic glass (TiO <sub>2</sub> -K <sub>2</sub> O:%, Ba-Y:ppm)														References
				Glass(n)		Method	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> T	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	Ba	La	Sc	Sr	Y	
Kd11 Type	<b>Kasugacho2</b>	<b>Bushi</b>	<b>Cb,Tb&gt;H</b>	1.500-1.502	(opx)	ICP-AES+AAS	0.08	12.09	1.33	0.05	0.05	0.86	3.44	4.35	664	32	4	85	30	Mizuno and Naya(2011)
	Kd16.2	Boso	Ta,Tb>Ca	1.499-1.501	bi,opx,cpx,ho	ICP-AES+AAS	0.10	12.19	1.52	0.05	0.08	0.99	3.34	4.46	697	33	5	80	31	Mizuno and Naya(2011)
	Kd19	Boso	Ta,Tb>Ca>H	1.500-1.502	bi>ho,opx	ICP-AES+ICP-MS	0.09	12.52	1.57	0.05	0.05	0.95	3.52	4.35	743	35	8	82	31	Utsunomiya et al.(in press)
Kd12 Type	<b>Kasugacho1</b>	<b>Bushi</b>	<b>Cb</b>	1.497-1.500	opx	ICP-AES+AAS	0.09	12.73	1.24	0.05	0.02	0.61	3.72	4.01	666	29	8	39	30	Mizuno and Naya(2011)
	Kd16.5	Boso	Ca>H>Tb,Ta	1.499-1.501	(opx>ho)	ICP-AES+AAS	0.08	12.02	1.39	0.05	0.04	0.73	3.70	4.35	681	33	7	53	31	Mizuno and Naya(2011)
	Kd20	Boso	Cb,Ca,H>Ta,Tb	1.498-1.500	opx>cpx,ho	ICP-AES+ICP-MS	0.09	12.01	1.33	0.05	0.06	0.67	3.48	4.35	710	36	9	49	33	Utsunomiya et al.(in press)
Srt-SK100	Kd24	Boso	Cb,Tb>Hb	1.497-1.499	bi	ICP-AES+AAS	0.05	12.36	1.50	0.08	0.07	0.90	3.21	3.97	630	28	3	101	24	Mizuno and Naya(2011)
Omire-SK110	<b>Sasai</b>	<b>Bushi</b>	<b>H</b>	1.498-1.500	bi>ho,opx	ICP-AES+AAS	0.07	11.63	1.03	0.06	0.07	0.86	3.43	4.37	437	23	1	83	16	Mizuno and Naya(2011)
	Kd25	Boso	H>Ca,Tb	1.497-1.499	opx,cpx>ho,bi	ICP-AES+AAS	0.08	12.35	1.21	0.07	0.07	1.05	3.36	4.02	557	30	3	104	20	Mizuno and Naya(2011)
Ebisutoge-Fukuda	Fukuda	Osaka	H>,Ca>Cb,Ta,Tb	1.500-1.502	opx>ho	ICP-AES+AAS	0.10	12.87	1.81	0.06	0.05	1.05	3.45	4.14	802	36	5	103	27	Yoshikawa et al.(2000)
	Kd38	Boso	H,Ca>Ta	1.500-1.502	opx>ho,cpx	ICP-AES+AAS	0.10	12.49	1.79	0.05	0.06	1.06	3.62	4.06	766	34	5	107	25	Mizuno and Naya(2011)
OM1-OKIII	OM1	Hokuriku	Ca,Cb,Ta,Tb	1.498-1.499	opx,ho	ICP-AES+AAS	0.07	11.72	1.15	0.04	0.04	0.55	2.93	5.29	599	19	8	39	34	Tamura and Yamazaki(2004),Tamura et al.(2019)
	Matsubeyamada	Boso	Cb,Ca,H	1.498-1.500	ho,opx>bi,cpx	ICP-AES+AAS	0.05	11.79	1.12	0.04	<0.01	0.53	3.35	4.07	615	20	8	51	35	Tamura et al.(2019)
Obr-Bnd1 group	Obora	Takayama	H>Ca,Cb	1.498-1.500		ICP-AES+AAS	0.07	11.94	1.38	0.04	0.02	0.77	4.14	3.92	692	33	5	73	31	Tamura et al.(2019)
	OL3	Hokuriku	H,Cb>Ca	1.499-1.501	bi>ho,opx	ICP-AES+AAS	0.07	10.39	1.35	0.04	0.11	0.78	3.47	4.59	674	30	6	72	28	Tamura and Yamazaki(2004),Tamura et al.(2019)
	Kushihama1	Boso	H>Cb	1.498-1.500	bi,ho,opx	ICP-AES+AAS	0.07	11.45	1.33	0.04	<0.01	0.72	3.78	3.77	633	35	6	66	33	Tamura et al.(2019)
Matsube	Matsube	Boso	Tb,Ta>Ca,Cb	1.497-1.500	opx>cpx,ho>bi	ICP-AES+AAS	0.06	12.01	1.16	0.04	0.04	0.63	3.26	4.11	591	24	4	54	32	Tamura et al.(2019)
SW group	SW3	Boso	Cb,H	1.498-1.502	ho,opx	ICP-AES+AAS	0.07	12.44	1.31	0.05	0.04	0.67	3.55	3.87	592	26	3	58	28	Tamura et al.(2019)
	SW2	Boso	Cb,H,Ca	1.499-1.502	opx>ho,cpx	ICP-AES+AAS	0.08	12.36	1.37	0.05	0.04	0.69	3.79	3.95	557	29	4	51	27	Tamura et al.(2019)
	SW1	Boso	Cb>Tb	1.497-1.499	opx>cpx	ICP-AES+ICP-MS	0.06	12.04	1.20	0.04	0.06	0.61	3.51	4.01	768	36	3	53	25	Tamura et al.(2019)
Fup-Kw2	Fup	Niigata	Cb>Tb,H,Ca	1.500-1.502	opx>cpx,ho	ICP-AES+AAS	0.10	11.55	1.37	0.03	0.03	0.81	3.35	4.41	677	30	5	91	29	Tamura et al.(2019)
	Kawazu2	Boso	Cb	1.500-1.503	opx>cpx	ICP-AES+ICP-MS	0.10	12.65	1.49	0.05	0.09	0.88	3.47	4.14	705	35	5	88	30	Tamura et al.(2019)
Taniguchi-Tsp	<b>Nakabashi1(U)</b>	<b>Bushi</b>	<b>Cb, H</b>	1.499-1.501	bi>ho>opx	ICP-AES+ICP-MS	0.07	12.19	1.16	0.06	0.08	0.78	3.19	4.32	661	33	3	85	19	This study
	Taniguchi	Toyama	H>Cb,Ca	1.498-1.500	bi>opx	ICP-AES+AAS	0.07	10.99	1.11	0.06	0.03	0.74	3.36	4.15	613	29	2	79	19	Tamura and Yamazaki(2004),Tamura et al.(2008)
	Oikura14	Minamiboso	Cb>H	1.498-1.500	bi,ho,opx	ICP-AES+AAS	0.06	10.72	1.09	0.05	0.04	0.69	3.38	3.86	568	27		72	17	Tamura et al.(2016)
Mushono-Jwg-4	Mushono	Shiga	H>Ca,Tb,Ta	1.500-1.505	opx>ho	ICP-AES+AAS	0.11	12.91	2.01	0.06	0.01	1.02	3.18	4.38	642	40	7	94	33	This study
	Shiraiwa	Kakegawa	H>Cb,Ca,Tb	1.500-1.506	bi,ho>opx,cpx	ICP-AES+AAS	0.12	13.21	1.82	0.05	0.05	0.97	3.68	3.96	704	42	4	93	31	This study
	Jwg-4	Niigata	H>Ca,Cb,Ta,Tb	1.501-1.505	bi,ho	ICP-AES+AAS	0.11	12.59	1.93	0.04	0.01	0.91	3.68	4.18	690	35	7	92	30	Tamura et al.(2016)
	Oikura12	Minamiboso	Cb>Ca	1.502-1.505	bi,ho,opx	ICP-AES+AAS	0.10	12.15	1.74	0.06	0.04	0.93	4.02	3.76	712	35		93	31	Tamura et al.(2016)
Azukoen5	<b>Azu-Koen5</b>	<b>Bushi</b>	<b>H&gt;Cb,Ta</b>	1.501-1.505	ho>>opx	ICP-AES+AAS	0.13	12.84	1.95	0.06	0.10	1.13	3.86	3.75	748	33	3	127	28	Mizuno and Naya(2011)
	Shiraiwa-L	Kakegawa	H,Cb,Ca>Ta>Tb	1.503-1.506	bi,ho>opx,cpx	ICP-AES+AAS	0.12	12.68	1.97	0.06	0.10	1.11	4.19	3.88	614	32	2	127	27	This study
Oikura10-Jwg3	<b>Azu-Koen4</b>	<b>Bushi</b>	<b>Tb&gt;Ta,Ca,Cb&gt;H</b>	1.498-1.501	opx>cpx,bi>ho	ICP-AES+AAS	0.10	12.78	1.26	0.04	0.08	0.95	3.37	4.14	685	31	1	101	22	Mizuno and Naya(2011)
	Oikura10	Minamiboso	H,Cb	1.500-1.502	cpx,opx>ho	ICP-AES+AAS	0.08	11.63	1.18	0.04	0.05	0.77	3.48	3.94	648	30		82	22	Tamura et al.(2016)
	Jwg-3	Niigata	H,Cb	1.498-1.501	opx>ho	ICP-AES+AAS	0.09	12.10	1.24	0.03	0.04	0.86	3.30	3.86	662	31	2	103	21	Tamura et al.(2016)
Azuko3	<b>Azu-Koen3</b>	<b>Bushi</b>	<b>Ta&gt;Tb,Cb</b>	1.501-1.507	bi>>opx	ICP-AES+AAS	0.10	12.73	1.79	0.10	0.11	1.11	3.23	4.37	614	32	2	161	18	Mizuno and Naya(2011)
Kenjogaoka1	Kenjogaoka1	Aawajishima	H>Cb>Tb,Ca	1.497-1.499	(ho)	ICP-AES+AAS	0.03	12.78	1.10	0.05	0.01	0.65	3.20	3.70	281	24	2	42	22	Mizuno et al.(1999)
	Hazama	Shiga	H>Cb,Tb>Ca	1.497-1.499	bi>opx,ho	ICP-AES+AAS	0.04	12.34	1.09	0.05	<0.01	0.63	2.86	5.24	288	24	1	39	21	Mizuno et al.(1999)
Hap-2	Hap-2	Niigata	H>Cb,Ca	1.496-1.499	(bi)	ICP-AES+AAS	0.04	11.78	0.96	0.09	0.06	0.74	3.41	4.34	416	17	1	87	13	This study
Kaigake	<b>Azu-Koen1</b>	<b>Bushi</b>	<b>Cb&gt;Ca</b>	1.496-1.499	ho>opx,cpx	ICP-AES+AAS	0.06	11.87	1.25	0.04	0.05	0.81	2.87	5.18	726	28	3	84	24	Mizuno and Naya(2011)
	Kaigake	Shiga	H>Ca>Tb	1.498-1.501	(ho)	ICP-AES+AAS	0.07	12.55	1.19	0.05	<0.01	0.90	3.30	4.60	693	32	3	82	27	Mizuno and Naya(2011)

\*Glass type: shape type of glass shards are based on Yoshikawa(1976)

\*\*Heavy minerals bi:biotite, ho:hornblende, opx:orthopyroxene, cpx:clinopyroxene