

SEM-COM Production Glasses

GLASS ID	Softening Point (°C)	Annealing Point (°C)	Expansion (RT-300°C) (x 10 ⁻⁷ /°C)	Contraction (AP-25°C)	⊙Firing Temp. (°C)	⊙Max. reheat temp. (°C)	Electrical Properties		Description
							Vol. Res. @ 350°C	Diel. Const. K	
SCY-1	880	570	3.5	10	1100 [⊙]	725	4.5	5.4	A special low expansion, copper-containing glass
SCV-8HT	425	350	19			580	650		Zinc phosphate, heat treated to achieve low CTE. Not for corrosive environments
SCR-3	827	565	32	37	1260	775	6.4	4.6	A borosilicate glass with low expansion and good durability
SCE-4	1020	809	32	45	1250	970	11.3	7.0	A medium expansion, alkali-free aluminosilicate glass for electrical and electronic uses. Used for RF sputtering of thin films.
SCE-3	1070	819	33	42	1350	1030	11.6	5.9	A high-temperature, low CTE glass that seals to silicon.
SCS-10	730	493	33	46	990	685	9.4	4.1	A low expansion glass with low viscosity temperature properties.
SCL-7HT	594	502	34			725	800		Zinc borosilicate (low loss) heat treated for LTCC and other low CTE applications
SCS-9	755	520	35	51	1040	700	7.5	4.6	A borosilicate glass for applications requiring high electrical resistivity
SCQ-2	870	685	38	52	1050	700			A special aluminoborosilicate that is used as a passivating glass in electronic applications. Seals to aluminum nitride
SCL-8HT	574	507	42			725	800		Zinc borosilicate (low loss) heat treated for LTCC and other low CTE applications.
SCE-504	955	761	43		1175	910	11.7	6.2	An alkali-free aluminosilicate used as a resistor glass. Contains 0.4% chromium.
SCE-10	957		43		1200	900			Alkaline earth aluminosilicate ceramic binder glass
SCE-1	960	765	43	56	1200	900	11.7	6.2	An alkali-free aluminosilicate that seals to molybdenum.
SCE-2	960	765	43	56	1200	900	11.3		An alkali-free aluminosilicate glass that seals to molybdenum. Resists X-ray discoloration.
SCY-3	912	707	43	56	1120	860	8.7	6.0	An aluminosilicate glass that seals to molybdenum. Has high viscosity-temperature properties.
SCS-14	820	579	43	59	1200	770	5.6	5.5	A medium expansion glass with excellent chemical durability (Type I borosilicate)
SCS-2	790	564	43	55	1120	740	5.7	5.5	A borosilicate amber glass that is UV absorbing.
SCE-505**	870	755	45	41	1190	1200			A high temperature cordierite glass - ceramic
SCE-506	927		45		1175	875			Alkaline earth aluminosilicate ceramic binder glass
SCR-6	715	503	45	57	1010	670			A medium expansion amber borosilicate that seals to molybdenum
SCR-4	715	503	45	57	1010	670	6.9	4.9	A medium expansion borosilicate glass that seals to tungsten and molybdenum
SCL-5	566	480	46		650	530			Copper boro-zinc composite sealing glass
SCM-2	834	642	46		1040	790			An alkali-free barium borosilicate.
SCQ-5	716	482	47	63	1050	670	7.2	5.1	A borosilicate glass with high resistivity and good chemical durability. Seals to KOVAR
SCC-1002**	640	540	48		700	800			A zinc borosilicate: <u>crystallizing</u>
SCR-2	710	510	49	62	1000	660	6.2	5.3	A KOVAR and molybdenum borosilicate with low electrical resistivity
SCL-6	574	478	50		650	550			A copper boro-zinc sealing glass

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							Vol. Res. @ 350°C	Diel. Const. K	
SCL-1	609	532	50		680	560			A boro-zinc sealing glass
SCY-5	1084	790	51		1400	1040			A high temperature alumina silicate glass
SCE-503	860	672	51	62	1090	820	6.3 [Ⓞ]	6.6	A medium expansion alumina silicate used as resistor glass
SCC-1001**	640	560	52	63	830	830			A medium expansion sealing glass - crystallizing
SCE-6	943	744	52	64	1225	900			A high temperature alkali-free barium alumina-silicate that seals to molybdenum.
SCE-501		705	52						An alumina borosilicate glass with cobalt as colorant.
SCM-6	844	669	52	74	1050	790			A medium expansion, alkali-free barium borosilicate
SCQ-1	723	570	52	76	955	550	6.5	6.2	An alumina-silicate that seals to KOVAR, alumina, beryllia, molybdenum and tantalum.
SCL-7*	594	502	55		650	550			Zinc borosilicate (low loss) glass for LTCC and other 48-58 CTE applications
SCF-2	540	465	55	63	620	500			A medium expansion lead-free sealing glass.
SCL-3	567	480	55		625	520			A copper boro-zinc sealing glass
SCS-12	785	575	55	68	1000	740	5.8	5.8	A USP Type I borosilicate. Resists x-ray discoloration.
SCQ-3	710	520	55	71	975	660	5.7	5.8	A medium expansion glass that seals to tantalum.
SCR-1	626	461	56	78	835	580	12.4	4.8	An alumina borosilicate glass with barium and has low electrical loss.
SCQ-4	750	575	59	78	1000	720	5.7		An alumina sealing borosilicate glass with good chemical durability. Seals to alumina.
SCL-9HT	575	490	60		660	750			Zinc borosilicate (low loss) heat treated for LTCC and other 52-63 CTE applications
SCE-7	813	671	61	83	1000	770			A high temperature, medium expansion alumina borosilicate glass
SCE-5	880	730	64	82	1060	830	10.5	10.5	An essentially alkali-free, alumina-silicate glass used for RF sputtering of thin films. Seals to alumina and beryllia.
SCP-1	777	576	65	85	1120	730	5.4	7.0	A medium expansion lime borosilicate with superior chemical durability (USP Type III). Seal to 96% alumina and beryllia.
SCS-17	720		66		1060	680			A black EMA coating for fiber optics
SCL-8*	574	507	70		650	525			Zinc borosilicate (low loss) glass for LTCC and other 62-73 CTE applications
SCS-15	710	545	69	86	940	660			A general purpose borosilicate that seals to materials with an expansion in the 65-75 range
SCP-2	741	562	74	96	1000	690	5.4		A lime borosilicate with good durability (USP Type III)
SCS-6	580	479	74	105	700	530	8.0		A medium expansion borosilicate used as an enamel or sealing glass
SCA-2000	750	610	75		875	700			An alkali silicate
SCS-5	715	544	76	98	1000	670	6.6		A special high expansion borosilicate glass
SCV-4*	605	495	77		675	560			A zinc phosphate sealing glass

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SCV-17	473	360	78		525	460			Zinc phosphate sealing glass
SCV-15	458	335	79		500	450			Zinc phosphate sealing glass for soda lime.
SCL-9*	575	490	79		600	950			Zinc borosilicate (low loss) glass for LTCC and other 71-82 CTE applications
SCN-4*	725	832	80		1020	910			A barium alumino-silicate to seal alumina
SCM-1002	765	664	81		875	710			A special barium glass used as a fiber optics core.
SCD-2	770		82		890	720			A black glass used as a fiber optics cladding.
SCA-5	730	544	83	100	1000	690			Soda lime glass
SCV-14	438	320	82		475	440			A zinc phosphate for soda lime glass sealing.
SCM-1001	862	746	85		990	810			A high index, fiber optics core glass
SCA-4	729	544	87	107	1000	690	5.1		A sodium silicate glass with good chemical durability.
SCV-10	415	328	88		450	400			A low temperature zinc phosphate.
SCV-11	437	334	88		460	410			A low temperature zinc phosphate.
SCM-1004	754	661	88	112	860	700			A special barium lanthanum glass used as a fiber optics core.
SCM-1008	665	460	89	107	1030	610	7.0	6.6	A lead-free barium alkali glass
SCM-3	670	468	89	111	1000	610	7.2	6.8	A lead-free infrared sealing glass
SCM-8	650	450	89	111	1025	600	6.9		A lead-free infrared sealing glass that is high in iron and seals to F-30 alloys.
SCM-5	658	454	90	105	1020	610	6.8	6.5	A lead-free barium alkali glass
SCM-1	655	456	90	107	1020	610	7.0	6.0	A medium expansion, barium glass that seals to No. 4 Alloy, platinum and titanium
SCA-3	715	533	90	108	1010	670	5.2		A sodium silicate glass with good chemical durability
SCM-1007	675	475	92	111	1030	625	6.7	7.1	A lead-free barium glass with colorants
SCM-1006	744	648	92	115	860	700			A barium lanthanum glass used as a fiber optics core
SCD-1	710	535	93		990	660			A medium expansion glass redrawn into microrods.
SCA-1	700	525	93	114	980	650	5.2	7.3	A general purpose soda lime glass
SCM-1005	705	600	93 [⊙]		820	650			A high index fiber optics core glass
SCM-4	695	508	94		980	650			A UV transmitting borosilicate glass
SCM-1003	730	620	94 [⊙]		850	680			A barium lanthanum glass used as a fiber optics core
SCW-1	652	520	94	113	810	600			A pH glass
SCA-2002*	616	476	95		750	570			An alkali silicate glass heat treatable to seal to copper and 304 SS
SCZ-8**	837	725	95		925	1000			An alkaline earth alumino silicate. Glass ceramic (<u>crystallizing</u>) for fuel cells
SCM-1000	678	592	97	120	780	620			A special barium borosilicate glass that is chemically digestible.

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							Vol. Res. @ 350°C	Diel. Const. K	
SCS-11	555	465	97	139	650	510			A high alkali borosilicate glass. Seals to ferrite.
SCV-16	409	318	97		450	360			Low temperature zinc phosphate glass to seal to 430 SS
SCA-2001	697	507	99	116	850	650			An alkali silicate
SCN-1	685	495	99	119	900	640	7.2	6.0	A lead-free glass that seals to No. 430 alloy. Resists electron discoloration.
SCN-1000	691	503	100	121	980	650	6.9		A lead-free glass that absorbs harmful X-ray radiation.
SCS-7	590	480	108	136	775	540			A special borosilicate used as EMA coating. Clear in color.
SCS-8	585	480	109	140	775	540			A special borosilicate used as EMA coating. Dark in color.
SCA-500	664	503	111		950	610			A high expansion soda lime glass. Used in the manufacture of pH meters.
SCY-4	695	524	112	133	1000	645	4.8		A special alumina silicate glass with a high expansion
SCS-1	475	396	117	160	640	440			A high expansion, lead-free glass that seals to iron, nickel, and their alloys
SCU-2	601	470	119	147	790	550	6.7	9.6	A very high expansion, high alkali, titania-silicate glass that seals to iron in certain applications
SCV-5*	433	348	135		470	390			An alkali zinc phosphate sealing glass to seal 304 SS
SCU-1	550	440	149	176	690	520	5.7	10.2	A very high expansion, high alkali, titania silicate glass that seals to copper and alloys
SCA-2002HT	616	476	165	165	850	700			Heat treated alkali silicate – seals to 304 SS and copper
NOTES	XX	New Additions							
	*	Data shown is for a vitreous glass however these glasses will crystallize if fired 30°C - 50°C higher							
	**	Crystallizing Glass							
	HT	CTE Data is after heat treatment							
	①	Firing Temperature: The temperature at which the glass flows enough to achieve a seal. This temperature may be varied by up to ± 30°C depending upon the application.							
	②	Maximum Reheat Temperature: The highest temperature that a seal can be heated before the integrity of the seal is affected. Higher temperatures may be tolerated for short periods of time.							
	③	Fire in neutral atmosphere @ 1000 to 1200°C							
	④	tested @ 250°C							
	⑤	tested @ 425°C							
	⑥	tested @ 400°C							