Sealing Glasses

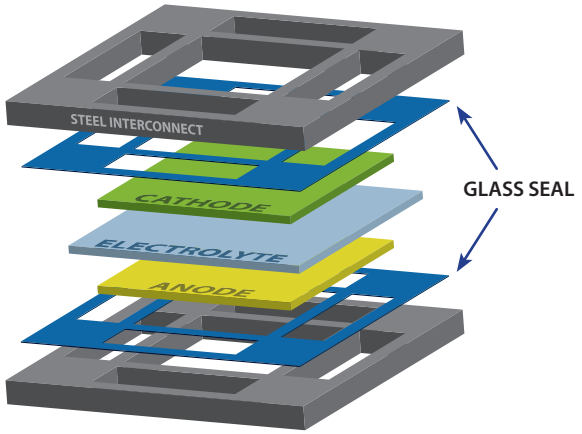
for metal and ceramic sealing applications

Mo-Sci Corporation, a world leader in precision glass technology, continues to explore and develop new and exciting ways to integrate products and services within a wide variety of useful and life changing applications. As a provider to many Fortune 500 companies, our glass technology is saving lives and improving the quality of life in humans and animals through continued advancements in biomedical and industrial applications.

Mo-Sci has developed a new generation of high performance sealing glasses that have been proven to withstand repeated thermal cycles. Some materials also have the ability to self-repair in the event that the seal is compromised and provide more stability and longer life cycles than other formulations on the market today.

Uses

Common applications of sealing glass include solid oxide fuel cells (SOFCs), solar cells, sodium ion batteries, high-temperature sensors, or other sealing applications such as metal to ceramic, metal to metal, or ceramic to ceramic.



Features

- Large selection of sealing glasses for applications in various firing and operational temperatures (from 250°C to 1600°C)
- Excellent wetting and bonding to both metal and ceramics
- Chemically stable under both dry and wet forming gas
- Available in alkali-free compositions
- Selected compositions are resistant to alkali ion attack
- Compliant glass is homogeneous, with no crystals and no significant elements from metal or ceramics diffusing into glass
- Customized compositions are available with requisite thermal and physical properties

Mo-Sci provides sealing glasses in powders with custom particle size distributions and pastes with custom viscosities. Contact us with your specific sealing requirements.

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Sealing Glass Information

Glass	Glass Seal Type	Operational Temperature (°C)	Firing Temperature (°C)	Applicable Materials	Color	CTE (/°C)	T_c (°C)	T_d (°C)	T_g (°C)	Density (g/cm^3)	
GL-1701	glass-ceramic	up to 1600	1200 or higher	alumina or materials with CTE of 7 to 8	white	6×10^{-6} (crystallized)	1000-1200	>1200 (sintered)	750	2.6	Seal at 1200°C for 1 to 2 hrs then continue to operational temperatures
GL-1702	glass-ceramic	up to 1200	900 to 1200	alumina or materials with CTE of 7 to 8	white	7.9×10^{-6} (as-cast) 7.2×10^{-6} (crystallized)	880	697	670	3.5	Ramp to 800°C and hold for 2 hrs, then ramp to 900°C and hold for 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1350	glass-ceramic	up to 900	800 to 850	YSZ, stainless steel, or materials with CTE of 10 to 12	white	9.5×10^{-6} (as-cast) 10.0×10^{-6} (crystallized)	856	730	700	3.4	Ramp to 850°C and hold for 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1729	glass-ceramic	up to 900	790 to 890	YSZ, stainless steel, or materials with CTE of 10 to 12	white	10.9×10^{-6} (as-cast) 11.7×10^{-6} (crystallized)	890	750	690	3.5	Ramp to 850°C and hold for 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1497	glass-ceramic	up to 900	760 to 830	YSZ, stainless steel, or materials with CTE of 10 to 12	brown	9.6×10^{-6} (as-cast) 10.0×10^{-6} (crystallized)	830	718	640	3.3	Ramp to 760°C and hold for 2 hrs, then ramp to 830°C and hold for 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1709	glass (viscous)	up to 850	800 to 850	alumina, YSZ, stainless steel, or other materials	white	7.3×10^{-6}	N/A	639	604	3.0	Ramp to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1681	glass (viscous)	up to 850	800 to 850	alumina, YSZ, stainless steel, or other materials	white	8.5×10^{-6}	N/A	660	624	3.2	Ramp to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1707	glass (viscous)	up to 800	750 to 850	alumina, YSZ, stainless steel, or other materials	white	8.8×10^{-6}	N/A	589	553	3.2	Ramp to 800°C to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1705	glass (viscous)	up to 800	750 to 850	alumina, YSZ, stainless steel, or other materials	gray	7.8×10^{-6}	N/A	598	563	3.2	Ramp to 800°C to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1738*	glass-ceramic	up to 600	700 to 850	alumina, Kovar, or other materials	light gray	6×10^{-6} to 8×10^{-6} (crystallized)	630	530	453	3.4	Ramp to 700°C to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1739*	glass-ceramic	up to 600	700 to 850	alumina, Kovar, or other materials	gray	7×10^{-6} to 8×10^{-6} (crystallized)	620	509	446	3.9	Ramp to 700°C to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1724*	glass-ceramic	up to 600	700 to 850	alumina, Kovar, or other materials	light gray	7×10^{-6} to 8×10^{-6} (crystallized)	610	500	440	3.7	Ramp to 700°C to 850°C and hold for 2 to 4 hrs Heating or cooling rate: 3 to 10°C/min
GL-1734	glass	up to 550	500 to 550	metals, ceramics	white	12.5×10^{-6}	620	408	370	3.2	Ramp to 500°C to 550°C and hold for 1 to 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1732	glass	up to 500	450 to 500	metals, ceramics	white	13.7×10^{-6} to 16.5×10^{-6}	N/A	370	330	2.6	Ramp to 450°C to 500°C and hold for 1 to 2 hrs Heating or cooling rate: 3 to 10°C/min
GL-1728	glass	up to 350	250 to 350	metals, ceramics	light yellow	16.7×10^{-6}	360	230	213	4.4	Ramp to 250°C to 350°C and hold for 1 to 2 hrs Heating or cooling rate: 3 to 10°C/min

*Resistant to sodium

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