

Chalcogenide Glass



Chalcogenide glass features superior refractive index uniformity and stability, making it an ideal optical material for chromatic aberration correction of infrared optical lenses and avoidance of thermal defocus in the range of 2-12 μm. At the same time, due to its low thermal transition temperature and stable chemical properties, chalcogenide glass can be processed using precision molding, facilitating large-scale mass production.

Chalcogenide glass is mainly used in monitoring equipment and systems as well as marine/maritime, fire/police, sensors and infrared products. VOT produces high-purity, high-uniformity chalcogenide glass with various compositions and sizes, including Ge-As-Se, Ge-Sb-Se, and As-Se products. Chalcogenide glass can be processed using a variety of means to produce flat, spherical, and aspherical products through molding, machining, and polishing.

Product Specifications

Formats/Sizes

Circular Disks	Diameter: ~400mm, Roughness: Rq<0.2μm, ETV<0.03mm
Lenses (Spherical/Aspherical)	Diameter: ~150mm, Roughness: Rq<0.5μm, Parallelism: <0.03mm

Properties

	VIG 01 Se ₆₃ As ₃₀ Sb ₄ Sn ₃	VIG 02 Ge ₃₃ As ₁₂ Se ₅₅	VIG 04 Ge ₁₀ As ₄₀ Se ₅₀	VIG 05 Ge ₂₈ Sb ₁₂ Se ₆₀	VIG 06 As ₄₀ Se ₆₀	VIG 07 Ge ₂₀ Sb ₁₅ Se ₆₅	VIG 08 Ge ₂₂ As ₂₀ Se ₅₈	VIG 09
Coefficient of Refractive Index (dn/dT), x10 ⁻⁶ K ⁻¹	18.6	67	20	60.5	30.9	37	58.2	166

Refractive Index

λ/μm	VIG 01 Se ₆₃ As ₃₀ Sb ₄ Sn ₃	VIG 02 Ge ₃₃ As ₁₂ Se ₅₅	VIG 04 Ge ₁₀ As ₄₀ Se ₅₀	VIG 05 Ge ₂₈ Sb ₁₂ Se ₆₀	VIG 06 As ₄₀ Se ₆₀	VIG 07 Ge ₂₀ Sb ₁₅ Se ₆₅	VIG 08 Ge ₂₂ As ₂₀ Se ₅₈	VIG 09
2	2.8086	2.5299	2.6413	2.6412	2.8193	2.6256	2.5268	3.2184
3	2.7923	2.5179	2.6272	2.6264	2.8011	2.6107	2.5150	3.1903
4	2.7851	2.5130	2.6218	2.6206	2.7943	2.6040	2.5103	3.1755
5	2.7802	2.5103	2.6189	2.6171	2.7905	2.6010	2.5074	3.1684
6	2.7781	2.5075	2.6167	2.6142	2.7878	2.5976	2.5050	3.1643
7	2.7747	2.5051	2.6145	2.6113	2.7853	2.5945	2.5026	3.1612
8	2.7731	2.5024	2.6126	2.6084	2.7831	2.5914	2.5002	3.1586
9	2.7713	2.4993	2.6106	2.6054	2.7805	2.5885	2.4976	3.1564
10	2.7678	2.4962	2.6084	2.6019	2.7779	2.5851	2.4946	3.1542
11	2.7639	2.4924	2.6059	2.5982	2.7750	2.5813	2.4914	3.1519
12	2.7621	2.4885	2.6034	2.5944	2.7717	2.5765	2.4877	3.1497

Transmittance

%	VIG 01 Se ₆₃ As ₃₀ Sb ₄ Sn ₃	VIG 02 Ge ₃₃ As ₁₂ Se ₅₅	VIG 04 Ge ₁₀ As ₄₀ Se ₅₀	VIG 05 Ge ₂₈ Sb ₁₂ Se ₆₀	VIG 06 As ₄₀ Se ₆₀	VIG 07 Ge ₂₀ Sb ₁₅ Se ₆₅	VIG 08 Ge ₂₂ As ₂₀ Se ₅₈	VIG 09
2.5	64.08	70.05	65.42	66.34	64.63	68.54	67.19	56.58
3	63.78	69.61	65.14	65.92	64.09	68.03	66.76	56.93
4	64.11	69.62	65.48	66.32	64.30	67.99	66.93	57.47
5	64.05	69.03	65.57	66.16	64.20	67.75	67.07	57.44
6	64.11	69.45	65.82	66.68	64.07	67.73	67.44	57.61
7	64.24	69.45	65.89	66.79	64.00	67.73	67.44	57.78
8	64.36	69.22	66.35	66.98	64.02	67.41	67.93	57.89
9	64.55	69.51	66.92	67.72	64.18	67.80	68.67	58.35
10	64.64	69.56	67.14	67.90	64.15	67.82	68.91	58.43
11	64.69	68.96	66.97	67.35	64.12	67.06	68.52	58.57
12	64.66	64.04	65.10	62.22	63.90	61.15	64.38	58.32
12.5	63.82	60.03	62.46	55.92	63.18	53.69	59.81	56.58
13	61.73	60.47	61.38	55.83	60.95	54.36	60.26	54.53
14	57.60	64.86	62.05	63.40	56.32	63.89	64.32	57.28
8-12	64.58	68.26	66.50	66.43	64.07	66.25	67.68	58.31

