

### COMPARISON OF IR TRANSMITTING GLASSES PRODUCED BY AMI

Property	AMTIR-1	AMTIR-2	AMTIR-4	AMTIR-5	AMTIR-6	AMTIR-7	AMTIR-8
Composition	Ge-As-Se	As-Se	As-Se	As-Se	As-S	As-Se	Ge-As-Se
Transmission Range $\mu\text{m}$	0.7-12	1.0-14	1.0-12	1.0-12	0.6-8	1.0-12	1.0-12
Ref Index @ 10 $\mu\text{m}$	2.49715	2.7703	2.646	2.7423	2.3807	2.68929	2.60353
$\Delta n/\Delta T^{\circ}\text{C} \times 10^{-6}$ @ 10 $\mu\text{m}$	71	30.7	-19	20	<1	5.7	<8
Knoop Hardness	170	110	84	87	109	86	170
Therm Exp $\times 10^{-6} / ^{\circ}\text{C}$	12.6	22.4	27	23.7	21.6	28.2	23.8
Thermal Condx (cal/gm sec $^{\circ}\text{C}$ ) $10^{-4}$	6	5.3	5.3	5.7	4	5.5	5.8
Specific Heat (cal/gm $^{\circ}\text{C}$ )	0.072	0.068	0.086	0.076	0.109		0.074
Density gm/cm <sup>3</sup>	4.43	4.66	4.49	4.51	3.2	4.5	4.529
Rupture Mod (psi)	2850	2500	2358	2400	2400	2379	2445
Young's Mod ( $\times 10^6$ psi)	3.07	5.6	2.2	2.56	2.3	2.6	2.87
Shear Mod ( $\times 10^6$ psi)	1.26	1.03	0.85	1.01	0.94	1.05	1.12
Poisson's Ratio	0.215	0.29	0.297	0.279	0.24	0.242	0.282
Softening Point $^{\circ}\text{C}$	405	188	131	170	210	137	159
Glass Trans Temp ( $T_g$ $^{\circ}\text{C}$ )	350	158	103	148	187	119	136
Upper Use Temp $^{\circ}\text{C}$	300	150	90	130	150	106	123
Dispersion Values							
3 - 5 $\mu\text{m}$	202	171	186	175	155	148	
8 - 12 $\mu\text{m}$	109	149	235	172		196	