

HUGE VERDET CONSTANT

**Verdet Constant
>5.6 min/Gs.cm**

CdMnTe & CdMnHgTe

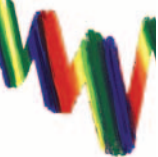
**Useful
Transmission
Range @ >85% T
632nm to 1100nm**



INTERNATIONAL
ICL
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NEW Magneto-Optical Materials **CdMnTe & CdMnHgTe**

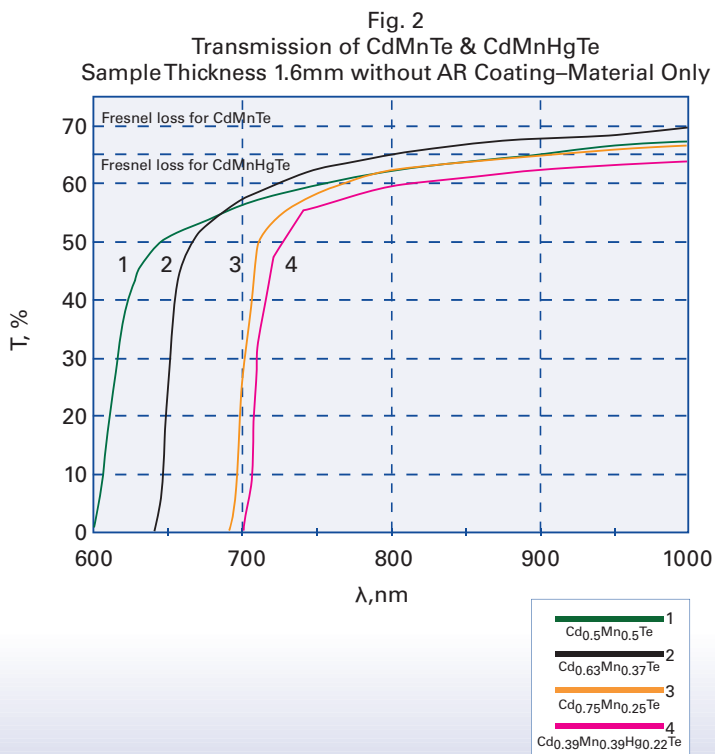
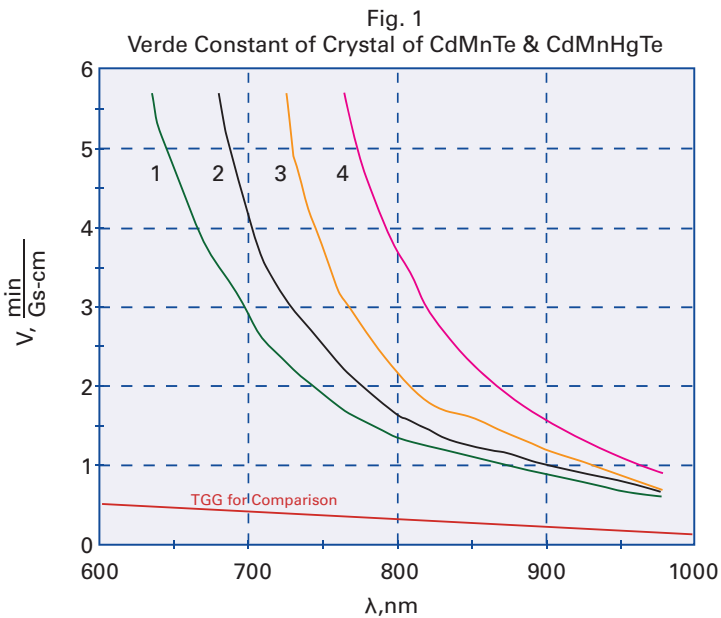
International Crystal Laboratories has completed a 10 year R&D effort that has led to commercially viable production of CdMnTe and CdMnHgTe. These materials, which have a gigantic Verdet constant, are now available from ICL. The Verdet constant varies by material composition as shown in Fig. 1. The Verdet constant for all material compositions at all wavelengths is significantly larger than for Terbium Gallium Garnet (TGG). Transmission for the material compositions of CdMnTe and CdMnHgTe are shown in Fig. 2 for samples 1.6mm thick. All material compositions have an extinction of 30dB to 40dB.

Potential applications include:

- Faraday rotation devices such as optical isolators (630nm to 1100nm)
- Spintronics
- Electro-magnetic interference free devices
- Field tunable phase shifters
- Bomb detonators
- Phased array radar with fiber fed antennae
- Harsh environment sensors
- LEDs
- Coupled solar cells for fly by night applications.

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Verde Constant of Crystals of CdMnTe & CdMnHgTe

Cd _{0.5} Mn _{0.5} Te		Cd _{0.63} Mn _{0.37} Te		Cd _{0.75} Mn _{0.25} Te		Cd _{0.39} Mn _{0.39} Hg _{0.22} Te	
635	5.70						
640	5.25						
645	5.00						
650	4.75						
660	4.25						
670	3.80	680	5.70				
680	3.50	685	5.25				
690	3.25	690	4.90				
700	2.90	700	4.10				
710	2.60	710	3.60				
720	2.40	720	3.25	725	5.70		
730	2.20	730	2.95	730	4.95		
740	2.05	740	2.75	740	4.25		
750	1.90	750	2.50	750	3.75		
760	1.75	760	2.30	760	3.20	765	5.70
770	1.65	770	2.10	770	2.95	770	5.25
780	1.55	780	1.95	780	2.70	780	4.60
790	1.45	790	1.80	790	2.40	790	4.10
800	1.35	800	1.65	800	2.20	800	3.70
810	1.30	810	1.55	810	1.95	810	3.40
820	1.25	820	1.45	820	1.80	820	2.95
830	1.20	830	1.35	830	1.70	830	2.70
850	1.10	850	1.25	850	1.60	850	2.30
875	1.00	875	1.15	875	1.40	875	1.90
900	0.90	900	1.00	900	1.20	900	1.55
950	0.70	950	0.80	950	0.90	950	1.10
980	0.60	980	0.65	980	0.70	980	0.90

TGG	
600	0.52
700	0.42
800	0.29
900	0.23
1000	0.17

Transmission of CdMnTe & CdMnHgTe - Sample Thickness 1.6mm

Cd _{0.5} Mn _{0.5} Te		Cd _{0.63} Mn _{0.37} Te		Cd _{0.75} Mn _{0.25} Te		Cd _{0.39} Mn _{0.39} Hg _{0.22} Te	
600	0.1	640	0.2	690	0.1	700	0.1
605	6.7	645	5.3	695	5.6	705	6.0
610	19.8	650	25.3	700	26.2	710	32.0
620	37.1	655	41.3	710	49.3	720	47.5
630	45.4	660	47.2	720	53.6	730	52.4
640	49.0	670	51.4	730	55.7	740	55.4
650	51.1	680	54.0	740	57.3	750	56.2
700	56.6	690	56.0	750	58.6	760	57.2
750	60.0	700	57.5	780	61.2	775	58.0
800	62.4	750	62.6	800	62.3	800	59.7
850	64.0	800	65.4	850	64.0	825	60.4
900	65.2	850	67.0	900	65.0	850	61.2
950	66.7	900	67.9	950	66.1	900	62.6
1000	67.6	950	68.5	1000	66.7	950	63.5
		1000	69.8			1000	64.0