Thallium Chloride (TlCl)

CAUTION: Thallium salts are considered TOXIC and should be handled with care.

Thallium Chloride crystals are grown by sealed-ampoule Stockbarger technique. Thallium salts are toxic, and Thallium Chloride has enough solubility to require extreme caution. Careful handling with plastic gloves covered with soft cotton gloves as appropriate to delicate optics is required

APPLICATIONS: Thallium Chloride has little practical application.

Transmission Range	0.5 to 30µm
Refractive Index	2.193 at 10µm (1)
Reflection Loss	24.5% at 10µm (2 surfaces)
Absorption Coefficient	n/a
Reststrahlen Peak	131µm
dn/dT	n/a
dn/dµ = 0	3.5µm
Density	7.018 g/cc (1)
Melting Point	430.2 °C (1)
Thermal Conductivity	0.75 W m^{-1} K^{-1} at 311K
Thermal Expansion	53 x 10^{-6} K^{-1} at 300K
Hardness	Knoop 12.8 with 500g indenter
Specific Heat Capacity	218 J Kg^{-1} K^{-1}
Dielectric Constant	31.9 at 1 MHz
Youngs Modulus (E)	31.71 Gpa (2)
Shear Modulus (G)	7.58 GPa (2)
Bulk Modulus (K)	23.57 Gpa (2)
Elastic Coefficients	C_{11}=40.1; C_{12}=15.3; C_{44}=7.6 (2)
Apparent Elastic Limit	20.7 MPa (3000 psi)
Poisson Ratio	0.276
Solubility	0.32g/100g water at 20°C
Molecular Weight	239.85
Class/Structure	Cubic CsCl, Pm3m, no cleavage planes (1)

(1) Handbook of Optical Constants, ed Palik, V3, ISBN 0-12-544423-0
(2) Arenberg, Measurements made at Naval Research Labs, USA 1948-49

Thallium Chloride (TlCl)

µm	No	µm	No	µm	No
0.436	2.4	0.546	2.27	0.578	2.253
0.589	2.247	0.650	2.223	0.750	2.198
10.00	2.193