

Sodium Chloride (NaCl)

MATERIALS DATA

Sodium Chloride is produced in large ingots by the Kyropoulos growth method. Sodium Chloride cleaves easily. With care Sodium Chloride can be polished to a high standard under humidity controlled conditions

APPLICATIONS: Sodium Chloride, common rock salt, is one of the most useful materials for general purpose spectroscopic windows and applications where sensitivity to moisture is unimportant.

Transmission Range	0.2 to 15 μ m
Refractive Index	1.49065 at 10.6 μ m
Reflection Loss	7.5% at 10.6 μ m (2 surfaces)
Absorption Coefficient	7 x 10 ⁻⁶ cm ⁻¹ at 1.06 μ m (1)
Reststrahlen Peak	50.1 μ m
dn/dT	-40.83 x 10 ⁻⁶ K ⁻¹
dn/d μ = 0	n/a
Density	2.17 g/cc
Melting Point	801 °C
Thermal Conductivity	1.15 W m ⁻¹ K ⁻¹ at 273K
Thermal Expansion	44 x10 ⁻⁶ K ⁻¹
Hardness	Knoop 18.2 in <100> with 200g indenter
Specific Heat Capacity	854 J Kg ⁻¹ K ⁻¹
Dielectric Constant	5.9 at 1MHz
Youngs Modulus (E)	39.98 GPa
Shear Modulus (G)	12.61 GPa
Bulk Modulus (K)	24.42 GPa
Elastic Coefficients	C ₁₁ =48.5; C ₁₂ =12.3; C ₄₄ =12.61
Rupture Modulus	3.9 MPa (560 psi) (2)
Poisson Ratio	0.252
Solubility	35.7g/100g water at 273K
Molecular Weight	58.45
Class/Structure	Cubic FCC, NaCl, Fm3m (#221), (100) cleavage

(1) H.H.Li, Absorption Coefficients, Int.J.Therm, V1, No. I, 1980
(2) Combes, et.al.; J.Opt. Soc. Am. V41, p215, 1951.



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μm	No	μm	No	μm	No
0.589	1.54427	0.640	1.54141	0.760	1.53682
0.884	1.53395	0.972	1.53253	1.054	1.53153
1.555	1.53815	2.074	1.52736	9.000	1.501
9.500	1.4998	10.60	1.49065	11.40	1.48476
12.50	1.47568	13.50	1.4666	14.60	1.45572
16.00	1.4399	17.80	1.41649	19.80	1.38559
20.57	1.3735	22.30	1.3403		

