

Appendix

Appendix A

DENSITY OF WATER AT DIFFERENT TEMPERATURES

Temperature in °C	Density in kg/m ³	Temperature in °C	Density in kg/m ³
-30	983.854	-25	989.585
-20	993.457	-15	996.283
-10	998.117	-8	998.647
-4	999.414	-2	999.762
0	999.840	2	999.940
4	999.972	6	999.940
8	999.848	10	999.700
12	999.497	14	999.244
16	998.943	20	998.204
24	997.297	28	996.234
32	995.026	36	993.684
40	992.216	44	990.628
48	988.927	50	988.036
55	985.695	60	983.199
65	980.555	70	977.770
75	974.899	80	971.798
85	968.620	90	965.320
95	961.900	100	958.364

Note: 1 kg/m³ = 0.001 g/mL

Appendix B

DENSITY OF VARIOUS SOLIDS AT ORDINARY ATMOSPHERIC TEMPERATURE

Substance	Density (kg/m ³)	Substance	Density (kg/m ³)
Aluminium	2700	Asbestos	2400
Bone	1700 - 2000	Brick	1400 - 2200
Brass (60/40)	8600	Butter	865
Camphor	990	Cardboard	690
Cast iron	7000	Cement	2700 - 3000
Celluloid	1400	Chalk	1900 - 2800
Clay	1800 - 2600	Coal	1400 - 1800
Coke	1000 - 1700	Common salt	2160
Copper	2160	Constantan	8900
Dimond	3010 - 3520	Glass (common)	2400 - 2800
Gold (pure)	19300	Granite	2640 - 2760
Graphite	2300 - 2720	Ice	917
Ivory	1830 - 1920	Lead	11378
Lime (slaked)	1300 - 1400	Limestone	2680 - 2760
Magnetite	4900 - 5200	Manganin	8500
Mica	2600 - 3200	Paper	700 - 1500
Platinum	21400	Porcelain	2300 - 2500
Quartz	2650	Resin	1070
Rock salt	2180	Rubber (hard)	1190
Rubber (soft)	1100	Sand	2340
Silica (fused)	2210	Silver	1005
Stainless steel	7800	Starch	1530
Sugar	1590	Talc	2700 - 2800
Topaz	3500 - 3600	Tourmaline	3000 - 3200
Wax (sealing)	1800	Wood (bamboo)	3100 - 4000
Wood (teak)	6600 - 8800	Wood (walnut)	6400 - 7000
Wood (willow)	4000 - 6000	Zinc	7100

Appendix C

DENSITY OF VARIOUS LIQUIDS AT ORDINARY ATMOSPHERIC PRESSURE

Substance	Temperature (°C)	Density (kg/m ³)
Acetone	20	792
Alcohol (ethyl)	20	792
Benzene	0	900
Chloroform	20	1489
Caster Oil	15	970
Coconut Oil	15	925
Ether	0	736
Gasoline	660 - 690	
Glycerin	0	1260
Heavy Water	5	1106
Kerosene		820
Mercury		13600
Milk		1028 - 1035
Methylated spirit	0	810
Olive Oil	15	918
Paraffin Oil	0	810
Turpentine	4	870
Sea Water		1025
Water	4	999.972

Appendix D

DENSITY OF VARIOUS GASES AT STANDARD TEMPERATURE AND PRESSURE (S T P)

Substance	Density (kg/m ³)
Air	1.293
Ammonia	0.771
Carbon dioxide	1.977
Carbon monoxide	1.250
Chlorine	3.214
Hydrogen	0.090
Hydrogen sulphide	1.640
Methane	0.717
Nitrogen	1.250
Sulphur dioxide	2.927
Water vapour (273 K)	0.800

Appendix E

THE GREEK ALPHABET

Alpha	A	α	Iota	I	ι	Rho	P	ρ
Beta	B	β	Kappa	K	κ	Sigma	Σ	σ
Gamma	Γ	γ	Lambda	Λ	λ	Tau	T	τ
Delta	Δ	δ	Mu	M	μ	Upsilon	Y	υ
Epsilon	E	ϵ	Nu	N	ν	Phi	Φ	ϕ
Zeta	Z	ζ	Xi	Ξ	ξ	Chi	X	χ
Eta	H	η	Omicron	O	o	Psi	Ψ	ψ
Theta	Θ	θ	Pi	Π	π	Omega	Ω	ω

Appendix F

ACCELERATION DUE TO GRAVITY

Place	Acceleration due to gravity, g	Place	Acceleration due to gravity, g
	(m/s ²)		(m/s ²)
Agra	9.791	Ajmer	9.789
Aligarh	9.781	Allahabad	9.789
Amritsar	9.792	Bangalore	9.780
Bhubaneswar	9.787	Chennai	9.783
Delhi	9.792	Dehradun	9.791
Equator	9.781	Gorakhpur	9.789
Guwahati	9.790	Hyderabad	9.789
Indore	7.790	Jaipur	9.785
Kanpur	9.790	Kolkata	9.788
Ludhiana	9.792	Madurai	9.781
Meerut	9.792	Mumbai	9.786
Nagpur	9.785	Patna	9.784
Pole	9.832	Srinagar	9.790
Tirupati	9.782	Thiruvananthapuram	9.781
Udaipur	9.788	Varanasi	9.789

Appendix G

REFRACTIVE INDEX OF SUBSTANCES (for Sodium light, $\lambda = 589.3 \text{ nm}$)

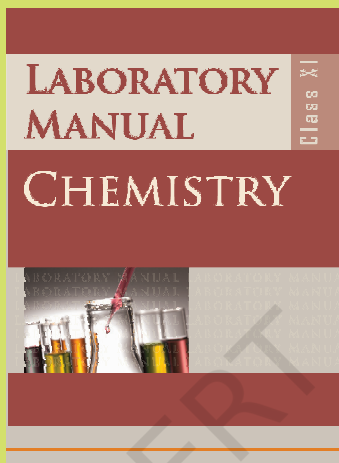
Solid	Refractive index	Liquid	Refractive index
Diamond	2.417	Water	1.333
Glass (crown)	1.48 – 1.61	Alcohol (ethyl)	1.362
Glass (flint)	1.53 – 1.96	Alcohol (methyl)	1.329
Glass (soda)	1.50	Benzene	1.501
Ice	1.31	Canada balsam	1.53
Mica	1.56 – 1.60	Carbon disulphide	1.628
Rocksalt	1.54	Glycerin	1.475
Quartz (fused)	1.458	Kerosene oil	1.390
		Olive oil	1.460
		Paraffin oil	1.440
		Turpentine	1.472

Appendix H

SPEED OF SOUND IN DIFFERENT SUBSTANCES

Solids	Speed at 25 °C (m/s)	Liquids	Speed at 25 °C (m/s)	Gases	Speed at 0 °C (m/s)
Aluminium	5000	Alcohol	1210	Air	331
Brass	3480	Caster oil	1477	Ammonia	415
Brick	3650	Glycerol	1324	Carbon dioxide	275
Copper	3750	Mercury	1450	Hydrogen	1284
Cork	500	Sea-water	1531	Coal gas	453
Fused Silica	5760	Turpentine	1255	Nitrogen	334
Glass (crown)	4540	Water	1756	Oxygen	316
Glass (flint)	3720	Water (dist.)	1497	Sulphur dioxide	213
Iron	5200			Ethanol vapour	269
Lead	1200			Methanol vapour	335
Nickel	4900			Water vapour (134 °C)	494
Paraffin	1300				
Platinum	2800				
Silver	2680				
Steel	5000				
Tin	2730				
Wood (Oak)	3800				
Zinc	3850				

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