APPENDIX F

Conversion of Units

To convert	To	Multiply by
1. Length (L)		
inches (in.)	centimeters (cm)	2.54
feet (ft)	meters (m)	0.3048
miles (miles)	kilometers (km)	1.609
meters (m)	inches (in.)	39.37
meters (m)	feet (ft)	3.281
kilometers (km)	miles (miles)	0.6214
2. Area (L^2)		
square inches (sq in.)	square centimeters (cm^2)	6.452
square feet (sq ft)	square meters (m^2)	0.09290
square miles (sq miles)	square kilometers (km^2)	2.590
acres (acre)	square meters (m^2)	4047
square centimeters (cm^2)	square inches (sq in.)	0.1550
square meters (m^2)	square feet (sq ft)	10.76
hectares (ha)	acres (acre)	2.471
square kilometers (km^2)	square miles (sq miles)	0.3861
3. Volume (L^3)		
cubic inches (cu in.)	cubic centimeters (cm^3)	16.39
cubic feet (cu ft)	cubic meters (m^3)	0.02832
cubic yards (cu yd)	cubic meters (m^3)	0.7646
gallons (gal)	liters (l)	3.785
cubic centimeters (cm^3)	cubic inches (cu in.)	0.06102
cubic meters (m^3)	cubic feet (cu ft)	35.31
liters (l)	cubic feet (cu ft)	0.03531
liters (l)	gallons (gal)	0.2642

4. Velocity (L/T)		
feet per second (fps)	meters per second (m/s)	0.3048
meters per second (m/s)	feet per second (fps)	3.281
5. Discharge (L^3/T)		
cubic feet per second (cfs)	cubic meters per second (m^3/s)	0.02832
cubic feet per second (cfs)	liters per second (l/s)	28.32
cubic meters per second (m^3/s)	cubic feet per second (cfs)	35.31
liters per second (l/s)	cubic feet per second (cfs)	0.03531
6. Mass (M)		
pounds (lb)	kilograms (kg)	0.4536
kilograms (kg)	pounds (lb)	2.205
7. Density (M/L^3)		
pounds per cubic foot (pcf)	kilograms per cubic meter (kg/m^3)	16.02
kilograms per cubic meter (kg/m^3)	pounds per cubic foot (pcf)	0.06243
kilograms per cubic meter (kg/m^3)	grams per cubic centimeter (g/cm^3)	0.001000
8. Force (ML/T^2)[a]		
pounds (lb)	kilograms (kg)	0.4536
pounds (lb)	newtons (N)[b]	4.448
kilograms (kg)	pounds (lb)	2.205
kilograms (kg)	newtons (N)	9.807
newtons (N)	kilograms (kg)	0.1020
newtons (N)	pounds (lb)	0.2248
dynes (dynes)	newtons (N)	10^{-5}
9. Pressure (M/LT^2)[a]		
pounds per square inch (psi)	kilograms per square meter (kg/m^2)	703.1
pounds per square inch (psi)	newtons per square meter (N/m^2)	6895
pounds per square foot (psf)	kilograms per square meter (kg/m^2)	4.882
pounds per square foot (psf)	newtons per square meter (N/m^2)	47.88
kilograms per square meter (kg/m^2)	pounds per square inch (psi)	0.001422
kilograms per square meter (kg/m^2)	pounds per square foot (psf)	0.2048
kilograms per square meter (kg/m^2)	newtons per square meter (N/m^2)	9.807
10. Specific Weights (M/L^2T^2)[a]		
pounds per cubic foot (pcf)	kilograms per cubic meter (kg/m^3)	16.02
pounds per cubic foot (pcf)	newtons per cubic meter (N/m^3)	157.1
kilograms per cubic meter (kg/m^3)	pounds per cubic foot (pcf)	0.06243
kilograms per cubic meter (kg/m^3)	newtons per cubic meter (N/m^3)	9.807

11. Kinematic Viscosity (L^2/T)

square feet per second (sq ft/sec)	square centimeters per second (cm^2)	929.0
square feet per second (sq ft/sec)	square meters per second (m^2)	0.09290
square meters per second (m^2)	square feet per second (sq ft/sec)	10.76
square meters per second (m^2)	square centimeters per second (cm^2)	10^4

[a]The factors relating pounds of force, kilograms of force, and newtons are based on the standard value of the gravitational acceleration, $g = 32.174\ ft/sec^2 = 9.80665\ m/s^2$.

[b]$1\ N = 1\ kg \cdot m/s^2$.

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