



Weights and Measures

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MINERALS AND EARTHEN WEIGHT* OF MATERIALS					
	LOOSE		BANK		LOAD
	kg/m³	lb/yd³	kg/m³	lb/yd³	FACTORS
Basalt	1960	3300	2970	5000	.67
Bauxite, Kaolin	1420	2400	1900	3200	.75
Caliche	1250	2100	2260	3800	.55
Carnotite, uranium ore	1630	2750	2200	3700	.74

Cinders	560	950	860	1450	.66
Clay Natural bed	1660	2800	2020	3400	.82
..... Dry	1480	2500	1840	3100	.81
..... Wet	1660	2800	2080	3500	.80
Clay & gravel . . . Dry	1420	2400	1660	2800	.85
..... Wet	1540	2600	1840	3100	.85
Coal Anthracite, Raw	1190	2000	1600	2700	.74
.....Washed	1100	1850			.74
..... Ash, Bituminous Coal	530-650	900-1100	590-890	1000-1500	.93
..... Bituminous, Raw	950	1600	1280	2150	.74
.....Washed	830	1400			.74
Decomposed rock —					
..... 75% Rock, 25% Earth	1960	3300	2790	4700	.70
..... 50% Rock, 50% Earth	1720	2900	2280	3850	.75
..... 25% Rock, 75% Earth	1570	2650	1960	3300	.80
Earth. . . . Dry packed	1510	2550	1900	3200	.80
..... Wet excavated	1600	2700	2020	3400	.79
..... Loam	1250	2100	1540	2600	.81
Granite . .Broken	1660	2800	2730	4600	.61
Gravel Pitrun	1930	3250	2170	3650	.89
..... Dry	1510	2550	1690	2850	.89
..... Dry 6-50 mm (1/4"-2")	1690	2850	1900	3200	.89
..... Wet 6-50 mm (1/4"-2")	2020	3400	2260	3800	.89
Gypsum . . . Broken	1810	3050	3170	5350	.57
..... Crushed	1600	2700	2790	4700	.57
Hematite, iron ore, high grade	1810-2450	4000-5400	2130-2900	4700-6400	.85
Limestone . . . Broken	1540	2600	2610	4400	.59

.....Crushed	1540	2600	—	—	—
Magnetite, iron ore	2790	4700	3260	5500	.85
Pyrite, iron ore	2580	4350	3030	5100	.85
Sand . . . Dry, loose	1420	2400	1600	2700	.89
.....Damp	1690	2850	1900	3200	.89
.....Wet	1840	3100	2080	3500	.89
Sand & clay . . . Loose	1600	2700	2020	3400	.79
..... Compacted	2400	4050			
Sand & gravel . . . Dry	1720	2900	1930	3250	.89
..... Wet	2020	3400	2230	3750	.91
Sandstone	1510	2550	2520	4250	.60
Shale	1250	2100	1660	2800	.75
Slag . . . broken	1750	2950	2940	4950	.60
Snow . . Dry	130	220			
.....Wet	520	860			
Stone . . . crushed	1600	2700	2670	4500	.60
Taconite	1630-1900	3600-4200	2360-2700	5200-6100	.58
Top Soil	950	1600	1370	2300	.70
Taprock . . . broken	1750	2950	2610	4400	.67
Wood Chips**	—	—	—	—	—

*Varies with moisture content, grain size, degree of compaction, etc. Tests must be made to determine exact material characteristics.

**Weights of commercially important wood species can be found in the last pages of the Logging & Forest Products section. To obtain wood weights use the following equations:

$$\text{lb/yd}^3 = (\text{lb/ft}^3) 27$$

$$\text{kg/m}^3 = (\text{kg/m}^3) 2.4$$

FORESTRY

CUBIC FEET OF SOLID WOOD PER

RULE OF THUMB

CORD

Length of Sticks-Ft.	Diameter at Small End		
	1.0"-2.5"	2.5"-5.5"	Over 5.5"
2	65	84	91
4	64	82	89
8	59	77	84
12	54	71	78

CONVERSIONS

1 cunit of wood	= 1.117 cords
	= 1.25 units of chips
	= 250 ft ³ of chips
	= 7.08 m ³
1 cord of wood	= 85 ft ³ of solid wood
	= 1.06 units of chips
	= 2.41 m ³
1 unit of chips	= 80 ft ³ of solid wood
	= 2.27 m ³
1 cord of wood	= 500 board feet
	= 1.18 m ³
2000 pounds of chips	= 500 pounds of pulp
1 cord	= 212 ft ³ of chips
	= 6.00 m ³

UNIT OF MEASUREMENT DEFINITIONS

1 board foot	= 1/12 ft ³ of solid wood (1' 2 1' 2 1")	1 cubic meter	= 35.32 ft ³
1000 board feet	= 83.33 ft ³ of solid wood		= 424 board feet
1 cunit of wood	= 100 solid ft ³		= 333 board feet Hoppus tons
	= 1200 board feet		= 0.555 Hoppus Tons
	= 2.83 ³	1 MBF Brereton	= 2.36 m ³
1 cord of wood	= 128 ft ³ of stacked logs		= 785.4 board feet Hoppus
	= 3.62 m ³	1 MBF Hoppus	= 1273 board feet-Brereton

1 unit of wood	= 200 ft ³ of loose chips	MBF	= Thousand board feet
	= 5.66 m ³	1 Super Foot	= 1 board foot
1 cord of wood	= .85 units	100 Super Feet	= 1000 board foot
1 Hoppus Ton	= 50 ft ³ (assumed)		= 0.236 m ³
	= 63.65 ft ³ (actual)	600 Super Feet	= 50 ft ³
	= 600 board feet	1 lb/ft ³	= 16.0185 kg/m ³
	= 763.8 BF Brereton		
	= 1.8 M 3 actual		
	= 1.4 M 3 assumed		