

SPECIFIC GRAVITY OF METALS

The mass of over 30 different metals and alloys are listed below. While the data is useful for design, individual samples will differ. Impurities will often have an influence.

A 1000kg of pure water = 1 cubic metre. Pure water was chosen as the 'base line' for specific gravity and given the value of 1. The specific gravity of all other materials are compared to water as a fraction heavier or lighter density. For example, beryllium has a specific gravity (sg) of 1.84 (1840 kg/cu.m) (see table below)

As specific gravity is just a comparison, it can be applied across any units. The density of pure water is also 62.4 lbs/cu.ft (pounds per cubic foot) and if we know that a sample of aluminium has a sg of 2.5 then we can calculate that its density is $2.5 \times 62.4 = 156$ lbs/cu.ft.

Note, kg/cu.m divided by 16.02 = lbs/cu.ft

Metal or alloy	kg/cu.m	Metal or alloy	kg/cu.m
aluminium - melted	2560 - 2640	plutonium	19800
aluminium bronze (3-10% Al)	7700 - 8700	silver	10490
aluminium foil	2700 -2750	steel - rolled	7850
antifriction metal	9130 -10600	steel - stainless	7480 - 8000
beryllium	1840	tin	7280
beryllium copper	8100 - 8250	titanium	4500
brass - casting	8400 - 8700	tungsten	19600
brass - rolled and drawn	8430 - 8730	uranium	18900
bronze - lead	7700 - 8700	vanadium	5494
bronze - phosphorous	8780 - 8920	white metal	7100
bronze (8-14% Sn)	7400 - 8900	zinc	7135
cast iron	6800 - 7800		
cobalt	8746		
copper	8930		
delta metal	8600		
electrum	8400 - 8900		
gold	19320		
iron	7850		
lead	11340		
light alloy based on Al	2560 - 2800		
light alloy based on Mg	1760 - 1870		
magnesium	1738		
mercury	13593		
molybdenum	10188		
monel	8360 - 8840		
nickel	8800		
nickel silver	8400 - 8900		
platinum	21400		