

Conversion Charts and Tables

Carbon Dioxide Facts and Figures

molecular weight = 44 grams/mole

sublimes (solid to gas) at 78.5°C at 1 atmosphere - air density = 1.2928 grams/liter (i.e., at equal temperatures and pressures carbon dioxide is heavier than air, and CO₂ will fall to the bottom of an air/ CO₂ mixture.

psi = 1 atmosphere

Physical properties of Propane:

specific gravity of gas (air = 1)	1.50
pounds per gallon of liquid @ 60°F (15°C)	4.23
gallons per pound of liquid @ 60°F (15°C)	0.236
Btu per cubic foot of gas @ 60°F (15°C)	2488
Btu per pound of gas	21548
Btu per gallon of gas @ 60°F	90502
cubic feet of gas per gallon of liquid	36.38
octane number	100+

Combustion Data:

cubic feet of air to burn 1 gallon of propane	873.6
cubic feet of CO ₂ per gallon of Propane burned	109.2
cubic feet of nitrogen per gallon of propane burned	688
pounds of CO ₂ per gallon of propane burned	12.7
pounds of nitrogen per gallon of propane burned	51.2
pounds of water vapor per gallon of propane burned	6.8
1 pound of propane produces in kWh	6.3
Btu's per kW hour	3412

1 Therm	100,000 Btu	Specific gravity of liquid	0.509
1 cubic foot natural gas	1000 Btu	Vapor pressure (psig) 00F	23.5
1 pound steam	970 Btu	Vapor pressure (psig) 700 F	109
1 kilowatt	3413 Btu	Vapor pressure (psig) 1000 F	172

Calculations for Metric Users

1 cubic meter = 1 m × 1 m × 1 m = 1000 liters
fans are rated at liters per minute or liters per second

cubic feet = L × W × H
cubic meters = L × W × H

Buy a fan that will clear the grow room volume of air in one to five minutes. Run the fan for twice the time to theoretically clear the grow room of air.

Work out the amount of CO₂ gas to add:

For example, if you want 1500 ppm and ambient CO₂ is 350 ppm, you will need to add: 1500 ppm minus 350 ppm = 1150 ppm CO₂.

A poorly sealed grow room can have 20 percent leakage which should be added to the amount of CO₂ required.

For example, to get the desired 1500 ppm of CO₂ for a grow room with 21.6 cubic meters, add: 21.4 × 1150 = 24.61 liters × 1.2 = 29.53 liters.

This information tells you to set the flow meter to 6 liters per minute and run the gas for 5 minutes.

Leave the gas-enriched air for 20 minutes and exhaust the air from the garden room.

Metric Conversion Chart - Approximations

When You Know	Multiply by	To Find
Length		
millimeters	0.04	inches
centimeters	0.39	inches
meters	3.28	feet
kilometers	0.62	miles
inches	25.40	millimeters
inches	2.54	centimeters
feet	30.48	centimeters
yards	0.91	meters
miles	1.16	kilometers
Area		
sq. centimeters	0.16	square inches
square meters	1.20	square yards
square kilometers	0.39	square miles
hectares	2.47	acres
sq. inches	6.45	sq. centimeters
square feet	0.09	square meters
square yards	0.84	square meters
square miles	2.60	sq. kilometers
acres	0.40	hectares

Volume		
milliliters	0.20	teaspoons
milliliters	0.60	tablespoons
milliliters	0.03	fluid ounces
liters	4.23	cups
liters	2.12	pints
liters	1.06	quarts
liters	0.26	gallons
cubic meters	35.32	cubic feet
cubic meters	1.35	cubic yards
teaspoons	4.93	milliliters
tablespoons	14.78	milliliters
fluid ounces	29.57	milliliters
cups	0.24	liters
pints	0.47	liters
quarts	0.95	liters
gallons	3.790	liters

Mass and Weight

- 1 gram = 0.035 ounces
- 1 kilogram = 2.21 pounds
- 1 ounce = 28.35 grams
- 1 pound = 0.45 kilograms

Area

- 1 inch (in) = 25.4 millimeters (mm)
- 1 foot (12 in) = 0.3048 meters (m)
- 1 yard (3 ft) = 0.9144 meters
- 1 mile = 1.60937 kilometers
- 1 square inch = 645.16 square millimeters
- 1 square foot = 0.0929 square meters

- 1 square yard = 0.8361 square meters
- 1 square mile = 2.59 square kilometers

Liquid Measure Conversion

- 1 pint (UK) = 0.56826 liters
- 1 pint dry (USA) = 0.55059 liters
- 1 pint liquid (USA) = 0.47318 liters
- 1 gallon (UK) (8 pints) = 4.5459 liters
- 1 gallon dry (USA) = 4.4047 liters
- 1 gallon liquid (USA) = 3.7853 liters
- 1 ounce = 28.3495 grams
- 1 pound (16 ounces) = 0.453592 kilograms

- 1 gram = 15.4325 grains
- 1 kilogram = 2.2046223 pounds

- 1 millimeter = 0.03937014 inches (UK)
- 1 millimeter = 0.03937 inches (USA)
- 1 centimeter = 0.3937014 inches (UK)
- 1 centimeter = 0.3937 inches (USA)
- 1 meter = 3.280845 feet (UK)
- 1 meter = 3.280833 feet (USA)
- 1 kilometer = 0.6213722 miles

- 1 cm = 0.001 meter
- mm = 0.0001 meter
- nm = 0.000 000 001 meter

- gm = grams
- sq = squared
- EC = electrical conductivity
- ppm = parts per million
- Celsius to Fahrenheit
- Celsius temperature = $(^{\circ}\text{F} - 32) \times 0.55$
- Fahrenheit temperature = $(^{\circ}\text{C} \times 1.8) + 32$

Light Conversion

- 1 foot-candle = 10.76 = lux
- 1 lux = 0.09293
- lux = 1 lumen/square meters
- lumens per square foot = lumens per meter squared

- cfm (cubic feet per minute) = liters per hour
- Inches of rain = liters per meter squared
- psi (pounds per square inch) = kg per square meter

- 1 liter = 1 kg (of pure water)
- 1 kilometer = 1000 meters
- 1 meter = 100 centimeters
- 1 meter = 1000 millimeters