

Fluid Unit Conversion Chart

Quick reference guide for common fluid volume and flow rate conversions

Volume Conversions (Metric)

From	To	Multiply By	Example
milliliters (mL)	liters (L)	0.001	1000 mL = 1 L
liters (L)	milliliters (mL)	1000	1 L = 1000 mL
cubic centimeters (cc or cm³)	milliliters (mL)	1	1 cc = 1 mL
liters (L)	cubic meters (m³)	0.001	1 L = 0.001 m³
cubic meters (m³)	liters (L)	1000	1 m³ = 1000 L

Volume Conversions (US/Imperial)

From	To	Multiply By	Example
fluid ounces (fl oz US)	cups (US)	0.125	8 fl oz = 1 cup
cups (US)	pints (pt US)	0.5	2 cups = 1 pint
pints (pt US)	quarts (qt US)	0.5	2 pints = 1 quart
quarts (qt US)	gallons (gal US)	0.25	4 quarts = 1 gallon
gallons (gal US)	fluid ounces (fl oz US)	128	1 gallon = 128 fl oz
fluid ounces (fl oz US)	tablespoons (tbsp US)	2	1 fl oz = 2 tbsp
tablespoons (tbsp US)	teaspoons (tsp US)	3	1 tbsp = 3 tsp

Volume Conversions (Metric to US/Imperial)

From	To	Multiply By	Example
milliliters (mL)	fluid ounces (fl oz US)	0.033814	30 mL = 1.01442 fl oz
fluid ounces (fl oz US)	milliliters (mL)	29.5735	1 fl oz = 29.5735 mL
liters (L)	gallons (gal US)	0.264172	1 L = 0.264172 gal
gallons (gal US)	liters (L)	3.78541	1 gal = 3.78541 L
milliliters (mL)	cups (US)	0.00422675	240 mL = 1.01442 cups
cups (US)	milliliters (mL)	236.588	1 cup = 236.588 mL
liters (L)	pints (pt US)	2.11338	1 L = 2.11338 pints
pints (pt US)	liters (L)	0.473176	1 pint = 0.473176 L

UK Imperial vs US Customary

Unit	US Value	UK Imperial Value	Conversion Factor
Gallon	3.78541 L	4.54609 L	1 UK gal = 1.20095 US gal
Quart	0.946353 L	1.13652 L	1 UK qt = 1.20095 US qt
Pint	0.473176 L	0.568261 L	1 UK pt = 1.20095 US pt
Fluid Ounce	29.5735 mL	28.4131 mL	1 US fl oz = 1.04083 UK fl oz

Note: US and UK fluid measurements differ, which can cause confusion in international recipes and technical specifications.

Flow Rate Conversions

From	To	Multiply By	Example
liters per minute (L/min)	gallons per minute (GPM US)	0.264172	10 L/min = 2.64172 GPM
gallons per minute (GPM US)	liters per minute (L/min)	3.78541	5 GPM = 18.92705 L/min
cubic meters per hour (m³/h)	liters per minute (L/min)	16.6667	1 m³/h = 16.6667 L/min
liters per second (L/s)	liters per minute (L/min)	60	1 L/s = 60 L/min
gallons per hour (GPH US)	gallons per minute (GPM US)	0.0166667	60 GPH = 1 GPM
cubic feet per second (ft³/s)	gallons per minute (GPM US)	448.831	1 ft³/s = 448.831 GPM

Common Fluid Conversion Formulas

- **US Volume:** 1 gallon = 4 quarts = 8 pints = 16 cups = 128 fluid ounces
- **US Kitchen:** 1 cup = 8 fluid ounces = 16 tablespoons = 48 teaspoons
- **Metric Volume:** 1 liter = 1000 milliliters = 1000 cubic centimeters
- **Cross-System:** 1 liter ≈ 0.264 US gallons ≈ 4.227 US cups
- **Flow Rate:** 1 cubic meter per hour (m³/h) = 16.6667 liters per minute (L/min)
- **UK/US:** 1 UK gallon = 1.20095 US gallons

Practical Examples of Fluid Conversions

Cooking & Recipes

For an international recipe calling for 250 mL of milk: Converting to US cups: $250 \text{ mL} \times 0.00422675 \text{ cups/mL} = 1.057 \text{ cups}$, so approximately 1 cup plus 1 tablespoon.

Medical Dosing

A medication requires 15 mL (1 tablespoon) three times daily. Monthly supply needed: $15 \text{ mL} \times 3 \text{ times} \times 30 \text{ days} = 1350 \text{ mL}$ or 1.35 L.

Fuel Efficiency

Converting 30 miles per gallon (MPG) to liters per 100 kilometers (L/100km): $235.215 \div 30 \text{ MPG} = 7.84 \text{ L/100km}$.

Industrial Flow Rate

A pump rated at 50 GPM (US). Converting to cubic meters per hour: $50 \text{ GPM} \times 3.78541 \text{ L/gal} \times 60 \text{ min/h} \div 1000 \text{ L/m}^3 = 11.36 \text{ m}^3/\text{h}$.

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