Concentration Converter (mg/L, g/m³, mg/Nm³, gr/scf)

Convert a mass concentration in liquids or gases between kg/m³, g/L, mg/L, µg/L, g/m³, mg/m³, µg/m³, mg/Nm³, g/Nm³ and grains per standard cubic foot.

Method: Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Input parameters

Unit system: SI

Parameter	Value	Unit
Concentration (choose its unit)	0.050000	mg/L

Calculated results

Parameter	Value	Unit
kg/m³	5.0000e-05	kg/m³
g/L	5.0000e-05	g/L
mg/L	0.050000	mg/L
µg/L	50.000	µg/L
mg/m³	50.000	mg/m³
µg/m³	50,000	µg/m³
mg/Nm³	50.000	mg/Nm³
gr/scf	0.020673	gr/scf

Notes for this case

• 1 mg/L equals 1 g/m³ and, for dilute water solutions, about 1 ppm by mass. Grains per standard cubic foot (60 °F) are converted to the normal-cubic-metre basis (0 °C), one scf holding 0.02679 Nm³ of gas. mg/m³ and mg/Nm³ are treated alike here, so to go between actual and normal conditions, or to correct to a reference O_2, use the gas flow and O_2 correction calculators. One grain is 64.79891 mg.

Formula and method

$$1\ \mathrm{mg/L} = 1\ \mathrm{g/m^3} = 1000\ \mu\mathrm{g/L}$$

Variables

c	Concentration (choose its unit)	kg/m³

Method and standards

Concentration units.

Assumptions and limits

- Same reference conditions on both sides.

References

Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Report details

Report reference	FCC-8FDR-QPHA (the same inputs always give the same reference)
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Method last reviewed	17 November 2026
Software release	FireCAD Calc, release of 22 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/general/unit-conversions/mass-concentration-converter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.