# Gas Calorific Value Converter (MJ/Nm³, kcal/Nm³, Btu/scf)

Convert the heating value of a gas per volume between kJ/Nm³, MJ/Nm³, kcal/Nm³, Btu/scf, kWh/m³ and MJ/L, with reference conditions handled by the unit registry.

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

## Input parameters

Unit system: SI

| Parameter | Value | Unit |
|---|---|---|
| Heating value per volume (choose its unit) | 100.00 | MJ/Nm³ |

## Calculated results

| Parameter | Value | Unit |
|---|---|---|
| kJ/Nm³ | 100,000 | kJ/Nm³ |
| MJ/Nm³ | 100.00 | MJ/Nm³ |
| kcal/Nm³ | 23,885 | kcal/Nm³ |
| Btu/scf | 2,539.3 | Btu/scf |
| kWh/m³ | 27.778 | kWh/m³ |

### Notes for this case

• Natural gas gross heating value is about 37–40 MJ/Nm³ (about 9,000–9,500 kcal/Nm³, 1,000 Btu/scf); LPG vapour about 100 MJ/Nm³. Per normal cubic metre (0 °C) and per standard cubic foot (60 °F) refer to different gas quantities, which the registry's factors account for. Keep gross and net values apart; both are quoted.

## Formula and method

$$H_{v,\mathrm{unit}} = \frac{H_{v,SI}}{f_{\mathrm{unit}}}$$

### Variables

| | | |
|---|---|---|
| $H_v$ | Heating value per volume (choose its unit) | J/m³ |

### Method and standards

Calorific value units.

### Assumptions and limits

- Registry reference conditions.

### References

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

## Report details

| | |
|---|---|
| Report reference | FCC-DM7M-ETXQ (the same inputs always give the same reference) |
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| Calculator | Gas Calorific Value Converter (MJ/Nm³, kcal/Nm³, Btu/scf) |
| 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/gas-calorific-value-converter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.