Titration: $N_1V_1 = N_2V_2$ and Strength in g/L

Normality of an unknown solution from a titration against a standard, and its strength in g/L from the equivalent weight.

Method: Equivalence: $N_1V_1 = N_2V_2$; strength = N × equivalent weight

Input parameters

Unit system: SI

Parameter	Value	Unit
Normality of the standard Equivalents per litre.	0.10000	mol/L
Volume of standard used (titre)	18.500	mL
Volume of the sample	25.000	mL
Equivalent weight of the substance (molar mass ÷ equivalents per mole) Molar mass divided by the H^+, OH^- or electrons exchanged per molecule: NaOH 40.00, H_2SO_4 98.08/2 = 49.04.	40.000	kg/kmol

Calculated results

Parameter	Value	Unit
Normality of the sample	0.074000	mol/L
Strength	2.9600	g/L

Formula and method

$$N_2 = \frac{N_1 V_1}{V_2}, \quad S = N_2 E$$

Variables

N_1	Normality of the standard	mol/m³
V_1	Volume of standard used (titre)	m³
V_2	Volume of the sample	m³
E	Equivalent weight of the substance (molar mass ÷ equivalents per mole)	kg/kmol
N_2	Normality of the sample	mol/m³
S	Strength	kg/m³

Method and standards

Equivalence.

Assumptions and limits

- Complete reaction at the end point.
- The equivalent weight is entered in the molar-mass field: divide the molar mass by the equivalents per mole yourself (H_2SO_4 98.08/2 = 49.04).

References

- Equivalence: $N_1V_1 = N_2V_2$; strength = N × equivalent weight

Report details

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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/chemical/solutions/titration-normality

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.