# D-Aspartic acid

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|---|---|
| **Other names:** | (-)-Aspartic acid |
| | (R)-aspartic acid |
| | Asp |
| | Aspartic acid D-form |
| | D-(-)-Aspartic acid |
| | D-aminosuccinic acid |
| | L-aminosuccinic acid |
| | L-aspartic acid |
| | NSC 97922 |
| **Inchi:** | InChI=1S/C4H7NO4/c5-2(4(8)9)1-3(6)7/h2H,1,5H2,(H,6,7)(H,8,9)/t2-/m0/s1 |
| **InchiKey:** | CKLJMWTZIZZHCS-REOHCLBHSA-N |
| **Formula:** | C4H7NO4 |
| **SMILES:** | NC(CC(=O)O)C(=O)O |
| **Mol. weight [g/mol]:** | 133.10 |
| **CAS:** | 1783-96-6 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| affp | 916.30 | kJ/mol | NIST Webbook |
| gf | -484.67 | kJ/mol | Joback Method |
| hf | -627.00 | kJ/mol | Joback Method |
| hfus | 19.16 | kJ/mol | Joback Method |
| hvap | 81.60 | kJ/mol | Joback Method |
| log10ws | 0.76 | | Crippen Method |
| logp | -1.127 | | Crippen Method |
| mcvol | 92.080 | ml/mol | McGowan Method |
| pc | 6642.18 | kPa | Joback Method |
| tb | 655.11 | K | Joback Method |
| tc | 842.78 | K | Joback Method |
| tf | 424.60 | K | Joback Method |
| vc | 0.333 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 233.47 | J/mol×K | 655.11 | Joback Method |
| cpg | 238.94 | J/mol×K | 686.39 | Joback Method |
| cpg | 244.10 | J/mol×K | 717.67 | Joback Method |
| cpg | 248.94 | J/mol×K | 748.94 | Joback Method |
| cpg | 253.48 | J/mol×K | 780.22 | Joback Method |
| cpg | 257.73 | J/mol×K | 811.50 | Joback Method |
| cpg | 261.69 | J/mol×K | 842.78 | Joback Method |

# Sources

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|---|---|
| **Modeling solubility and acid-base properties of some polar side chain amino acids in NaCl and (CH3)4NCl aqueous solutions at different ionic strengths and temperatures:** | https://www.doi.org/10.1016/j.fluid.2017.11.030 |
| **Solubility modelling and thermodynamic aspects of L-aspartic and L-glutamic acid at temperatures from (278.15 to 308.15) K and at the pressure 0.35 MPa:** | https://www.doi.org/10.1016/j.jct.2019.06.025 |
| **Crippen Method:** | https://www.chemeo.com/doc/models/crippen_log10ws |
| **Joback Method:** | https://en.wikipedia.org/wiki/Joback_method |
| **Solubility of d-Aspartic Acid and l-Aspartic Acid in Aqueous Salt Solutions from (293 to 343) K:** | https://www.doi.org/10.1021/je9007102 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C1783966&Units=SI |
| **Crippen Method:** | http://pubs.acs.org/doi/abs/10.1021/ci990307l |
| **Thermodynamics of the first and second proton dissociations from aqueous L-aspartic acid and L-glutamic acid at temperatures from (278.15 to 308.15) K and at the pressure 0.35 MPa:** | https://www.doi.org/10.1016/j.jct.2006.08.008 |
| **Solubility of d-Aspartic Acid in Several Neat Solvents: Determination, Correlation, and Dissolution Thermodynamic Properties:** | https://www.doi.org/10.1021/acs.jced.9b00320 |
| **Solubility of the Proteinogenic Amino Acids in Water, Ethanol, and Ethanol–Water Mixtures:** | https://www.doi.org/10.1021/acs.jced.7b00486 |
| **Joback Method:** | http://link.springer.com/article/10.1007/BF02311772 |
| **Ideal gas heat capacities and apparent molar volumes of zwitterionic, protonated cationic, and deprotonated anionic forms at molalities from (0.002 to 1.0) mol·kg-1: Solubilities of magnesium-L-ascorbate, calcium-L-ascorbate, magnesium-L-glutamate, magnesium-D-gluconate, calcium-D-gluconate, calcium-D-heptagluconate, L-aspartic acid, and 3-nitrobenzoic acid in water:** | https://www.doi.org/10.1016/j.jct.2007.12.006 |

# Legend

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| **affp:** | Proton affinity |
| **cpg:** | Ideal gas heat capacity |
| **gf:** | Standard Gibbs free energy of formation |
| **hf:** | Enthalpy of formation at standard conditions |
| **hfus:** | Enthalpy of fusion at standard conditions |
| **hvap:** | Enthalpy of vaporization at standard conditions |
| **log10ws:** | Log10 of Water solubility in mol/l |
| **logp:** | Octanol/Water partition coefficient |
| **mcvol:** | McGowan's characteristic volume |
| **pc:** | Critical Pressure |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |

**tf:** Normal melting (fusion) point

**vc:** Critical Volume