# D-Arabinitol

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|---|---|
| **Other names:** | (+)-arabitol |
| | 1,2,3,4,5-Pentahydroxypentane (D-arabinitol) |
| | Arabitol, D- |
| | D-(+)-arabitol |
| | D-arabitol |
| | arabinitol, D- |
| **Inchi:** | InChI=1S/C5H12O5/c6-1-3(8)5(10)4(9)2-7/h3-10H,1-2H2/t3-,4-/m1/s1 |
| **InchiKey:** | HEBKCHPVOIAQTA-QWWZWVQMSA-N |
| **Formula:** | C5H12O5 |
| **SMILES:** | OCC(O)C(O)C(O)CO |
| **Mol. weight [g/mol]:** | 152.15 |
| **CAS:** | 488-82-4 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | -700.20 | kJ/mol | Joback Method |
| hf | -923.52 | kJ/mol | Joback Method |
| hfus | 18.58 | kJ/mol | Joback Method |
| hsub | 160.00 | kJ/mol | NIST Webbook |
| hvap | 108.95 | kJ/mol | Joback Method |
| log10ws | 1.43 | | Crippen Method |
| logp | -2.946 | | Crippen Method |
| mcvol | 110.660 | ml/mol | McGowan Method |
| pc | 6785.20 | kPa | Joback Method |
| tb | 773.38 | K | Joback Method |
| tc | 947.56 | K | Joback Method |
| tf | 372.38 | K | Heat capacities of some sugar alcohols as phase change materials for thermal energy storage applications |
| tf | 379.40 ± 0.20 | K | NIST Webbook |
| vc | 0.393 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 334.42 | J/mol×K | 773.38 | Joback Method |
| cpg | 340.20 | J/mol×K | 802.41 | Joback Method |
| cpg | 345.68 | J/mol×K | 831.44 | Joback Method |
| cpg | 350.87 | J/mol×K | 860.47 | Joback Method |
| cpg | 355.79 | J/mol×K | 889.50 | Joback Method |
| cpg | 360.45 | J/mol×K | 918.53 | Joback Method |
| cpg | 364.86 | J/mol×K | 947.56 | Joback Method |
| dvisc | 0.0003514 | Pa×s | 466.57 | Joback Method |
| dvisc | 0.0076529 | Pa×s | 405.21 | Joback Method |
| dvisc | 0.0000330 | Pa×s | 527.93 | Joback Method |
| dvisc | 0.0000051 | Pa×s | 589.30 | Joback Method |
| dvisc | 0.0000011 | Pa×s | 650.66 | Joback Method |
| dvisc | 0.0000003 | Pa×s | 712.02 | Joback Method |
| dvisc | 0.0000001 | Pa×s | 773.38 | Joback Method |
| hfust | 38.80 | kJ/mol | 376.00 | NIST Webbook |
| hfust | 38.90 | kJ/mol | 379.40 | NIST Webbook |
| hvapt | 110.10 ± 1.50 | kJ/mol | 437.50 | NIST Webbook |

# Sources

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|---|---|
| **Heat capacities of some sugar alcohols as phase change materials for thermal energy storage applications:** | https://www.doi.org/10.1016/j.jct.2017.08.004 |
| **Densities and Viscosities of Polyhydroxy Solutes in Aqueous Solutions at Different Temperatures:** | https://www.doi.org/10.1021/acs.jced.5b00940 |
| **Influence of NH4Br on Solvation Behavior of Polyhydroxy Solutes in Aqueous Solutions at Different Temperatures and Atmospheric Pressure:** | https://www.doi.org/10.1021/je500886a |
| **Joback Method:** | https://en.wikipedia.org/wiki/Joback_method |
| **McGowan Method:** | http://link.springer.com/article/10.1007/BF02311772 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C488824&Units=SI |
| **Crippen Method:** | http://pubs.acs.org/doi/abs/10.1021/ci990307l |
| **Crippen Method:** | https://www.chemeo.com/doc/models/crippen_log10ws |

# Legend

| | |
|---|---|
| **cpg:** | Ideal gas heat capacity |
| **dvisc:** | Dynamic viscosity |

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| **gf:** | Standard Gibbs free energy of formation |
| **hf:** | Enthalpy of formation at standard conditions |
| **hfus:** | Enthalpy of fusion at standard conditions |
| **hfust:** | Enthalpy of fusion at a given temperature |
| **hsub:** | Enthalpy of sublimation at standard conditions |
| **hvap:** | Enthalpy of vaporization at standard conditions |
| **hvapt:** | Enthalpy of vaporization at a given temperature |
| **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 |