# 1,1'-Biphenyl, 3,4'-dimethyl-

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|---|---|
| **Other names:** | 3,4'-Dimethyl-1,1'-biphenyl |
| | 3,4'-Dimethylbiphenyl |
| | 3,4'-Ditolyl |
| | 4,3'-Ditolyl |
| | Biphenyl, 3,4'-dimethyl- |
| | Diphenyl, 3,4'-dimethyl |
| | m,p'-Bitolyl |
| **Inchi:** | InChI=1S/C14H14/c1-11-6-8-13(9-7-11)14-5-3-4-12(2)10-14/h3-10H,1-2H3 |
| **InchiKey:** | RBIDPZJTXCPESJ-UHFFFAOYSA-N |
| **Formula:** | C14H14 |
| **SMILES:** | Cc1ccc(-c2cccc(C)c2)cc1 |
| **Mol. weight [g/mol]:** | 182.26 |
| **CAS:** | 7383-90-6 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | 272.56 | kJ/mol | Joback Method |
| hf | 117.83 | kJ/mol | Joback Method |
| hfus | 19.32 | kJ/mol | Joback Method |
| hvap | 52.63 | kJ/mol | Joback Method |
| log10ws | -5.03 | | Crippen Method |
| logp | 3.970 | | Crippen Method |
| mcvol | 160.600 | ml/mol | McGowan Method |
| pc | 2684.64 | kPa | Joback Method |
| rinpol | 1668.00 | | NIST Webbook |
| rinpol | 1656.00 | | NIST Webbook |
| ripol | 2267.00 | | NIST Webbook |
| ripol | 2224.00 | | NIST Webbook |
| tb | 559.00 ± 4.00 | K | NIST Webbook |
| tb | 569.00 ± 4.00 | K | NIST Webbook |
| tc | 824.77 | K | Joback Method |
| tf | 283.00 ± 4.00 | K | NIST Webbook |
| tf | 278.00 ± 5.00 | K | NIST Webbook |
| tf | 287.80 ± 0.60 | K | NIST Webbook |
| tf | 288.00 ± 3.00 | K | NIST Webbook |
| tf | 287.70 ± 3.00 | K | NIST Webbook |
| vc | 0.604 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 371.85 | J/mol×K | 583.04 | Joback Method |
| cpg | 388.95 | J/mol×K | 623.33 | Joback Method |
| cpg | 404.83 | J/mol×K | 663.62 | Joback Method |
| cpg | 419.57 | J/mol×K | 703.90 | Joback Method |
| cpg | 433.22 | J/mol×K | 744.19 | Joback Method |
| cpg | 445.84 | J/mol×K | 784.48 | Joback Method |
| cpg | 457.50 | J/mol×K | 824.77 | Joback Method |
| dvisc | 0.0014925 | Pa×s | 325.42 | Joback Method |
| dvisc | 0.0008435 | Pa×s | 368.36 | Joback Method |
| dvisc | 0.0005371 | Pa×s | 411.29 | Joback Method |
| dvisc | 0.0003724 | Pa×s | 454.23 | Joback Method |
| dvisc | 0.0002751 | Pa×s | 497.17 | Joback Method |
| dvisc | 0.0002132 | Pa×s | 540.10 | Joback Method |
| dvisc | 0.0001716 | Pa×s | 583.04 | Joback Method |

# Pressure Dependent Properties

| Property code | Value | Unit | Pressure [kPa] | Source |
|---|---|---|---|---|
| tbrp | 426.20 | K | 2.00 | NIST Webbook |

# Correlations

| Information | Value |
|---|---|
| Property code | pvap |
| Equation | ln(Pvp) = A + B/(T + C) |
| Coeff. A | 1.35890e+01 |
| Coeff. B | -4.24527e+03 |
| Coeff. C | -9.57600e+01 |
| Temperature range (K), min. | 414.92 |
| Temperature range (K), max. | 608.63 |

# Sources

| | |
|---|---|
| **McGowan Method:** | http://link.springer.com/article/10.1007/BF02311772 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C7383906&Units=SI |
| **The Yaws Handbook of Vapor Pressure:** | https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure |
| **Crippen Method:** | http://pubs.acs.org/doi/abs/10.1021/ci990307l |
| **Crippen Method:** | https://www.chemeo.com/doc/models/crippen_log10ws |
| **Joback Method:** | https://en.wikipedia.org/wiki/Joback_method |

# Legend

| | |
|---|---|
| **cpg:** | Ideal gas heat capacity |
| **dvisc:** | Dynamic viscosity |
| **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 |
| **pvap:** | Vapor pressure |
| **rinpol:** | Non-polar retention indices |
| **ripol:** | Polar retention indices |
| **tb:** | Normal Boiling Point Temperature |
| **tbrp:** | Boiling point at reduced pressure |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |