# Benzene, 1-ethenyl-3,5-dimethyl-

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|---|---|
| **Other names:** | 1,3-Dimethyl-5-vinylbenzene |
| | 3,5-Dimethylstyrene |
| | 5-Vinyl-m-xylene |
| | Styrene, 3,5-dimethyl- |
| **Inchi:** | InChI=1S/C10H12/c1-4-10-6-8(2)5-9(3)7-10/h4-7H,1H2,2-3H3 |
| **InchiKey:** | XKMDZVINHIFHLY-UHFFFAOYSA-N |
| **Formula:** | C10H12 |
| **SMILES:** | C=Cc1cc(C)cc(C)c1 |
| **Mol. weight [g/mol]:** | 132.20 |
| **CAS:** | 5379-20-4 |

## Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | 214.31 | kJ/mol | Joback Method |
| hf | 89.29 | kJ/mol | Joback Method |
| hfus | 13.64 | kJ/mol | Joback Method |
| hvap | 40.78 | kJ/mol | Joback Method |
| log10ws | -3.25 | | Crippen Method |
| logp | 2.946 | | Crippen Method |
| mcvol | 123.700 | ml/mol | McGowan Method |
| pc | 2969.80 | kPa | Joback Method |
| rinpol | 1072.90 | | NIST Webbook |
| tb | 461.52 | K | Joback Method |
| tc | 673.43 | K | Joback Method |
| tf | 212.96 ± 0.40 | K | NIST Webbook |
| vc | 0.469 | m3/kmol | Joback Method |

## Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 241.30 | J/mol×K | 461.52 | Joback Method |
| cpg | 254.85 | J/mol×K | 496.84 | Joback Method |
| cpg | 267.67 | J/mol×K | 532.16 | Joback Method |
| cpg | 279.80 | J/mol×K | 567.47 | Joback Method |

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|---|---|---|---|---|
| cpg | 291.26 | J/mol×K | 602.79 | Joback Method |
| cpg | 302.08 | J/mol×K | 638.11 | Joback Method |
| cpg | 312.28 | J/mol×K | 673.43 | Joback Method |
| dvisc | 0.0015433 | Pa×s | 252.16 | Joback Method |
| dvisc | 0.0009004 | Pa×s | 287.05 | Joback Method |
| dvisc | 0.0005904 | Pa×s | 321.95 | Joback Method |
| dvisc | 0.0004204 | Pa×s | 356.84 | Joback Method |
| dvisc | 0.0003181 | Pa×s | 391.73 | Joback Method |
| dvisc | 0.0002519 | Pa×s | 426.63 | Joback Method |
| dvisc | 0.0002066 | Pa×s | 461.52 | Joback Method |

# Correlations

| Information | Value |
|---|---|
| Property code | pvap |
| Equation | ln(Pvp) = A + B/(T + C) |
| Coeff. A | 1.45622e+01 |
| Coeff. B | -3.89523e+03 |
| Coeff. C | -7.05780e+01 |
| Temperature range (K), min. | 343.46 |
| Temperature range (K), max. | 491.65 |

# Sources

**NIST Webbook:** http://webbook.nist.gov/cgi/cbook.cgi?ID=C5379204&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

**McGowan Method:** http://link.springer.com/article/10.1007/BF02311772

# Legend

**cpg:** Ideal gas heat capacity

**dvisc:** Dynamic viscosity

**gf:** Standard Gibbs free energy of formation

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|---|---|
| **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 |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |