# Propanedinitrile, methylene-

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|---|---|
| **Other names:** | Malononitrile, methylene- |
| | Vinylidene cyanide |
| | 1,1-Dicyanoethylene |
| | 1,1-Ethenedicarbonitrile |
| **Inchi:** | InChI=1S/C4H2N2/c1-4(2-5)3-6/h1H2 |
| **InchiKey:** | FCYVWWWTHPPJII-UHFFFAOYSA-N |
| **Formula:** | C4H2N2 |
| **SMILES:** | C=C(C#N)C#N |
| **Mol. weight [g/mol]:** | 78.07 |
| **CAS:** | 922-64-5 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | 328.45 | kJ/mol | Joback Method |
| hf | 319.51 | kJ/mol | Joback Method |
| hfus | 6.54 | kJ/mol | Joback Method |
| hvap | 44.86 | kJ/mol | Joback Method |
| ie | 11.38 ± 0.05 | eV | NIST Webbook |
| log10ws | -1.08 | | Crippen Method |
| logp | 0.590 | | Crippen Method |
| mcvol | 65.680 | ml/mol | McGowan Method |
| pc | 3881.95 | kPa | Joback Method |
| tb | 491.64 | K | Joback Method |
| tc | 715.64 | K | Joback Method |
| tf | 249.10 | K | Joback Method |
| vc | 0.293 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 112.43 | J/mol×K | 491.64 | Joback Method |
| cpg | 116.41 | J/mol×K | 528.97 | Joback Method |
| cpg | 120.15 | J/mol×K | 566.31 | Joback Method |
| cpg | 123.65 | J/mol×K | 603.64 | Joback Method |

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|---|---|---|---|---|
| cpg | 126.93 | J/mol×K | 640.98 | Joback Method |
| cpg | 130.00 | J/mol×K | 678.31 | Joback Method |
| cpg | 132.88 | J/mol×K | 715.64 | Joback Method |

# Sources

| | |
|---|---|
| **McGowan Method:** | http://link.springer.com/article/10.1007/BF02311772 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C922645&Units=SI |
| **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 |
| **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 |
| **ie:** | Ionization energy |
| **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 |

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