

2-Pentene, (Z)-

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|-----------------------------|---|
| Other names: | (Z)-2-PENTENE (Z)-pent-2-ene 2-(Z)-C5H10 2-CIS-PENTENE CIS-2-PENTENE Pentene-2, cis- cis-Pentene cis-Pentene-2 cis-«beta»-Amylene cis-Â«betaÂ»-Amylene |
| Inchi: | InChI=1S/C5H10/c1-3-5-4-2/h3,5H,4H2,1-2H3/b5-3- |
| InchiKey: | QMMOXUPEWRXHJS-HYXAFXHYSA-N |
| Formula: | C5H10 |
| SMILES: | CC=CCC |
| Mol. weight [g/mol]: | 70.13 |
| CAS: | 627-20-3 |

Physical Properties

| Property code | Value | Unit | Source |
|---------------|-----------------|--------|---------------|
| af | 0.2510 | | KDB |
| ap | 291.450 | K | KDB |
| chl | -3336.70 ± 0.30 | kJ/mol | NIST Webbook |
| chl | -3343.21 ± 0.54 | kJ/mol | NIST Webbook |
| gf | 71.89 | kJ/mol | KDB |
| hcg | 3342.47 | kJ/mol | KDB |
| hcn | 3122.394 | kJ/mol | KDB |
| hf | -28.09 | kJ/mol | KDB |
| hfl | -55.80 ± 1.00 | kJ/mol | NIST Webbook |
| hfl | -53.35 ± 0.42 | kJ/mol | NIST Webbook |
| hfl | -53.49 ± 0.62 | kJ/mol | NIST Webbook |
| hfl | -60.00 ± 0.30 | kJ/mol | NIST Webbook |
| hfus | 8.91 | kJ/mol | Joback Method |
| hvap | 26.80 | kJ/mol | NIST Webbook |
| ie | 9.11 | eV | NIST Webbook |
| ie | 9.01 ± 0.03 | eV | NIST Webbook |
| ie | 9.22 ± 0.01 | eV | NIST Webbook |
| ie | 9.04 ± 0.01 | eV | NIST Webbook |

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|---------|------------------|--------|----------------|
| ie | 9.23 ± 0.02 | eV | NIST Webbook |
| ie | 9.04 ± 0.02 | eV | NIST Webbook |
| ie | 8.94 ± 0.02 | eV | NIST Webbook |
| log10ws | -1.77 | | Crippen Method |
| logp | 1.973 | | Crippen Method |
| mcvol | 77.010 | ml/mol | McGowan Method |
| pc | 3690.00 ± 100.00 | kPa | NIST Webbook |
| pc | 3690.00 | kPa | KDB |
| rinpol | 510.30 | | NIST Webbook |
| rinpol | 515.00 | | NIST Webbook |
| rinpol | 514.50 | | NIST Webbook |
| rinpol | 514.60 | | NIST Webbook |
| rinpol | 514.60 | | NIST Webbook |
| rinpol | 514.70 | | NIST Webbook |
| rinpol | 514.80 | | NIST Webbook |
| rinpol | 514.90 | | NIST Webbook |
| rinpol | 512.10 | | NIST Webbook |
| rinpol | 516.20 | | NIST Webbook |
| rinpol | 514.40 | | NIST Webbook |
| rinpol | 512.70 | | NIST Webbook |
| rinpol | 511.10 | | NIST Webbook |
| rinpol | 509.40 | | NIST Webbook |
| rinpol | 514.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 505.70 | | NIST Webbook |
| rinpol | 505.10 | | NIST Webbook |
| rinpol | 505.90 | | NIST Webbook |
| rinpol | 504.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 512.10 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 504.73 | | NIST Webbook |
| rinpol | 502.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 506.00 | | NIST Webbook |
| rinpol | 507.00 | | NIST Webbook |
| rinpol | 507.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 519.60 | | NIST Webbook |
| rinpol | 519.00 | | NIST Webbook |
| rinpol | 514.00 | | NIST Webbook |
| rinpol | 516.00 | | NIST Webbook |

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| rinpol | 518.90 | NIST Webbook |
| rinpol | 518.90 | NIST Webbook |
| rinpol | 510.00 | NIST Webbook |
| rinpol | 510.00 | NIST Webbook |
| rinpol | 505.30 | NIST Webbook |
| rinpol | 505.00 | NIST Webbook |
| rinpol | 527.00 | NIST Webbook |
| rinpol | 515.00 | NIST Webbook |
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| rinpol | 510.00 | NIST Webbook |
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| rinpol | 514.00 | | NIST Webbook |
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| rinpol | 505.20 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 512.40 | | NIST Webbook |
| rinpol | 512.00 | | NIST Webbook |
| rinpol | 504.80 | | NIST Webbook |
| rinpol | 514.00 | | NIST Webbook |
| rinpol | 515.00 | | NIST Webbook |
| rinpol | 515.00 | | NIST Webbook |
| rinpol | 501.00 | | NIST Webbook |
| rinpol | 505.00 | | NIST Webbook |
| rinpol | 504.60 | | NIST Webbook |
| rinpol | 515.30 | | NIST Webbook |
| rinpol | 515.00 | | NIST Webbook |
| rinpol | 514.00 | | NIST Webbook |
| sl | 258.80 | J/molxK | NIST Webbook |
| sl | 258.61 | J/molxK | NIST Webbook |
| tb | 309.15 ± 2.00 | K | NIST Webbook |
| tb | 309.78 ± 0.50 | K | NIST Webbook |
| tb | 310.00 ± 0.50 | K | NIST Webbook |
| tb | 309.78 ± 0.60 | K | NIST Webbook |
| tb | 310.14 ± 0.60 | K | NIST Webbook |
| tb | 309.65 ± 1.50 | K | NIST Webbook |
| tb | 309.80 ± 0.30 | K | NIST Webbook |
| tb | 310.15 ± 0.30 | K | NIST Webbook |
| tb | 304.35 ± 5.00 | K | NIST Webbook |
| tb | 310.15 ± 0.30 | K | NIST Webbook |
| tb | 309.70 ± 0.10 | K | NIST Webbook |
| tb | 309.35 ± 0.50 | K | NIST Webbook |
| tb | 309.70 ± 0.60 | K | NIST Webbook |
| tb | 311.00 ± 0.40 | K | NIST Webbook |
| tb | 309.55 ± 0.10 | K | NIST Webbook |
| tb | 309.15 ± 0.50 | K | NIST Webbook |
| tb | 309.55 ± 0.50 | K | NIST Webbook |
| tb | 309.55 ± 0.20 | K | NIST Webbook |
| tb | 309.65 ± 2.00 | K | NIST Webbook |
| tb | 309.54 ± 0.20 | K | NIST Webbook |
| tb | 310.15 ± 0.60 | K | NIST Webbook |
| tb | 310.09 ± 0.10 | K | NIST Webbook |

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|-----|---------------|----------------------|--------------|
| tb | 309.90 ± 3.00 | K | NIST Webbook |
| tb | 310.10 | K | NIST Webbook |
| tb | 310.03 ± 0.20 | K | NIST Webbook |
| tb | 310.08 | K | KDB |
| tc | 475.00 ± 1.00 | K | NIST Webbook |
| tc | 475.00 | K | KDB |
| tf | 121.77 ± 0.10 | K | NIST Webbook |
| tf | 120.59 ± 0.10 | K | NIST Webbook |
| tf | 121.70 | K | KDB |
| tf | 120.67 ± 0.50 | K | NIST Webbook |
| tf | 121.74 ± 0.05 | K | NIST Webbook |
| tf | 121.78 ± 0.04 | K | NIST Webbook |
| tt | 121.78 ± 0.02 | K | NIST Webbook |
| tt | 121.80 ± 0.02 | K | NIST Webbook |
| vc | 0.295 | m ³ /kmol | KDB |
| zc | 0.2760920 | | KDB |
| zra | 0.27 | | KDB |

Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---------------|-----------|---------|-----------------|---------------|
| cpg | 160.11 | J/mol×K | 489.90 | Joback Method |
| cpg | 145.57 | J/mol×K | 432.58 | Joback Method |
| cpg | 137.80 | J/mol×K | 403.93 | Joback Method |
| cpg | 129.66 | J/mol×K | 375.27 | Joback Method |
| cpg | 121.16 | J/mol×K | 346.62 | Joback Method |
| cpg | 112.28 | J/mol×K | 317.96 | Joback Method |
| cpg | 153.01 | J/mol×K | 461.24 | Joback Method |
| cpl | 151.80 | J/mol×K | 298.15 | NIST Webbook |
| cpl | 151.71 | J/mol×K | 298.15 | NIST Webbook |
| dvisc | 0.0001682 | Paxs | 317.96 | Joback Method |
| dvisc | 0.0002146 | Paxs | 288.47 | Joback Method |
| dvisc | 0.0002894 | Paxs | 258.98 | Joback Method |
| dvisc | 0.0004214 | Paxs | 229.50 | Joback Method |
| dvisc | 0.0006855 | Paxs | 200.01 | Joback Method |
| dvisc | 0.0013197 | Paxs | 170.52 | Joback Method |
| dvisc | 0.0033409 | Paxs | 141.03 | Joback Method |
| hfust | 7.11 | kJ/mol | 121.78 | NIST Webbook |
| hfust | 7.11 | kJ/mol | 121.80 | NIST Webbook |
| hfust | 7.11 | kJ/mol | 121.80 | NIST Webbook |
| hvapt | 28.10 | kJ/mol | 307.50 | NIST Webbook |

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|-------|---------|-------------------|--------|--------------|
| hvapt | 26.11 | kJ/mol | 309.30 | KDB |
| hvapt | 29.80 | kJ/mol | 276.00 | NIST Webbook |
| rfi | 1.37980 | | 298.15 | KDB |
| rhoI | 656.00 | kg/m ³ | 293.00 | KDB |
| sfust | 58.40 | J/mol×K | 121.78 | NIST Webbook |
| sfust | 58.39 | J/mol×K | 121.80 | NIST Webbook |
| srf | 0.02 | N/m | 298.20 | KDB |

Correlations

| Information | Value |
|-----------------------------|-------------------------------|
| Property code | pvap |
| Equation | $\ln(P_{vp}) = A + B/(T + C)$ |
| Coeff. A | 1.42502e+01 |
| Coeff. B | -2.67753e+03 |
| Coeff. C | -3.18120e+01 |
| Temperature range (K), min. | 223.58 |
| Temperature range (K), max. | 331.36 |

| Information | Value |
|-----------------------------|--|
| Property code | pvap |
| Equation | $\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$ |
| Coeff. A | 7.47715e+01 |
| Coeff. B | -5.60709e+03 |
| Coeff. C | -9.23326e+00 |
| Coeff. D | 9.51948e-06 |
| Temperature range (K), min. | 121.75 |
| Temperature range (K), max. | 475.93 |

Sources

NIST Webbook:

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C627203&Units=SI>

**The Yaws Handbook of Vapor Pressure:
KDB Vapor Pressure Data:**

<https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure>

<https://www.thermo.com/research/kdb/hcprop/showprop.php?cmpid=191>

Crippen Method:

<http://pubs.acs.org/doi/abs/10.1021/ci9903071>

Crippen Method:

https://www.chemo.com/doc/models/crippen_log10ws

Joback Method:

https://en.wikipedia.org/wiki/Joback_method

KDB: <https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=191>
McGowan Method: <http://link.springer.com/article/10.1007/BF02311772>

Legend

| | |
|-----------------|---|
| af: | Acentric Factor |
| ap: | Aniline Point |
| chl: | Standard liquid enthalpy of combustion |
| cpg: | Ideal gas heat capacity |
| cpl: | Liquid phase heat capacity |
| dvisc: | Dynamic viscosity |
| gf: | Standard Gibbs free energy of formation |
| hcg: | Heat of Combustion, Gross form |
| hcn: | Heat of Combustion, Net Form |
| hf: | Enthalpy of formation at standard conditions |
| hfl: | Liquid phase enthalpy of formation at standard conditions |
| hfus: | Enthalpy of fusion at standard conditions |
| hfust: | Enthalpy of fusion at a given temperature |
| hvap: | Enthalpy of vaporization at standard conditions |
| hvapt: | Enthalpy of vaporization at a given temperature |
| ie: | Ionization energy |
| log10ws: | Log10 of Water solubility in mol/l |
| logp: | Octanol/Water partition coefficient |
| mcvol: | McGowan's characteristic volume |
| pc: | Critical Pressure |
| pvap: | Vapor pressure |
| rfi: | Refractive Index |
| rho: | Liquid Density |
| rinpol: | Non-polar retention indices |
| sfust: | Entropy of fusion at a given temperature |
| sl: | Liquid phase molar entropy at standard conditions |
| srf: | Surface Tension |
| tb: | Normal Boiling Point Temperature |
| tc: | Critical Temperature |
| tf: | Normal melting (fusion) point |
| tt: | Triple Point Temperature |
| vc: | Critical Volume |
| zc: | Critical Compressibility |
| zra: | Rackett Parameter |

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