# 2-Decene, (Z)-

**Other names:** (Z)-2-Decene
(Z)-C10H20
cis-2-Decene
**Inchi:** InChI=1S/C10H20/c1-3-5-7-9-10-8-6-4-2/h3,5H,4,6-10H2,1-2H3/b5-3-
**InchiKey:** YKNMBTZOEVIJCM-HYXAFXHYSA-N
**Formula:** C10H20
**SMILES:** CC=CCCCCCCC
**Mol. weight [g/mol]:** 140.27
**CAS:** 20348-51-0

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | 113.54 | kJ/mol | Joback Method |
| hf | -132.51 | kJ/mol | Joback Method |
| hfus | 21.86 | kJ/mol | Joback Method |
| hvap | 37.81 | kJ/mol | Joback Method |
| ie | 9.08 ± 0.01 | eV | NIST Webbook |
| ie | 8.90 ± 0.01 | eV | NIST Webbook |
| log10ws | -3.86 | | Crippen Method |
| logp | 3.923 | | Crippen Method |
| mcvol | 147.460 | ml/mol | McGowan Method |
| pc | 2212.45 | kPa | Joback Method |
| rinpol | 1002.00 | | NIST Webbook |
| rinpol | 1011.30 | | NIST Webbook |
| rinpol | 1009.70 | | NIST Webbook |
| rinpol | 1001.20 | | NIST Webbook |
| rinpol | 1011.00 | | NIST Webbook |
| rinpol | 1013.00 | | NIST Webbook |
| rinpol | 1009.00 | | NIST Webbook |
| rinpol | 1008.00 | | NIST Webbook |
| rinpol | 1002.00 | | NIST Webbook |
| rinpol | 1002.00 | | NIST Webbook |
| rinpol | 1009.00 | | NIST Webbook |
| rinpol | 1011.00 | | NIST Webbook |
| rinpol | 1013.00 | | NIST Webbook |
| rinpol | 1012.00 | | NIST Webbook |
| rinpol | 1011.00 | | NIST Webbook |

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|---|---|---|---|
| rinpol | 1010.00 | | NIST Webbook |
| rinpol | 1001.00 | | NIST Webbook |
| rinpol | 1011.30 | | NIST Webbook |
| rinpol | 1010.00 | | NIST Webbook |
| rinpol | 1002.00 | | NIST Webbook |
| rinpol | 1002.00 | | NIST Webbook |
| rinpol | 1012.00 | | NIST Webbook |
| rinpol | 1002.20 | | NIST Webbook |
| ripol | 1081.00 | | NIST Webbook |
| ripol | 1074.00 | | NIST Webbook |
| ripol | 1078.00 | | NIST Webbook |
| ripol | 1075.00 | | NIST Webbook |
| ripol | 1076.00 | | NIST Webbook |
| ripol | 1074.00 | | NIST Webbook |
| ripol | 1080.70 | | NIST Webbook |
| ripol | 1084.00 | | NIST Webbook |
| ripol | 1073.70 | | NIST Webbook |
| ripol | 1077.90 | | NIST Webbook |
| ripol | 1080.70 | | NIST Webbook |
| ripol | 1084.00 | | NIST Webbook |
| ripol | 1073.70 | | NIST Webbook |
| ripol | 1077.90 | | NIST Webbook |
| ripol | 1072.00 | | NIST Webbook |
| ripol | 1082.00 | | NIST Webbook |
| ripol | 1084.00 | | NIST Webbook |
| ripol | 1072.00 | | NIST Webbook |
| tb | 432.36 | K | Joback Method |
| tc | 602.58 | K | Joback Method |
| tf | 197.38 | K | Joback Method |
| vc | 0.576 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 381.07 | J/mol×K | 602.58 | Joback Method |
| cpg | 300.30 | J/mol×K | 432.36 | Joback Method |
| cpg | 315.26 | J/mol×K | 460.73 | Joback Method |
| cpg | 329.59 | J/mol×K | 489.10 | Joback Method |
| cpg | 343.32 | J/mol×K | 517.47 | Joback Method |
| cpg | 356.46 | J/mol×K | 545.84 | Joback Method |
| cpg | 369.04 | J/mol×K | 574.21 | Joback Method |

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|---|---|---|---|---|
| dvisc | 0.0001968 | Pa×s | 432.36 | Joback Method |
| dvisc | 0.0057907 | Pa×s | 197.38 | Joback Method |
| dvisc | 0.0020667 | Pa×s | 236.54 | Joback Method |
| dvisc | 0.0009884 | Pa×s | 275.71 | Joback Method |
| dvisc | 0.0005679 | Pa×s | 314.87 | Joback Method |
| dvisc | 0.0003689 | Pa×s | 354.03 | Joback Method |
| dvisc | 0.0002611 | Pa×s | 393.20 | Joback Method |
| hvapt | 43.60 | kJ/mol | 424.00 | NIST Webbook |

# Correlations

| Information | Value |
|---|---|
| Property code | pvap |
| Equation | ln(Pvp) = A + B/(T + C) |
| Coeff. A | 1.74478e+01 |
| Coeff. B | -4.76701e+03 |
| Coeff. C | -6.84040e+01 |
| Temperature range (K), min. | 346.20 |
| Temperature range (K), max. | 461.20 |

# Sources

**NIST Webbook:** http://webbook.nist.gov/cgi/cbook.cgi?ID=C20348510&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

**hf:** Enthalpy of formation at standard conditions

| | |
|---|---|
| **hfus:** | Enthalpy of fusion at standard conditions |
| **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 |
| **rinpol:** | Non-polar retention indices |
| **ripol:** | Polar retention indices |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |