

Camphene

Other names:	(.+-.)-camphene 2,2-Dimethyl-3-methylenebicyclo[2.2.1]heptane 2,2-Dimethyl-3-methylenenorbornane 3,3-Dimethyl-2-methylenenorbornane 3,3-Dimethyl-2-methylenenorcamphane Bicyclo[2.2.1]heptane, 2,2-dimethyl-3-methylene- DL-camphene NA 9011
Inchi:	InChI=1S/C10H16/c1-7-8-4-5-9(6-8)10(7,2)3/h8-9H,1,4-6H2,2-3H3
InchiKey:	CRPUJAZIXJMDBK-UHFFFAOYSA-N
Formula:	C10H16
SMILES:	C=C1C2CCC(C2)C1(C)C
Mol. weight [g/mol]:	136.23
CAS:	79-92-5

Physical Properties

Property code	Value	Unit	Source
chs	-6146.00 ± 2.00	kJ/mol	NIST Webbook
gf	182.60	kJ/mol	Joback Method
hf	-28.00 ± 2.00	kJ/mol	NIST Webbook
hfs	-75.00 ± 2.00	kJ/mol	NIST Webbook
hfus	9.44	kJ/mol	Joback Method
hsub	47.00	kJ/mol	NIST Webbook
hsub	46.86 ± 0.54	kJ/mol	NIST Webbook
hvap	44.70	kJ/mol	NIST Webbook
ie	8.86	eV	NIST Webbook
log10ws	-2.93		Crippen Method
logp	2.999		Crippen Method
mcvol	125.740	ml/mol	McGowan Method
pc	2884.30	kPa	Joback Method
rinpol	955.00		NIST Webbook
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tb	432.58	K	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
tb	432.80	K	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
tb	432.73	K	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
tb	432.72	K	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
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tb	318.00 ± 4.00	K	NIST Webbook
tb	432.76	K	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
tc	648.22	K	Joback Method
tf	324.20	K	Solid-Liquid Equilibria in Binary Mixtures of 1,8-Cineole with p-Cymene, beta-Pinene, and Camphene
tf	313.70 ± 3.00	K	NIST Webbook
tf	324.00 ± 1.50	K	NIST Webbook
tf	322.00 ± 2.00	K	NIST Webbook
tf	324.00 ± 1.00	K	NIST Webbook
tf	328.00 ± 5.00	K	NIST Webbook
tf	321.90 ± 0.50	K	NIST Webbook
vc	0.482	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	272.71	J/mol×K	440.68	Joback Method
cpg	291.03	J/mol×K	475.27	Joback Method
cpg	308.01	J/mol×K	509.86	Joback Method
cpg	323.77	J/mol×K	544.45	Joback Method

cpg	338.45	J/mol×K	579.04	Joback Method
cpg	352.17	J/mol×K	613.63	Joback Method
cpg	365.06	J/mol×K	648.22	Joback Method
hvapt	44.00	kJ/mol	377.00	NIST Webbook
pvap	101.33	kPa	432.58	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	101.33	kPa	432.73	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
pvap	101.33	kPa	432.74	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
pvap	101.33	kPa	432.76	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa

pvap	101.33	kPa	432.80	Measurement and correlation of vapor-liquid equilibrium data for binary systems composed of camphene, (+)-3-carene, (-)-beta-caryophyllene, p-cymene, and alpha-pinene at 101.33 kPa
pvap	101.33	kPa	432.72	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	99.87	kPa	432.16	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	94.89	kPa	430.74	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	80.81	kPa	425.03	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	75.01	kPa	422.41	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems

pvap	58.03	kPa	413.19	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	48.91	kPa	407.39	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	38.82	kPa	399.98	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	28.37	kPa	390.11	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	18.33	kPa	378.08	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems
pvap	8.36	kPa	357.01	Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (+)-3-Carene, and (+-)-Limonene Systems

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.40921e+01
Coeff. B	-3.62309e+03
Coeff. C	-5.12660e+01
Temperature range (K), min.	313.72
Temperature range (K), max.	463.89

Sources

Measurement and Correlation of Isobaric Vapor-Liquid Equilibrium for Camphene, (1)-Camphene, and Camphene Systems: Crippen Method:

<https://www.doi.org/10.1021/acs.jced.8b00672>

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

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

Measurement and correlation of vapor-liquid equilibrium data for binary Solid-Liquid Equilibria in Binary Systems composed of camphene, Mixtures of 1,8-Cineole with Camphene, Camphene, and alpha-pinene at 101.33 kPa: Joback Method:

<https://www.doi.org/10.1016/j.tca.2019.178318>

<https://www.doi.org/10.1021/je900653p>

<http://link.springer.com/article/10.1007/BF02311772>

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

NIST Webbook:

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C79925&Units=SI>

Crippen Method:

<http://pubs.acs.org/doi/abs/10.1021/ci990307l>

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfs:	Solid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hsub:	Enthalpy of sublimation 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

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