

Decane, 2-methyl-

Other names:	2-Methyldecane n-C ₈ H ₁₇ CH(CH ₃) ₂
Inchi:	InChI=1S/C11H24/c1-4-5-6-7-8-9-10-11(2)3/h11H,4-10H2,1-3H3
InchiKey:	CNPVJWYWYZMPDS-UHFFFAOYSA-N
Formula:	C ₁₁ H ₂₄
SMILES:	CCCCCCCC(C)C
Mol. weight [g/mol]:	156.31
CAS:	6975-98-0

Physical Properties

Property code	Value	Unit	Source
gf	39.30	kJ/mol	Joback Method
hf	-275.65	kJ/mol	Joback Method
hfus	20.72	kJ/mol	Joback Method
hvap	54.29	kJ/mol	NIST Webbook
ie	9.34	eV	NIST Webbook
ie	9.70 ± 0.10	eV	NIST Webbook
ie	9.70	eV	NIST Webbook
ie	9.57 ± 0.15	eV	NIST Webbook
log10ws	-4.19		Crippen Method
logp	4.393		Crippen Method
mcvol	165.850	ml/mol	McGowan Method
pc	1947.51	kPa	Joback Method
rinpol	1067.00		NIST Webbook
rinpol	1071.00		NIST Webbook
rinpol	1065.00		NIST Webbook
rinpol	1067.00		NIST Webbook
rinpol	1064.98		NIST Webbook
rinpol	1068.00		NIST Webbook
rinpol	1076.00		NIST Webbook
rinpol	1065.00		NIST Webbook
rinpol	1063.00		NIST Webbook
rinpol	1024.00		NIST Webbook
rinpol	1077.00		NIST Webbook
rinpol	1062.00		NIST Webbook
rinpol	1062.00		NIST Webbook
rinpol	1062.30		NIST Webbook

rinpol	1062.30	NIST Webbook
rinpol	1064.40	NIST Webbook
rinpol	1064.00	NIST Webbook
rinpol	1065.00	NIST Webbook
rinpol	1068.00	NIST Webbook
rinpol	1069.00	NIST Webbook
rinpol	1062.00	NIST Webbook
rinpol	1077.00	NIST Webbook
rinpol	1062.00	NIST Webbook
rinpol	1064.00	NIST Webbook
rinpol	1065.00	NIST Webbook
rinpol	1064.00	NIST Webbook
rinpol	1073.00	NIST Webbook
rinpol	1076.00	NIST Webbook
rinpol	1061.00	NIST Webbook
rinpol	1065.90	NIST Webbook
rinpol	1059.00	NIST Webbook
rinpol	1063.90	NIST Webbook
rinpol	1068.00	NIST Webbook
rinpol	1065.00	NIST Webbook
rinpol	1065.78	NIST Webbook
rinpol	1065.56	NIST Webbook
rinpol	1058.00	NIST Webbook
rinpol	1064.98	NIST Webbook
rinpol	1064.93	NIST Webbook
rinpol	1065.01	NIST Webbook
rinpol	1065.00	NIST Webbook
rinpol	1071.00	NIST Webbook
rinpol	1063.00	NIST Webbook
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rinpol	1066.00	NIST Webbook
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rinpol	1059.00	NIST Webbook
rinpol	1067.00	NIST Webbook
rinpol	1061.00	NIST Webbook
rinpol	1063.00	NIST Webbook
rinpol	1064.00	NIST Webbook

rinpol	1065.00		NIST Webbook
rinpol	1065.00		NIST Webbook
rinpol	1065.83		NIST Webbook
rinpol	1064.00		NIST Webbook
rinpol	1064.00		NIST Webbook
ripol	1057.00		NIST Webbook
ripol	1053.00		NIST Webbook
sg	578.30 ± 2.00	J/molxK	NIST Webbook
sl	453.80	J/molxK	NIST Webbook
tb	462.30 ± 0.50	K	NIST Webbook
tb	462.40	K	NIST Webbook
tb	462.27 ± 0.20	K	NIST Webbook
tb	462.30 ± 0.20	K	NIST Webbook
tb	462.40	K	NIST Webbook
tc	629.90	K	NIST Webbook
tf	224.30 ± 0.20	K	NIST Webbook
tf	224.27 ± 0.10	K	NIST Webbook
tf	224.27 ± 0.02	K	NIST Webbook
tf	224.29 ± 0.02	K	NIST Webbook
tf	224.29 ± 0.01	K	NIST Webbook
tf	224.27 ± 0.03	K	NIST Webbook
tf	224.29 ± 0.02	K	NIST Webbook
tf	224.27 ± 0.20	K	NIST Webbook
tt	224.31 ± 0.01	K	NIST Webbook
tt	224.30 ± 0.01	K	NIST Webbook
vc	0.645	m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	435.99	J/molxK	588.25	Joback Method
cpg	360.10	J/molxK	450.64	Joback Method
cpg	376.48	J/molxK	478.16	Joback Method
cpg	392.24	J/molxK	505.68	Joback Method
cpg	407.41	J/molxK	533.20	Joback Method
cpg	421.98	J/molxK	560.73	Joback Method
cpg	449.44	J/molxK	615.77	Joback Method
cpl	341.21	J/molxK	298.15	NIST Webbook
dvisc	0.0002156	Paxs	450.64	Joback Method
dvisc	0.0105797	Paxs	198.73	Joback Method
dvisc	0.0031400	Paxs	240.72	Joback Method

dvisc	0.0013369	Paxs	282.70	Joback Method
dvisc	0.0007098	Paxs	324.69	Joback Method
dvisc	0.0004357	Paxs	366.67	Joback Method
dvisc	0.0002956	Paxs	408.65	Joback Method
hfust	25.06	kJ/mol	224.30	NIST Webbook
hfust	25.09	kJ/mol	224.31	NIST Webbook
hfust	25.06	kJ/mol	224.30	NIST Webbook
hvapt	49.50	kJ/mol	358.00	NIST Webbook
hvapt	40.25	kJ/mol	462.40	NIST Webbook
hvapt	55.40	kJ/mol	283.00	NIST Webbook
hvapt	47.40	kJ/mol	421.00	NIST Webbook
hvapt	51.90	kJ/mol	328.00	NIST Webbook
hvapt	50.60	kJ/mol	343.00	NIST Webbook
hvapt	55.50	kJ/mol	313.00	NIST Webbook
rho1	715.90	kg/m3	323.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	745.70	kg/m3	283.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	738.30	kg/m3	293.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	730.90	kg/m3	303.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels

rho1	723.20	kg/m3	313.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	715.70	kg/m3	323.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	708.10	kg/m3	333.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	700.50	kg/m3	343.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	692.80	kg/m3	353.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	684.90	kg/m3	363.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	677.00	kg/m3	373.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels

rho1	745.80	kg/m3	283.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	738.40	kg/m3	293.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	730.90	kg/m3	303.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
rho1	723.50	kg/m3	313.15	Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels
sfust	111.84	J/molxK	224.31	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.42852e+01
Coeff. B	-3.71821e+03
Coeff. C	-7.77050e+01
Temperature range (K), min.	343.34
Temperature range (K), max.	492.05

Sources

NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C6975980&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/ci990307I
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Density, Viscosity, Speed of Sound, and Bulk Modulus of Methyl Alkanes, Dimethyl Alkanes, and Hydrotreated Renewable Fuels:	https://www.doi.org/10.1021/je400274f
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
cpl:	Liquid phase 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
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
mccvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rho:	Liquid Density
rinpol:	Non-polar retention indices
ripol:	Polar retention indices
sfust:	Entropy of fusion at a given temperature
sg:	Molar entropy at standard conditions
sl:	Liquid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume

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