Triacontane

Other names: n-triacontane
Inchi: InChI=1S/C30H62/c1-3-5-7-9-11-13-15-17-19-21-23-25-27-29-30-28-26-24-22-20-18-16-
InchiKey: JXTPJDDICSTXJX-UHFFFAOYSA-N
Formula: C30H62
SMILES: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Mol. weight [g/mol]: 422.81
CAS: 638-68-6

Physical Properties

Property code	Value	Unit	Source
gf	201.72	kJ/mol	Joback Method
hf	-662.53	kJ/mol	Joback Method
hfus	73.46	kJ/mol	Joback Method
hvap	152.30	kJ/mol	NIST Webbook
hvap	164.50 ± 0.40	kJ/mol	NIST Webbook
log10ws	-12.38		Crippen Method
logp	11.949		Crippen Method
mcvol	433.560	ml/mol	McGowan Method
pc	595.46	kPa	Joback Method
rinpol	467.01		NIST Webbook
rinpol	488.40		NIST Webbook
tb	722.90	K	NIST Webbook
tc	850.00	K	Critical temperatures and pressures of C40, C44, and C60 normal alkanes measured by the pulse-heating technique
tf	339.00 ± 2.00	K	NIST Webbook
tf	338.70 ± 1.00	K	NIST Webbook
tf	338.70 ± 1.00	K	NIST Webbook
tf	344.00 ± 1.50	K	NIST Webbook
tf	338.90 ± 3.00	K	NIST Webbook
tf	339.40 ± 2.00	K	NIST Webbook
tf	338.90 ± 0.80	K	NIST Webbook
tf	339.00 ± 2.00	K	NIST Webbook
tf	339.00 ± 2.00	K	NIST Webbook
tf	340.00 ± 2.00	K	NIST Webbook
tf	339.00 ± 2.00	K	NIST Webbook

tf	339.00 ± 2.00	K	NIST Webbook
tf	343.00 ± 2.00	K	NIST Webbook
tf	338.50 ± 0.80	K	NIST Webbook
tf	338.80 ± 1.00	K	NIST Webbook
tf	339.30 ± 1.00	K	NIST Webbook
tf	338.53 ± 0.25	K	NIST Webbook
tf	338.60 ± 0.40	K	NIST Webbook
tf	338.70 ± 0.30	K	NIST Webbook
tf	338.90 ± 0.60	K	NIST Webbook
tf	339.00 ± 0.10	K	NIST Webbook
tf	338.70 ± 0.30	K	NIST Webbook
tt	334.20	K	Thermal conductivity of heavy, even-carbon number n-alkanes (C22 to C32)
vc	1.716	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	1624.56	J/mol×K	1091.97	Joback Method
cpg	1604.10	J/mol×K	1057.61	Joback Method
cpg	1482.03	J/mol×K	885.80	Joback Method
cpg	1509.37	J/mol×K	920.16	Joback Method
cpg	1535.15	J/mol×K	954.52	Joback Method
cpg	1559.49	J/mol×K	988.88	Joback Method
cpg	1582.44	J/mol×K	1023.25	Joback Method
cps	808.80	J/mol×K	301.00	NIST Webbook
cps	558.00	J/mol×K	300.00	NIST Webbook
dvisc	0.0001562	Pa×s	580.51	Joback Method
dvisc	0.0003539	Pa×s	504.18	Joback Method
dvisc	0.0000243	Pa×s	885.80	Joback Method
dvisc	0.0000339	Pa×s	809.48	Joback Method
dvisc	0.0000507	Pa×s	733.15	Joback Method
dvisc	0.0000834	Pa×s	656.83	Joback Method
dvisc	0.0010730	Pa×s	427.86	Joback Method
hfust	68.83	kJ/mol	338.70	NIST Webbook
hfust	37.49	kJ/mol	335.30	NIST Webbook
hfust	68.83	kJ/mol	338.70	NIST Webbook

hvapt	152.30	kJ/mol	298.15	Vapor Pressures and Vaporization Enthalpies of the n-Alkanes from C21 to C30 at T = 298.15 K by Correlation Gas Chromatography
hvapt	111.30	kJ/mol	609.00	NIST Webbook
hvapt	143.00 ± 2.00	kJ/mol	454.50	NIST Webbook
pvap	1.15e-03	kPa	432.36	Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K
pvap	127.80	kPa	737.80	Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method
pvap	82.32	kPa	713.50	Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method
pvap	4.51e-03	kPa	452.34	Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K
pvap	4.57e-03	kPa	452.32	Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K
pvap	2.33e-03	kPa	442.48	Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K

pvap	190.20	kPa	761.20	Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method
pvap	282.40	kPa	786.00	Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method
pvap	414.10	kPa	809.60	Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method
pvap	1.13e-03	kPa	432.37	Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K
sfust	203.24	J/mol×K	338.70	NIST Webbook
sfust	111.82	J/mol×K	335.30	NIST Webbook

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	531.70	K	0.40	NIST Webbook

Sources

Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Vapor Pressures and Vaporization Enthalpies of the n-Alkanes from C21 to C30 at T = 298.15 K by Correlation Gas Chromatography:	https://www.doi.org/10.1021/je0301747
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Critical temperatures and pressures of C40, C44, and C60 normal alkanes measured by the pulse heating technique:	https://www.doi.org/10.1016/j.fluid.2014.07.017
Thermal conductivity of heavy, even-carbon number n-alkanes (C22 to C32):	https://www.doi.org/10.1016/j.fluid.2018.08.016

High pressure solid solid and solid liquid transition data for long chain alkanes:	https://www.doi.org/10.1016/j.jct.2008.07.017
Critical Point and Vapor Pressure Measurements for Seven Compounds by a Low Residence Time Flow Method:	https://www.doi.org/10.1021/je060088h
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Experimental Vapor Pressures of Six n-Alkanes (C21, C23, C25, C27, C29, C30) in the Temperature Range between 350 K and 460 K:	https://www.doi.org/10.1021/je050182i
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C638686&Units=SI

Legend

cpg:	Ideal gas heat capacity
cps:	Solid 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
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
sfust:	Entropy of fusion at a given temperature
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume