Ethylene, 1,2-dichloro-, (E)-

Other names:	(E)-1,2-DICHLOROETHYLENE (E)-1,2-Dichloroethene (E)-CHCl=CHCl 1,2-trans-Dichloroethene 1,2-trans-Dichloroethylene 1,trans-2-Dichloroethene Dichloroethylene, trans- Ethene, 1,2-dichloro-, (1E)- Ethene, 1,2-dichloro-, (E)- Ethylene, 1,2-dichloro-, trans- HCC 1130t NSC 60512 R 1130t Rcra waste number U079 TRANS-1,2-DICHLOROETHENE TRANS-1,2-DICHLOROETHYLENE TRANS-ACETYLENE DICHLORIDE ethene, 1,2-dichloro-, trans- trans-Di-1,2-Chloroethylene trans-Dichloroethylene
Inchi:	InChI=1S/C2H2Cl2/c3-1-2-4/h1-2H/b2-1+
InchiKey:	KFUSEUYYWQURPO-OWOJBTEDSA-N
Formula:	$C_2H_2Cl_2$
SMILES:	ClC=CCl
Mol. weight [g/mol]:	96.94
CAS:	156-60-5

Physical Properties

Property code	Value	Unit	Source
af	0.2320		KDB
chl	-1095.80 ± 8.40	kJ/mol	NIST Webbook
dm	0.00	debye	KDB
gf	26.60	kJ/mol	KDB
hf	4.19	kJ/mol	KDB
hf	1.70	kJ/mol	NIST Webbook
hf	-1.00 ± 2.00	kJ/mol	NIST Webbook
hfl	-14.34	kJ/mol	NIST Webbook

hfl	-30.00 ± 2.20	kJ/mol	NIST Webbook
hfus	9.53	kJ/mol	Joback Method
hvap	29.47	kJ/mol	NIST Webbook
hvap	30.00 ± 1.00	kJ/mol	NIST Webbook
ie	9.69	eV	NIST Webbook
ie	9.64 ± 0.02	eV	NIST Webbook
ie	9.60	eV	NIST Webbook
ie	9.66 ± 0.03	eV	NIST Webbook
ie	9.64 ± 0.02	eV	NIST Webbook
ie	9.63	eV	NIST Webbook
ie	9.80	eV	NIST Webbook
ie	9.80	eV	NIST Webbook
ie	11.92	eV	NIST Webbook
ie	9.72	eV	NIST Webbook
ie	9.64	eV	NIST Webbook
log10ws	-1.81		Crippen Method
logp	1.935		Crippen Method
mcvol	59.220	ml/mol	McGowan Method
nfpaf	%!d(float64=3)		KDB
nfpah	%!d(float64=2)		KDB
nfpas	%!d(float64=2)		KDB
pc	5510.00	kPa	KDB
rinpol	555.00		NIST Webbook
rinpol	551.00		NIST Webbook
rinpol	596.00		NIST Webbook
rinpol	567.00		NIST Webbook
rinpol	558.00		NIST Webbook
rinpol	559.00		NIST Webbook
rinpol	558.00		NIST Webbook
rinpol	551.00		NIST Webbook
rinpol	528.00		NIST Webbook
rinpol	559.00		NIST Webbook
rinpol	557.00		NIST Webbook
rinpol	551.00		NIST Webbook
ripol	870.00		NIST Webbook
ripol	863.21		NIST Webbook
ripol	867.61		NIST Webbook
ripol	866.47		NIST Webbook
ripol	870.00		NIST Webbook
tb	320.50 ± 0.40	K	NIST Webbook
tb	320.45 ± 0.25	K	NIST Webbook
tb	320.70	K	NIST Webbook
tb	321.40 ± 0.60	K	NIST Webbook
tb	321.88	K	KDB

tb	321.40 ± 0.70	K	NIST Webbook
tb	322.70 ± 2.00	K	NIST Webbook
tc	516.50	K	KDB
tf	223.00 ± 0.10	K	NIST Webbook
tf	223.30	K	KDB
vc	0.226	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	67.02	J/mol×K	324.18	Joback Method
cpg	73.95	J/mol×K	388.47	Joback Method
cpg	77.04	J/mol×K	420.62	Joback Method
cpg	79.90	J/mol×K	452.76	Joback Method
cpg	84.99	J/mol×K	517.06	Joback Method
cpg	82.55	J/mol×K	484.91	Joback Method
cpg	70.61	J/mol×K	356.33	Joback Method
cpl	112.08	J/mol×K	278.51	Heat capacities of selected chlorohydrocarbons
cpl	113.49	J/mol×K	288.72	Heat capacities of selected chlorohydrocarbons
cpl	113.41	J/mol×K	288.72	Heat capacities of selected chlorohydrocarbons
cpl	112.91	J/mol×K	288.72	Heat capacities of selected chlorohydrocarbons
cpl	112.58	J/mol×K	288.72	Heat capacities of selected chlorohydrocarbons
cpl	114.24	J/mol×K	298.93	Heat capacities of selected chlorohydrocarbons
cpl	112.41	J/mol×K	278.51	Heat capacities of selected chlorohydrocarbons
cpl	113.82	J/mol×K	298.93	Heat capacities of selected chlorohydrocarbons
cpl	113.41	J/mol×K	298.93	Heat capacities of selected chlorohydrocarbons
cpl	115.07	J/mol×K	309.14	Heat capacities of selected chlorohydrocarbons

cpl	114.49	J/mol×K	309.14	Heat capacities of selected chlorohydrocarbons
cpl	114.16	J/mol×K	309.14	Heat capacities of selected chlorohydrocarbons
cpl	113.66	J/mol×K	309.14	Heat capacities of selected chlorohydrocarbons
cpl	113.00	J/mol×K	288.00	NIST Webbook
cpl	112.83	J/mol×K	278.51	Heat capacities of selected chlorohydrocarbons
cpl	112.99	J/mol×K	278.51	Heat capacities of selected chlorohydrocarbons
cpl	112.08	J/mol×K	268.30	Heat capacities of selected chlorohydrocarbons
cpl	112.41	J/mol×K	268.30	Heat capacities of selected chlorohydrocarbons
cpl	112.74	J/mol×K	268.30	Heat capacities of selected chlorohydrocarbons
cpl	113.99	J/mol×K	298.93	Heat capacities of selected chlorohydrocarbons
cpl	113.08	J/mol×K	268.30	Heat capacities of selected chlorohydrocarbons
dvisc	0.0006046	Pa×s	245.62	Joback Method
dvisc	0.0004387	Pa×s	271.81	Joback Method
dvisc	0.0003368	Pa×s	297.99	Joback Method
dvisc	0.0002698	Pa×s	324.18	Joback Method
dvisc	0.0014903	Pa×s	193.25	Joback Method
dvisc	0.0028927	Pa×s	167.06	Joback Method
dvisc	0.0008995	Pa×s	219.43	Joback Method
hvapt	30.30	kJ/mol	321.50	KDB
hvapt	30.10	kJ/mol	296.00	NIST Webbook
hvapt	30.40	kJ/mol	293.00	NIST Webbook
hvapt	29.00	kJ/mol	397.00	NIST Webbook
hvapt	31.40	kJ/mol	296.50	NIST Webbook

pvap	269.90	kPa	353.15	Phase Equilibria on Four Binary Systems: 1,2-Dichloroethane + trans-1,2-Dichloroethylene, 1-Octene + 2-Methyl Thiophene, 2-Ethyl Thiophene + 2,2,4-Trimethylpentane, and Cyclopropanecarbonitrile + Water
pvap	53.33	kPa	303.15	Phase Equilibria on Four Binary Systems: 1,2-Dichloroethane + trans-1,2-Dichloroethylene, 1-Octene + 2-Methyl Thiophene, 2-Ethyl Thiophene + 2,2,4-Trimethylpentane, and Cyclopropanecarbonitrile + Water
rhol	1255.00	kg/m3	293.00	KDB
srf	0.02	N/m	293.20	KDB

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.50408e+01
Coeff. B	-3.02933e+03
Coeff. C	-3.03460e+01
Temperature range (K), min.	223.35
Temperature range (K), max.	516.50

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	8.76830e+01
Coeff. B	-6.29447e+03
Coeff. C	-1.11957e+01

Coeff. D	1.15854e-05
Temperature range (K), min.	223.35
Temperature range (K), max.	513.00

Sources

KDB Vapor Pressure Data:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1724
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C156605&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Heat capacities of selected chlorohydrocarbons:	https://www.doi.org/10.1016/j.fluid.2012.09.001
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Determination of Henry's Law Constants Using Internal Standards With Benchmark Values:	https://www.doi.org/10.1021/je3010535
KDB Pure (Korean Thermophysical Properties Databank):	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1724
KDB:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1724
Phase Equilibria on Four Binary Systems: 1,2-Dichloroethane + trans-1,2-Dichloroethylene, 1-Octene + 2-Methyl Thiophene, 2-Ethyl Thiophene + 2,2,4-Trimethylpentane, and Cyclopropanecarbonitrile + Water:	https://www.doi.org/10.1021/je050473r

Legend

af:	Acentric Factor
chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dm:	Dipole Moment
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfl:	Liquid phase 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
nfpaf:	NFPA Fire Rating

nfpah:	NFPA Health Rating
nfpas:	NFPA Safety Rating
pc:	Critical Pressure
pvap:	Vapor pressure
rhol:	Liquid Density
rinpol:	Non-polar retention indices
ripol:	Polar retention indices
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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