

# 2-Propenoic acid, ethyl ester

Other names:	Acrylate d'ethyle
	Acrylic acid ethyl ester
	Acrylic acid, ethyl ester (inhibited)
	Acrylsaeureaethylester
	Aethylacrylat
	Akrylanem etylu
	CH2=CHCOOC2H5
	Carboset 511
	ETHYL PROPENOATE
	Ethoxycarbonylethylene
	Ethyl 2-propenoate
	Ethyl acrylate
	Ethyl acrylate, inhibited
	Ethyl ester of 2-propenoic acid
	Ethylacrylaat
	Ethylakrylat
	Ethylester kyseliny akrylove
	Etil acrilato
	Etilacrilatului
	NCI-C50384
	NSC 8263
	Rcra waste number U113
	acrylic acid, ethyl ester
	propenoic acid, ethyl ester
Inchi:	InChI=1S/C5H8O2/c1-3-5(6)7-4-2/h3H,1,4H2,2H3
InchiKey:	JIGUQPWFLRLWPJ-UHFFFAOYSA-N
Formula:	C5H8O2
SMILES:	C=CC(=O)OCC
Mol. weight [g/mol]:	100.12
CAS:	140-88-5

## Physical Properties

Property code	Value	Unit	Source
af	0.4000		KDB
chl	-2715.00	kJ/mol	NIST Webbook
gf	-154.86	kJ/mol	Joback Method

hf	-327.80	kJ/mol	NIST Webbook
hf	-331.40	kJ/mol	NIST Webbook
hf	-354.20	kJ/mol	NIST Webbook
hfl	-367.00	kJ/mol	NIST Webbook
hfl	-393.40	kJ/mol	NIST Webbook
hfl	-370.60	kJ/mol	NIST Webbook
hfus	10.21	kJ/mol	Joback Method
hvap	39.20	kJ/mol	NIST Webbook
hvap	39.20	kJ/mol	NIST Webbook
ie	10.30	eV	NIST Webbook
log10ws	-0.74		Aqueous Solubility Prediction Method
logp	0.735		Crippen Method
mcvol	84.450	ml/mol	McGowan Method
nfpaf	%!d(float64=3)		KDB
nfpah	%!d(float64=2)		KDB
nfpas	%!d(float64=2)		KDB
pc	3740.00	kPa	KDB
rinpol	676.00		NIST Webbook
rinpol	676.00		NIST Webbook
rinpol	677.00		NIST Webbook
rinpol	664.00		NIST Webbook
rinpol	681.00		NIST Webbook
rinpol	681.00		NIST Webbook
rinpol	702.00		NIST Webbook
rinpol	648.00		NIST Webbook
rinpol	683.00		NIST Webbook
rinpol	678.00		NIST Webbook
rinpol	664.00		NIST Webbook
rinpol	664.00		NIST Webbook
rinpol	684.00		NIST Webbook
rinpol	648.00		NIST Webbook
rinpol	644.00		NIST Webbook
rinpol	644.00		NIST Webbook
rinpol	676.00		NIST Webbook
rinpol	678.00		NIST Webbook
rinpol	681.00		NIST Webbook
rinpol	680.00		NIST Webbook
rinpol	678.00		NIST Webbook
ripol	992.00		NIST Webbook
ripol	993.00		NIST Webbook
ripol	980.00		NIST Webbook
ripol	992.00		NIST Webbook
ripol	989.00		NIST Webbook
tb	373.00	K	NIST Webbook

tb	372.75	K	NIST Webbook
tb	373.00	K	NIST Webbook
tb	373.00	K	KDB
tb	372.50 ± 3.00	K	NIST Webbook
tc	552.00	K	KDB
tf	202.10	K	Aqueous Solubility Prediction Method
tf	201.00	K	KDB
tf	201.15	K	NIST Webbook
vc	0.320	m3/kmol	KDB
zc	0.2607630		KDB

## Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	191.98	J/molxK	569.17	Joback Method
cpg	157.10	J/molxK	417.17	Joback Method
cpg	164.59	J/molxK	447.57	Joback Method
cpg	171.82	J/molxK	477.97	Joback Method
cpg	178.80	J/molxK	508.37	Joback Method
cpg	149.35	J/molxK	386.77	Joback Method
cpg	185.52	J/molxK	538.77	Joback Method
dvisc	0.0002673	Paxs	386.77	Joback Method
dvisc	0.0003338	Paxs	358.39	Joback Method
dvisc	0.0004330	Paxs	330.02	Joback Method
dvisc	0.0005898	Paxs	301.64	Joback Method
dvisc	0.0024241	Paxs	216.51	Joback Method
dvisc	0.0008567	Paxs	273.26	Joback Method
dvisc	0.0013568	Paxs	244.89	Joback Method
hvapt	41.40	kJ/mol	307.50	NIST Webbook
rfi	1.39990		313.15	Volumetric, Viscometric, Ultrasonic, and Refractive Index Properties of Liquid Mixtures of Benzene with Industrially Important Monomers at Different Temperatures

rfi	1.40490		298.15	Volumetric, Viscometric, Ultrasonic, and Refractive Index Properties of Liquid Mixtures of Benzene with Industrially Important Monomers at Different Temperatures
rfi	1.40320		303.15	Volumetric, Viscometric, Ultrasonic, and Refractive Index Properties of Liquid Mixtures of Benzene with Industrially Important Monomers at Different Temperatures
rfi	1.40140		308.15	Volumetric, Viscometric, Ultrasonic, and Refractive Index Properties of Liquid Mixtures of Benzene with Industrially Important Monomers at Different Temperatures
rhoI	895.68	kg/m3	315.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	889.77	kg/m3	320.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	886.80	kg/m3	323.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	883.82	kg/m3	325.65	Thermophysical Properties of Three Compounds from the Acrylate Family

rhoI	892.73	kg/m3	318.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	877.83	kg/m3	330.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	874.83	kg/m3	333.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	871.81	kg/m3	335.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	868.78	kg/m3	338.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	880.83	kg/m3	328.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	898.63	kg/m3	313.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	901.56	kg/m3	310.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	904.49	kg/m3	308.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	907.41	kg/m3	305.65	Thermophysical Properties of Three Compounds from the Acrylate Family

rhoI	910.32	kg/m3	303.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	913.22	kg/m3	300.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	916.12	kg/m3	298.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	919.01	kg/m3	295.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	921.90	kg/m3	293.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	924.78	kg/m3	290.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	927.65	kg/m3	288.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	930.52	kg/m3	285.65	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	933.39	kg/m3	283.15	Thermophysical Properties of Three Compounds from the Acrylate Family
rhoI	936.25	kg/m3	280.65	Thermophysical Properties of Three Compounds from the Acrylate Family

rhoI	939.09	kg/m3	278.15	Thermophysical Properties of Three Compounds from the Acrylate Family	
rhoI	915.95	kg/m3	298.15	Densities and volumetric properties of binary mixtures of N,N-dimethylformamide/N,N-dimethylacetamide with some alkyl acrylates at temperatures from 288.15 K to 318.15 K	
rhoI	916.12	kg/m3	298.15	Volumetric Properties of 3-Methylbutyl Ethanoate with Ethyl Acrylate, Butyl Acrylate, Methyl Methacrylate, and Styrene at 25 C	
rhoI	921.00	kg/m3	293.00	KDB	

## Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.46709e+01
Coeff. B	-3.28201e+03
Coeff. C	-4.65160e+01
Temperature range (K), min.	274.70
Temperature range (K), max.	397.18

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	9.87203e+01
Coeff. B	-7.84512e+03
Coeff. C	-1.25776e+01
Coeff. D	1.02128e-05
Temperature range (K), min.	201.95

## Sources

Densities and volumetric properties of (acetonitrile + alkyl acrylate monomer) binary mixtures at temperatures from 293.15 K to 318.15 K: KDB:

<https://www.doi.org/10.1016/j.jct.2016.08.026>

Densities and volumetric properties of binary mixtures of N,N-dimethylformamide/N,N-dimethylacetamide with some alkyl acrylates at temperatures from 298.15 K to 318.15 K: Crippen Method:

<https://www.doi.org/10.1016/j.jct.2012.10.015>

Volumetric, Viscometric, Ultrasonic, and Refractive Index Properties of Ternary Mixtures of Benzene with Methyl acrylate, or + ethyl acrylate, or + n-butyl acrylate, or + tert-butyl acrylate binary mixtures: KDB Vapor Pressure Data:

[https://en.wikipedia.org/wiki/Joback\\_method](https://en.wikipedia.org/wiki/Joback_method)

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

<http://pubs.acs.org/doi/abs/10.1021/ci9903071>

<https://www.doi.org/10.1007/s10765-009-0562-x>

<https://www.doi.org/10.1016/j.jct.2016.10.042>

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

<https://www.thermo.com/research/kdb/hcprop/showprop.php?cmpid=1169>

Ultrasonic velocities, densities, and excess molar volumes of binary mixtures of N,N-dimethylformamide/N,N-dimethylacetamide with some alkyl acrylates at temperatures from 298.15 K to 318.15 K: Crippen Method:

<https://www.doi.org/10.1016/j.jct.2011.06.011>

<https://www.doi.org/10.1021/je301333b>

<https://www.doi.org/10.1007/s10765-005-5571-9>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C140885&Units=SI>

## Legend

af:	Acentric Factor
chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
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



<b>nfpas:</b>	NFPA Safety Rating
<b>pc:</b>	Critical Pressure
<b>pvap:</b>	Vapor pressure
<b>rfi:</b>	Refractive Index
<b>rhol:</b>	Liquid Density
<b>rinpol:</b>	Non-polar retention indices
<b>ripol:</b>	Polar retention indices
<b>tb:</b>	Normal Boiling Point Temperature
<b>tc:</b>	Critical Temperature
<b>tf:</b>	Normal melting (fusion) point
<b>vc:</b>	Critical Volume
<b>zc:</b>	Critical Compressibility

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