

# 1-Decanol

**Other names:** 1-Hydroxydecane; Agent 504; Alcohol C10; Alfol 10; Antak; C 10 alcohol; Capric alcohol; Caprinic alcohol; Conol 10N; Decan-1-ol; Decanol; Decanol-(1); Decyl alcohol; Decyl, n- alcohol; Decylic Alcohol; Dytol S-91; Epal 10; Kalcohol 10H; Lorol 22; Lorol C10; NSC 406313; Nacol 10-99; Nonylcacabinol; Nonylcarbinol; Primary decyl alcohol; Royaltac; Royaltac M-2; Royaltac-85; Sipol L10; T-148; n-Decan-1-ol; n-Decanol; n-Decyl alcohol.



**InChI:** InChI=1S/C10H22O/c1-2-3-4-5-6-7-8-9-10-11/h11H,2-10H2,1H3

**InChI Key:** MWKFXSUHUHTGQN-UHFFFAOYSA-N

**Formula:** C10H22O

**SMILES:** CCCCCCCCCO

**Molecular Weight:** 158.28

**CAS:** 112-30-1

## Physical Properties

Property	Value	Unit	Source
$\Delta_c H^\circ_{\text{liquid}}$	-6619.00 ± 8.00	kJ/mol	NIST Webbook
$\Delta_c H^\circ_{\text{liquid}}$	-6601.10 ± 1.10	kJ/mol	NIST Webbook
$\Delta_c H^\circ_{\text{liquid}}$	-6599.63 ± 0.75	kJ/mol	NIST Webbook
$\Delta_c H^\circ_{\text{liquid}}$	-6593.30 ± 3.30	kJ/mol	NIST Webbook
$\Delta_c H^\circ_{\text{liquid}}$	-6593.10	kJ/mol	NIST Webbook
$\Delta_f G^\circ$	-103.50	kJ/mol	Joback Method
$\Delta_f H^\circ_{\text{gas}}$	-387.20	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{gas}}$	-396.60 ± 1.40	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{gas}}$	-388.80	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{gas}}$	-398.20 ± 1.20	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{gas}}$	-395.20 ± 2.40	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{gas}}$	-404.60 ± 3.10	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{liquid}}$	-478.10 ± 1.10	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{liquid}}$	-479.74 ± 0.96	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{liquid}}$	-486.10 ± 3.30	kJ/mol	NIST Webbook
$\Delta_f H^\circ_{\text{liquid}}$	-486.10 ± 3.00	kJ/mol	NIST Webbook

Property	Value	Unit	Source
$\Delta_{\text{fus}} H^\circ$	25.74	kJ/mol	Joback Method
$\Delta_{\text{sub}} H^\circ$	112.50 ± 6.30	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.50	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	80.90	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.70	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	79.30	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.49 ± 0.78	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.50 ± 0.80	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.50 ± 0.75	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	81.50 ± 0.80	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	77.80 ± 0.80	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	82.90 ± 2.10	kJ/mol	NIST Webbook
$\Delta_{\text{vap}} H^\circ$	90.90	kJ/mol	NIST Webbook
$\log P_{\text{oct/wat}}$	3.12		Crippen Method
$P_c$	2320.00 ± 50.00	kPa	NIST Webbook
$P_c$	2310.00 ± 60.00	kPa	NIST Webbook
$P_c$	2320.00 ± 20.00	kPa	NIST Webbook
$P_c$	2320.00 ± 20.00	kPa	NIST Webbook
$P_{\text{triple}}$	0.00 ± 0.00	kPa	NIST Webbook
$T_{\text{boil}}$	380.70	K	NIST Webbook
$T_{\text{boil}}$	504.20	K	NIST Webbook
$T_{\text{boil}}$	504.15 ± 0.50	K	NIST Webbook
$T_{\text{boil}}$	504.45 ± 2.00	K	NIST Webbook
$T_{\text{boil}}$	502.99 ± 2.00	K	NIST Webbook
$T_{\text{boil}}$	505.95 ± 2.00	K	NIST Webbook
$T_{\text{boil}}$	502.15 ± 3.00	K	NIST Webbook
$T_{\text{boil}}$	503.65 ± 3.00	K	NIST Webbook
$T_{\text{boil}}$	502.65 ± 4.00	K	NIST Webbook

Property	Value	Unit	Source
$T_{\text{boil}}$	504.65 ± 4.00	K	NIST Webbook
$T_{\text{boil}}$	503.15 ± 4.00	K	NIST Webbook
$T_{\text{boil}}$	505.95 ± 0.40	K	NIST Webbook
$T_{\text{boil}}$	506.10 ± 0.50	K	NIST Webbook
$T_{\text{boil}}$	506.05 ± 1.00	K	NIST Webbook
$T_{\text{boil}}$	506.10 ± 0.50	K	NIST Webbook
$T_{\text{boil}}$	506.10 ± 0.50	K	NIST Webbook
$T_{\text{boil}}$	504.15 ± 3.00	K	NIST Webbook
$T_{\text{boil}}$	476.00 ± 5.00	K	NIST Webbook
$T_{\text{c}}$	687.00 ± 1.00	K	NIST Webbook
$T_{\text{c}}$	687.70 ± 1.00	K	NIST Webbook
$T_{\text{c}}$	687.00 ± 0.70	K	NIST Webbook
$T_{\text{c}}$	687.00 ± 0.60	K	NIST Webbook
$T_{\text{c}}$	687.10	K	NIST Webbook
$T_{\text{c}}$	687.30 ± 1.30	K	NIST Webbook
$T_{\text{c}}$	687.00	K	NIST Webbook
$T_{\text{c}}$	708.00 ± 2.00	K	NIST Webbook
$T_{\text{fus}}$	279.60 ± 0.50	K	NIST Webbook
$T_{\text{fus}}$	280.05 ± 0.40	K	NIST Webbook
$T_{\text{fus}}$	277.00 ± 3.00	K	NIST Webbook
$T_{\text{triple}}$	279.65 ± 1.00	K	NIST Webbook
$V_{\text{c}}$	0.65	m <sup>3</sup> /kg-mol	NIST Webbook

## Temperature Dependent Properties

Property	Value	Unit	Temperature (K)	Source
$C_{\text{p,gas}}$	380.60	J/mol×K	520.38	Joback Method
$C_{\text{p,liquid}}$	372.98	J/mol×K	298.15	NIST Webbook

Property	Value	Unit	Temperature (K)	Source
$C_{p,liquid}$	369.96	J/mol×K	298.15	NIST Webbook
$C_{p,liquid}$	377.00	J/mol×K	301.0	NIST Webbook
$C_{p,liquid}$	377.30	J/mol×K	303.15	NIST Webbook
$C_{p,liquid}$	387.80	J/mol×K	304.05	NIST Webbook
$C_{p,liquid}$	377.80	J/mol×K	305.79	NIST Webbook
$\eta$	0.00	Paxs	520.38	Joback Method
$\Delta_{fus} H$	33.67	kJ/mol	280.0	NIST Webbook
$\Delta_{fus} H$	37.66	kJ/mol	280.1	NIST Webbook
$\Delta_{fus} H$	37.66	kJ/mol	280.1	NIST Webbook
$\Delta_{sub} H$	115.50 ± 6.30	kJ/mol	268.5	NIST Webbook
$\Delta_{vap} H$	79.50	kJ/mol	304.0	NIST Webbook
$\Delta_{vap} H$	77.60	kJ/mol	311.5	NIST Webbook
$\Delta_{vap} H$	77.60	kJ/mol	311.5	NIST Webbook
$\Delta_{vap} H$	78.20 ± 0.80	kJ/mol	323.0	NIST Webbook
$\Delta_{vap} H$	78.18	kJ/mol	323.15	NIST Webbook
$\Delta_{vap} H$	81.10	kJ/mol	328.0	NIST Webbook
$\Delta_{vap} H$	75.40	kJ/mol	335.5	NIST Webbook
$\Delta_{vap} H$	71.60	kJ/mol	379.5	NIST Webbook
$\Delta_{vap} H$	69.60	kJ/mol	412.5	NIST Webbook
$\Delta_{vap} H$	69.50	kJ/mol	441.0	NIST Webbook
$\Delta_{vap} H$	62.60	kJ/mol	466.5	NIST Webbook
$\Delta_{vap} H$	53.90	kJ/mol	501.5	NIST Webbook
$\Delta_{vap} S$	241.93	J/mol×K	323.15	NIST Webbook

## Sources

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

**NIST Webbook:**

<http://webbook.nist.gov/cgi/inchi/InChI=1S/C10H22O/c1-2-3-4-5-6-7-8-9-10-11/h11H,2-10H2,1H3>

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

## Legend

$\Delta_c H^\circ_{\text{liquid}}$ : Standard liquid enthalpy of combustion (kJ/mol).

$C_{p,\text{gas}}$ : Ideal gas heat capacity (J/mol $\times$ K).

$C_{p,\text{liquid}}$ : Liquid phase heat capacity (J/mol $\times$ K).

$\eta$ : Dynamic viscosity (Pa $\times$ s).

$\Delta_f G^\circ$ : Standard Gibbs free energy of formation (kJ/mol).

$\Delta_f H^\circ_{\text{gas}}$ : Enthalpy of formation at standard conditions (kJ/mol).

$\Delta_f H^\circ_{\text{liquid}}$ : Liquid phase enthalpy of formation at standard conditions (kJ/mol).

$\Delta_{\text{fus}} H^\circ$ : Enthalpy of fusion at standard conditions (kJ/mol).

$\Delta_{\text{fus}} H$ : Enthalpy of fusion at a given temperature (kJ/mol).

$\Delta_{\text{sub}} H^\circ$ : Enthalpy of sublimation at standard conditions (kJ/mol).

$\Delta_{\text{sub}} H$ : Enthalpy of sublimation at a given temperature (kJ/mol).

$\Delta_{\text{vap}} H^\circ$ : Enthalpy of vaporization at standard conditions (kJ/mol).

$\Delta_{\text{vap}} H$ : Enthalpy of vaporization at a given temperature (kJ/mol).

$\log P_{\text{oct/wat}}$ : Octanol/Water partition coefficient.

$P_c$ : Critical Pressure (kPa).

$P_{\text{triple}}$ : Triple Point Pressure (kPa).

$\Delta_{\text{vap}} S$ : Entropy of vaporization at a given temperature (J/mol $\times$ K).

$T_{\text{boil}}$ : Normal Boiling Point Temperature (K).

$T_c$ : Critical Temperature (K).

$T_{\text{fus}}$ : Normal melting (fusion) point (K).

$T_{\text{triple}}$ : Triple Point Temperature (K).

$V_c$ : Critical Volume (m<sup>3</sup>/kg-mol).

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