

Xenon

Other names:	UN 2036 UN 2591 Xe Xeneisol 133A Xenomatic Xenon atom
Inchi:	InChI=1S/Xe
InchiKey:	FHNFHKCVQCLJFQ-UHFFFAOYSA-N
Formula:	Xe
SMILES:	[Xe]
Mol. weight [g/mol]:	131.29
CAS:	7440-63-3

Physical Properties

Property code	Value	Unit	Source
af	0.0080		KDB
affp	499.60	kJ/mol	NIST Webbook
affp	495.80 ± 8.40	kJ/mol	NIST Webbook
basg	474.50 ± 8.40	kJ/mol	NIST Webbook
basg	478.10	kJ/mol	NIST Webbook
dm	0.00	debye	KDB
ep	37.00	J/mol×K	NIST Webbook
ie	12.12 ± 0.02	eV	NIST Webbook
ie	12.15 ± 0.03	eV	NIST Webbook
ie	12.12 ± 0.00	eV	NIST Webbook
ie	12.09 ± 0.03	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13 ± 0.00	eV	NIST Webbook
ie	12.12 ± 0.01	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13 ± 0.00	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.03	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.13	eV	NIST Webbook
ie	12.17	eV	NIST Webbook

ie	12.13 ± 0.00	eV	NIST Webbook
pc	5840.00	kPa	KDB
pt	81.59	kPa	KDB
pt	81.65 ± 0.19	kPa	NIST Webbook
pt	81.60 ± 0.01	kPa	NIST Webbook
pt	61.66 ± 0.01	kPa	NIST Webbook
rhoc	1099.05 ± 1.09	kg/m3	NIST Webbook
sgb	169.69 ± 0.00	J/mol×K	NIST Webbook
tb	165.11	K	KDB
tb	165.02 ± 0.05	K	NIST Webbook
tc	289.74 ± 0.02	K	NIST Webbook
tc	289.73	K	KDB
tf	161.40	K	KDB
tt	161.40	K	KDB
tt	161.40 ± 0.30	K	NIST Webbook
tt	161.38 ± 0.02	K	NIST Webbook
tt	161.37 ± 0.05	K	NIST Webbook
tt	161.36 ± 0.20	K	NIST Webbook
vc	0.118	m3/kmol	KDB
zc	0.2860650		KDB
zra	0.28		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hvapt	15.79	kJ/mol	53.50	Measurements of enthalpy of sublimation of Ne, N ₂ , O ₂ , Ar, CO ₂ , Kr, Xe, and H ₂ O using a double paddle oscillator
rholf	3060.00	kg/m3	165.00	KDB

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{\text{vp}}) = A + B/(T + C)$

Coeff. A	1.41675e+01
Coeff. B	-1.61435e+03
Coeff. C	3.91000e+00
Temperature range (K), min.	161.40
Temperature range (K), max.	289.70

Sources

Solubility of gases in fluoroorganic alcohols. Part II. Solubilities of noble gases in (water + 1,1,1,3,3,3-hexafluoropropan-2-ol) at 286.15 K and 101.33 kPa:

Physical data for a process to separate krypton from air by selective solubilities of nonpolar gases in Triethylene Glycol Dimethyl Ether, On the behavior of solutions of Xenon in liquid cycloalkanes: Solubility of various noble gases in selected pairs of paraffin-gas systems determined Using a modified Delaney of solvation of Ne, N2, O2, Ar, CO2, Kr, Xe, and M20 in the Single Gases Methane and Xenon in the Tonic Liquid [J. Phys. Chem. 64]:

Solubilities of gases in cycloethers. The solubility of 13 nonpolar gases in 2,5-dimethyltetrahydrofuran at 273.15 to 303.15 K and 101.32 kPa:

<https://www.doi.org/10.1016/j.jct.2011.11.019>

<https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1967>

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

<https://www.doi.org/10.1016/j.fluid.2015.06.037>

<https://www.doi.org/10.1021/je020199q>

<https://www.doi.org/10.1016/j.fluid.2011.02.001>

<https://www.doi.org/10.1007/s10765-015-1981-5>

<https://www.doi.org/10.1016/j.jct.2017.11.004>

<https://www.doi.org/10.1021/je700319x>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C7440633&Units=SI>

<https://www.doi.org/10.1016/j.jct.2018.12.037>

Legend

af:	Acentric Factor
affp:	Proton affinity
basg:	Gas basicity
dm:	Dipole Moment
ep:	Protonation entropy at 298K
hvapt:	Enthalpy of vaporization at a given temperature
ie:	Ionization energy
pc:	Critical Pressure
pt:	Triple Point Pressure
pvap:	Vapor pressure
rhoc:	Critical density
rhol:	Liquid Density
sgb:	Molar entropy at standard conditions (1 bar)
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point

tt: Triple Point Temperature
vc: Critical Volume
zc: Critical Compressibility
zra: Rackett Parameter

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