Correlations among the values of the empirical constant **a** in the van der Waals gas equation, the depth of the well **ε** in the intermolecular potential energy function, the heat of vaporization ΔH_{vap}, and the normal boiling point T_{bp}, showing the effects of increasing force of attraction between molecules for various substances.

Substance	**a** (atm·L²/mole²)	**ε** (kJ/mole)	ΔH_{vap} (kJ/mole)	T_{bp} (K)
He	0.034	0.085	0.084	4.2
H_2	0.244	0.308	0.904	20
N_2	1.390	0.790	5.56	77
O_2	1.360	0.977	6.82	90
CH_4	2.253	1.23	8.16	109
Xe	4.194	1.84	12.64	166

All of these substances are electrically neutral: they possess no electric charge. No hydrogen bonding is possible in any of them; and all of them are sufficiently symmetric that they have no electric dipole moment: $\mu = 0$ in all cases. Thus the only attractive forces between the molecules of these substances are the very weak van der Waals forces known as **London dispersion forces**.

LIQUID-VAPOR EQUILIBRIA

The temperature dependence of the equilibrium vapor pressure of two liquids

H_2O (liquid) ⇄ H_2O (gas)		$CHCl_3$ (liquid) ⇄ $CHCl_3$ (gas)	
Temperature (°C)	Vapor pressure (mmHg)	Temperature (°C)	Vapor pressure (mmHg)
0	4.58	0	61.0
10	9.21	10	100.5
20	17.54	20	159.5
25	23.76	25	199.1
30	31.82	30	246.0
40	55.32	40	366.4
50	92.51	50	526.0
61.2	157.8	* 61.2 (T_{bp})	760.0
70	233.7	70	1019
75	289.1		
80	355.1	80	1403
* 100 (T_{bp})	760.0	100	2244
110	1074.6		

* The normal boiling point of any liquid is defined as that temperature at which the vapor pressure of the liquid is equal to 1.000 atm = 760 mmHg = 760 torr.