Estimation of the latent heat of vaporization of pure liquids at their normal boiling point using Trouton's rule, and Riedel's equation.

Trouton's rule

T_n	K	373.15
R	J/mol.K	8.314

ΔH_n	31023.7	J/mol
	1723.54	J/g

Riedel's equation

T_n	K	373.15
R	J/mol.K	8.314
T_c	K	647
P_c	Bar	220.5

T_{rn}	0.57674	
ΔH_n	42032.1	J/mol
	2335.12	J/g

Experimental

ΔH_n	2257	J/g

Watson's method:
The latent heat of vaporization of water at 100°C is 2257 J/g, estimate the latent heat at 300°C.

		State 1	State 2
T	°C	100	300
T	K	373.15	573.15
Tr	-	0.576739	0.886
ΔH	J/g	2257	1371.7

Experimental

ΔH	J/g	1406.0