Question #61124, Chemistry / Physical Chemistry | completed

Question:

Calculate the standard internal energy change for the formation of water at 298 K. The standard enthalpy of formation of H_2O (l) at 298 K is -285,8 kJ/mol.

Solution:

$\Delta G = \Delta H - T\Delta S$

ΔS (water, liquid)$_{298\ K}$ = 70,0 J/mole×K (reference data)

ΔG = - 285800 J/mole - 298 K × 70,0 J/mole×K = - 306660 J/mole = - 306,66 kJ/mole.

Answer: -**306,66 kJ/mole.**