

Gibbs free energy

@wikipedia

One of [Thermodynamic potentials](#) :
 $G(p,T) = H - TS = U + pV - TS$

where:

p	pressure	U	internal energy
V	volume	S	entropy
T	temperature	H	enthalpy

The expression for the infinitesimal reversible change in the [Gibbs free energy](#) G as a function of its "natural variables" p and T , for an [open system](#), subjected to the operation of external forces (for instance, electrical or magnetic) X_i , which cause the external parameters of the system a_i to change by an amount da_i , can be derived as follows from the first law for reversible processes:

(1)
$$dG = V dp - S dT + \sum_{i=1}^k \mu_i dN_i - \sum_{i=1}^n X_i da_i + \cdots$$

where

i	chemical potential of the i -th mixture component
N_i	number of particles (or number of moles) composing the i -th mixture component

See also

[Natural Science](#) / [Physics](#) / [Thermodynamics](#) / [Thermodynamic system](#)