1. Theory for Heat Capacity of Ideal Gas

I) KDB correlation equation (HC_CPGEQN)

Polynomial equation is used for Heat capacity of ideal gas.

\[ C^0_p(T) = \sum_{i=0}^{4} A_i T^i \]  \hspace{1cm} (1)

where, \( T \) is Kelvin and \( C^0_p(T) \) is kJ/kg-mol.K.

2. KDB Routines for Calculation of Ideal Gas Heat Capacity

KDB Ideal gas heat capacity calculation subroutine contain a KDB correlation equation.

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<td>KDB correlation equation</td>
<td>HC_KCPG</td>
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I) HC_CPGEQN

1. Usage : CALL HC_CPGEQN(ICN,T,HVP,IST)

2. Arguments

   ICN : Component ID number (1-50) to calculate heat of vaporization (integer, input)
   T : Temperature in Kelvin (real*8, input)
   CPG : Heat capacity of ideal gas in kJ/kg-mol.K (real*8, output)
   IST : Status of calculation (integer, output)
      = 0 : Normal termination
      = 301 : Heat of ideal gas heat capacity coefficient not available