**Training exercise 6**

*Task 1:*

We have assumed that molecular energy depends on pressure and temperature: . a)

1. *Why just 2 variables?*
2. *Why not other variables?*

For gases at low pressure, we assumed: .

1. *How can this be justified. What are the consequences if being outside the validity of this assumptions*

*Task 2:*

By choking, flowing water pressure is reduced from 15 to 5 bar. Upstream temperature is 10 C. The specific heat of water is :and the compressibility: .

1. *Estimate velocity through the choke*
2. *Estimate temperature at choke outlet*
3. *Estimate downstream temperature*

*Task 3*

By choking, flowing gas pressure is reduced from 15 to 5 bar. Upstream temperature is 10 C. Molweight is: 29 kg/kmol and the specific heat: .

1. *Estimate velocity through the choke*
2. *The steel in the choke considered is certified for temperatures between 100 and -10C*

*Is this acceptable?*

1. *Estimate downstream temperature*

