
EXAMPLE: Properties o' mixtures

Dry atmospheric air is actually a mixture of gases including oxygen, nitrogen, argon and trace amounts of other gases. Consider 1 m³ of air for which the **volumetric composition** is 21% O₂, 78% N₂ and 1% Ar. Initially the air is at 27°C and 100 kPa. It is then heated to 227°C at constant volume.

- (a) Find the apparent molar mass and the ideal gas constant for the air.
- (b) Find the mass of the air.
- (c) Assuming variable specific heats,
 - i. find the heat transfer added to the air during the process, and
 - ii. calculate the entropy generated during the process, in kJ/K.
- (d) Repeat (c) by using the air tables instead of using the given mixture composition.

(a) Assume you have _____ of mixture.

<i>i</i>				
<i>O₂</i>				
<i>N₂</i>				
<i>Ar</i>				