# Experiment # 5

## Molar Mass by Vapor Density

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Lab Partners: N/A

Data Section

1. Temperature of water ----------317.5----------K
2. Weight of flask, foil and condensed vapor ----------117.95---------- g
3. Weight of empty flask plus foil ----------117.71---------- g
4. Weight of condensed vapor ----------0.29---------- g
5. Volume of water required to fill the flask (that is equal to the volume of the gas) -----0.265L---------- mL
6. Barometric Pressure -----1.0015 atm---------- mmHg

7. Molar mass of compound (see Equation1 and 2- remember to use the proper units for ideal gas equation. Show your work) 28.4 g/mol

WORKING

*n* = PV/ RT

P = 1.0015 atm

V = 0.0265L

R= 0.0821L atm/mol K

T= 317.5 K

(1.0015 atm)(0.265 L) / (0.0821)(317.5) = 0.0102 mol

M = m / *n*

m= .29

*n*= .0102

0.29/0.0102 = 28.4 g/mol