Answer on Question #59641, Chemistry, General Chemistry

Question: The temperature, in °C , occupied by 0.643 moles of O_2 gas at 0.893 atm pressure and a volume of 14.7 L is.

Solution:
0.893 atm = 90483.2 Pa
14.7 L = $14.7*10^{-3}$ m^3
The Clapeyron law:
PV=nRT
T=PV/nR = (90483.2 Pa * $14.7*10^{-3}$ m^3)/(0.643*8.314)=248.8 K = -24.2 C

Answer:
-24.2 C