

Name: _____ Period: ___ Date: _____

STP: Standard Temperature and Pressure Worksheet

The volume of a gas changes considerably with changes in temperature and pressure (unlike liquids and solids, which undergo very little change in volume with temperature (K) and pressure changes). Therefore, comparisons of gas volumes may be made only if the gases are at the same temperature and pressure. The temperature and pressure used for comparison purposes are:

Standard temperature = 0°C = 273 K and **Standard pressure = 1 atm = 760 mm Hg**

Standard temperature and standard pressure together are referred to as standard conditions, often called STP conditions. Recall that **°C + 273 = K**

- Change the following volumes of neon gas to STP conditions:
 - 5.73 L at 30°C and 2.00 atm
 - 25.1 mL at 0°C and 5.35 atm
 - 0.431L at 235 °C and 150.3 atm
 - 275 mL at -198°C and 285 mm Hg
- A quantity of NO₂ gas has a volume of 0.0835 L at STP. What is the pressure if the gas undergoes the following volume and temperature changes?
 - 1.03 L and 21°C
 - 21.0 mL and 325 °C
 - 2.10 L and -125 °C
 - 0.167 L and 546 °C
- A sample of Cl₂ gas occupies a volume of 8.50 liters at 25°C and 750 mm Hg. What volume will this Cl₂ gas occupy at STP?