Question:

A glass laboratory flask is filled with gas at 27°C and 0.97atm pressure, sealed, and then heated to 139°C. What is the pressure inside the flask?

Answer:

Gay-Lussac's law states that the pressure of a gas varies directly with the Kelvin temperature, assuming that volume is constant (in our case the volume of flask is constant). We use the following formula:

$$\frac{P_1}{T_1} = \frac{P_2}{T_2}$$

$$\frac{0.97 atm}{27 + 273} = \frac{P_2}{139 + 273}$$

Then $P_2 = 1.33 atm$

Answer: 1.33 atm.