Avogadro's Law

The Relationship between Amount of Gas and Volume

The amount of gas _____

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Lorenzo Romano Amedeo Carlo Avogadro the Count of Quaregna and Cerreto (9 August 1776 – 9 July 1856), was an Italian scientist, most noted for his contribution to molecular theory now known as **Avogadro's law, which states that equal volumes of gases under the same conditions of temperature and pressure will contain equal numbers of molecules.** In tribute to him, the number of elementary entities (atoms, molecules, ions or other particles) in 1 mole of a substance, 6.02×10^{23}, is known as the Avogadro constant, one of the seven SI base units and represented by N_A.

Equal volumes of gases under the same conditions of temperature and pressure contains the same number of particles.

Oxygen	Carbon dioxide

How much air do you put into a tire?

A flat tire is not very useful. It does not cushion the rim of the wheel and creates a very uncomfortable ride. When air is added to the tire, the pressure increases as more molecules of gas are forced into the rigid tire. How much air should be put into a tire depends on the pressure rating for that tire. Too little pressure and the tire will not hold its shape. Too much pressure and the tire could burst.

If you add gas to a rigid container what will happen and why?

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If you add gas to a flexible container what will happen and why?

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Avogadro's Law

Avogadro's hypothesis states that, "equal volumes of all gases, at the same temperature and pressure, have the same number of molecules".[1]

For a given mass of an ideal gas, the volume and amount (moles) of the gas are directly proportional if the temperature and pressure are constant.

- the volume of an enclosed gas is directly proportional to the number of particles

  when_____

Type of Variation _____

Graph

Equation