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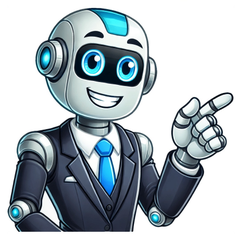

The combined gas law defines the relationship between pressure (P), temperature (T), and volume (V) when other variables such as the number of moles (n) are held constant. This law is derived from Charles' Law, Boyle's Law, and Gay-Lussac's Law. We first multiply both sides by T2 and then divide by P2 to get a simplified equation. After that, we plug in the known values to solve for the new volume of the gas, which turns out to be 1.6 liters. As the temperature and pressure increase, so does the volume of the gas. The combined gas law is essentially a mix of three other gas laws: Boyle's Law, Charles' Law, and Gay-Lussac's Law. These laws state that there are certain relationships between temperature, pressure, and volume when other factors remain constant. The combined gas law is formed by combining four different laws, including Avogadro's Law, which relates the number of particles in a gas to its volume. The law states that the product of pressure (P), volume (V), and temperature (T) remains constant. Mathematically, this can be represented as: PV/T = k. We can use this equation in two different conditions to relate initial and final states of a system. The combined gas law is essentially a combination of Charles' Law, Boyle's Law, and Gay-Lussac's Law. When we combine all these relationships, we obtain the combined gas law equation. In order to solve for volume under certain conditions, we can rearrange the formula P1V1 / T1 = P2V2 / T2 to get V2 = (P1V1T2) / (P2T1). We then plug in the given values: P1 = 745.0 mm Hg, V1 = 2.00 L, T1 = 298 K, P2 = 760.0 mm Hg, and T2 = 273 K. After substituting these values into the equation, we get V2 = (745.0 mm Hg · 2.00 L · 273 K) / (760 mm Hg · 298 K), which simplifies to V2 = 1.796 liters. According to Joseph F. Castka, H. Clark Metcalfe, Raymond E. Davis, and John E. Williams' book "Modern Chemistry" (2002), there are various resources available for learning chemistry principles. For instance, Lionel M. Raff's textbook "Principles of Physical Chemistry" (1st ed., 2001) provides a comprehensive overview of physical chemistry concepts. In addition to these traditional sources, online platforms like ThoughtCo offer informative articles on specific chemistry topics, such as Anne Marie Helmenstine's piece on the combined gas law in chemistry. Other websites like Byjus, Chemistry Talk, XPii, and Collegedunia provide detailed explanations, formulas, and solved examples for understanding this concept.

What variable is constant in the combined gas law. In the combined gas law what is the only constant factor. Whats the combined gas law. What variable is held constant in the combined gas law. What is the only thing held constant in a combined gas law problem. What variable is assumed to be constant in the combined gas law. What is held constant in the combined gas law. Combined law of gases. In the combined gas law what restriction is placed on what must be constant. What quantity is held constant in the combined gas law. Combined gas law. Combined gas law explained. Combined gas law equation. What quantity is held constant in the combined gas law problem.