APPLICATIONS OF CHARLES LAW

Scientist Jacques Charles has demonstrated that the volume of gases increases with the rise in temperature and vice versa. He used his law to make a hot air balloon.

We encounter his law many times in our daily life. Let's start with a very simple example; soda-can, when you open a chilled can you merely see bubbles but if you open a little warmer can, bubbles spill out the drink. Why do you think this happens? Definitely because of Charles' law. In a warmer can volume of gases increases and as you open the can gas molecules find their way out.

Bread and delicious cakes are also gifts of Charles' law. In bakery products yeast is used for fermentation. Yeast produces CO_2 and when we bake bread/ cake CO_2 expands due to increasing temperature and gives fluffiness to our bread and cakes.

If you want to witness Charles' law, you can do an experiment with balloon yourself. Choose a sunny day for your experiment, go outside in warmer temperature and fill a balloon with gas. Then take it to a colder place. You will see your balloon shrinking in size as you place it in colder place and resuming its original size as you go outside. In a colder place, volume of gas

reduces which results in shrinking of balloon. When you head outside, temperature increases and so does the volume of gas, so the balloon regains its size.

Sometimes we have to be alert from the effects of this law. Have you read the cautions written in the deodorant bottle? They suggest storing it below 50°C and also warn to keep it away from direct sun light and ignition. Because in higher temperature, volume of gases increases and if it reaches to the limit it can burst the bottle.

Now you can understand why in summer season chances of bursting of tyre tubes increases. This law also affects our body. In summer our lungs are filled with a larger volume of air as compared to the volume filled in winter. That's why we can perform physical activity better in warmer days. Another scientist Joseph Gay-Lussac studied the effect of pressure on the temperature of gas. In the next post we will study his findings.

Source : http://chemistrynotmystery.blogspot.in/2014/10/applications-of-charles-law.html