

Solubility of Carbon Dioxide

Learn about CO₂ in the oceans!

SOLUBILITY= This is the property of a solid, liquid or gas to dissolve in another liquid.

Equipment

- ◇ Two large bottles of identical fizzy drink
- ◇ A fridge or freezer



Method

1. Keep one bottle out of the fridge or freezer and put the other in the fridge/freezer for about an hour.

2. Take the bottle out of the fridge/freezer.

3. Immediately open both bottles SEPARATELY and listen to the fizzing noise made by each. The solubility of the carbon dioxide in water increases as the temperature decreases. So the water in the bottle put in the freezer will have absorbed more CO₂ from the air above it, and hence there will be less pressure of CO₂. This is very important in the atmosphere system.

What does this mean?

How does this affect the atmosphere?

By the same token, the solubility of carbon dioxide in water decreases as the temperature of the water increases. This is important for the climate system because as the oceans warm, carbon dioxide, a greenhouse gas, is released into the atmosphere. This is known as a positive feedback mechanism. The release of CO₂ into the atmosphere could lead to increased trapping of heat from the Earth and there is now compelling evidence that increases in greenhouse gases in the atmosphere are causing climate change.



Where can I find more information?

For more information on CO₂ in ice cores please see the link below:
<http://www.realclimate.org/index.php/archives/2004/12/co2-in-ice-cores/>

For more information on ocean temperatures and CO₂ please see the link below:
<http://www.newton.dep.anl.gov/askasci/gen06/gen06306.htm>

www.rmets.org/experiments