

CHAPTER 06

HEAT

Applications:

- Ocean absorb large amount of heat from sun without much increase in temperature because of large specific heat. Therefore oceans moderate surrounding temperature near equator.
Also ocean water transports the heat away from equator to the poles, which keep moderate climate conditions all over the earth.
- Watermelon taken out of the refrigerator retains coolness for long time because it has more water content, which has high specific heat.
- Samosa appears to be cool but when it is opened, the curry inside is not, because specific heat of curry is more than outer layer of samosa.

Principle of method of mixtures:

When two bodies (Can be solids, liquids, gases) at different temperatures are mixed then they will attain a common temperature after some.

Let two samples of masses m_1 and m_2 are at temperatures T_1 and T_2 ($T_1 > T_2$), when they are mixed, both of them will attain a common temperature T . Here hot body loses energy and cold body

gains the energy.

Loss in Heat by hot body = Gain in heat by cold body



Called principle of method of mixtures

$$m_1 S_1 (T_1 - T) = m_2 S_2 (T - T_2)$$

If both the bodies are made of same material,

$$S_1 = S_2 = S \text{ (Say),}$$

Then,

Common temperature $T = \frac{m_1 T_1 + m_2 T_2}{m_1 + m_2}$

