Law of Dulong and Petit

The **Dulongâ€“Petit law**, a chemical law proposed in 1819 by French physicists Pierre Louis Dulong and Alexis ThÃ©rÃ¨se Petit, states the classical expression for the molar specific heat capacity of a crystal.

Experimentally the two scientists had found that the heat capacity per weight (the mass-specific heat capacity) for a number of substances became close to a constant value, after it had been multiplied by number-ratio representing the presumed relative atomic weight of the substance. These atomic weights had shortly before been suggested by John Dalton.

In modern terms, Dulong and Petit found that the heat capacity of a mole of many solid substances is about 3R, where R is the modern constant called the universal gas constant. Dulong and Petit were unaware of the relationship with R, since this constant had not yet been defined from the later kinetic theory of gasses. The value of 3R is about 25 joules per kelvin.

The modern theory of the heat capacity of solids states that it is due to lattice vibrations in the solid, and was first derived in crude form from this assumption by Albert Einstein, in 1907. The Einstein solid model thus gave for the first time a reason why the **Dulongâ€“Petit law** should be stated in terms of the classical heat capacities for gases. Wikipedia, Law of Dulong and Petit

See Also

Atomic Clusters
Debye frequency
Debye length
Debye model
Heat
Peter Debye
Specific Heat