EDITORIAL

GREEN CHEMISTRY

Green chemistry deals with design of chemical products and processes that reduce or eliminate the generation of hazardous substances. The concept of greening chemistry developed with natural evolution of pollution prevention initiatives.

Green chemistry is defined as the practice of chemical science and manufacturing in a sustainable, safe, and non-polluting manner as well as it should consumes minimum amount of materials and energy and producing little or no hazardous waste material. The philosophy of green chemistry begins with the recognition that, production, processing, use, and eventual disposal of chemical products may cause harm if performed incorrectly. While fulfilling its objectives, green chemistry modifies or redesigns chemical products and processes with the aim of minimizing wastes and the use or generation of hazardous materials. The development of greener procedures can be seen as an investment for the future, which also ensures that the production complies with possible upcoming future legal regulations.

Chemists are molecular designers; they design new molecules and new materials. Green Chemists make sure that the things that we make not only do what they're supposed to do, but they do it safely. This means that it's not only important how chemists make something, it's also important that what they make isn't harmful.

Prevention of waste can be achieved if most of the reagents and the solvent are recyclable. For example, catalysts and reagents such as acids and bases that are bound to a solid phase can be filtered off, and can be reused in a subsequent run.

The mass efficiency of such processes can be judged by the E factor (Environmental factor):

$$E \text{ factor} = \frac{\text{Mass of wastes}}{\text{Mass of product}}$$

Where, the ideal E factor of 0 is almost achieved in petroleum refining, the production of bulk and fine chemicals gives E factors of between 1 and 50. Typical E factors for the production of pharmaceuticals lie between 25 and 100. Water is not considered in this calculation, because this would lead to very high E factors.

Happy Reading……

Saumendu Deb Roy
School of Pharmacy,
Techno India University,
Kolkata, West Bengal.