

Green grass, Green beans, Green thumb, but Green chemistry???

from **Celebrating Chemistry**



What is green chemistry? You might think green chemistry is the chemistry of green things. Maybe it refers to photosynthesis—the process that only green plants carry out. Maybe it means mixing green liquids together. Or perhaps it means using chemistry to make green things—green paint, green paper, green jelly beans, etc...

Actually, green chemistry is the movement within the chemical industry to make chemicals in a safer and more environmentally friendly way. To accomplish this, chemists are inventing new chemicals that are safer but have the same beneficial properties as existing chemicals. For example, chemists have developed new insecticides that kill some insects, yet are safe for plants, other insects, and other animals including human beings.

Sometimes, however, the process used to make a chemical also makes some other chemicals or “byproducts” that may be dangerous. Another way that chemists use green chemistry is to change the way a chemical is made. They use some different “ingredients” so that harmful chemicals are not made. Water, for example, is used in place of other chemicals whenever possible. In some cases, the whole “recipe” for making a chemical may be changed. This way, both the ingredients and the step-by-step process make safer chemicals and fewer byproducts. For example, ibuprofen, the drug in some painkillers like Advil or Motrin, was first made using a difficult process that gave scientists large amounts of byproducts. Now, chemists make ibuprofen in a new way that results in fewer byproducts.

These changes in how chemicals are made is a new way to protect human beings and the environment. It is better not to make harmful substances in the first place than it is to treat or clean up these substances and the problems they create. This is what green chemistry is all about.



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