

5.1: Introduction to Reagents

Reagents

“A reagent ain’t supposed to make you faint!” -Lucian Lucia

Reagents, not unlike solvents in the previous chapter, are the chemical materials or reactants used in a chemical conversion to product. When we think of a “reagent”, we tend to think of a chemical used in a reaction, although there are numerous examples of chemicals throughout our world that do not neatly fit that mold. Dirt, water, air, etc., can all be reagents in terms of transformations to products. For example, the humic and fulvic acids found in dirt can act as exquisite reagents in separation, uptake, and cellular metabolic processes. Fulvics display a sorptive interaction with environmental chemicals before or after they reach concentrations that are toxic. The toxic herbicide Paraquat is rapidly detoxified, as are other organic compounds applied to the soil as pesticides. It is also vital to aid in the formation of new species of metal ions that bind with pesticides and herbicides to catalyze their breakdown.

We must think of a reagent as a means to an end. How can we use ingenious chemistry to take an otherwise invaluable or low-value item (commodity) to a valuable end product? This is the secret to enhancing the appeal and utility of green chemistry.

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