Organic Compounds

SECTION 1

OBJECTIVES

- Explain how the structure and bonding of carbon lead to the diversity and number of organic compounds.
- Compare the use of molecular and structural formulas to represent organic compounds.
- Compare structural and geometric isomers of organic compounds.

All organic compounds contain carbon atoms. However, not all carbon-containing compounds are classified as organic. There are a few exceptions, such as Na_2CO_3, CO, and CO_2, that are considered inorganic. **Organic compounds,** then, can be defined as *covalently bonded compounds containing carbon, excluding carbonates and oxides*. **Figure 1** shows a few familiar items that contain organic compounds.

Carbon Bonding and the Diversity of Organic Compounds

The diversity of organic compounds results from the uniqueness of carbon's structure and bonding. Carbon's electronic structure allows it to bind to itself to form chains and rings, to bind covalently to other elements, and to bind to itself and other elements in different arrangements.

FIGURE 1 Aspirin, polyethylene in plastic bags, citric acid in fruit, and amino acids in animals are all examples of organic compounds.