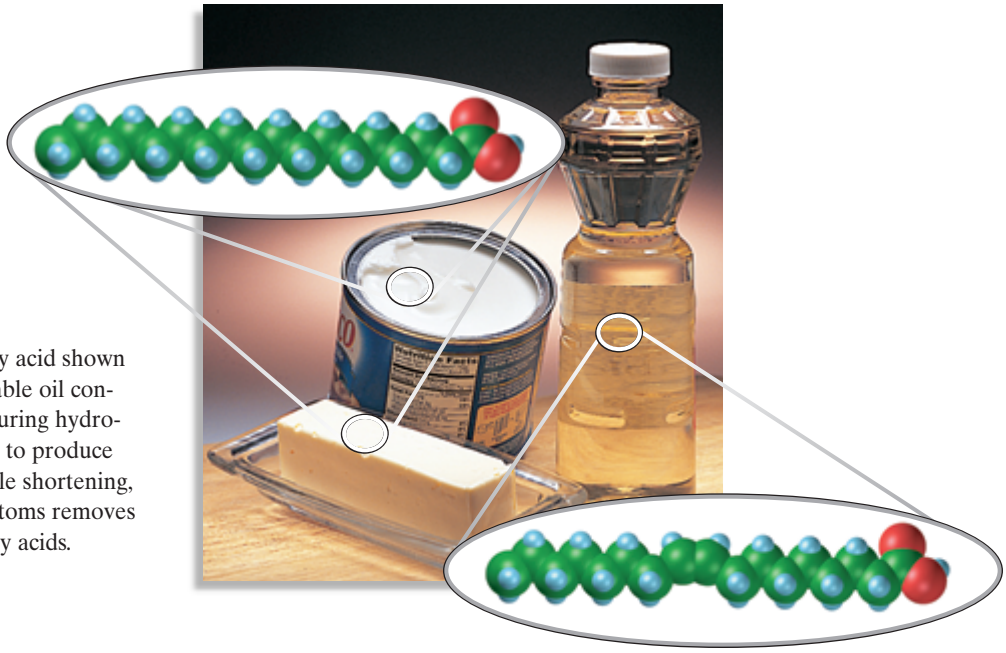

**FIGURE 16** The fatty acid shown in the model for vegetable oil contains a double bond. During hydrogenation, which is used to produce margarine and vegetable shortening, addition of hydrogen atoms removes double bonds from fatty acids.

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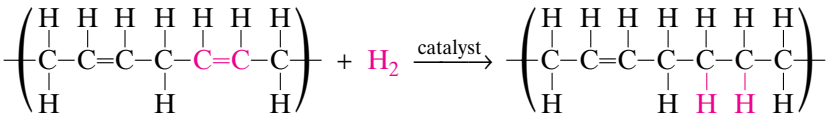


The molecule still consists of long chains of carbon atoms, but it contains far fewer double bonds. The conversion of these double bonds to single bonds changes the material from an oil, which is a liquid, into a fat, which is a solid. When you see the word *hydrogenated* on a food product, you know that an oil has been converted to a fat by this process. Examples of an oil and hydrogenated fats are shown in **Figure 16.**

## Condensation Reactions

*A* **condensation reaction** *is one in which two molecules or parts of the same molecule combine.* A small molecule, such as water, is usually removed during the reaction. An example is the reaction between two amino acids, which contain both amine and carboxyl groups. One hydrogen from the amine group of one amino acid combines with the hydroxyl from the carboxyl group of the other amino acid to form a molecule of water. When repeated many times, this reaction forms a protein molecule.