Two common analytical problems are matrix components that interfere with an analyte's analysis and an analyte with a concentration that is too small to analyze accurately. As we have learned in this chapter, we can use a separation to solve the first problem. Interestingly, we often can use a separation to solve the second problem as well. For a separation in which we recover the analyte in a new phase, it may be possible to increase the analyte's concentration if we can extract the analyte from a larger volume into a smaller volume. This step in an analytical procedure is known as a **preconcentration**.

An example from the analysis of water samples illustrates how we can simultaneously accomplish a separation and a preconcentration. In the gas chromatographic analysis for organophosphorous pesticides in environmental waters, the analytes in a 1000-mL sample are separated from their aqueous matrix by a solid-phase extraction that uses 15 mL of ethyl acetate [Aguilar, C.; Borrul, F.; Marcé, R. M. *LC-GC* **1996**, *14*, 1048–1054]. After the extraction, the analytes in the ethyl acetate have a concentration that is 67 times greater than that in the original sample (assuming the extraction is 100% efficient).