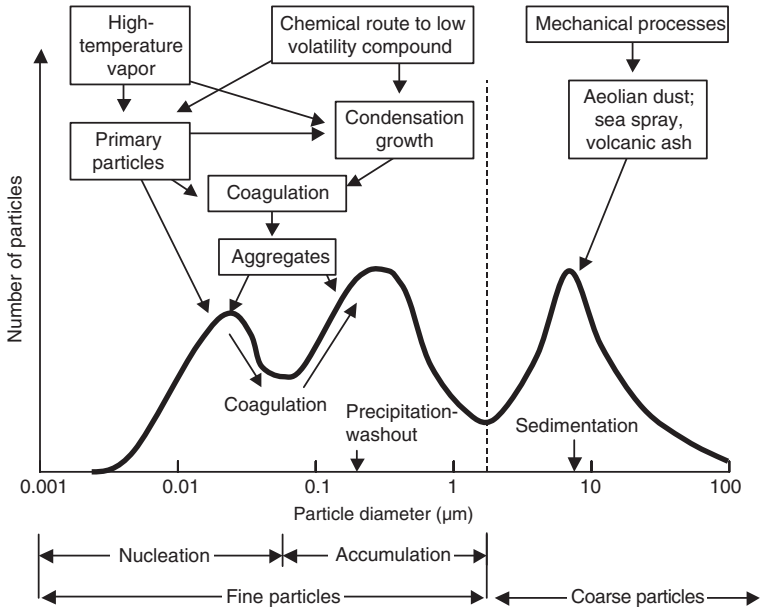

FIGURE 3.2 **Prototypical size distribution of tropospheric particles with selected sources and pathways of how the particles are formed.** Dashed line is approximately 2.5 μm diameter. *Adapted from: United Kingdom Department of Environment, Food, and Rural Affairs, Expert Panel on Air Quality Standards.* Airborne particles: what is the appropriate measurement on which to base a standard? A discussion document*; 2004.*

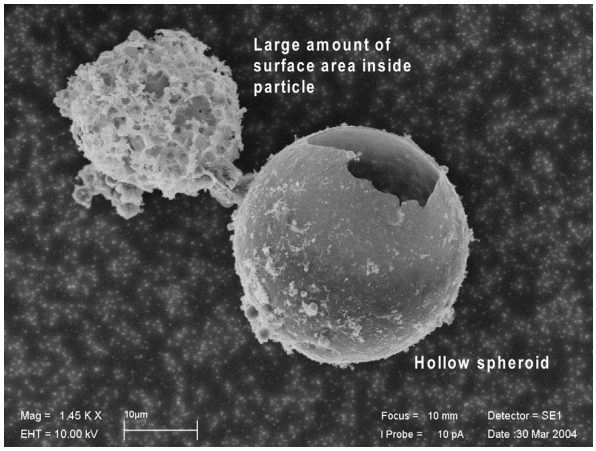

FIGURE 3.3 **Scanning electron micrograph of coarse particles emitted from an oil-fired power plant.** Diameters of the particles are greater than 20 μm optical diameter. Both particles are hollow, so their aerodynamic diameter is significantly smaller than if they were solid. *Source characterization study by Stevens R, Lynam M, Proffitt D, 2004. Photo courtesy of Willis R, U.S. Environmental Protection Agency.*

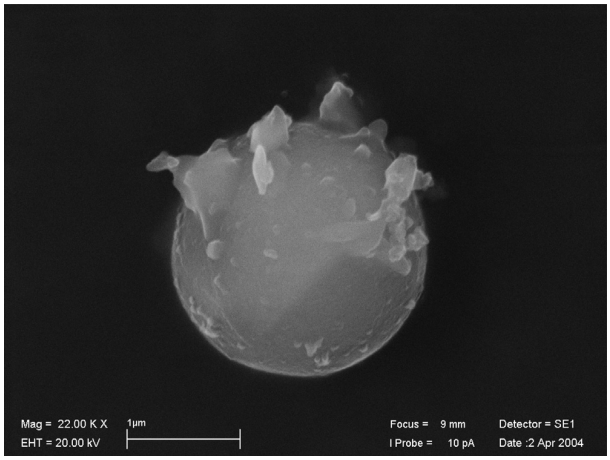

FIGURE 3.4 **Scanning electron micrograph of spherical aluminosilicate fly ash particle emitted from an oil-fired power plant.** Diameter of the particle is approximately 2.5 μm. *Photo courtesy of Willis R, U.S. Environmental Protection Agency.*

and condensation formation mechanisms. As mentioned, these particles are created in the atmosphere by chemical reactions among gases and vapors. They are called *fine* particles to differentiate them from the particles in the 10-μm maximum mode, which are called *coarse*. These fine particles are primarily sulfates, nitrates, organics, ammonium, and lead compounds. The mode with the 10-μm maximum are particles introduced to the atmosphere as solids from the surface of the earth and the seas, plus particles from the coagulation–condensation mode which have grown larger and moved across the trough between the modes into the larger size mode. These are primarily silicon, iron, aluminum, sea salt, and plant particles. Thus, there is a dynamism that creates small particles, allows them to