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Producing the Perfect Particle

THREE NEW MILLS MULTIPLY CAPABILITIES, CAPACITY

When developing new compounds, milling allows chemists to control particle size, stability, and uniformity to meet specific needs for food, cosmetics, biofuel, and pharmaceutical applications. SwRI now has five different mills to meet a variety of chemical extraction and particle mixing and sizing needs.

"Controlling particle size and morphology is critical, so it is extraordinary to have this variety of milling services available," said SwRI's Dr. Hong Dixon, who specializes in biomaterials and drug development. "And all these mills are Current Good Manufacturing Practice compliant."

SwRI offers a full range of services for formulation development and drug discovery, from modeling and synthesis to encapsulation, analytical support, and pilot-scale production. The Institute specializes in controlled release strategies, using a range of particle processes such as coating and surface modification to address clients' needs.

"With five mills at our disposal, we can break a substance down in one instrument and use another to reduce it further," Dixon said. "We offer additional particle processes, such as spray drying or fluidized bed coating, to encapsulate compounds for taste/smell masking, targeted or triggered release, and other needs."

Since 1949, SwRI scientists have worked with clients around the world to develop new encapsulation technologies. As a pioneer in the field of microencapsulation, SwRI provides contract research and development for pharmaceutical, nutraceutical, food, consumer product, agricultural, oil and gas, and other industries seeking formulation development.

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Above left: SwRI's pin mill works like a high-tech blender, breaking up substances through repeated impacts, to produce particles on a micrometer scale. Above right: This ball mill produces extremely fine, well-mixed particles. At right: Using this high-shear mixer, chemists emulsify compounds to reduce or disperse particles or create uniform sizing. Below: This bead mill breaks down particles by agitating beads in a chamber to grind compounds down to nanometer size.

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