Mobay Biochemistry Research Center to Expedite Product Registration Process

Bayer USA's Mobay Corporation has formally opened a new multi-million dollar Biochemistry Research Center near Stillwell, Kansas.

The 48,000-square-foot facility will be operated by Mobay's Agricultural Chemicals Division. The facility, situated on the 300-acre Mobay Research Park, is dedicated to the study of agricultural chemicals and their relationship to plants, animals and the environment. Bayer USA is the U.S. management holding company of Bayer AG, West Germany.*

Completion of this state-of-the-art facility enables Mobay and Bayer to evaluate experimental compounds, and to meet the Environmental Protection Agency's re-registration requirements for crop protection chemicals. It further provides Mobay with a modern laboratory complex that also meets current and anticipated requirements of Good Laboratory Practices. In addition, it allows Mobay to participate more extensively in an established cooperative program with Bayer and a Japanese affiliate, Nitokuno, to help facilitate the interchange and worldwide use of research data.

According to Dr. Don R. Flint, Biochemistry Manager for Mobay's Agricultural Chemicals Division, the facility houses nearly fifty research professionals, and the delicate instrumentation necessary to conduct thousands of hours of testing required before an experimental compound can receive federal registration for commercial use.

The Biochemistry Research Center is equipped to carefully trace the course, or fate, of a chemical compound through the food chain. Highly sophisticated instruments and procedures identify how plants and animals metabolize a given compound, how much of the material remains at each stage in the food chain, and how quickly it degrades. Biochemists also trace the fate of the material in the environment. Only those compounds which are proven safe to the user, to the consumer, and to the environment are ultimately cleared for commercial use.

The state-of-the-art complex features a unique modular design to accommodate the special needs of five separate research gorups: three assigned to study the metabolism and environmental fate of insecticides, fungicides and herbicides; one group specializing in synthesis of test chemicals and analytical standards; and one group responsible for contract residue data and reporting.

Facility features include a comprehensive environmental management system which brings 55,000 cubic feet of fresh air into the complex every 60 seconds. Computers provide modular control of temperature, humidity and lighting. A central atrium design provides each laboratory module with natural light. And the complex is equipped with two back-up power systems to guard against surges or utility failure.

The intricate analytical research is accomplished with the help of highly sensitive electronic instruments. The centerpiece of that instrumentation is a high resolution gas chromatograph/mass spectrometer, a powerful instrument designed to analyze molecular structure in increments of parts per billion.

The new research facility is expected to help expedite the long and costly process which takes a new product from discovery through registration and approval for marketing. It is a process which today requires from seven to ten calendar years in time, and can cost between $20 and $50 million.

That process begins at Bayer's Agrochemicals Centre in Monheim, West Germany, where researchers synthesize approximately 25,000 new compounds each year. Of that number, some 5,000 of the most promising compounds are brought to the Mobay research facility in Vero Beach, Florida for testing in the laboratory and 'micro-field' plots to identify potential uses.

The best performing of these experimental materials are next evaluated on target crop plants under expanded test plot conditions on one or more of the six Mobay research farms across the nation. Some of those compounds will also be evaluated by university researchers under carefully monitored application methods and rates.

"That's the stage at which the laboratory studies can either make or break a new compound," says Dr. Flint. "Even though a new compound may perform perfectly in field plots, it still has to successfully pass a great many biochemical and toxicological tests before it can be submitted for registration."

Specifically, EPA regulations list over 100 separate laboratory studies (plus scores of field studies) that must be completed in acceptable form before registration can be granted. According to Dr. Flint, many of these can only be performed meaningfully in certain sequences. In Biochemistry this translates to some three calendar years and some fifteen man years of investigational activity for each new compound.

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*Bayer USA Inc. is the U.S. management holding company of Bayer AG, West Germany, and is a diversified group of companies with businesses in industrial and agricultural chemicals, health care and imaging systems. In addition to Mobay, other major Bayer companies in the U.S. include Miles Inc. and the members of the soon to be formed Agfa Corporation: Agfa-Gevaert, Inc., Compugraphic Corporation, and Matrix Corporation. Together, the Bayer USA companies had sales in 1987 of $4.2 billion, or nearly 20 percent of Bayer's sales worldwide.