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Some early highlights from the toxicology lab at Dow include:

- 1934 – The mammalian toxicology research laboratory established.
- 1937 – Studies on the effects of chlorinated hydrocarbons and insect fumigants on mammals initiated, to set levels for safe human exposures.
- 1938 – First long-term animal carcinogenicity studies completed.
- 1958 – Material Safety Data Sheets published to warn downstream customers about hazards of substances and advise them on safe-handling practices.
- 1960 – First pesticide residue studies on fish completed.
- 1964 – First fish and *Daphnia* reproduction tests, and first bioconcentration tests with fish and *Daphnia* completed to predict effects of chemicals on aquatic species.
- 1970 – Dow publicly commits to product stewardship role.
- 1973 – Vinyl chloride metabolism studies demonstrate the importance of pharmacokinetics and metabolic activation for assessing risk.
- 1975 – Mathematical modeling to predict the distribution of a chemical in the environment developed.
- 1979 – Studies supporting cytotoxic/nongenetic mechanisms of tumor formation completed, providing a more realistic basis for risk assessments of chlorinated solvents.
- 1996 – Dow technical contributions and leadership results in formal FDA acceptance of diffusion modeling for estimating exposures from food packaging materials.

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Today, the TERC lab continues to focus on research that defines and addresses potential health and environmental risks from Dow products and operational processes. Its scientists build both new capabilities and professional expertise necessary to meet regulatory requirements and to address emerging issues such as children's health, the impact of genomic sciences on toxicology and risk assessment, and the bioavailability of contaminants in soil and sediments. Most importantly, they continue to develop and execute strategies to ensure that science-based, risk management policies remain the basic paradigm for chemicals management and regulation, globally.

DOW*

Living.
Improved daily.

* Trademark of The Dow Chemical Company

DOW

Seven decades of excellence

Health & Environmental SCIENCES

Long recognized as a leader in environmental health protection, The Dow Chemical Company in 2004 celebrates a 70-year history of its toxicology and environmental science programs.

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It all began when Willard Dow, son of the Company's founder and general manager of its Michigan Operations, challenged Dr. Don Irish, a biochemist, to figure out how to determine if there were potential health hazards in new products being developed.

And so began Dow's pioneering effort in the science of toxicology, the study of potential harmful effects of chemicals on people and the environment.

Dow scientists established the toxicology and environmental sciences program to test and evaluate the safety of its products, decades before Environmental Protection Agency (EPA) requirements for testing existed.

Over the past 70 years as our knowledge grew, and as the chemical industry grew, so grew the numbers and complexity of safety tests Dow scientists added to the mix. Toxicological discoveries, of course, were paralleled by new developments in environmental toxicology and chemistry, industrial hygiene, plant engineering and operational procedures, occupational medicine, analytical chemistry and other disciplines. Dow has played a leading role in integrating these disciplines into the process of product stewardship which is designed to ensure the safe development, manufacture, use and disposal of Dow products. Dow's current toxicology and environmental sciences lab has developed into one of the premier industrial testing facilities in the world. Its scientists participate in key international science organizations that advance health and environmental science.

Dow scientists were among the first to develop data upon which safety laws were later built. And, our scientists continue to serve on industry and government advisory committees and working groups that seek to improve the scientific basis of today's laboratory practices and regulations. We maintain state-of-the-art laboratory practices implemented to international regulatory Good Laboratory Practices standards. These standards assure the highest level of data quality, while being subject to unannounced inspections by State and Federal agencies.

Currently, the core Toxicology and Environmental Research and Consulting (TERC) laboratory competencies address concerns of chemical impacts on both human health and the environment. Toxicology competencies include: mammalian toxicology, with specialized expertise to assess the immune system, nervous system, developmental and reproductive issues and the respiratory system, biochemical toxicology, genetic testing; pathology; environmental toxicology, environmental chemistry, analytical sciences, risk assessment and biostatistics.

Dow toxicologists are also world-recognized leaders in the development of pharmacokinetic modeling methods that dramatically improve understanding of potential human health risks.

The technical competencies of the laboratory are designed to provide fully integrated support of health and environmental issues facing Dow businesses. The primary role of the laboratory scientist is to provide technical expertise that defines and provides solutions to potential health and environmental risks posed by Dow products, processes and wastes, as well as advising businesses on risk management strategies appropriate for their particular business.

In addition, the toxicologists and environmental scientists provide technical support to trade associations such as the American Chemistry Council and CEFIC, as well as technical interactions with regulatory agencies around the world.

Animal Welfare

Dow is active globally and in our laboratories to conserve the use of animals, whenever possible.

However, to ensure product and consumer safety, testing is done on animals, primarily mice, rats and rabbits. We are conscientious about providing humane handling, care and treatment environments for the animals we use. Since 1968, we have voluntarily participated and have been fully accredited by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International—a private, non-profit organization that promotes humane, responsible animal care and use of animals in science.

Long before animal rights were an issue, Dow adhered to a self-imposed program of using the minimal number of animals.

Dow is committed to creating alternative tests that are scientifically credible and acceptable to regulatory agencies in order to further reduce the use of laboratory animals.