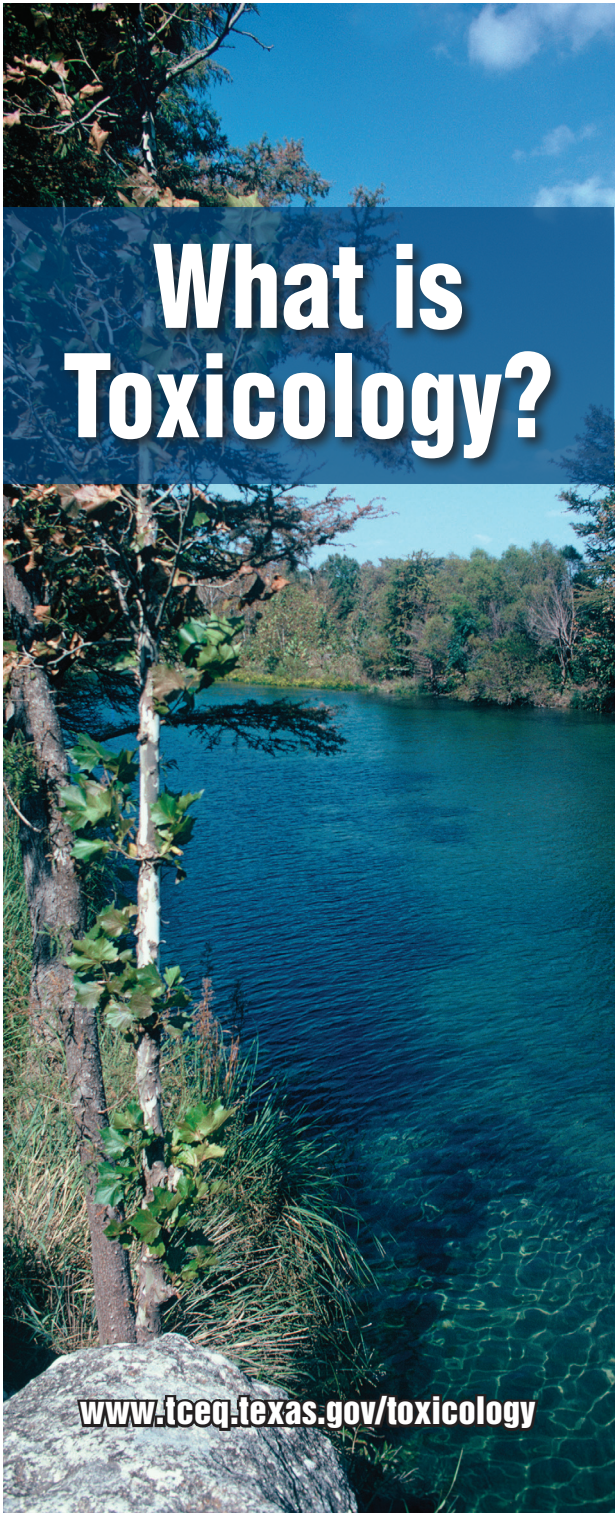
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



What is Toxicology?

www.tceq.texas.gov/toxicology

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Toxicology is the study of the adverse effects of chemicals on living organisms. A toxicologist examines the nature of those effects and assesses the probability of their occurrence.

Toxicology helps the TCEQ make scientifically sound decisions when developing environmental regulations and policy. TCEQ toxicologists help by identifying chemical hazards, evaluating potential exposures, and assessing risks.

What Do TCEQ Toxicologists Do?

TCEQ toxicologists support a broad range of agency activities. Whether the focus is air, water, or land, they assist with public meetings and drafting rules, as well as making technical recommendations regarding agency permitting, monitoring, and enforcement.

For example, TCEQ toxicologists:

- conduct toxicological evaluations of air permit applications
- develop effects screening levels (ESLs) and air-monitoring comparison values (AMCVs)
- evaluate environmental monitoring data collected from the air, water, soil, and waste
- describe and communicate risk
- contribute toxicological expertise to agency enforcement and emergency-response activities
- coordinate all agency activities that assess risks to human health
- notify owners of private drinking-water wells of potential groundwater contamination
- stay up-to-date on emerging environmental-health issues and initiatives
- review baseline risk assessments and various other remediation-related documents submitted under the Texas Risk Reduction Program and the Risk Reduction Rules for state and federal Superfund sites

In all areas of responsibility, toxicologists strive to ensure consistency of reviews across the agency.

Air

The TCEQ oversees air permitting and air quality; these activities also include air modeling, data analysis, issuing grants under the Texas Emission Reduction Plan, and the inventory of point source emissions.

Toxicologists use ESLs to review air permits and use AMCVs in evaluating air monitoring data. Exposure to air concentrations at or below the ESL or AMCV is not likely to cause adverse health effects in the general public, including sensitive subpopulations.

The Air Pollutant Watch List is a list of areas in Texas where specific pollutants were monitored at levels of potential concern. The list is maintained by the TCEQ's APWL Coordinator in cooperation with the Toxicology Division. Its purpose is to alert technical staff to areas that may have elevated air concentrations of special interest pollutants.

Water

The TCEQ is charged with managing the quality of water resources in Texas. However, the job of protecting our environment is complex, and requires cooperation from many parties. Governmental and non-governmental organizations and citizens must work together to protect and restore water resources. Toxicologists assist with evaluations concerning potential contamination of surface water and groundwater.

Land

Land issues involve areas of cleanup, waste management, wetlands protection, recycling and waste reduction, and other land-related topics. The Toxicology Division evaluates waste concerns soil remediations, and sediment issues.

Research Projects

The Toxicology Division has been involved with numerous studies investigating human exposure to airborne toxic chemicals and the potential of these exposures to cause adverse health effects. These studies have not only led to a greater understanding of air pollution and more knowledgeable decision-making, but they have also become an invaluable way to address citizens and community concerns.

Areas of interest have included Barnett Shale and Eagle Ford Shale areas, air pollution concentrations near Texas roadways, Hillcrest Community environmental investigation, and Houston air toxics biomarkers of exposure study.

Toxicology Mission Statement

The Toxicology Division helps the Texas Commission on Environmental Quality make scientifically sound decisions by applying toxicological principles when evaluating environmental data, issuing authorizations, developing environmental regulations and making policy decisions. TCEQ toxicologists identify chemical hazards, evaluate potential exposures, assess human health risks, and communicate risk to the general public and stakeholders.

Toxicology Goals

- Use the Division's extensive toxicological and risk assessment expertise to support the mission of the Agency.
- Identify potential health risks based on the most sound and up-to-date science to ensure appropriate focus of Agency resources.
- Provide excellent customer service and support based on the conclusions best supported by scientific data and principles.
- Develop guidelines for toxicity benchmarks using cutting-edge science.
- Improve air quality by evaluating the health protectiveness of air permit applications and air monitoring data.
- Contribute toxicological expertise to agency programs, including enforcement, remediation, water quality, permitting, pollution-prevention, educational, and emergency-response activities.
- Further consistency between programs by coordinating all agency activities that assess risks to human health.
- Stay abreast of environmental-health issues and initiatives emerging nationally and internationally.
- Encourage public participation and stakeholder involvement to improve transparency, educate the public and ourselves, and improve communication.
- Clearly and effectively communicate human health risks in a timely and efficient manner.

Get More Information

Online: www.tceq.texas.gov/toxicology
Phone: 1-877-992-8370
E-mail: tox@tceq.texas.gov

Texas Commission on Environmental Quality
Toxicology Division, MC 168
P.O. Box 13087
Austin, TX 78711-3087

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