

## SAFETY IN THE CHEMISTRY ENTERPRISE

Chemistry promotes valuable social and economic benefits, including innovative materials, medical discoveries, improved public health, and enhanced quality of life. The chemistry enterprise creates high-skill, high-wage jobs. The practice of chemistry from concept through research, development, manufacture, use, and disposal must be done safely to minimize adverse impacts on human health and the environment.

Working with chemicals and developing new materials and chemical processes involves some degree of risk. A thoughtful and educated approach to chemical safety must include a risk/benefit analysis. Minimizing risk while optimizing benefits should continue throughout investigation, development, marketing, use, and recycling or disposal of products and byproducts.

The American Chemical Society (ACS) believes it is essential the chemistry enterprise recognize its obligation to protect the safety and health of individuals and the environment. A positive culture and effective chemical security are integral to safety. Policymakers should encourage the chemistry enterprise to cultivate a culture of safety among all stakeholders and take precautions to prevent theft and diversion.

Stakeholders must consider safety and ethics when planning or evaluating science funding, education, scientific research, technology development, chemical manufacturing, and recognition of scientific achievement.

Core objectives to consider include:

- Evidence-based safety policies developed using risk assessment and best available health and environmental information.
- Work environments in the chemistry enterprise which are diverse, equitable, inclusive, and respectful to all persons will promote a positive safety culture.
- Robust risk assessment practices that recognize the variability of risk among population groups; preventive, sustainable, and protective measures; and other evidence-based methods to protect human health and the environment.
- Ongoing collection and dissemination of safety information is standardized, harmonized, accessible, and understandable to all users.
- Development and application of the RAMP (**R**ecognizing hazards, **A**ssessing risks, **M**inimizing risks and **P**reparing for emergencies) model as an organizing principle for risk assessment and management.
- Appropriate chemical safety education for diverse populations of scientists, the public, and other stakeholders.

### Evidence-Based Policies

The ACS advocates for chemical public policy and safety regulations based on robust science and risk assessment:

---

The American Chemical Society (ACS) Board of Directors Committee on Public Affairs and Public Relations adopted this statement on behalf of the Society at the recommendation of the Committee on Chemical Safety, and the Division of Chemical Health and Safety. ACS is a non-profit scientific and educational organization, chartered by Congress, with more than 158,000 chemical scientists and engineers as members. The world's largest scientific society, ACS advances the chemical enterprise, increases public awareness of chemistry, and brings its expertise to state and national matters.

American Chemical Society, 1155 Sixteenth Street NW, Washington DC 20036, 202-872-4386, [www.acs.org/policy](http://www.acs.org/policy)

- Regulations should encourage safe practices and behaviors, be practical, and communicated so that compliance is easy.
- Authors of policies, laws, regulations, and guidance documents should regularly review current, peer-reviewed scientific and engineering information to identify and assess risks to people, property and/or the environment.
- Subject matter experts should be consulted to:
  - craft sensible, logical, and effective regulations and public policy, and
  - avoid unintended consequences of regulations.
- Policymakers should develop and implement processes to resolve inconsistencies among various federal, state, and local regulatory procedures that cause compliance conflicts.

### **Chemical Safety Research**

The ACS encourages programs that support research to identify and characterize chemical and process hazards, and create better protective measures for workers, consumers, and the environment.

### **Chemical Safety Information**

The ACS recommends that agency-issued chemical safety information be:

- Globally standardized across regulating agencies.
- Comprehensive, clear, and concise.
- Anchored in peer-reviewed scientific literature with transparent provenance.
- Accessible.
- Inclusive of best practices for purchase, storage, handling, use, and disposal of materials.

### **Risk-Based Safety**

The ACS supports policies that appropriately integrate risk-based safety across the chemistry enterprise by promoting hazard recognition, risk assessment, risk management, and emergency preparedness (RAMP). Risk management is more robust when developed considering a variety of perspectives and all stakeholders have a voice in the process.

ACS supports continued funding of the U.S. Chemical Safety and Hazard Investigation Board and other international, national, state, and local investigative entities so that incidents and near misses can be investigated, lessons can be learned, case studies can be publicized, and actions can be taken to prevent recurrence.

### **Chemical Safety Education**

The ACS encourages programs to:

- Educate and train scientists, engineers, workers, and K-16 teachers to use risk-based safety management practices.
- Disseminate best safety practices for purchase, storage, handling, use, and disposal of materials.
- Alert end-users about foreseeable consequences of chemical product misuse or failure to follow product use and disposal recommendations.

## **Safety and Sustainability**

Safe and sustainable chemistry advances research, fosters innovation, and contributes to a globally competitive US chemical industry. ACS advocates for:

- Adherence to the tenets of Green Chemistry.
- Safe, responsible, and ethical sourcing of chemicals and other raw materials used in production.
- Developing a rigorous, adaptable, and expedited protocol for evaluating inherently safer chemical products and processes in consultation with industry, academia, scientific organizations, public interest groups, and other stakeholders.
- Continued support for research and development by universities, industry, government laboratories, and other stakeholders to create safer products, materials, and processes.
- Policies, regulations, and incentives that encourage adoption of safer products, materials, and processes.