



# Safety Guidelines for the Chemistry Professional: Understanding Your Role and Responsibilities

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# Introduction

- Concern that ACS did not have a public policy statement on safety.
- Committee on Chemical Safety (CCS) and the Division of Chemical Health & Safety (CHAS) formed a writing team to address this concern.
- Safety in the Chemistry Enterprise
- Safety Guidelines for the Chemistry Professional

# CCS-CHAS Policy Statement Writing Team (12/15 – 5/17)

- Original charter was to draft a safety public policy statement for ACS.
- Team foresaw two audiences, regulators and chemistry professionals.
- Two documents were prepared.
- Safety in the Chemistry Enterprise
- Safety Guidelines for the Chemistry Professional: Understanding Your Role and Responsibilities.

# CCS-CHAS Policy Statement Writing Team

- Debbie Decker
- Harry Elston
- Ken Fivizzani
- Bettyann Howson
- Ellen Sweet
- Ralph Stuart
- Erik Talley
- Frankie Wood-Black
- Ray Garant (ACS Staff)

# Safety in the Chemistry Enterprise

- ACS Public Policy Statement 2016-19, approved by the Board of Directors.
- General policy statement on chemical safety issues and concerns.
- “Safety and ethics issues should be considered by all stakeholders when planning or evaluating the funding of science, education of chemists, scientific research and technology development, chemical manufacturing, and recognition of scientific achievement.”

# Safety Guidelines for the Chemistry Professional (8/2017)

- Second product of CCS-CHAS Policy Statement Writing Team.
- “. . . need for a clear statement of the responsibilities of chemistry professionals regarding environmental health and safety (EH&S) issues.”
- “. . . outlines prudent expectations for the EH&S roles and responsibilities for both chemistry professionals and their organizations.”

# Responsibilities of Chemistry Professionals - 1

- An ethical and legal responsibility to work safely. Must protect themselves, colleagues, co-workers, communities, and the wider environment.
- Develop competency in identifying and understanding chemical hazards, assessing and evaluating the risks of specific chemical uses, and managing those risks.

# Responsibilities of Chemistry Professionals - 2

- Actively participate in their organizational culture concerning the safe practice of chemistry. Contribute to the continuous development of their organization's safety program.
- Safety skills need to be part of the formal education of chemists. Training in the use of safety information.



# Responsibilities of Chemistry Professionals - 3

- Assume a crucial role in providing accurate chemical safety information to impacted parties in their communities. This role includes supporting employer and professional organization communication with the general public concerning health and safety issues.

# Guidelines for the Chemistry Organization - 1

- Essential connection between scientific excellence and excellence in safety. Make safety part of performance evaluation and career development.
- Expect chemists to understand their safety responsibilities. Empower employees to maintain a safe work environment.
- Provide appropriate resources and support for safety, particularly during times of rapid change in science and laboratory practice.

# Guidelines for the Chemistry Organization - 2

- Set clear expectations that new chemistry professionals be knowledgeable in and committed to safe practices and provide specific training that supports these expectations.
- Commitment to protect the environment. Effective emergency response, responsible recycling, waste minimization and proper disposal, sustainability, and inherent safety. Intentional or uncontrolled release of hazardous materials is unacceptable anywhere in the chemistry enterprise.

# Final Comments

- In research communities, ongoing attention to all aspects of chemical health and safety should be prioritized.
- ACS safety professionals recognize that any technological change incurs some level of risk. Chemistry professionals manage this risk by continuous improvement of safety performance.

# ACS Chemical Safety Resources

- Technical: CCS, CHAS, JCHAS, C&EN Safety Zone, technical programming, and ACS publications (which require papers to identify hazards and risk management strategies).
- Educational: CHED Safety Committee, CPT, AACT, and SOCED.
- Environmental: CEI and ACS Green Chemistry Institute.

# Conclusions and Comments

- An effective chemical safety program is a partnership between individual professionals and the organizations for which they work.
- Chemistry professionals serve many roles. The emphasis on the listed responsibilities may vary among these roles, but the responsibilities apply to all of these roles.

# Why CCS and CHAS?

- Unlike the public policy statement, this document will not be submitted to the ACS Board of Directors.
- The approval of this document by both CCS and CHAS indicates that *Safety Guidelines* is offered to the ACS Membership and other interested parties on behalf of the community of safety professionals within ACS.





# Safety in the Chemistry Enterprise

- The study and implementation of chemistry can produce many valuable social and economic improvements, such as improved living conditions, public health, and overall quality of life. The chemistry enterprise creates high-skill and high-wage jobs. The practice of chemistry from concept through research, development, manufacture, use, and disposal must be done safely so as to minimize impacts to human health and the environment.
- The American Chemical Society believes recognition of the ethical obligations to the safety and health of both individuals and the environment is essential for those working with chemicals. Chemists understand working with chemicals and developing new materials and chemical processes involves some degree of risk.
- A thoughtful and educated approach must assess the overall lifecycle and risk/benefit analysis for each area of the chemical enterprise. What are the potential impacts of our activities? This process of minimizing the risk while increasing the benefit should continue throughout the investigation, development, implementation, use, and appropriate recycling or ultimate disposal of products and byproducts. Ethics and safety issues should be considered by all stakeholders when planning or evaluating the funding of science, education of chemists, technological development, and recognition of scientific achievement.

## Safety in the Chemistry Enterprise - 2

- Chemical research and development must follow all applicable regulations and incorporate best safety practices regarding use, storage, and disposal of materials. Ongoing reviews of scientific literature, experimental procedures and developing processes will minimize risks. We must alert the end-users of our products and processes to the potential consequences of misuse or failure to follow product recommendations.
- The ACS supports policies and processes which:
- Assure the use of both sound science and risk-based criteria in the promulgation of chemical safety regulations and public policy.
  - Authors of regulations, guidance documents, and operating procedures should regularly review documents based on current, generally accepted, scientific and technical input to address risk to people or the environment.
  - Subject matter experts need to be consulted to identify potential unintended consequences of regulation or public policy.
- Develop information regarding best practices, risks, use, and disposal throughout the development of public policy and regulatory processes.
- Resolve inconsistencies between various state, federal, and local regulatory agencies that cause implementation conflicts.

# Safety in the Chemistry Enterprise - 3

Chemical management and regulatory policy should encourage technological innovation and a globally competitive US chemical industry. Advancing research and applying appropriate green and sustainable principles will lead to economically viable technical innovations. To this end, ACS supports the government implementation of:

- An expedited, rigorous treatment to regulatory applications of inherently safer chemical products and processes. The government should work with industry, academia, scientific organizations, public interest groups, and other stakeholders to develop guidelines for use in such a regulatory process.
- Continued support for research and development by universities, industry, government laboratories, and other stakeholders to make safer alternatives available and encourage their adoption.
- Support for the training and education of chemical scientists and engineers to include toxicity issues and exposure risks associated with chemicals.