



Resolution 09-6  
Approved September 22, 2009  
Whitefish, Montana

As certified by  
R. Steven Brown  
Executive Director

**PROMOTION OF GREEN CHEMISTRY FOR  
SUSTAINABLE ECONOMIC DEVELOPMENT AND  
PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT**

WHEREAS, there is mounting scientific evidence and growing public concern about the risk of chemicals used in consumer products and manufacturing processes; and

WHEREAS, it is less costly and more sustainable for health and the environment to avoid the risk of harmful chemicals than to manage their risk; and

WHEREAS, green chemistry is an innovative approach to designing chemical products and processes that reduce or eliminate the use or generation of hazardous substances while producing high quality products that are safer and healthier for the environment; and

WHEREAS, green chemistry is a prevention-oriented lifecycle approach based upon the following 12 principles:

1. Prevent waste rather than treat it or clean it up.
2. Incorporate all materials used in the manufacturing process into the final product.
3. Design synthetic methods to use and generate substances with little or no toxicity to people and the environment.
4. Design chemical products to be effective, but to have little or no toxicity.
5. Avoid the use of harmful solvents and auxiliary substances.
6. Minimize energy requirements and conduct processes at ambient temperature and pressure.
7. Use renewable feedstocks.
8. Avoid the use of chemical intermediates to reduce waste.
9. Use catalysts that carry out a reaction many times instead of less efficient reagents.
10. Use chemicals that readily break down into innocuous substances in the environment.

11. Use in-process real-time monitoring and control to avoid or reduce the formation of hazardous substances.

12. Use chemicals with low risk for accidents, explosions, fires, and releases; and

WHEREAS, Administrator Jackson has made better management of chemical risks a top priority, and the States should be partners with U.S. EPA in reducing chemical risks; and

WHEREAS, green chemistry holds promise as a way to both reduce the use of hazardous substances and to promote sustainable economic development.

NOW, THEREFORE BE IT RESOLVED THAT THE ENVIRONMENTAL COUNCIL OF THE STATES:

Encourages increased support from the federal government to promote and coordinate federal and state green chemistry initiatives that:

- Support and encourage green chemistry research, development, demonstration, education, and technology transfer
- Facilitate the adoption of green chemistry innovations
- Expand support for the education and training of undergraduate and graduate students, and professional chemists and chemical engineers, through partnerships with States, universities, and industry
- Collect and disseminate information on green chemistry research, development, and technology transfer
- Provide venues for outreach and dissemination of green chemistry advances such as symposia, forums, conferences, and written materials in collaboration with industry, academia, scientific and professional societies, and other interested groups
- Support economic, legal, social science, and other appropriate academic research and actions to advance commercialization of green chemistry
- Promote cooperative efforts with industrial sectors to develop green chemistry plans
- Provide U.S. EPA authority to establish state and higher education green chemistry grant programs
- Engage states in an on-going dialogue in matters related to green chemistry