



# The Presidential Green Chemistry Challenge Awards Program

## Nomination Package for 2006 Awards



**Closing Date: December 31, 2005**

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Prevention and Toxics (7406M)  
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# The Presidential Green Chemistry Challenge Awards Program: Nomination Package for 2006 Awards

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# The Presidential Green Chemistry Challenge Awards Program

## *Nomination Package for 2006 Awards*

THE PRESIDENTIAL GREEN CHEMISTRY CHALLENGE was established to recognize and promote fundamental and innovative chemical methods that accomplish pollution prevention through source reduction and that have broad applicability in industry. The Challenge is sponsored by the Office of Pollution Prevention and Toxics of the United States Environmental Protection Agency in partnership with the chemical community. For the purposes of this program, green chemistry is defined as “the use of chemistry for source reduction.” Source reduction is the highest tier of the risk management hierarchy as described in the Pollution Prevention Act of 1990.<sup>1</sup> Green chemistry involves a reduction in or elimination of the use or generation of hazardous materials, including feedstocks, reagents, solvents, products, and byproducts, from a chemical process. Green chemistry encompasses all aspects and types of chemical processes, including synthesis, catalysis, analysis, monitoring, separations and reaction conditions, that reduce impacts on human health and the environment relative to the current state of the art. In green chemistry, health and environmental effects are important throughout a technology’s lifecycle. In many cases, incremental improvements are necessary.

THE PRESIDENTIAL GREEN CHEMISTRY CHALLENGE AWARDS PROGRAM recognizes technologies that incorporate the principles of green chemistry into chemical design, manufacture, and use. THE AWARDS PROGRAM is open to all individuals, groups, and organizations, both nonprofit and for profit, including academia, government, and industry. *The nominated green chemistry technology must have reached a significant milestone within the past five years in the United States (e.g., been researched, demonstrated, implemented, applied, patented, etc.).*

EPA’s Office of Pollution Prevention and Toxics is particularly interested in technologies that reduce or eliminate the following: lead; mercury; perfluorinated alkyl surfactants; polychlorinated or polybrominated biphenyls; or persistent, bioaccumulative, and toxic substances.

This nomination package contains concise instructions on how to enter the competition. Entries must be sent no later than December 31. Awards will be presented the following summer in Washington, DC.

Nominated green chemistry technologies should be an example of one or more of the following three focus areas:

- 1. The use of alternative synthetic pathways for green chemistry, such as:**
  - Catalysis/biocatalysis.
  - Natural processes, such as photochemistry and biomimetic synthesis.
  - Alternative feedstocks that are more innocuous and renewable (e.g., biomass).

**Scope of the Program**

**Scope Focus Areas**

## Selection Criteria

2. **The use of alternative reaction conditions for green chemistry, such as:**
  - Use of solvents that have a reduced impact on human health and the environment.
  - Increased selectivity and reduced wastes and emissions.
3. **The design of safer chemicals that are, for example:**
  - Less toxic than current alternatives.
  - Inherently safer with regard to accident potential.

**G**reen chemistry technologies nominated for an award will be judged on how well they meet the following criteria:

1. The nominated chemistry technology must fall within the **scope** of the program and at least one of the **focus areas**.
2. The nominated chemistry technology should offer **human health and/or environmental benefits**. The technology might, for example:
  - Reduce toxicity (acute or chronic), illness or injury, flammability, explosion potential, emissions or other releases, transport of hazardous substances, or use of hazardous substances in reaction processes.
  - Improve usage of natural resources, such as renewable feedstocks.
  - Enhance biodiversity.
3. The nominated chemistry technology should be **generally applicable** to a large and broad-based segment of chemical manufacturers, users, or society at large. The nominated technology should offer at least the following:
  - A realistic approach to green chemistry.
  - A remedy to a real environmental management problem.
  - Features that can be transferred readily to other facilities, locations, and industry sectors.
4. The nominated chemistry technology should be **innovative and of scientific merit**. The technology should be, for example:
  - Original (i.e., never employed before).
  - Scientifically valid. That is, can the nominated technology or strategy stand up to scientific scrutiny through peer review? Has the mechanism of action been thoroughly elucidated through sound scientific research?

**IMPORTANT: The judging panel will look for as much detail (nonproprietary) as possible about the nominated technology. Specifics of the chemistry, including comparisons to an existing technology, toxicity data, quantities of hazardous substances being reduced or eliminated, degree of implementation in commerce, and other technical, human health, environmental, and economic benefits, will both assist the judging panel in evaluating your nomination and enhance the prospects of your nomination winning.**

Typically, one award will be made in each of the following categories:

- A small business<sup>2</sup> for a project in any of the scope focus areas.
- An academic investigator for a project in any of the scope focus areas.
- Any sponsor for a project in focus area 1 (the use of alternative synthetic pathways for green chemistry).
- Any sponsor for a project in focus area 2 (the use of alternative reaction conditions for green chemistry).
- Any sponsor for a project in focus area 3 (the design of safer chemicals).

Self-nominations are allowed and expected. There is no entry fee and no standard entry form, but nominations must meet certain requirements. Entrants must submit a printed, single-spaced nomination that is no longer than eight pages, with type no smaller than 12-point on 8½-by-11-inch paper with margins of at least 1 inch. Nominations may include chemical reactions, tables, graphs, photographs, and other illustrations. Although entrants may wish to use color in their nominations, the judging panel may be reading nominations photocopied in black and white. Entrants should not, therefore, submit nominations that rely on color for interpretation. ***Nominations longer than eight pages total will not be accepted.***

## How to Enter

The nomination must include the following:

1. A one-page cover sheet with a project title followed by the date of the nomination and the complete names (with titles), addresses, telephone numbers, fax numbers, and email addresses (if available) of the following individuals or organizations:
  - **Primary sponsor(s)** (individual or organization that owns the project or, in the case of academic projects, is the principal investigator).
  - **Contact person(s)** (individual who is responsible for communications with the awards program sponsors). For academic nominations, the contact will likely be the principal investigator. For government and industrial nominations, the contact will likely be a project manager or other *technical* representative. Industrial nominations may also include a public relations contact.
  - **Contributor(s)** (individual or organization that provided financial or technical support for project development or implementation). Providing information on contributor(s) is optional.
2. The cover sheet should be followed by a page containing the following information:
  - Project title.
  - Description of the most recent milestone(s), with date(s), that the nominated technology has reached within the past five years. Examples include, but are not limited to, pilot plant constructed, results published, patent application submitted or approved, and technology implemented or commercialized.
  - Statement indicating whether the nominated technology is eligible for either the small business or academic award.

- Statement indicating which one of the three focus areas best describes the nominated technology. If the nominated technology falls within more than one focus area, you may include the other focus area(s). If you are unsure, make a note and EPA will review your classification.
  - A technical abstract not to exceed 300 words that describes the nominated project. Consider including information about the problem your technology addresses.
3. The third page should consist of a one-page executive summary of the nominated project. Please repeat the project title on this page.
  4. The remaining pages should explain in detail how the nominated project meets the selection criteria (see page 2). Explain the following:
    - How the technology meets the scope and focus area(s) of the Presidential Green Chemistry Challenge program.
    - All human health and/or environmental benefits of the technology.
    - The chemistry of the new technology, emphasizing how the technology is innovative and of scientific merit. Patent numbers or references to peer-reviewed publications may strengthen your nomination.

There is no limit on the number of entries that may be submitted by one sponsor. Each project, however, must be nominated as a separate entry and submitted separately.

All entries received will be considered public information. No material will be returned. Program sponsors are not responsible for lost or damaged entries. EPA acknowledges receipt of nominations, usually by email. If you have not received an acknowledgment by mid-January, please contact Richard Engler at [engler.richard@epa.gov](mailto:engler.richard@epa.gov) or (202) 564-8740.

You must submit an original hard copy and an electronic copy of the nomination with the sponsor's name in the file name. The electronic copy may be emailed to [engler.richard@epa.gov](mailto:engler.richard@epa.gov) (preferred) or sent on a floppy disk, Zip™ disk, or CD, clearly labeled with the primary sponsor, computer format (Windows or Macintosh), and file name(s). The nomination must be sent no later than December 31. The mailing address (USPS only) is:

U.S. Environmental Protection Agency  
Mail Code 7406M  
Presidential Green Chemistry Challenge  
Attn: Richard Engler  
1200 Pennsylvania Ave., NW  
Washington, DC 20460

Note: Irradiation of Federal mail may damage electronic media. If you are sending a disk, please use a package delivery service and the address on the next page.

Please use the following address for shipping via package delivery services:

Presidential Green Chemistry Challenge  
Attn: Richard Engler  
U.S. Environmental Protection Agency  
EPA East, Room 5133  
1201 Constitution Ave., NW  
Washington, DC 20004

A panel of technical experts selected by the American Chemical Society will judge the entries. These experts might include members of the scientific, industrial, governmental, educational, and environmental communities. Judges may request verification of any chemistry described or claims made in entries that are selected as finalists. The judges will select award recipients based on the chemistry projects or programs that best meet the selection criteria.

Winners will be notified prior to the official public announcement, which will be made in summer 2005, in Washington, DC. A crystal sculpture will be presented to the primary sponsor of the winning green chemistry project in each of the five award categories. Certificates will be presented to individuals (as identified by the primary sponsor) who contributed to the research, development, or implementation of the chemistry.

Questions about eligibility, nomination procedures, or the Presidential Green Chemistry Challenge program should be directed to Richard Engler of EPA's Industrial Chemistry Branch at [engler.richard@epa.gov](mailto:engler.richard@epa.gov) or (202) 564-8740.

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<sup>1</sup>Pertinent sections of the Pollution Prevention Act of 1990:

Sec. 6601. SHORT TITLE.

This subtitle may be cited as the "Pollution Prevention Act of 1990."

Sec. 6602. FINDINGS AND POLICY.

(b) Policy. - "The Congress hereby declares it to be the national policy of the United States that pollution should be prevented or reduced at the source whenever feasible."

Sec. 6603. DEFINITIONS.

For the purposes of this subtitle -

"(5)(A) The term "source reduction" means any practice which:

(i) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal, and

(ii) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants."

<sup>2</sup>A small business is defined here as one with annual sales of less than \$40 million, including all domestic and foreign sales by the company, its subsidiaries, and its parent company.

**Judging Entries**

**Notification  
of Winners**

**Additional  
Information**

**Footnotes**



Please use the format below for the cover page of your nomination.

<p style="text-align: center;"><b>Title of Nomination</b> <b>Date of Nomination</b></p> <p><b>Primary Sponsor(s):</b> Full name Title Address Phone Fax Email (if available)</p> <p><b>Contact Person(s):</b> Full name Title Address Phone Fax Email</p> <p><b>Contributor(s):</b> Full name Title Address Phone Fax Email (if available)</p>
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- **Primary sponsor(s)**—Individual(s) or organization(s) that owns the project. In the case of academics, the principal investigator.
- **Contact person(s)**—Individual(s) available for communication about the nomination. Note: EPA sends acknowledgments by email to the first contact listed.
- **Contributor(s)**—Individual(s) or organization(s) that provided financial or technical support for the nominated project.

**Y**our nomination should include the following components:  
(see “How to Enter”, pages 3-4, for details)

- An original hard copy of the nomination.
  - Cover page.
  - Technical abstract (300 words or fewer).
  - Statement affirming that the project has been researched, demonstrated, implemented, and/or applied in the United States within the past 5 years. Include the most recent milestone(s) and date(s).
  - Statement indicating whether the nomination is eligible for either the “Academic” or “Small Business” category.
  - Statement identifying which one of the three focus areas described on pages 1 and 2 of this package is the most applicable to the nominated project.
  - Executive summary (one page).
  - Project description (5 pages or fewer).
- An electronic copy (by email or on disk). EPA prefers email submissions for all but the largest files. Note: Irradiation of Federal mail may damage electronic media.



United States  
Environmental Protection Agency  
(7406M)  
Washington, DC 20460

Official Business  
Penalty for Private Use \$300