



## Teaching Supercritical Fluids in the Classroom: *Spe-ed*<sup>TM</sup> SFE Prime Grant Award SCF-PRIME-17

### Program Description

Applied Separations, Inc., world leaders in Supercritical Fluid technologies, recognizes the importance of a practical scientific education. In order to support this, Applied Separations has committed to doing its part to assist colleges, universities and 2-year institutions in preparing their students for the scientific workplace of today and tomorrow.

A strong foundation in Green Chemistry is key to our success as a society, and the use of Supercritical Fluid (SCF) is fundamental to an education in green chemistry. By using Supercritical Fluid, your students will be leading tomorrow's green process with no petroleum solvents and no toxic residue. Required for teaching SCF is a Supercritical Fluid system that is safe for the classroom, but with enough power and features to illustrate and educate.

Applied Separations is proud to offer this award, SCF-PRIME-17, which will allow the selected college or university to offer instruction on Supercritical Fluids. The winner will be awarded a *Spe-ed* SFE Prime Package, which includes a Supercritical Fluid System and vessel designed specifically for the higher education market as well as supporting Classroom Materials, such as a syllabus, handouts, suggested applications and more. The total value of this package exceeds \$30,000.

### Proposal and Submission Instructions

#### *Proposal Instructions*

Proposals should illustrate how the *Spe-ed* SFE Prime and supporting materials will be used to teach Supercritical Fluids in the post-secondary classroom. The focus must be on teaching green chemistry with the Prime system and how SCF can impact business, processes, the environment and the overall green economy. Research topics **MUST** be related to Green Chemistry and environmentally-friendly technology and/or processes. Applications should include how the use of the Prime and SCF can educate students about eliminating petroleum-based solvents, pollution or residue; or how SCF can be used in nanotechnology.

Applicants should see the Applied Separations website – <http://www.appliedseparations.com/industries---uses.html> – for details on preferred applications of SCF to be taught in the classroom.

Proposals outside of these specific interest areas are welcome; however, preference will be given to the most commercially viable and “green” applications. Proposals should also address the commercial viability and educational value of the concept being proposed.



Proposals should be limited to a single page, approximately 800 words.

In addition to details on your research topic(s), your submission should include the following:

Professor's Name: Email address:

Phone Number:

Institution Name:

Institution Address:

Type of Institution: 2 yr, 4 yr, Graduate, other (please describe)

Are you currently teaching Supercritical Fluids: Y/N

How did you hear about the grant:

Research Topic (800 word limit):

## Due Dates

Submissions due: 4/24/17

All proposals must be submitted electronically. Submissions can be made either through email to [d.moran@appliedseparations.com](mailto:d.moran@appliedseparations.com) or through the Applied Separations website at <http://www.appliedseparations.com/scf-educational-grant.html>

Grant to be awarded at the ACS Green Chemistry Show  
Applied Separations will pay Conference Expenses for the winner.

## Award Information

The winner of the SCF-PRIME-17 Grant will receive Applied Separations' newest SFE in our series of instruments for supercritical fluid processes, the *Spe-ed* SFE Prime and the Prime Package. The system and supporting materials will provide you with everything you will need to help you impart the fundamentals of the supercritical fluid extraction process on your students and demonstrate the implementation of this environmentally friendly, green chemistry technique. In addition to the instrument, included in the package is:

- Syllabus and Lesson Plans
- Handouts
- Student-friendly Application Notes
- Online Resources

The total value of this package exceeds \$30,000.



2011 Winner



2012 Winner



2013 Winner



2014 Winner



2015 Winner



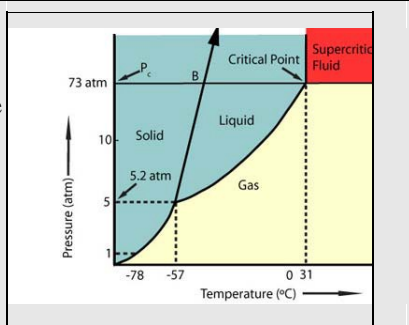
2016 Winner

## About the *Spe-ed* SFE Prime System

The *Spe-ed* SFE Prime system from Applied Separations meets the rigorous needs of day-to-day use in the classroom and is made for hands-on demonstrations. It is safe, simple to operate, fast and affordable, with features found in other, more expensive SFE systems. With the use of the Prime, you will be able to demonstrate Supercritical Fluids in emerging industries, foods, natural products and nanotechnology where solvents can't be used. You can show your students how to easily replace harsh solvents with supercritical fluids, primarily supercritical carbon dioxide. Carbon dioxide is one of the most commonly used supercritical fluids because it is safe, inexpensive, and readily available and an ideal substitute for many hazardous and toxic solvents.

### What is a Supercritical Fluid?

Carbon dioxide is in its supercritical fluid state when both the temperature and pressure equal or exceed the critical point of 31°C and 73 atm (see diagram). In its supercritical state, CO<sub>2</sub> has both gas-like and liquid-like qualities, and it is this dual characteristic of supercritical fluids that provides the ideal conditions for extracting compounds with a high degree of recovery in a short period of time.



## Eligibility Information

For consideration for the SCF-PRIME-17 grant, all applicants must meet the following criteria:

- Undergraduate, Graduate and 2-year colleges may apply
- Area of study must fall under the umbrella of “Green Chemistry.”
- Project must include use of Supercritical Fluids.
- Use of the *Spe-ed* SFE Prime in the project is required.

Winner of grant will allow details of the project to be published and used by Applied Separations as they see fit.

## ASI Proposal Review Board

All proposals will be evaluated by a board consisting of top level personnel, respected university professors with extensive experience in Supercritical Fluids, and a panel of chemistry students from United States colleges and universities.

## Notification of the Award

The winner of the award will be notified no later than May 15, 2017, a month prior to the ACS Green Chemistry show. The winner will be invited to attend the award ceremony and conference fees will be covered by Applied Separations.

## Contact Information

For more information on the SCF-PRIME-17 Grant and to submit your proposal, please see our website at

<http://www.appliedseparations.com/scf-educational-grant.html>

Specific inquiries can be directed to

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