

## CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

**Cobalt(II) Oxide****CoO****CAS No.: 1307-296-6**

Synonyms: Cobaltous oxide, Cobalt monoxide, Cobalt oxide, Gray cobalt oxide

**Physical Properties****Exposure Limits**

Usually a dark gray solid, but color can vary from olive green to red, depending upon particle size.

Vapor pressure at 20 °C: negligible

Melting point: 1935 °C

OSHA PEL: 0.1 mg/m<sup>3</sup>, as CoACGIH TLV: 0.02 mg/m<sup>3</sup>, as Co**Hazardous Characteristics**

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin	Sensitizer?	Self-reactive?	Incompatible with:
3	0	1	0	No	No	Hydrogen peroxide. Most reducing agents, especially when heated*

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

**\*Reactivity Hazards**

Cobalt(II) oxide catalyzes the decomposition of hydrogen peroxide. The decomposition can be explosively rapid. Cobalt(II) oxide oxidizes the "drying" of unsaturated oils, e.g. tung oil, linseed oil; the reaction is exothermic. When heated, cobalt(II) oxide evolves O, not O<sub>2</sub>; consequently, hot CoO is a very active oxidizing agent.

See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities.

Cited as known to be or reasonably anticipated to be carcinogenic in NTP-9?

No

Identified as a reproductive toxin in Frazier and Hage, *Reproductive Hazards of the Workplace*?

Insufficient data.

**Typical symptoms of acute exposures:**

Coughing, wheezing, breathing difficulty.

**Principal target organ(s) or system(s):**

Respiratory system.

**Storage Requirements**

Store in a cool, dry, well-ventilated location, away from hydrogen peroxide and other peroxides and also away from flammables, combustibles, and other reducing agents.

**Additional Remarks**

Considered to be possibly a human carcinogen by the International Agency for Research on Cancer. "Cobalt driers", sold in artist supply stores, are very toxic; this product contains a high proportion of CoO as well as other cobalt compounds.

**Notes****ReadMe**

This Chemical Laboratory Information Profile is *not* a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed.* For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

**Reproductive Toxins**

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at [www.sis.nlm.nih.gov](http://www.sis.nlm.nih.gov) and click on "Toxicology search". *Note that some of the data in DART/ETIC have not been peer-reviewed.* See also Linda M. Frazier and Marvin L. Hage, *Reproductive Hazards of the Workplace*; Wiley, 1998; and T. H. Shepard, *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press, 1998.

**Abbreviations**

ACGIH TLV—American Conference of Governmental Industrial Hygienists—Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m<sup>3</sup>—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-9—National Toxicology Program, Ninth Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration—Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

Prepared by: Jay A. Young

Date of preparation: July 19, 2001

## News & Announcements

### News from Journal House

#### Thanks!

As readers will have discovered by now, this issue is a special one. In honor of National Chemistry Week 2001, it celebrates Chemistry and Art.

The *Journal* staff acknowledges the special efforts of those authors, artists, photographers, graphic artists, testers, historians, researchers, collectors, and museums who have contributed so generously to this issue.

The issue has been even more of a team effort than usual, calling on the talents, time, patience, and hard drive space of the entire *Journal* staff. Our plans were ambitious, perhaps grandiose—but we hope readers think the result is simply grand!

Of course National Chemistry Week does not occur until the week of November 4th, leaving us time to get you even more information about chemistry and art next month in the November issue.

Some information about what else to expect is below. See you next month!

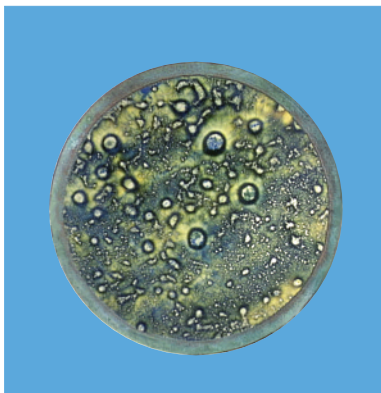


Photo by J. J. Jacobsen and R. J. Willmann

### Awards Announced

#### Mettler Toledo Thermal Analysis Education Grant

Mettler Toledo has announced that Brian C. Benicewicz and Chang Y. Ryu are the 2001 recipients of their Thermal Analysis Education Grant in honor of Professor Edith Turi. Both Benicewicz and Ryu are at the NYS Center for Polymer Synthesis at Rensselaer Polytechnic Institute; Benicewicz is the director of the Center.

#### Award Deadlines

#### 2002 Pittsburgh Conference Memorial National College Grant Program

The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy and its co-sponsoring technical societies, the Spectroscopy Society of Pittsburgh (SSP) and the Society for Analytical Chemists of Pittsburgh (SACP) announce the 2002 Memorial National College Grants Program.

Grants will be awarded to small college science departments for the purchase of scientific equipment, audio-visual or other teaching aids, or library materials for use in the teaching of science at the undergraduate level. On the basis of their submitted proposals, at least 12 colleges will be selected to receive grants, each grant having a maximum of \$9,000.

To be eligible for an award, schools must meet certain criteria, which are available along with application forms from Hyman Schultz, The Pittsburgh Conference—



### Coming in November on Chemistry and Art...

**More!** Wonderful, colorful materials for  
National Chemistry Week

#### Hands-on Activity

- ★ **New Paper from Newspaper, a JCE Classroom Activity,**  
by Erica Jacobsen (with additional material as *JCE Online* supplements)

#### Colorful Articles

- ★ **Biology of the Blues: The Snails behind the Ancient Blue and Purple Dyes,**  
by Carol Steinhart



Photo: Paul Morfitts

*Hexaplex trunculus*

## News & Announcements

PCMNCG, 300 Penn Center Boulevard, Suite 332, Pittsburgh, PA 15235-5503; phone: 412/825-3220, ext. 189; fax: 412/825-3224; email: [schultzb@pittcon.org](mailto:schultzb@pittcon.org).

The deadline for grant applications is December 1, 2001. Announcement of awards will be made by February 2002.

### American Oil Chemists' Awards

#### Supelco/Nicholas Pelick—AOCS Research Award

The AOCS announces the call for nominations for the Supelco/Nicholas Pelick—AOCS Research Award that recognizes outstanding original research in fats, oils, lipid chem-

istry, or biochemistry. The nominee must have published the results in technical papers of high quality.

The award, consisting of a plaque and an honorarium of \$8,000, will be presented following an award address at the AOCS Annual Meeting in Montréal in May 2002. Nomination materials should be submitted before November 1, 2001, to Pamela White, P. O. Box 3489, Champaign, IL 61826-3489; [general@aocs.org](mailto:general@aocs.org).

#### AOCS Young Scientist Research Award

The AOCS Young Scientist Research Award is established to recognize a young scientist (younger than 36 years of age or receiving his or her highest degree within the pre-

## Proposal Deadlines

### National Science Foundation Division of Undergraduate Education (DUE)

These NSF deadlines have been established or are anticipated.\*

- Advanced Technological Education (ATE)
 

Formal	October 18, 2001
Preliminary	April 24, 2002*
Formal	October 16, 2002*
- NSF Computer Science, Engineering, and Mathematics Scholarships Program (CSEMS) Feb. 15, 2002\*
- Science, Technology, Engineering, and Mathematics Teacher Preparation (STEMTP)
 

Proposals	October 25, 2001*
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- Course, Curriculum, and Lab. Improvement (CCLI)
 

CCLI-EMD and CCLI-ND	June 6, 2002*
CCLI-A&I	November 13, 2002*
- National Science, Mathematics, Engineering, and Technology Education Digital Library (NSDL)
 

Proposals	April 17, 2002*
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- Assessment of Student Achievement in Undergraduate Education (ASA)
 

Letter of Intent (optional)	October 16, 2001
Proposals	November 20, 2001
- NSF Director's Award for Distinguished Teaching Scholars (DTS)
 

Letter of Intent (optional)	September 17, 2001*
Proposals	November 14, 2001*
- Federal Cyber Service: Scholarship for Service (SFS)
 

Letter of Intent (optional)	November 7, 2001*
Proposals	December 5, 2001*

\* Official deadline dates for proposals will be specified in the new program solicitation for each program, to be published at least three months before the relevant deadline date. Program solicitations are available electronically through NSF's Online Document System at <http://www.nsf.gov/cgi-bin/pubsys/browser/odbrowse.pl> and through the NSF DUE site <http://www.ehr.nsf.gov/EHR/DUE/>; phone: 703/292-8670; email: [undergrad@nsf.gov](mailto:undergrad@nsf.gov).

### The Camille and Henry Dreyfus Foundation, Inc.

- Camille Dreyfus Teacher-Scholar Awards Program: November 15, 2001
- Faculty Start-Up Grants for Undergraduate Institutions: May 15, 2002
- Henry Dreyfus Teacher-Scholar Awards Program: June 28, 2002
- New Faculty Awards Program: May 15, 2002
- Postdoctoral Program in Environmental Chemistry: March 1, 2002
- Scholar/Fellow Program for Undergraduate Institutions: June 28, 2002 (*note revised guidelines*)
- Senior Scientist Mentor: August 31, 2001
- Special Grant Program in the Chemical Sciences: Completed Proposals: August 31, 2001

Further information may be obtained from The Camille and Henry Dreyfus Foundation, Inc., 555 Madison Avenue, Suite 1305, New York, NY 10022; phone: 212/753-1760; email: [admin@dreyfus.org](mailto:admin@dreyfus.org); WWW: <http://www.dreyfus.org/>

### Research Corporation

- Cottrell College Science Awards: May 15 and November 15
- Cottrell Scholars: First regular business day in September
- Research Innovation Awards: May 1
- Research Opportunity Awards: May 1 and October 1

Further information may be obtained from Research Corporation, 101 North Wilmot Road, Suite 250, Tucson, AZ 85711-3332; phone: 520/571-1111; fax: 520/571-1119; email: [awards@rescorp.org](mailto:awards@rescorp.org); WWW: <http://www.rescorp.org>

vious 10 years) who has made a significant and substantial research contribution in one of the areas represented by the divisions of AOCS. The award consists of a plaque, an honorarium, and funding for travel and registration to the annual meeting in Montréal in May 2002. Further information or nomination materials should be directed to Fereidoon Shahidi, P. O. Box 3489, Champaign, IL 61826-3489; [general@aocs.org](mailto:general@aocs.org).

## Courses, Seminars, Meetings, Opportunities

### CUR Registry of Undergraduates

The Council on Undergraduate Research (CUR) has initiated a Registry of Undergraduate Researchers at [www.cur.org/UGRegistryselect.html](http://www.cur.org/UGRegistryselect.html). The purpose of this registry is to facilitate matchmaking between undergraduates who have research experience and a desire to pursue an advanced degree with graduate schools seeking high-quality students who are well prepared for research. At present the Registry is open to students and graduate schools/employers in the fields of Astronomy, Chemistry, Biochemistry, Biology, Physics, Mathematics, Computer Science, Geosciences, Engineering, Psychology, Sociology, and Anthropology/Archaeology.

Any undergraduate may go to [www.cur.org/ugreg/](http://www.cur.org/ugreg/) to fill out a simple vitae form. *There is no charge to the student.* Student information records will be made available to graduate schools that contract with CUR for this service. Funds raised in this way will go directly to support CUR summer research fellowships ([www.cur.org/UGSF.html](http://www.cur.org/UGSF.html)). With each increment of \$4500 received from graduate school subscriptions to this registry, CUR will be able to offer one summer fellowship including student stipend and funds for small equipment/supplies or travel to a scientific meeting.

CUR believes that this service will be beneficial in narrowing the search for the right match between students and graduate school, thus benefiting both. Students interested in graduate school for the fall of 2002 or 2003 should register now. For more information, visit the CUR Web site at [www.cur.org](http://www.cur.org).

### Conference on Safety in Science and Science Education

The first International Conference on Safety in Science and Science Education will take place July 7–13, 2002 at Sacred Heart University in Fairfield, CT. Participants from more than 25 countries are expected to attend.

The main conference, which will be held July 8–10, will feature training seminars, short courses, invited and contributed papers, and keynote addresses. The registration fee

is \$200 (U.S.). Lodging and food service are available on the campus or nearby.

Participants have the option of attending a pre-conference One-Day Safety Seminar on July 7 or a post-conference Safety Course on July 10–13.

The conference is organized jointly by the Department of Chemistry at Sacred Heart University and The Laboratory Safety Institute (LSI) of Natick, MA. Conference co-chairs are Babu George of Sacred Heart University and James Kaufman of LSI. For conference information and registration contact George at 203/371-7795 or [georgeb@sacredheart.edu](mailto:georgeb@sacredheart.edu) or Kaufman at 508/647-1900 or [Labsafe@aol.com](mailto:Labsafe@aol.com).

### New England Section Meeting, APS and AAPT

A joint meeting of the American Physical Society and the American Association of Physics Teachers will be held November 2–3, 2001, at Keene State College, Keene, NH. The theme of the conference is the Confluence of Chemistry and Physics. There will be talks on condensed matter, surface science, applied and physical chemistry, thin films, nanotechnology, and cross-disciplinary education. The banquet will be followed by a popular talk on the physics and chemistry of ice by George Ewing of Indiana University.

For further information contact the local program chairs, J. Russell Harkay ([rharkay@keene.edu](mailto:rharkay@keene.edu)) and Jerry Jasinski ([jjasinsk@keene.edu](mailto:jjasinsk@keene.edu)).

## Materials Available

### National Chemistry Week Safety Guidelines

The American Chemical Society has made available these *Guidelines*, which were written by the Safety Subcommittee of the National Chemistry Week-2000 Task Force. The *Guidelines* have been endorsed by the ACS Committee on Chemical Safety and the National Chemistry Week Task Force.

The pamphlet is divided into four sections, two for types of facilities and two for types of activities.

- Guidelines for Presentation and Activities at **Scientifically Equipped Facilities**
- Guidelines for Presentation and Activities at **Nonscientifically Equipped Facilities**
- Guidelines for **Hands-On Activities**
- Guidelines for **Chemical Demonstrations** (from the ACS Division of Chemical Education)

To obtain a copy contact Office of Community Activities, American Chemical Society, 1155 Sixteenth Street, NW, Washington, DC 20036; phone: 1-800-227-5558, ext. 6097; email: [ncw@acs.org](mailto:ncw@acs.org).