JCE Software

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Chemistry Comes Alive!, Volume 7

Abstract of Special Issue 32, a CD-ROM of Flames and Explosions

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Mix two black powders together, add a few drops of water,… "Whoa! Purple smoke! Cool!" Mix a silver powder with the black powder, add a few drops of water… "Whoa! It started on fire! Look, the smoke is turning brown! How did that happen?" For many "older" chemists, the scenario above or one similar started us down our career path. Today, it has become difficult to reenact this scenario due to safety concerns. How can we spark student interest in chemistry? Chemistry Comes Alive! (CCA!) can help.

A visual library containing more than 230 QuickTime movies and more than 6700 still images, Chemistry Comes Alive! Volume 7: Flames and Explosions features the kind of chemistry that is sure to spark an interest. Organized using both the periodic table and type of reaction, CCA! 7 makes it easy for you to find the movie or image you seek to add that spark of interest to your presentation. CCA! 7 covers a broad range of spectacular chemical reactions while also offering a depth of coverage that encourages discussions that compare and contrast particular reactions.

How To Use Chemistry Comes Alive!

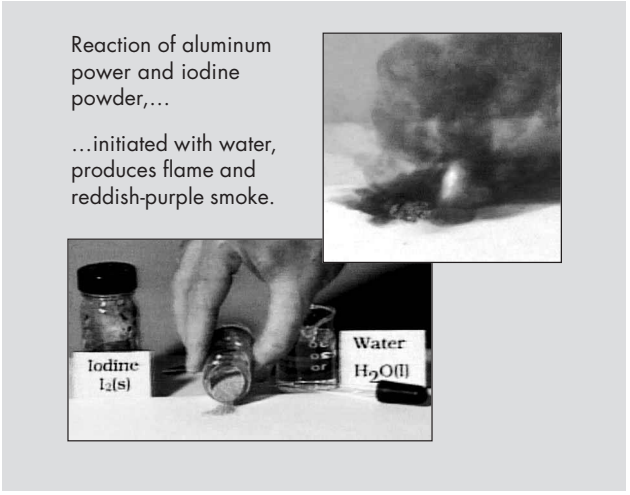
A Chemistry Comes Alive! CD-ROM is like a Web site—you access it using a WWW browser such as Netscape or Internet Explorer. You locate content using:

- Hypertext table of contents
- Visual interface that parallels the table of contents
- Search for a topic or word

A comprehensive table of contents and searchable index of all seven Chemistry Comes Alive! volumes is compiled and available at *JCE Online*. Using these tools you can find video and images and determine which of the CCA! volumes contain those videos and images.

Videos and still images can be easily bookmarked in your browser for quick, convenient presentation to a class directly from the CCA! CD-ROM. You can also view movies using the QuickTime Player using the links conveniently provided on each page with a video clip. Or you can incorporate them into a PowerPoint or other multimedia presentation or into a lesson written in HTML. Directions for using CCA! video clips with PowerPoint and HTML are available at *http://www.jce.divched.org/Workshops/JCEVideo*. You can use the CCA! video and images freely in your own presentations, but additional licensing is required in order to place any Chemistry Comes Alive! content on your local WWW server or LAN.

If you use Chemistry Comes Alive! in your classroom or laboratory teaching, please let us know. We will share



with others all ideas that we receive. Please contribute to *JCE* any new presentations or lessons using CCA!, so that others can benefit.

About the Chemistry Comes Alive! Series

The Chemistry Comes Alive! series includes six additional CD-ROMs *(1–6)*. CCA! emphasizes the chemistry by showing the reactions and techniques close up. Each volume includes closely related materials chosen by a group of knowledgeable chemistry teachers. Many, but not all, movies include audio from the reaction and a voice-over narration, which is also provided as text on the same page with the video. CCA! includes chemical reactions, demonstrations, and laboratory techniques that illustrate important aspects of chemistry, involve substances or equipment that are not readily available in many schools, are hazardous, or cause problems of disposal or cleanup. The movies and images of CCA! are certain to stimulate students' curiosity and help them learn.

Acknowledgments

Partial funding for Chemistry Comes Alive! was provided by the National Science Foundation, New Traditions, grant DUE-9455928 and National Science Foundation, Instructional Materials Development grant ESI-9154099.

Many individuals made significant contributions to the development of CCA! 7. Video originally published in The Periodic Table Videodisc *(7)* by Alton J. Banks of North Carolina State University and in the Demonstrations in Organic Chemistry *(8)* videodisc by Gary Trammell of the Uni-

Content of Chemistry Comes Alive!, Volume 7: Flames and Explosions

Flames or Reactions of Elements and Their Compounds

1. Main-Group Metals

Alkali Metals
- Lithium
- Sodium
- Potassium
- Rubidium
- Cesium

Alkaline Earth Metals
- Magnesium
- Calcium
- Strontium
- Barium

Zinc/Cadmium/Mercury
Aluminum
Tin/Lead

2. Transition Metals

Row 1
- Titanium
- Vanadium
- Chromium
- Manganese
- Iron
- Cobalt
- Nickel
- Copper
- Zinc

Row 2
- Rhodium
- Silver
- Cadmium

2. Transition Metals, continued

Row 3
- Lanthanum
- Hafnium
- Tungsten
- Platinum
- Gold
- Mercury

3. Inner-Transition Metals
- Lanthanum
- Cerium
- Gadolinium
- Uranium

4. Metalloids
- Boron
- Arsenic
- Antimony

5. Nonmetals
- Hydrogen
- Carbon
- Nitrogen
- Oxygen
- Phosphorus
- Sulfur
- Chlorine
- Selenium
- Bromine
- Iodine

Flames and Reactions

1. Flame Colors
- Sprayed into Burner Flame
- Platinum Loop in Burner Flame
- Injected into Burner Barrel
- Hydrogen Balloon Explosions

2. Combustion Reactions
- Metals
- Organic Compounds
- Nonmetals

3. Flames and Explosions Other Than Combustion
- Metals
- Halogens
- Nonmetals

4. Composite Promotion
- "Fireworks"

versity of Illinois at Springfield are incorporated into CCA! 7. Frank W. Darrow (Ithaca Collage), Steven D. Gammon (Western Washington University), George L. Gilbert (Denison University, emeritus), Lynn R. Hunsberger (Northwestern University), Kristin Johnson (University of Wisconsin–Madison), Barry V. O'Grady (University of Tasmania), Jongwook Park (Chongju National University of Education, Korea), David Phillips (Wabash College), and David Whisnant (Wofford College) contributed to producing various video selections. We also acknowledge the vocal talents of Margaret Biddle, Kelly Houston Jetzer, Michael Killips, and Teresa Larson (University of Wisconsin–Madison). Video editing expertise was contributed by Greg Minix (University of Wisconsin–Madison).

Table 1. Hardware and Software Required for Chemistry Comes Alive!, Volume 7

Computer	CPU	RAM	Drives	Graphics	System Software	Other Software
Macintosh	Power PC	256 MB	CD-ROM	colors: thousands res: 1024 × 768	OS X 10.2 or later System 9.2.2 or later	WWW browser QuickTime 6 or later
Windows compatible	Pentium >400 MHz	256 MB	CD-ROM	colors: 16-bit res: 1024 × 768	Windows XP, 2000	WWW browser QuickTime 6 or later

Price and Ordering

Price: Single user on a single machine: $75 U.S./$95 non-U.S.; computer laboratories or local area networks (LANs) with up to 12 computers: $300 U.S./$320 non-U.S. CCA! 7 can also be licensed for use on LANs with more than 12 computers, in libraries, and on limited access WWW servers. Prices for such licenses and other information may be obtained by contacting *JCE Software*, University of Wisconsin–Madison, 1101 University Avenue, Madison, WI 53706-1396; phone: 608/262-5153 or 800/991-5534; fax: 608/265-8094; email: *jcesoft@chem.wisc.edu*.

Ordering: CCA! 7 can be conveniently and safely ordered from the *JCE Online* Store (*store.jce.divched.org*). Alternatively, an order form is inserted in this issue that also provides prices and other ordering information. Information about all *JCE* publications (including abstracts, descriptions, updates) is available from our World Wide Web site

http://www.jce.divched.org/JCESoft

Hardware and Software Requirements

Hardware and software requirements for Chemistry Comes Alive! Volume 7 are listed in Table 1.

Literature Cited

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2. Jacobsen, J. J.; Moore, J. W. Chemistry Comes Alive!, Vol. 2, 2nd ed. [CD-ROM]; *J. Chem. Educ. Software* **2000,** *SP 21*.
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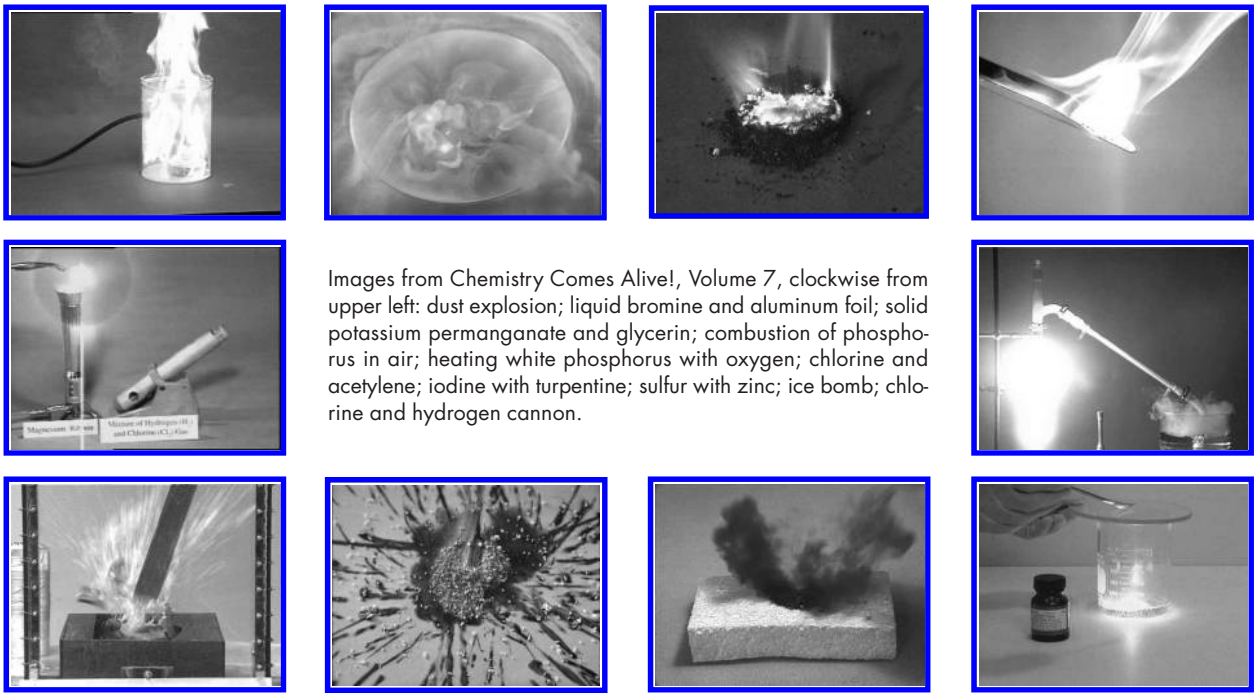
Selected Images from Chemistry Comes Alive!, Volume 7



Images from Chemistry Comes Alive!, Volume 7, clockwise from upper left: dust explosion; liquid bromine and aluminum foil; solid potassium permanganate and glycerin; combustion of phosphorus in air; heating white phosphorus with oxygen; chlorine and acetylene; iodine with turpentine; sulfur with zinc; ice bomb; chlorine and hydrogen cannon.