ACTS

ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

January, 1993
Vol. 7, No. 1

ACTS FACTS SOURCES

ACTS FACTS' primary source is the Federal Register (FR), a compilation of all the regulations and public notices issued by all federal agencies. Other sources are the Bureau of National Affairs Occupational Safety & Health Reporter (BNA-OSHR), the Centers for Disease Control (CDC), HAZCHEM Alert, and many art & theater publications.

CERAMIC FIBER MAKERS AGREE TO TEST

BNA-OSHR, Vol. 22, No. 25, Nov. 18, 1992, pp. 1222-3

RCF Update, RCF Coalition, 1133 Conn. Av., NW, Suite 1200, Wash. DC 20036

Three principle refractory ceramic fiber (RCF) makers tentatively agreed to an enforceable EPA testing agreement requiring them to conduct worker exposure studies at a cost of at least $ 300,000. EPA wants the data because industry-sponsored tests show that RCF causes cancer in animals. Limited evidence of cancer in humans has already caused the International Agency for Research on Cancer (IARC) to classify it as "2B - Possibly Carcinogenic to Humans."

ACTS finds it reprehensible that this suspect carcinogen is used in products for homes and public schools. One company even makes small RCF kilns for use in kitchen microwaves. Ceramicists, jewelers, stained glass workers, and other artists use ceramic fiber insulation, chopped fiber, blanket, paper, rope, and like products.

A group called the "RCF Coalition" is sending public relations flyers to users. Two of these imply that the cancer hazard is based only on a single instance of mesothelioma (the marker cancer for asbestos-like diseases) in one animal test. They fail to mention that there are other tests that show additional mesotheliomas. OSHA also takes the data seriously and proposes to limit RCFs in workplace air to 1.0 fibers per cubic centimeter.

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SEELEY'S CERAMICS FIGHTS OSHA CITATION

BNA-OSHR, Vol 22, No. 30, Dec., 23, 1992, P. 1340

Seeley's Ceramic Service, Inc., in Oneonto, NY is contesting a serious citation and $6,000 penalty for an alleged violation of the Hazard Communication Standard (1910.1200(h)) for failure to provide employees with information and training.

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LABELING FOR LEAD CRYSTAL PROPOSED IN CALIFORNIA

Am J Pub Health, Vol. 82, No. 12, Dec. 1992, pp. 1671-2

Using tests similar to those for ceramic lead tests, California researchers determined that consumption of alcoholic beverages stored in lead crystal decanters poses a hazard. Litigation is pending to require warnings on such decanters sold in California. Warning should be considered throughout the United States.

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181 THOMPSON STREET #23, NEW YORK, NY 10012 212 / 777 • 0062

MAKER OF OZONE AIR-CLEANER GUILTY OF MISLEADING ADVERTISING

Indoor Air Review, October, 1992, p. 11

A manufacturer of ozone-generating air-purifiers lost its battle over the safety of the devices in a Minnesota Court of Appeals September 15. The Court ruled the company, Alpine Air Products and its president, William Converse, violated Minnesota common fraud laws by falsely representing the health benefits of its product. Alpine must refund money to purchasers who ask for it.

It further ordered Alpine and Converse to pay $ 70,000 in civil penalties and $104,105 in attorney's fees. A request for a new trial was turned down. While conceding that his company had lost its battle over the machines, Converse revealed that Alpine Air Products has gone out of business but has sold the technology to a new company, Alpine Industries, which will continue to manufacture the devices. The ruling does not bar manufacture of the devices, only prohibits deceptive claims.

Ozone is highly toxic and reactive. Even the low doses generated by the machine (0.02 parts per million) are associated with reduced lung function, irritation and dryness of the eyes, ears, nose and throat. There isn't even any reliable evidence that ozone reduces odors. Concentrations high enough to break down odoriferous chemicals would be immediately hazardous to life. Instead, apparent reduction of odor may be related to deadening the sense of smell.

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TOYS RECALLED

HAZCHEM ALERT, 7(25), December 14, 1992, p. 227

73,000 Walt Disney watches were recalled because the lead content of painted characters on the bands was too high. The Federal Hazardous Substances Act provisions for children's toys limit lead to 0.06 percent. The lead content on the watchbands was 0.2 percent.

Consumer Reports, January 1993, p. 56

A toy consisting of a plastic drum rattle with strings of beads on its sides and a flute-like whistle at one end sold at Dollywood amusement park is recalled because small parts could come off and choke a child. 4770 toys, model 42979 sold between 4/91 and 6/92 for $ 2.50 are recalled. Recalls of items from these large companies should remind us that children's toys are highly regulated. If we make toys, the paints must meet a special standard and parts must all be of safe sizes and shapes.

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MEN AT RISK FROM CANCER-CAUSING HAIR DYES

Am J Pub Health, Vol 82, No. 12, Dec. 1992, pp.1673-4

Risk of developing a particular cancer, multiple myeloma, has been previously associated with use of hair dyes in women. Now a study in Iowa of 173 white men with multiple myeloma compared with 650 healthy controls shows risk of developing this cancer was signficantly elevated among hair dye users. The risk was greatest among those using hair dyes at least once a month for a year or more.

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NTP CANCER STUDIES PUBLISHED

BNA-OSHR. Vol. 22. No. 28. Dec.. 9. 1992. pp. 1294-5
57 FR 58512. December 10. 1992

The National Toxicology Program (NTP) announced results of animal studies of three chemicals:

COLOR INDEX DIRECT BLUE 218, a benzidine dye, showed clear evidence* of carcinogenic activity in a two year feed study of mice. The dye also showed some evidence* of carcinogenic activity in male rats and no evidence* in female rats. Workers may be exposed to the dye during manufacture. Consumers may be exposed from products containing the dye or from contaminated water supplies.

BENZYL ACETATE was studied in a two year feed study. It showed no evidence* of carcinogenic activity in either mice or rats. Benzyl acetate is a flavoring agent, fragrance, solvent, & ink component.

2,4-DIAMINOPHENOL DIHYDROCHLORIDE was studied by ingestion in a two year study. NTP found no evidence* of carcinogenic activity in male or female rats or in female mice, and some evidence* of carcinogenic activity in male mice. The chemical did, however, cause kidney damage. 2,4-diaminophenol dihydrochloride is used as a color accelerator in photographic developers and bleaching baths. It is also an intermediate in the manufacture of certain dyes for animal fur.

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* The NTP uses five categories of evidence of carcinogenic activity to summarize the evidence observed in each animal study: Two categories for positive results (clear evidence and some evidence): one category for uncertain findings (equivocal evidence): one category for no observable effects (no evidence): and one category for studies that cannot be evaluated because of major flaws (inadequate study).

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CABINETMAKER FAILS TO FOIL OSHA

BNA-OSHR. Vol. 22. No. 27. Dec. 2. 1992. pp. 1269-1270

California cabinetmaker Mike Loomis' North Highlands shop was inspected by OSHA in January of 1988 and cited for 9 serious and 9 non-serious violations. A total of $ 2,450 in penalties were assessed. About six months later OSHA inspected the facility again and issued Loomis two repeat citations and one non-serious citation. Repeat violations carry stiff fines. Penalties of 43,900 were assessed. Loomis contested the citations arguing that he was no longer the employer since he and his employees had formed a separate partnership.

The matter went though several court trials and appeals. Now the Ninth Circuit Court finally upheld OSHA's contention that under the "economic realities test" Loomis still controlled the workers and the workplace and is the employer (*Loomis Cabinet Co. v. Secy of Labor*, CA 9, No. 92-70540, brief filed 11/25/92). The alleged violations upheld included "unsafe electrical wiring and equipment, unguarded power saws, inadequate ventilation, insufficient exits, hazardous housekeeping practices, lack of eye protection, insufficient safety training, and inadequate recordkeeping."

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TWO BAD IDEAS FOR RECYCLING NEWSPAPERS

Taylor Gifts (catalog), 1992, item 1539K, p. 53; N.Carolina Farm Bureau News, June 1992

BAD IDEA # ONE: A Taylor Gift catalog lists a quick cooking grille which is designed to be fueled by "ordinary newspaper." It is touted as "an inexpensive, environmentally friendly way to enjoy steak, chicken, chops, hamburgers, fish and vegetables. Just crumple 10-12 double sheets of newspaper, light top and start cooking instantly--heat sears quickly and seals in natural juices. No lighter fluid aftertaste."

ACTS reminds readers that there also is no aftertaste associated with highly toxic colored newspaper pigments such as those containing cadmium, lead, and chrome. Even some black newspaper inks contain ingredients which should not be burned and added to food. Bleached paper may contain dioxins. Recycled newspaper may contain toxic ingredients derived from many kinds of paper.

BAD IDEA # TWO: The North Carolina Farm Bureau News covered the work of researchers at the University of Illinois who are investigating the potential for using shredded newspaper as feed for beef cattle. In the article, animal scientist Larry Berger says the nutritional value of newsprint is similar to that found in low quality forage. The cellulose component of the paper fiber can be fermented by bacteria in the rumen of a cow and then converted to energy. Researchers say newspaper is cleaner than traditional feedstuffs and free of molds or aflatoxins that may be present in typical forage sources. Supplemental protein, minerals, and vitamins must be added to the newsprint diet.

Researchers admit that newsprint inks can be hazardous. They experiment only with newspapers printed with 100 percent soybean oil-based inks. The cost of the soybean inked used newspapers is $ 20 per ton. It is not hard to imagine that unethical feed lot operators may use other kinds of paper since some are free for the hauling. ACTS feels a cow's life is brief and sad enough without out forcing them to eat our dirty words.

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We wish you a healthy, happy 1993

Monona Rossol, Susan Shaw, Eric Gertner, Nina Yahr, and Elizabeth Northrop

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ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

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ACTS FACTS SOURCES

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ALERT: LEAD ROOFS

The Octagon Restoration Journal, Advance Copy, Vol. III, Issue 4, May 1992

Readers should be aware of an effort to re-popularize lead roofing materials. ACTS has received several calls about lead-coated copper roofs being planned for new construction. And lead gutters, flashing and roofing are being replaced on historic buildings. Restoration workers claim that this is necessary to preserve the integrity of historic sites. However, they do not repaint historic buildings with lead paint and they should not re-roof with lead either.

An article about restoration of the Octagon House in Washington, DC says that the lead develops an "insoluble and strongly adhering patina." Anyone familiar with this patina on outdoor stained glass windows or lead pipes knows that it dusts off on your hands. The corrosion is even worse in today's acid rain. And since this problem is so well-known, parties specifying lead for roofs may be liable for damages from lead patina run-off in soil or water.

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HUNDREDS MADE ILL BY SPRAY PRODUCT

MMWR, Centers for Disease Control, Vol. 41, Nos. 52 & 53, Jan. 8, 1993 pp. 965-967

Poison Control Centers in Oregon began receiving complaints about a spray product called Wilson's Leather Protector on December 23, 1993. By the 27th, the product was voluntarily recalled and by December 31, the Oregon Health Department and the Oregon Poison Control Center had logged 400 preliminary reports of illness involving approximately 550 persons in 17 states. Five people have been admitted to hospitals.

The most commonly reported symptoms suggest acute chemical pneumonitis or hypersensitivity pneumonitis. Some patients had symptoms consistent with polymer-fume fever. This is a disease usually associated with fumes from heating fluorocarbon plastics. There were fluorocarbons in the product and in most cases these patients were smokers. Common symptoms include chest pain, shortness of breath, and non productive cough with onset of at least one symptom within 6 hours after exposure to the spray. Symptoms usually resolve in 24 hours.

Further information about the product is available from the Consumer Product Safety Commission Hotline, 800/638-2772.

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CFC RULES CHANGE: SOME ART & CONSERVATION PRODUCTS AFFECTED

58 FR 4767-4799. Jan 15. 1992. 40 CFR 82 amended

Effective on February 16, 1993, nonessential products which release Class I ozone-depleting substances (chlorofluorohydrocarbons--CFCs) are banned under the Clean Air Act. The rule prohibits the sale and distribution of certain "nonessential" products and exempts others from the ban in 40 CFR Part 82.66 as follows:

a) Plastic party streamers or noise horns (string confetti, marine safety horns, sporting event horns, personal safety horns, wall-mounted alarms used in homes or cars);

b) Any cleaning fluid for electronic and photographic equipment including but not limited to liquid packaging, solvent wipes and sprays, gas sprays, except for those sold or distributed to a commercial purchaser (sellers must keep records proving that each purchaser is a commercial entity);

c) Any plastic flexible or packaging foam product manufactured with or containing a CFC; and

d) Any aerosol product or other pressurized dispenser other than those banned in 82.64 which contains a CFC

(1) including but not limited to:
* household, industrial, automotive, and pesticide sprays, and the aerosol photograph dusters and freeze sprays which previously were exempted because CFC was the active ingredient rather than a propellant;

(2) except:
* Certain medical and pharmaceutical products;
* Lubricants, coatings or cleaning fluids for electrical or electronic equipment which contain CFC-11, CFC-12, or CFC-113 for solvent purposes (not propellant), but which contain no other CFCs;
* Certain aircraft maintenance products;
* Mold release agents used in making plastic and elastomeric materials which contain CFC-11 or CFC-113 only;
* Spinnerette lubricant/cleaning sprays used in production of synthetic fibers which contain CFC-114 only;
* Containers of CFCs used as halogen ion sources in plasma etching (e.g. in silicon chip manufacture);
* Document preservation sprays containing CFC-113 only (see below); and
* Red pepper bear repellent sprays (to repel attackers) which contain only CFC-113.

DOCUMENT PRESERVATION PRODUCTS (p. 58 FR 4794) EPA received only one comment requesting that processes and products used for the preservation of books and archival documents be exempted from the ban. EPA determined that at least two manufacturers in the US make such products and that total production of the sprays uses less than 10,000 pounds of CFCs per year.

CFC-113 is used in these products because it is nonflammable, nonreactive with document materials, and displays little or no tendency to dissolve inks, dyes, or bindings. EPA is convinced that "The aerosol can or pressurized dispenser is the only method that is appropriate and affordable for extremely delicate or valuable documents or for occasional and small volume users such as librarians, conservators, and archivists."

For these reasons, EPA, exempts the use of CFC-113 for these products, they "will, however, continue to examine the need to take action in the future to prohibit the use of CFCs in document preservation sprays should substitutes be developed." EPA also says: "The excise tax on ozone-depleting compounds and the accelerated phaseout will force manufacturers to adopt alternatives within a relatively short period of time regardless of the nonessential products ban. EPA is aware that at least one manufacturer is currently in the process of developing a non-CFC formulation for its aerosol deacidification product."

For paper conservators, this means the product called Wei T'o will be around for a little while as it is currently formulated.

ONE-COMPONENT POLYURETHANE FOAM AEROSOLS are not included in the ban. EPA is treating this product as a foam (not an aerosol) and believes that there is no non-CFC alternative for the foams yet.

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LOW LEVELS OF MANGANESE IMPAIR WORKERS

NeuroToxicology. 13:271-274, 1992

Workers in a Swedish steel smelting plant showed early signs of a parkinsonism-like disease associated with manganese. The workers studied were 30 men, aged 19.7 to 63.7 years old with a minimum of one year of occupational exposure to manganese. Compared to a non-exposed reference group, the workers showed impairment in the ability to perform rapidly alternating movements typical of dysfunction related to the part of the brain involved in parkinsonism.

In the past, the advanced form of this disease was referred to as "manganese madness." Although the men studied were not so severely affected, even slight cerebral function disturbances should be regarded as a serious sign of unacceptable occupational exposure. In addition, the worker's exposures were very low: only 10-20 percent of the Swedish exposure limit for manganese.* Further reduction in this limit clearly is needed to protect workers from the effects of manganese.

Manganese exposure also can occur among art welders, potters, glass workers, enamelists, and artists working with paints, inks, or other products containing manganese pigments.

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* The Swedish eight-hour time-weighted average (TWA) limit is 5 milligrams per cubic meter (mg/m^3). The ACGIH TLV-TWA for manganese recently was reduced from 5 to 0.2 mg/m^3. The OSHA PEL-Ceiling is 5 mg/m^3 for dust and 1 mg/m^3 for fume.

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EPA SEEKS DATA ON GLYCOL ETHERS

BNA-OSHR, Vol 22, No. 31, January 6, 1993, pp. 1360-1

The Environmental Protection Agency (EPA) is soliciting data on glycol ethers. A letter sent to manufacturers says that recent epidemiological studies "indicate there may be serious developmental and reproductive risks from exposures to various ethylene-based glycol ethers, especially those of lower molecular weight." EPA expressed concern about exposure "during manufacture, processing, use, and disposal, and possibly to consumers during use."

The five chemicals targeted for review by EPA are 2-ethoxyethanol, 2-methoxyethanol, the acetates of these compounds, and diethylene glycol dimethyl ether. Exposure to these chemicals can occur when their vapors are inhaled or when their liquid absorbs through the skin. They can penetrate some kinds of chemical gloves in minutes.

Also known as cellosolves and carbitols, these five are just a few representatives of hundreds of related chemicals. They are used in art and consumer products such as floor cleaners, paint strippers, and lacquer thinners. Worse, they are commonly found in "water-based" products--the very products people purchase to avoid toxic solvents. Glycol ethers and carbitols are routinely found in water-based printing inks, liquid textile and leather dyes, latex paints, household spray cleaners, some photochemicals, and much more.

ACTS suggests readers assume that all glycol ethers and carbitols are hazardous until there is data showing which of them (if any) are safe. Read labels and obtain material safety data sheets (MSDSs) on all products. Readers who need help checking MSDSs for these chemicals or related chemicals may contact ACTS for advice.

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LESSONS FROM THE KILLER HAMBURGERS

Editorial

At this writing, the Jack-in-the-Box hamburger epidemic has made hundreds ill and claimed the lives of two children. For several years we have known that some kinds of meat, fish, and eggs are likely to be brought into the house laced with enough bacteria to kill. Health departments warn against contaminating other food with hands or knives that have touched meat, with cutting boards, or meat packaging. Maybe now all elementary teachers finally will stop using washed meat trays and other meat packaging for found art. And both pigments and yolk for egg tempera may be considered dangerous.

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ACTS
ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

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THREE NEW ART HAZARDS BOOKS REVIEWED

Monona Rossol, Editor

Subscribers asked me to evaluate some of the new art hazards books. I have, but keep in mind that reviews by an author should be read with suspicion. Obviously, I would rather readers bought my books. And although I point out errors, remember that most books, including my own, contain errors. I wanted to rewrite each of my books as soon as they were in print. And despite some negative comments below, I commend all the authors for their work.

ARTIST BEWARE, Michael McCann, Lyons & Burford, New York, 1993.

My criticisms fall into three main categories: 1) insufficient reference to laws and regulations; 2) the extreme brevity with which each subject is treated; and 3) the lack of activism.

1. LACK OF REGULATORY INFORMATION. The book's brief discussions of occupational laws might be adequate if the book was only aimed at artists with their own studios, but McCann says it was "written for artists, craftspeople, art teachers, and hobbyists."(x)

Salaried craftspeople and teachers come under many laws which are utterly unconsidered in McCann's advice. One of many examples is seen in the six-page stained glass section. Here McCann makes no mention of the OSHA Lead Standard and he suggests a window exhaust fan for "large amounts of soldering" without warning that exhausting lead fume out a window is not permitted in most locales.

Stained glass workers will assume that they only need a fan and a few other precautions. Yet, if they use lead for more than 30 days a year they trigger the air sampling provision of the OSHA Lead Standard. If the test contains lead in excess of the action limit, OSHA may require special ventilation systems, blood tests, changing rooms, showers, and many other precautions. Some of these precautions should be used even by artists who are not under the law.

2. BREVITY. The book heroically covers every possible art and craft, but at the expense of depth. Most Part II subjects are summarized in a few paragraphs with two to five hazards and precautions. People who are at all informed about their craft's hazards probably will find very little new information. Many sections are so short that good suggestions were left out: the electric kiln precautions do not include one of the best ventilation methods; new substitutes for rubber cement (other than wax) for paste-up and mechanicals are not listed; mineral and vegetable oil substitutes for printing press and plate cleaning are not mentioned; and more.

Many precautions also are too brief. For example, McCann repeatedly suggests window exhaust fans for flammable products without any reference to fire and explosion hazards. Perhaps he mistakenly thinks that a single sentence which mentions this problem in a general way in a much earlier ventilation chapter is sufficient.

3. **LACK OF ACTIVISM.** McCann describes the Labeling of Hazardous Art Materials Act (LHAMA) essentially uncritically. Only in the last chapter on "Children and Art Materials" near the end of this 564 page book is there a single phrase indicating that chronic testing is not required and that "there have been questions about the chronic effects...."[534]

However, up front in the "Who Protects Artists" chapter, no mention of short comings is found. Readers are left with the impression that those lobbying for the law were successful and their work is done, government is proceeding with guidelines, and LHAMA is perfect. Actually, the law's guidelines allow acutely toxic substances in amounts greater that those which would require reporting on Material Safety Data Sheets to be unlabeled. LHAMA also allows chemicals which have never been tested for chronic hazards at all to be labeled "non-toxic" -- even if they are related to proven toxic substances.

This "non-toxic" problem can be illustrated in McCann's pigments chart where the long-term hazards of anthraquinone pigments are listed as "unknown." It is true that the pigments themselves are unstudied, but three tested anthraquinones (two precursors and a dye) all are carcinogens.* Artists should know that their anthraquinone pigments are labeled "non-toxic" even though they are related to and/or may be contaminated with cancer-causing precursors.

McCann's tacit approval of the law endorses industry's and government's position that toxic products may be sold without warnings until someone proves that they are harmful. Instead, artists must unite to demand that the misleading term "non-toxic" be banned from labels as it is in Europe, and that labels alert users to the presence of chemicals which are untested and/or which are related to known toxic substances. Lobbying is not over, it has only begun.

OTHER SMALL ERRORS include: saying pentachlorophenol and its salts are banned from use as commercial wood treatments[411]; suggesting replacing lead came for stained glass with copper foil (which generates more fume than came)[501]; and other wee things. But all considered, Artist Beware is still a text we should have in our libraries. It is available for $ 29.95 plus $ 3.00 shipping from CSA, 5 Beekman St, 10th Floor, New York, NY 10038. 212/227-6220

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* IARC and/or NTP list or proposes to list three anthraquinone dyes/precursors:

1) Disperse Blue 1 (CAS 2475-45-8), also known as 1,4,5,8-tetraaminoanthraquinone;
2) 2-aminoanthraquinone (CAS 117-79-3), a direct precursor for many other dyes and pigments including Pigment Blue 22; and
3) 1-amino-2-methylanthraquinone (CAS 82-28-0) an anthraquinone dye intermediate.

My book only says that anthraquinones were under study because this data was not all in.

HEALTH HAZARDS FOR PHOTOGRAPHERS, Seigfried and Wolfgang Rempel, Lyons and Burford, New York, 1993.

This is a well-organized, easy-to-use, somewhat too condensed treatment of data found in other sources such as OvereXposure. There would be more room for chemical information if the data on decomposition products was omitted. Since photographers do not usually burn their chemicals, this space could be better used.

The toxicity rating system use in this book (as well as the other two books reviewed) is very limited. The ratings lump various acute and chronic effects together in a single word for each route of entry such as "highly," "moderately" or "slightly toxic." This simplifies the writing, but the ratings are not very informative.

Regulatory information is nicely handled. The Canadian authors stress the Canadian regulations, but include U.S. rules.

My major criticism involves the diagram of the "generic darkroom layout."[27] In this drawing, the eye wash is located outside the processing areas so that someone injured, in pain, and unable to see, would have to find their way through a door to the eye wash.

The drawing also showed a canopy hood over the mixing drum. Canopy hoods do not collect well unless they are over hot processes which cause air to rise into the hood. The canopy also would get in the way of adding chemicals to the mixer. A better system would be a side draft slot hood.

The processing lab also should have another exit (or breakaway door) in the wall farthest from the entrance for emergency egress.

On pages 57 and 58 there are three lists of chemicals which should be in order of decreasing toxicity. Something is very wrong with the order. The most toxic "Do not Use" category includes mineral spirits, kerosene and naphtha, which are not very toxic.

Heptane is in the middle category, yet it is one of the least toxic aliphatics. (Heptane is also listed incorrectly as an aromatic hydrocarbon on page 118.) Toluene is listed in the least toxic "Use with Caution" category. Yet toluene is more toxic than mineral spirits, kerosene, naphtha, and heptane.

Information on six of the Kodak products include the phrase: "MSDS not located." Perhaps the authors ran into same problem I did. When Susan and I began updating OvereXposure, a Kodak representative told me their company would not provide MSDSs or assist us in any way. In contrast, Paul Krot of Sprint called and offered help. Polaroid also provided surprisingly unbiased advice. Well, Kodak, here is one more good book on your stuff!

To order, contact Lyons & Burford, 31 W. 21 St., New York, NY 10010. 212/620-9580. $ 16.95 plus shipping.

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MAKING ART SAFELY, Merle Spandorfer, Deborah Curtiss, and Jack Snyder, M.D., Van Nostrand Rheinhold, New York, 1993.

I am personally aware of how hard authro/artist Merle Spandorfer worked to collect information and advice. But something went wrong. Scattered throughout the book are many, many errors.

An important example is in the Respiratory Protection section.[58] A very confusing sentence about respirator cartridges is followed by a table which lists six chemicals under the heading of "Acid Gases." One of these chemicals (polyvinyl chloride) is not an acid gas and another (hydrogen sulfide) is a gas for which air-purifying respirators are not recommended.

The table's next heading is "Organic Vapors" under which there is an assortment of substances some of which are not organic vapors and for which organic vapor cartridges should not be used. Among these are spray mists, sanding dusts, and formaldehyde.

Information on Threshold Limit Values, gloves, and other technical subjects also contain errors. A sampling of other errors includes: confusion in the pigments chart headings between pigments and pigment classes[86] and in the solvents chart between individual solvents and solvent classes,[89-95] an erroneous definition of "lake,"[86] 1,1,2-trichloroethane incorrectly listed as a synonym for 1,1,1-trichloroethane,[94] the "Ideal Studio" includes "a faucet fitted with a flexible sprayer (for an eye wash fountain)" which does not meet OSHA regulations,[36] and a page of the Bibliography is missing (the one which would have included references to my books!).

I do not blame the two artist/authors, but the doctor/author and Van Nostrand Rheinhold should be taken to task. I remember when publishers used technical editors to catch these errors. Even a good copy editor could have gotten some.

The technical information on painting and printmaking processes is excellent and the photos and illustrations are beautiful, but before following any of the safety advice, check with other sources. The book is available for $ 44.95 plus 2.50 shipping from CSA, 5 Beekman St., 10th floor, New York, NY 10038.

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ACTS FACTS

THE MONTHLY NEWSLETTER FROM
ARTS, CRAFTS AND THEATER SAFETY (ACTS)
181 THOMPSON ST., # 23, NEW YORK, NY 10012-2586 PHONE 212/777-0062

April 1993 Vol. 7, No. 4

HUNDREDS OF AIR CONTAMINANT LIMITS VOIDED

BNA-OSHR, (22)42, March 24, 1993, p.1753-4

The Clinton administration decided not to ask the U.S. Supreme Court to review a federal appeals court ruling that struck down the 1989 OSHA permissible exposure limits (PELs) for hundreds of chemicals. Now OSHA can not protect millions of workers from over-exposed to air-pollutants. PELs for 212 chemicals revert to outdated 1971 limits, and 164 chemicals will have no PELs at all because they were previously unregulated. Some of these chemicals are carcinogens. The court wants detailed toxicology and risk assessments for each substance. There aren't enough OSHA employees, budget, years, or trees for the paper this would take.

Hopefully, the OSHA Reform Act will pass this year. It includes a provision which would immediately reinstate the 1989 limits.

OSHA PROPOSES STANDARD FOR CERTAIN GLYCOL ETHERS

58 FR 15526-15632, March 23, 1993

On March 23, OSHA proposed to reduce the eight-hour time weighted average permissible exposure limits (PEL-TWAs) for 2-methoxy-ethanol (2-ME) and its acetate from 5.0 to 0.1 parts per million (ppm) and for 2-ethoxyethanol (2-EE) and its acetate from 5.0 to 0.5 ppm. The new limits are designed to protect workers from male and female reproductive effects and fetal developmental damage. Other long-term hazards include kidney, liver and lung damage, central nervous system depression, and anemia.

Also called "cellosolves," 2-ME and 2-EE and their acetates are used in latex paints, silkscreen inks, lacquer thinners, water-based printing inks, photochemicals and resists, liquid spray cleaners, and many other products. 2-ME and 2-EE are the shortest chain compounds in a very large class of chemicals. In recent years, some manufacturers have replaced 2-ME and 2-EE with more complex glycol ethers. Some of the substitutes appear to be less hazardous, some show reproductive effects, and some are untested.

Current data suggests that the longer chain compounds are more hazardous (except those that metabolize to methoxyacetic acid or related compounds). However, OSHA says "the lack of evidence on other glycol ethers may be due, in part, because less research has been conducted on these compounds." Male and female artists, especially those planning families, should replace products containing glycol ethers when ever possible.

ADULT LEAD POISONING DATA FLOODS IN

MMWR. (41)34, Aug 28, 1992, p.620-622 & (41)17, May 1, 1992, p.285-295 & (42)4, Feb 5, 1993, p.84-5
Am.J.Public Health. (83)3, p.402-409; BNA-OSHR. (22)36, Feb 10, 1993, p.1609-1610.

For decades, spokespersons for lead industries such as pottery, ceramic tile, and nonferrous foundries, insisted that there was no evidence that lead exposure was a problem. They were right. There was not much evidence. Now there is.

Eighteen states now require surveillance of adult blood lead laboratory reports. Data compiled from 17 states identified 4,199 adults with elevated blood-lead levels in the third quarter of 1992 alone.

An analysis of California lead data in the *American Journal of Public Health* said there were 17,951 reported blood lead levels in adults greater than 25 micrograms per deciliter (ug/dl) reported from 1987 through 1990. These numbers are probably only a fraction of the occupational lead cases since only 2.6 percent of the estimated 229,000 California workers with direct exposure to lead were in routine blood lead monitoring programs. Rarely are workers tested unless they become ill enough to seek medical attention. Yet, when these limited numbers (roughly 1000 cases annually) are compared with other diseases requiring notification in California, elevated blood lead is the 10th most frequent condition.

Follow up interviews of an index group of 149 cases (of 232 reported) with blood lead levels exceeding 60 ug/dl reported between 1988 and 1990 showed the following characteristics:

Occupational activities	percent
Radiator repair	22
Lead battery industry	13
Brass/copper foundry and castings	13
Gun firing ranges (sport & police)	12
Ceramic tile and pottery	8
Construction (painting & demolition)	6
Secondary lead smelting	3
Nonoccupational*	6
Occupational characteristics	**percent**
No hours of training	64
No ventilation system	36
No respirator or a disposable**	62
No clothing change at work	45
No showers at work	60

* two cases of using dishes with lead glazes, one of probable use of folk medicines, six cases of unknown etiology.

** disposable respirators provide very inadequate protection.

Sixteen percent of the index cases also reported having hobbies and activities with potential lead exposure.

A more complete breakdown of the data into 32 industries (Standard Industry Classifications--SICs) put pottery & nonferrous foundries in 8th and 9th place respectively. Ceramic tile manufacture was 17th on the list of 32 SIC codes.

One index case was a 31 year-old-male radiator repairer with a blood lead level of over 80 ug/dl whose 11-month-old daughter had a lead level of 36 ug/dl. Surface lead concentration on the man's favorite chair and in carpet sweepings were 7646 parts per million (ppm) and 5135 ppm, respectively. Clearly, the father's failure to shower and change cloths at work as required poisoned the child.

Hopefully the adult lead poisoning data will also reach physicians. The California study showed that virtually all of the private physicians and many contract industrial physicians monitoring lead programs were unfamiliar with the OSHA lead standard! A few were even unfamiliar with normal limits of blood lead in adults.

==========

EXPLODING SCULPEY

American Fireworks News, No. 138, March 1993, p. 4

Sculpey, a popular self-hardening clay product, is now used in fireworks. *American Fireworks News* carried an article reprinted from the *New Hampshire Pyrotechnic Association Newsletter* which contained the following "Pyrofish Sculpey Rocket Formula:"

Potassium Perchlorate	75
Sculpey	25
Magnesium/aluminum(50/50)	5
Red iron oxide	2.5
Copper chromite	3

Sculpey works for this purpose because it is primarily a plasticized polyvinyl chloride (PVC). PVC is a common fireworks ingredient. It dissociates when it burns or explodes to form vinyl chloride monomer (a carcinogen), phosgene (war gas), chlorine, and other highly toxic chemicals. Sculpey also contains a calcium carbonate filler which causes the fireworks to burn with an orange-red flame. The copper chromite in the formula will emit toxic chrome compounds. Sculpey's plasticizer may be a health hazard for those mixing and molding the fireworks (ACTS FACTS, January, 1992).

Whether Sculpey is used or not, the smoke from almost all fireworks is highly toxic. Outdoor fireworks exhibits must be designed to keep observers and shooters out of the smoke. Indoor theatrical pyrotechnic smoke must be vented away from performers and audience.

==========

ELEVATED LEAD IS REPORTABLE INJURY

BNA-OSHR, Vol 22, No 36, Feb 10, 1993, p. 1606

Even if workers show no symptoms or signs of illness, the Occupational Safety and Health Review Commission ruled that a blood lead above 50 micrograms per deciliter is a recordable injury under OSHA's recordkeeping requirements (*Secretary of Labor v. Johnson Controls Inc.*, OSHRC, No. 89-2614, 2/3/93). Workers with these elevated blood lead levels must be included on the OSHA Form 200 accident and illness record.

==========

ART SCHOOL CITED BY OSHA

BNA-OSHR, Vol. 22, No. 38, Feb., 24, 1993, p. 1662

The Savannah College of Art & Design in Savannah, Georgia, is contesting a serious citation and a $ 4,950 penalty for: alleged failure to establish a written respirator protection program (1910.134(b)(1)); for failure to develop, implement and/or maintain a written hazard communication program (1910.1200(e)(1)); and for failure to ensure that material safety data sheets were readily accessible to employees (1910.1200(g)(8)).

==========

DISNEY WORLD-FLORIDA CITED BY OSHA

BNA-OSHR, Vol 22, No. 35, Feb., 3, 1993, p. 1596

Walt Disney World Company of Lake Buena Vista, Florida, is contesting a serious citation and a $ 13,175 penalty for alleged violations of the General Duty Clause, Section 5(a)(1)), for failure to furnish employment and place of employment free from recognized hazards that were causing or likely to cause death or serious physical harm to employees. In particular, the employees were exposed to the hazard of striking vehicle parts and/or being thrown from vehicles. They were also cited for failure to maintain workroom floors in a dry condition (1910.22(a)(2), and for failure to use protective equipment whenever hazards capable of causing injury and impairment were encountered (1910.132(a).

==========

DISH MANUFACTURERS AGREE TO CURB LEAD USE

NY Times, National, Sunday, January 17, 1993, p. 25

As part of a $ 2 million settlement of a lawsuit by the California Attorney General and the Environmental Defense Fund, ten leading manufacturers of ceramic dishes agreed to reduce the amount of lead in their products and place warning labels on certain dishes. Triangular, yellow, black-bordered labels are mandated for dishes with lead levels higher than those allowed under the California law (Proposition 65). Sellers also must post warning signs explaining that the symbol means the dishes will expose users to "lead," or, they may substitute the wording: "a chemical known to the State of California to cause birth defects and other reproductive harm."

The lawsuit involved only a handful of the more than 1,000 companies that sell 1.2 billion pieces of tableware each year in the U.S. However, well-known companies were involved including Lenox, Royal Doulton, and Wedgewood. It is expected that the settlement will affect the whole industry.

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ACTS FACTS' SOURCES include the Federal Register (FR), a compilation of all the regulations and public notices issued by all federal agencies, the Bureau of National Affairs Occupational Safety & Health Reporter (BNA-OSHR), the Mortality and Morbidity Weekly Report (MMWR), and many health, art, and theater publications.

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May 1993 Vol. 7, No. 4

TEXTILE PAINTING KILLS 6, SICKENS 78

BNA-OSHR, 22(43), March 31, 1993, p. 1915

An apparently new lung disease has been identified among textile workers who applied patterns to curtains, tablecloths, and other fabrics in Spain. It is called "Ardystil syndrome" after one of the eight affected textile plants. Six of the stricken workers died. Seventy eight other workers had symptoms of the disorder which range from nosebleeds and coughs to a respiratory disorder which can be fatal. A majority of those affected were women.

The workers were applying paints and dyes with "spray pistols" (air guns) which left significant amounts of residue in the air. The acrylic paints and emulsions used were made by Bayer.* Also used were solvents,** acetic acid, and other substances which may have included reactive dyes. The Bayer products were not recommended for spraying, the plants were poorly vented, and workers were not issued protective gear or fully told of the dangers.

The Spanish Parliament approved a non-binding resolution urging classification of the new disease and convened a working group to plan animal tests to pinpoint the cause of the disorder.

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* Acramin FWN-Liquid 01, Acramoll W Pasta (paste), Acrafix FHN, Emulsionante L (emulsifier).

** Solvethane (a solvent from the Dolvay Company), White Spirit (mineral spirits from Guzman S.A. company), Disolvente 1.52 (solvent from Cepsa oil firm in Spain).

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IMPORTANT MIDWEST SAFETY CONFERENCE

The 4th National **Safety and Chemical Awareness Conference for Educational Environments** will be held June 18-19 at Wayne State College in Nebraska. Featured speakers will be Monona Rossol, Doris Rapp, M.D. (from the Environmental Allergy Center, Buffalo New York and Professor of Pediatrics, SUNY), Sharon Taylor (Pesticide Use Reduction Director for the Environmental Health Coalitions and developer of the *SPUR Guide: Working Together for Pesticide-Free Schools*), Fred Thomas, (Omaha World-Herald Reporter and Environmental Columnist), Steven M. Weiss (Cleveland attorney representing clients injured by toxic exposures), and the Health and Safety Administrative Team from the Lincoln Nebraska Public Schools.

For further information contact Dr. Pearl Hansen, Conference Director, Wayne State College, Wayne, NE 68787. 402/375-7356

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NEW CERAMIC SAFETY BOOKLET AVAILABLE

The National Council on Education for the Ceramic Arts (NCECA), has published an 80 page booklet called Keeping Clay Work Safe and Legal by Monona Rossol. The contents include laws and liability, technical information about metal oxides and minerals, studio hazards, ventilation and respiratory protection.

This booklet replaces Monona Rossol's outdated 1980-1981 series of columns titled "Ceramics and Health" which was being distributed by the Center for Safety in the Arts. Booklets are available for $ 8.00 plus $ 2.00 shipping and handling from NCECA, Attn: Regina Brown, P.O. Box 1677, Bandon OR 97411 503/347-4394.

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PENTACHLOROPHENOL NON-WOOD USE IS CANCELED

58 FR 7847-7849, February 9, 1993

The Environmental Protection Agency (EPA) has terminated its review of the few remaining non-wood uses of the biocide sodium pentachlorophenol, because all users requested voluntary cancelation of their pesticide registrations for these products. This biocide, also called sodium pentachlorophenate, has been used in many art and conservation products in the past.

The EPA's concern about the toxicity of pentachlorophenol was centered on studies they received which indicated that "penta" and its derivatives contain two highly carcinogenic contaminants: dioxins (chlorinated dibenzo-p-dioxins), and hexachlorobenzene. ACTS feels that all the salts of pentachlorophenol are too toxic for art or consumer use. Pentachlorophenol and its salts still are used for commercial wood preservation and sap stain control. Care should be exercised when using any treated wood.

==========

INDUSTRIAL CERAMICS COMPANY CITED FOR NOISE AND DUST

BNA-OSHR, 22(46) April 21, 1993, p. 2012

Industrial Ceramics, Inc., of Derry, PA is contesting a serious citation and $3,375 penalty for allegedly failing to institute an effective hearing conservation program to protect employees from excessive noise [29 CFR 1910.95(c)(1)], and for failure to maintain all surfaces as free as practicable of accumulations of dusts and waste containing asbestos, tremolite, anthophyllite or actinolite [29 CFR 1910.1001(k)(1)]. Asbestos and the other minerals are commonly found in ceramic talc.

==========

WORKER GETS $ 1.5 MILLION FOR ASTHMA

BNA-OSHR, 22(46) April 21, 1993, p. 2008

A $ 1.5 million product liability jury award to a workers suffering from isocyanate asthma was upheld March 5 by the Missouri Court of Appeals, Southern District, Division Two *(Ray v. Upjohn Co.,* Mo CtApp. No. 17820, 3/5/93). The worker was exposed during the manufacture of automotive fan belts. Isocyanate exposure is usually associated with two-component urethane plastic materials.

==========

SUBSTITUTES FOR SOLVENT CLEANERS IN PRINTING

Gitte Goldschmidt, "An Analytical Approach for Reducing Workplace Health Hazards through Substitution," Am. Ind. Hyg. Assoc. J. (54) January 1993. pp. 36-43

Safer cleaning solvents for printing and printmaking were among the subjects discussed in an article on safer substitutes for industrial chemicals in Denmark. The author noted that the traditional use of organic solvents for cleaning offset printing rolls, rubber blankets, and fountains may not be the best cleaners even from a chemical point of view. The inks are based on high boiling mineral oils which are unrelated to many of these cleaning solvents.

For this reason, other more compatible oils were tried. A special cleaner was developed which contains soybean oil and modified coconut oil. This product has essentially no hazards and off-gases no air pollutants. Another successful vegetable oil product was developed for automatic cleaning of printing machines in a print shop that produced labels with ultraviolet-curing inks.

This Editor also knows artists who clean plates and presses with mineral oils in boiling ranges similar to that of baby oil. These also do not off-gas air pollutants and are much safer than organic solvents. They are good replacements for the kerosene/sawdust mixtures which are fire and vapor hazards. Its time we look at every solvent use in art and consider possible substitutes.

NOTE: Author Ditte Goldschmidt, sent us additional material including a "Product data sheet" and a "Safety data sheet" (neither document is a "material safety data sheet" as required in the U.S.) from Unichema International (Netherlands) on "Prifer 3303" for cleaning offset printing machinery. Rather than plain soya bean oil, it is a "vegetable oil derived" fatty acid ester. Fatty acid esters are usually created by reacting vegetable oils with alcohols. The data sheet showed no residual alcohol present and the ester form of the oil is not as likely to get rancid. It appears to be an extremely safe cleaner.

ACTS will be happy to forward this information to any reader interested in finding out more about this material or pursuing the possibility of marketing the material in the U.S.

==========

HIGHLY HAZARDOUS SUBSTANCE EXCLUDED BY WISCONSIN STATUTES

89-90 Wis. Statutes, 101.58(2)(j)(2a-f), p. 2140

To train public employees, it is often necessary for me to study both the federal and state statutes which apply to them. While reading over the state of Wisconsin's statues including the legal definition of "toxic substance," I saw that non-hazardous articles, sealed packages of chemicals, and a number of other items are excluded. The last excluded item on the list is "Lutefisk." However, if you have ever eaten this Scandinavian alkali-preserved fish nightmare, you know that exempting lutefisk puts Wisconsin public employees in grave danger. Editor

==========

CEO DOES TIME FOR FAILING TO REPORT WORKERS' LEAD LEVELS

BNA-OSHR, 22(45) April 14, 1993, p. 1969

A Cleveland lead smelting company President was fined $ 15,000 and sentenced to serve four months in prison, four months in home detention, two years of supervised release, and 400 hours community service for lying to OSHA about workers' blood-lead levels (*U.S. v. Mickey*, DC NOhio, 1-92-CR-0380, sentencing 4/9/93).

==========

NON-ASBESTOS MINERALS ALSO MAY AFFECT HEALTH

American Mineralogist, Vol. 77, 1992, pp. 225-243

An article called "Biological Effects of Inhaled Minerals," written by George D. Guthrie, Jr, Los Alamos National Laboratory geologist, compiles available data on the biological effects of many non-asbestos clays, zeolites and other minerals. Included are hematite, goethite, lepidocricite, boehmite, fibrous brucite, kaolinite, halloysite, antigorite, berthierine, chlorite, talc, mica and mica-like clays, sepiolite, palygorskite (attapulgite), erionite, mordenite, and certain zeolites.

ACTS recommends the article in spite of the facts that the talc data is badly skewed. The author mistakenly concludes that talc is not fibrogenic or carcinogenic and does not mention the updated NIOSH study of NY talc miners showing an increase in lung cancer and the two-year peer reviewed inhalation study by the National Toxicology Program of cosmetic-grade talc that produced clear evidence of carcinogenic activity in female rats and some evidence in male rats. (See ACTS FACTS August, 1992).

Despite these flaws, ACTS thinks the article should be in the library of ceramicists, sculptors, conservators, jewelers, lapidaries, and others mineral-using artists to remind us that asbestos is only one of many minerals that have biological effects. A copy of the 19 page article can be obtained from ACTS for 4.00 for copying costs.

==========

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June 1993 Vol. 7, No. 6

LEAD EXPOSURE IN CONSTRUCTION STANDARD PUBLISHED

58 FR 26590-26649, May 4, 1993

A long-awaited Interim Final Rule to protect an estimated 900,000 lead-exposed construction workers was published this month. The rule reduces the permissible exposure limit time-weighted average (PEL-TWA) for lead in construction from 200 micrograms per cubic meter (ug/m^3) to 50 ug/m^3. The action level which triggers protective measures is 30 ug/m^3. These are the same air quality levels that have applied to workers in general industry under the OSHA Lead Standard for many years.

The standard requires employers to conduct personal air sampling to determine workers' exposure. All employees who are exposed on any day above 30 ug/m^3 must be included in blood testing programs, respirator programs, hazard communication, and much more.

Since many construction jobs only last a few days, protection of workers must begin immediately--even before air sampling results are known. The type of protection required before test results are known is determined by a series of guidelines. The first level of protection is required for jobs that are likely to result in an exposure above the PEL but not in excess of 10 times the PEL (500 ug/m^3). Jobs at this level include removal of lead paint by manual scraping, manual sanding, heat guns, and power tool cleaning with dust collection systems, and spray painting with lead paint.

At the second level, workers are assumed to be exposed between 500 and 1250 ug/m^3 by tasks which include use of lead-containing mortars, lead burning (torch melting or fusing of lead or alloyed lead to another lead object such as torch soldering), power tool cleaning without a dust collection system, clean up activities where dry expendable abrasives are used, and abrasive blasting enclosure movement and removal. The third level, representing exposures not in excess of 2500 ug/m^3 are those that perform abrasive blasting, welding, cutting, and torch burning. And so on.

The standard provides charts which list the types of protective gear appropriate to each exposure level. Once the air sampling results have documented the workers actual exposure, the level of protection may be adjusted up or down accordingly. The rule goes into effect June 3, and all non-engineering control provisions must be met within 60 days after this date. Employers have an additional 120 days to implement engineering controls such as ventilation.

SILICOSIS STILL A DEADLY PROBLEM

MMWR, CDC, (42)16, April 30, 1993, P. 315

The National Institute for Occupational Safety and Health (NIOSH) published alerts on silicosis in sandblasting and in rock drilling.

SANDBLASTING. This alert describes 99 cases of silicosis from exposure to crystalline silica during sandblasting. Of these, 14 have died from the disease. The publication provides recommendations to reduce silica exposure and to prevent silicosis-related deaths, informs sandblasters, their coworkers, and employers about the hazards of silica. Single free copies are available from the Information Dissemination Section, Division of Standards Development and Technology Transfer, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226. Ask for *NIOSH Alert: Request for Assistance in Preventing Silicosis and Deaths from Sandblasting,* DHHS Publication no. (NIOSH)92-102.

ROCKDRILLING. This alert describes 23 workers who developed silicosis during rock drilling. Two of these workers died. Silicosis has been recognized in drillers employed in caisson, tunnel, highway and dam construction; metal mining; slate quarries; and underground and surface coal mines. Sculptors, geologists, fossil and rock collectors, lapidaries, earth moving equipment operators, and others working with stone may find it useful. Single free copies are available from NIOSH (see address above). Ask for *NIOSH Alert: Request for Assistance in Preventing Silicosis and Deaths in Rock Drillers,* DHHS Publication no. (NIOSH)92-102.

==========

SCHOOL COUNSELOR TO SUE FOR FAILURE TO ACCOMMODATE SMOKE ALLERGY

BNA-OSHR, (22)48, May 5, 1993, p. 2071-2

A Washington Court of Appeals ruled April 20 that a school counselor should be allowed to sue her employer for emotional distress for allegedly discriminating against her because of her sensitivity to secondhand cigarette smoke (*Hinman v. Yakima School District No. 7,* Wash. CtApp. No. 12206-9-III, 4/20/93). The school did not move the teacher's lounge in which smoking was allowed from the area near her office until after the counselor's problem was so severe she was hospitalized.

==========

TOYS R US CITED BY OSHA

BNA-OSHR, (22)47, April 28, 1993, p. 2038

Toys R Us, Inc in Nashua, NH, is contesting a repeat citation and $2700 penalty for alleged failure to develop or implement a written hazard communication program, failure to maintain copies of materials safety data sheets for each hazardous chemical and to ensure that they are readily accessible to employees during working hours [1910.1200(e)(1) & (g)(8)]. Toys R Us is also contesting a serious citation and $ 4000 penalty for alleged failure to provide suitable facilities for quick drenching or flushing of the eyes and body within the work area for use where employees were exposed to corrosive materials [1910.151(c)], and for failure to ensure proper labeling of containers [1910.1200(f)(5)(ii)].

==========

CERAMIC FIBER MAKERS SIGN TESTING AGREEMENT

58 FR 28517-28520, May 14, 1993

The EPA announces the signing of an enforceable testing consent order with three primary producers of refractory ceramic fibers (RCF). A tentative agreement reported in the January 1993 issue of ACTS FACTS is now formalized. The three primary producers, Carborundum Company, Premier Refractories and Chemicals, Inc., and Thermal Ceramics Inc., are bound by the agreement to perform and report workplace exposure monitoring of RCFs for all stages of use from manufacture through installation and removal. The information should be of interest to potters, glass and stained glass workers, and hobbyists who use ceramic fiber kilns and other products.

The EPA announcement also included a good summary of RCF toxicity:

> *Several studies show that RCFs are an animal carcinogen, and EPA has classified RCF as a probable human carcinogen. A major animal inhalation study using kaolin, the most common type of RCF, has shown a positive tumorigenic response in rats and hamsters, with 35 percent of the hamsters exposed to kaolin RCFs developing pleural mesothelioma and 13 percent of the rats exposed to kaolin RCFs developing adenoma-carcinomas. Additional results from this study also indicate the development of pleural and pulmonary fibrosis in both rats and hamsters exposed to kaolin RCFs. In addition, this study has shown fibrogenic and tumorigenic responses in rats exposed to other types of RCF.*

The Announcement also noted that the sizes of RCF fibers vary within the products. Most importantly, diameters of the fibers range from approximately 0.06 microns to greater than 3 microns. Many experts believe that all inert fibers that are one micron in diameter and smaller can cause asbestos-type cancers and fibrosis.

ACTS applauds the signing of the test agreement and hopes that the data will show that workers in industry can take precautions which will keep their exposure to "acceptable levels" (like those for asbestos workers). However, ACTS deplores the current use of RCFs in kilns and other products and materials made for use in homes, in schools for children or adults, or in studios where precautions similar to those used in the asbestos industry are not used.

==========

CHILDREN'S PUZZLES RECALLED

Consumer Reports, June 1993, p. 405

Over the last twelve years (1/1/80-12/31-91) more than 10,000 puzzles were sold through stores and catalogs whose red paint contains excessive amounts of lead. Children could be exposed to lead if they put pieces in their mouths. The puzzles have four to six pieces that form animals, vegetables, or tools. Hazardous are models MTC-2033 (Rooster), MTC-2028 (Garden Tools), MTC-2026 (Vegetables), and DL-4002 (Animal puzzles with one-inch knobs on the pieces). For information, call 816-761-5900.

==========

SAFE GLAZE FORMULATIONS

Ceramics Monthly, February, 1993, pp. 60 & 62

Last February, *Ceramics Monthly's* "Questions" column included an excellent discussion of methods for formulating safe ceramic glazes. Safe ingredients and triaxial and quadraxial blend calculations are detailed. The purpose is to make good glazes from materials which are not harmful even if they some of their components leach into food.

ACTS believes that schools with degree programs in ceramics should encourage graduate-level glaze research incorporating methods like those outlined in this column. They also should develop joint programs with their schools' chemistry departments to verify glaze safety with actual leaching tests. Such research is greatly needed and would provide an important contribution to the field.

Ceramics Monthly gave ACTS permission to provide reprints on request. Send a self addressed stamped envelope with your request.

==========

ERRORS IN ACTS FACTS & OSHA CADMIUM STANDARD

57 FR 42101-42463, Sept. 14, 1992 & 58 FR 21777-21850, April 23, 1993

ACTS FACTS, Volume 6, Number 10, October 1992, had a decimal error in its article on the new OSHA Cadmium Standard. The TLV-TWA was given as 0.05 milligrams per cubic meter (mg/m^3). It should have been 0.005 mg/m^3. The Action Level was given as 0.025 mg/m^3 when it should have been 0.0025 mg/m^3. Our Apologies.

OSHA also made so many errors in the Cadmium Standard that they published 73 pages of corrections in the Federal Register. Cadmium users will need both documents (see citations above).

If this weren't enough, the May 1993 ACTS FACTS has the wrong issue number. It should be Volume 7, Issue 5 (not 4).

==========

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July 1993 Vol. 7, No. 7

DANGERS OF PREPOLYMERIZED ISOCYANATES ESTABLISHED

BNA-OSHR, 22(46) April 21, 1993, p. 2008 & 23(1), June 2, 1993, p. 11-12

Last May's ACTS FACTS reported that a Missouri Court of Appeals upheld a $ 1.5 million award to a worker with "isocyanate asthma." Upjohn, maker of the asthma-causing chemical, asked the Missouri Supreme Court to review the discission. This court upheld the defendants claims that 1) long-term exposure to solvents and a polymeric isocyanate called PAPI caused the respiratory condition, 2) subsequent exposure to traces of isocyanates now can trigger the defendant's attacks, and 3) PAPI is "unreasonably dangerous."

The verdict is important to sculptors, theater and museum workers, and others who use two-component foam and other urethane products. In the past, these products contained isocyanates such as toluene diisocyanate (TDI) or methylene bisphenyl isocyanate (MDI). Artists usually were aware that these products were dangerous since the product's materials safety data sheet (MSDS) listed the hazards and their exceedingly low Threshold Limit Values (0.005 ppm).

Today many urethane products do not contain MDI or TDI. Manufacturers have modified the isocyanates by adding various chemical groups or by "prepolymerizing" them (adding urethane units). These new chemicals usually are unstudied for toxicity and their MSDSs often list no hazards and indicate that air-quality regulations do not apply to them. Artists can be mislead by these MSDSs into believing that the new chemicals are safe. However, in order to function, each chemical must contain a reactive isocyanate group. It is this reactive group that makes all of them toxic. The EPA designated 43 of the isocyanates for assessment and data reporting (55 FR 39779-85, ACTS FACTS, Nov. 1990). It is unlikely that any of them will be found safe.

On the plus side, the new chemicals are not as volatile and less becomes airborne. However, reduced volatility is not very protective since 1) isocyanates are potent irritants and sensitizers in extremely small amounts, 2) sensitized individuals will react to minute amounts, and 3) no level of exposure is safe if isocyanates cause cancer. (So far, only TDI and a related chemical have been assessed and they are considered carcinogens by IARC [class 2B] and NIOSH [Current Intelligence Bulletin 53, ACTS FACTS, Sept, 1990]).

ACTS hopes this court verdict will result in better warnings on MSDSs. Meanwhile, artists should use all two-component urethanes in local exhaust ventilation or with air-supplied respirators.

CHILDREN'S TEA SETS RECALLED

FDA Consumer, June 1993, p. 2

A nationwide voluntary recall is underway after the FDA found excessive levels of leachable lead in the following eight brands of children's china tea sets:

* Chilton Toys 12-piece tea set
* Barbie china 12-piece tea set and 16 piece dinner set
* Holly Hobbie china 12-piece tea set and 16-piece dinner set
* Cabbage Patch Kids china 13-piece set
* Campbell's 9-piece and 15-piece "Soup Time" china sets
* Friendly Home Parties porcelain 13-piece tea set
* Lillian Vernon Catalog porcelain 17-piece children's tea set
* McCrory children's china 13-piece tea set

All the sets were manufactured in China. FDA analyses found that the tea sets could leach lead at levels ranging from 1.8 parts per million (ppm) to 31.5 ppm. FDA guidelines for ceramic ware allow no more than 0.5 ppm leachable lead in cups, mugs and pitchers, and no more than 3 ppm in plates, saucers, and other flatware.

While most children do not use tea sets frequently, the FDA urges parents to consult their doctors if they suspect the children have had direct exposure to lead through eating or drinking from the sets. The products can be taken to the place of purchase for a full refund. Keeping the tea sets could result in further exposure.

==========

PETITION TO SINK LEAD SINKERS

58 FR 31740-5, June 4, 1993

A letter petitioning the Department of the Interior to prohibit the use of lead sinkers on National Wildlife Refuges was presented by Environmental Defense Fund, the North American Loon Fund, Trumpeter Swan Society, and the Federation of Fly Fishers. The letter points out that each year at least 1.6 million pounds of lead sinkers are sold and that sinkers are the cause of a significant percentage of lead-poisoning in loons and trumpeter swans. (Hunting with lead shot is already prohibited in many wetlands.) The letter also pointed out tin sinkers have been used in England for years and that many other substitutes exist.

==========

RESPIRATORY PROBLEMS FOUND MORE OFTEN IN GLASSBLOWERS

BNA-OSHR, 23(2), June 9, 1993, p. 46

Male glassblowers in a factory in Zagreb had four times as many cases of certain respiratory ailments compared with male clerical workers. A team of scientists from a Public Health School in Zagreb, Coatia, and the Mount Sinai School of Medicine in New York City found that chronic bronchitis, sinusitis, nasal inflammation and bleeding, and other problems constitute a unique pattern of respiratory system changes which is associated with glassblowing.

==========

DIOXINS AND PCB IMPURITIES IN PIGMENTS

DIOXINS AND DIBENZOFURANS (DBF). Chloranil, a chemical used to make certain colorants, can be contaminated during manufacture with dioxins and DBFs. As a result, these highly toxic impurities also are present in pigments and dyes made from contaminated chloranil such as Pigment Violet 23, Direct Blues 106 and 108, and Reactive Blues 198 and 293.

Now EPA has negotiated agreements with U.S. processors and all but one importer of chloranil to abandon the use of the contaminated material. U.S. stockpiles of contaminated chloranil were assumed depleted in September, 1992 and EPA proposed a new rule requiring special reporting for further use of imported chloranil containing more than 20 parts per billion (ppb) of certain dioxins and DBFs.*

POLYCHLORINATED BIPHENYLS (PCBs). A similar regulation has been used since the early 1980's to limit PCB-contamination of imported and U.S. manufactured phthalocyanine pigments to less than 50 ppm. However, diarylide and phthalocyanine pigments containing more than this limit were allowed to be distributed in this country as late at 1986** and manufacture of PCB-contaminated pigments continues in some foreign countries.

CONTAMINATED ART PRODUCTS. Both the dioxin/DBF and PCB regulations address U.S. processors and large imported stocks of pigments. The rules do not require testing of art paints and pigments. Phthalocyanine and dichlorobenzidine-derived pigmented art products are tested by the Arts and Crafts Materials Institute (ACMI) for PCBs, but neither ACMI nor any government agency monitor dioxins or DBFs.

The Labeling of Hazardous Art Materials Act also does not effectively prevent importation of products that do not comply with U.S. laws. For example, none of the powdered pigments and paints exhibited by three importers at a recent art conservation conference in Denver met current labeling requirements.***

USING CONTAMINATED MATERIALS. It is wise to treat pigments made from chloranil and the phthalocyanine and diarylide pigments as if they contained highly toxic impurities. In fact, many other classes of organic pigments also should be handled carefully because they may contain small amounts of the highly toxic chemicals used in their manufacture such as anthraquinone, aniline, and benzidine. Paints containing contaminated pigments can be used safely if they are not inhaled (e.g. during airbrushing, sanding, etc.), or if good work habits are used to prevent ingestion or excessive skin contact (many of the contaminants may be skin-absorbed).

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* 58 FR 27980-6, May 12, 1993

** 50 FR 35185-7, August 29, 1985. Notice of proposed rule granting permission to Hoechst to distribute for another year diarylide pigments containing inadvertently generated PCBs over allowable levels; and to Dainichiseika Color & Chemical American proposed 1-year exemption to distribute 62,400 pounds of phthalocyanine crude contaminated with PCBs at 80 ppm. This text also indicated that manufacture of PCB-contaminated pigments was on-going.

*** Personal observation by editor, June 5, 1993. Neither the Labeling of Hazardous Art Materials Act requirements, nor the OSHA labeling and material safety data sheet laws were being met. Legally, these products should not have been available to either consumers or workers.

THREE DAY ART HAZARDS COURSE

The University of Wisconsin is making a three day course available to their faculty, staff, and others interested in art hazards and precautions in Green Bay on August 31 and September 1 and 2. Taught by Monona Rossol, the course will cover subjects in enough depth to enable teachers to incorporate the material into their own curricula or to train others. For details, contact Jane Rank, University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001. 414/465-2273

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MORE ADULT HIGH BLOOD-LEAD CASES REPORTED

MMWR, CDC, (42)22, June 11, 1993, pp. 437-439

In the April issue of ACTS FACTS, data compiled from 17 states identified 4,199 adults with elevated blood-lead levels in the third quarter of 1992 alone. Now the first quarter of 1993 data from 16 states is available from NIOSH (CDC) and another 4,447 cases of elevated blood-lead levels in adults were reported. These cases are probably only the tip of the iceberg since it is known that only a few percent of the industries using lead do the required blood tests.

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CHILDREN'S CARRYALLS RECALLED

Consumer Reports, July 1993, p. 481

Approximately 650,000 "Barney" and "Baby Bop" vinyl tote bags, shoulder bags, small handbags, "fanny" packs, and back packs featuring beach scenes with children or cats were voluntarily recalled by Jaclyn Incorporated in cooperation with FDA and the Consumer Product Safety Commission. The surface coating on the zipper pull, and inks in the Barney and Baby Bop insignias and beach scenes may contain excess lead. Accessory sun glasses sold with the bags also do not meet shatter-proof lens tests. Consumers may call 800/447-9279 for information about exchanging the items.

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ACTS FACTS' SOURCES include the Federal Register (FR), a compilation of all the regulations and public notices issued by all federal agencies, the Bureau of National Affairs Occupational Safety & Health Reporter (BNA-OSHR), the Mortality and Morbidity Weekly Report (MMWR), and many health, art, and theater publications.

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August 1993 Vol. 7, No. 8

UNUSUAL LEAD POISONING CASE

MMWR, CDC, 42(24), June 25, 1993, pp. 465-467

A 46-year-old microwave technician was found to have a blood lead level of 50 micrograms per deciliter during a routine pre-employment exam. Medical and work histories were taken and all potential sources of lead were checked. The man's wife and children were tested and found to have normal blood lead levels. Doctors investigated fruitlessly for a year and a half for the source of lead. All the while, the man's blood tests remained about the same.

Then, during a clinic visit the man mentioned that he had a habit of chewing on the plastic insulation that he stripped off the ends of electrical wires during work. Samples of the copper wire with white, blue, and yellow plastic insulation were obtained and analyzed. The clear plastic outer coating on the wires contained no lead, but the colored coatings beneath contained 10,000 to 39,000 micrograms of lead per gram. After discontinuing his habit, the man's blood count began to drop and his neuropsychiatric abnormalities (primarily memory deficits) began to lessen.

This report contains interesting implications for artists:

* oral habits are a potential source of exposure in both children and adults;
* plastic-coated electrical and telephone wires are not appropriate "found art" items for young children;
* colored plastic wire coatings could be a source of lead exposure during soldering or burning of electrical wire;
* colored plastic material should be investigated as a source of lead in land fill leachate or incineration fly ash.

NEW DISEASE AFFLICTS SPECIALIZED ENTERTAINERS

The Independent Weekly, Durham NC, April 21, 1993, p. 3

A bacteria similar to one found in commercial topsoil is causing an itchy, pus-gorged rash on the arms and legs of certain performers. Reported in the *Journal of the American Medical Association*, the disease is called *dermatitis palaestrae limosae*, that is, "mud wrestler's rash."

APOLOGIES FOR TELEPHONE SNAFU

This month many people reported weird happenings when they tried to call. Our line was crossed with another. We are reachable again.

WASTE FROM ALLOYS OF CHROMIUM, NICKEL, COPPER ARE TOXIC

58 FR 34738-34741, Tue, June 29, 1993

EPA is denying petitions to delete chromium, nickel, and copper from reporting under the Emergency Planning and Community Right-to-Know Act (EPCRA) when these metals are contained in stainless steels and solid copper-based alloys such as brass or bronze. The petitioners (cutlery, fastener, and iron works companies) contend that the alloys themselves are not toxic and that the metals they contain are not a threat to human health or the environment because they are bound in the alloy and are biologically unavailable.

In denying the petition, EPA says that 1) chromium metal can oxidize to chromium (III) and in turn to chromium (VI) which is a known carcinogen, 2) that nickel and its compounds are also known human carcinogens, and 3) that copper is very toxic to aquatic life and causes some adverse human health effects. As a result, all three metals meet the criteria for reporting under EPCRA.

EPA also denied the petition on the grounds that certain forms of the alloys (e.g. dusts, grindings, and shavings) can be reasonably anticipated to corrode to soluble forms of the metals during some processing, use, or disposal situations. EPA notes that the petitioners failed to provide any data to support their contention that manufacturing, processing, use, or other activities would not lead to bioavailability of the metals.

Artists using metals should remember that grinding and shaving dusts from alloys containing chrome, nickel, copper, or other toxic metals must be disposed of as toxic waste or recycled.

==========

REPORTABLE QUANTITIES OF LEAD COMPOUNDS REDUCED

58 FR 35314-35330, Wed. June 30, 1993

As little as 10 pounds of lead or lead compounds released into air, water, or land now constitute a hazardous release which must be immediately reported to the National Response Center in Washington (800/424-8802). EPA changed the "Reportable Quantity" for lead from 5000 to 10 pounds based on lead's chronic toxicity, especially to children. EPA says that:

> *Based on current available prospective and cross-sectional studies, the Agency believes that exposure of children to lead resulting in blood lead levels of as low as 10 to 15 ug/dL [micrograms per deciliter] represents a health concern. This conclusion is further supported by consistent findings in a large body of experimental animal studies.*

The 10 pound Reportable Quantity category includes lead compounds (acetates, chlorides, fluoborates, fluorides, iodides, nitrates, phosphates, stearates, sulfates, sulfides, and thiocyanates). Also included are lead metal (particles of 100 micrometers in diameter and smaller), waste water treatment sludges from lead and/or chrome pigments manufacture, wash waters and solvents from cleaning equipment used in making inks and driers containing chrome and/or lead.

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CONSERVATORS AND RESTORERS FACE FLOOD HAZARDS

Editorial re: 1993 Midwest flood

FLOOD WATER HAZARDS. When the rivers finally recede, many historic buildings, books, paintings, and other artifacts will need repair. They must be cleaned of flood water residues which can be contaminated with human and animal wastes, disease organisms, fertilizers and pesticides, gasoline and fuel oils, and much more.

Artifacts and interior decor also may be contaminated by chemicals within the building in which they were housed. Water rising through boiler rooms may carry fuel oil, antioxidants, and air conditioning chemicals. Flood water in homes can contain household chemicals such as moth repellents, drain cleaners, paint solvent, and bleach. The artifact itself also may be hazardous (e.g. coated with damaged lead paint, metal corrosion, etc.). Conservators and restorers must consider all these hazards and select gloves and other protective equipment depending on the size and hazards of the job.

MOLDS AND FUNGI also will be growing in damp indoor sites. Repeated or massive exposures to these microorganisms can sensitize some individuals creating lifelong allergy problems. Some microorganisms also are toxic in large quantities. Combatting them requires ventilation which provides fresh air, humidity and temperature control.

If ventilation cannot be provided, or if the workplace has a moldy odor, shows evidence of infestation, or workers develop symptoms, air sampling should be done. In 1986, the ACGIH Committee on Bioaerosols proposed that "total counts exceeding 10,000 cfu/m^3 [colony forming units per cubic meter] indicate a need to proceed to remedial actions" and that the presence of "any one fungus in levels exceeding 500 cfu/m^3 can lead to a presumption of a building-related source."

Currently, the ACGIH recommends the use of rank-order comparisons of indoor and outdoor air sample populations, rather than specifying thresholds. This is not very helpful in flood areas since outdoor concentrations also may be quite high. Instead, the 1986 guidelines can be used as benchmarks for decisions about respiratory protection (although many people may not be able to tolerate molds at these levels). Consult an industrial hygienist for advice and to test air for molds and other toxic substances on site.

A NIOSH-approved toxic dust mask is probably sufficient for moderate mold concentrations. For higher concentrations, use a cartridge respirator with toxic dust filters. It is even conceivable that air-supplied respirators would be needed in some situations. Heavy infestations on building surfaces or on artifacts may manifest as colored (black, tan, pink, etc.) blooms. These should be swab-sampled and identified if people are having severe symptoms and to plan effective conservation (e.g. removing stains).

People already allergic to molds and fungi may not find any level of respiratory protection sufficient. And people with heart and lung problems, or pregnant women may not be able to use respirators safely. Check with your doctor first.

These are only some of the health factors which must be considered. ACTS has additional information on request and will be happy to discuss difficult jobs with conservators and restorers as we did after the Florida and Hawaii hurricanes.

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THEATER SHOP TO CLEAN UP ACT

The Chapel Hill News, Jun 11, 1993, p. A3

Interest in safety stimulated by the Hamlet North Carolina chicken plant fire that killed 25 workers spilled over into the University of North Carolina at Chapel Hill. Now there are work-environment committees roaming the campus in search of health and safety problems. They found some in the PlayMakers Repertory Co., UNC's professional theater-in-residence.

The committee found no ventilation and unsafe levels of sawdust in the air and on the walls of a workshop. A portable dust collector has been purchased for the shop's table saw, and some students and other workers use respirators, but the committee rightly says the shop needs a dust collection system and ventilation improvements.

This was no surprise to Production Manager, Michael J. Rolleri. A recommendation to install a ventilation system in the workshop was made about three years ago. At that time the project would have cost around $ 68,000. Inflation raised the price to $95,000 and the school is looking into alternative designs hoping to save money.

Meanwhile, Rolleri missed the point when he was quoted saying, "The problem is the dust and the ventilation; it's a safe environment to work in." But wood dust on walls can flash in a fire as surely as grease flashed in the Hamlet chicken plant. And airborne wood dust is OSHA-regulated because it causes permanent allergic respiratory diseases and there is evidence it also causes nasal sinus cancer. We urge UNC to install dust collection. Schools have a legal and moral obligation provide students and teachers with safe, OSHA-compliant shops.

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September 1993 Vol. 7, No. 9

ART HAZARDS VIDEO WINS AWARDS

Artsafe Australia Newsletter, Vol 3, No. 1 - 1993, p. 7

First Steps, the first video produced by Artsafe Australia, won a prize from the Australian Society for Educational Technology. It was also nominated for an American Society of Medical Film award. First Steps, which covers basic visual art safety precautions in a variety of classroom and studio situations, is used at over 100 Australian schools and colleges. It is also used by U.S. schools and Colleges and is distributed by ACTS (see enclosed flyer).

A second Artsafe video on Ventilation in the Visual and Performing Arts has already been scripted and some footage shot. This video, like First Steps, is being produced by the University of Melbourne Television and Optical Disc Development Unit with cooperation and help from ACTS which also will distribute it in the U.S.

GLASS WOOL LOBBY HOLDS UP NTP CANCER RATING

BNA-OSHR, 23(8), July 21, 1993, p. 189-190

Intensive industry lobbying aimed at top officials of the Department of Health and Human Services has forced the National Toxicology Program (NTP) to conduct another full-scale review of glass wool's health effects. This will be the fourth such review since 1990 when glass wool was proposed for inclusion in NTP's *Seventh Annual Report on Carcinogens*. Reportedly, NTP scientists feel that the three reviews they already conducted were adequate. A forth review is unprecedented and has never been required since the annual report was initiated by congress in 1978.

NTP scientists are concerned that continued review of glass wool would only delay the report further and put more workers at risk. Insulation manufacturers, on the other hand, expressed concern over the product labeling and training of workers who handle the material once it is listed as a carcinogen. Industry also presented a new animal study showing no cancer from exposure to glass wool. This study contradicts previous studies and critics say it used improper methodology on an inappropriate animal species.

Users of glass wool products should consider this background when reading labels or material safety data sheets which do not adequately warn of cancer hazards. Understanding the politics of cancer is as important as understanding the disease.

CREATIVE USE OR ILLEGAL DUMPING?

Horse Today, "Tips From the Brits," May/June 1993, p. 11

After reading last month's article about a microwave repairman who was lead poisoned from chewing on colored wire insulation, a sharp-eyed ACTS FACTS reader sent us the following article from a magazine on British horse stable management.

> *We were introduced to an unusual material used for footing in a riding arena at Warwickshire College and in a free exercise barn at Jackdaws Castle. A grayish material dotted with gaily colored strips of blue, red, yellow, and green (and perhaps other colors), we learned that it was an industrial byproduct composed of shredded polyvinylchloride (PVC) insulation, the kind used to cover electrical wires.*

The article went on to say that a four-inch layer of this material was used under the entire Warwickshire arena, that three to four feet was used under the Jackdaws Castle indoor exercise area, and that a PVC/sand mixture also is on the market for this purpose.

Whether masticated by an electrician or ground up and pummelled by flying hooves, the PVC will release lead. ACTS asks readers to let us know about other uses or dumping of this lead-pigmented waste.

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OSHA PEL NIGHTMARE

58 FR 35337-35351, June 30, 1993 & 58 FR 40191, July 27, 1993

The Eleventh Circuit Court of Appeals denied OSHA's request for a rehearing on the decision vacating the revised air-contaminants standard which updated many Permissible Exposure Limits (PELs). As a result, OSHA now is expected to enforce outdated PELs for 212 substances and another 164 substances are left with no PELs at all. OSHA published the reinstated old PELS, but stated that they:

> *...believe that many of the old limits which it will now be enforcing are out of date (they predate 1968) and not sufficiently protective of employee health based on current scientific information and expert recommendations. In addition, many of the substances for which OSHA has no PELs present serious health hazards to employees.*

By saying that workers are at risk, OSHA at least makes it easier for people to sue if they are deliberately exposed above the 1989 limits. OSHA also may be able to enforce the vacated 1989 PELs through the General Duty Clause which requires employers to furnish a place of employment "free from recognized hazards that are causing or are likely to cause death or serious physical harm...."

If this wasn't confusing enough, the Court's decision does not directly affect the 25 States which have OSHA-approved plans. Some of these states may retain the 1989 limits. To avoid problems, it is best to compare the 1989 PELs for these substances with the American Conference of Governmental Industrial Hygienist's limits (TLVs), and comply with which ever is most protective.

==========

BACK STAGE & THE VILLAGE VOICE COVER FOG/SMOKE EFFECTS

BACK STAGE, Aug 20-26, 1993, pp.1, 25, 36 & Village Voice, Aug 31, 1993, # 35, p. 96

In an article in *Back Stage* called "Out of the Fog: Onstage Effects Are Coming Under Fire," Thomas Walsh reported on fog-related health problems and lawsuits. Walsh obtained information about one particularly important lawsuit from Cleveland-based Attorney Steve Weiss regarding his client, operatic bass singer, Will Roy.

Roy was in a Opera Columbus production of "Boris Godunov" which featured scenes with smoke from simulated burning buildings. Other cast members complained about the smoke, but Roy's allergic reaction was so severe that he filed suit against the company in March of 1990. The suit was settled early this month after a U.S. District Court judge for the Southern District of Ohio ruled against Opera Columbus and in favor of a monetary settlement for Roy. A six figure payment was negotiated for Roy.

Also reported in *Back Stage* was technical information from Monona Rossol, an announcement by Actors' Equity Association that they are involved in further action on this problem, and data from a National Institute for Occupational Safety and Health (NIOSH) study of fog/smoke (see also ACTS FACTS, November, 1992.)

The NIOSH study documented respiratory symptoms among fog-exposed performers in Broadway productions, but concluded that "the reason for the high symptom prevalence is not clear, since the concentrations of the smoke measured during performances were within permissible limits." However, Rossol was quoted as explaining that:

> *If you work in a factory, and...come under the OSHA, there are* [permissible air quality] *limits set up to protect most healthy adult employees. But on stages, we have children, people with AIDS, people with lung problems, the elderly, singers and actors with special problems of their own. The levels of protection that exist for workers aren't going to do it for actors and singers.*

A shorter article on the same subject appeared 10 days later in *The Village Voice*. By this time, *Voice* reporter Porter Anderson was able to obtain more information about Actors' Equity Association's plans. Business Representative, Ken Greenwood revealed that Equity commissioned Harry Herman's Washington-based Consultech Engineering firm to start a four-month investigation of fog and smoke effects immediately rather than waiting for NIOSH to finish their study.

Equity's action is important because the problem clearly needs immediate attention. It's already too late for Will Roy who says, "It's simply not possible for me to sing opera anymore."

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ACGIH INTENDS TO CHANGE SOME TLVS

The American Conference of Governmental Industrial Hygienists (ACGIH) published their "Notice of Intended Changes (NIC) for 1993-1994." The changes are those for which a limit has been proposed for the first time, for which a change in the "Adopted" listing has been proposed, or for which retention of the NIC has been proposed. In all cases, these should be considered trial limits that will remain in the listing for a period of at least one year. If, after one year, no evidence comes to light that calls the values into question, they will be reconsidered for the "Adopted" list.

ASBESTOS. The ACGIH currently has an elaborate series of TLVs ranging from 0.5 to 2 fibers per cubic centimeter (f/cc) for various forms of asbestos. The NIC has been retained for the second year to change the limits for all forms to the same 0.2 f/cc limit that OSHA enforces, and to classify them all as A1 carcinogens.*

BENZENE. ACGIH proposes to retain the NIC to reduce the TLV-TWA from 10 ppm to 0.1 ppm and its cancer rating changed from A2 to A1.* This TLV is now lower than OSHA's PEL which is 1 ppm. Benzene is no longer commonly available. Artists are only likely to be exposed to benzene if they misuse gasoline as a solvent.

CHROMIUM. ACGIH proposes to change the limits on chrome metal/compounds of various valence states and cancer classifications to:

chrome metal and Cr III compounds:	TLV-TWA=0.50, A4*
water-soluble Cr IV compounds:	TLV-TWA=0.05, A1*
water-insoluble Cr IV compounds:	TLV-TWA=0.01, A1*

COBALT (and inorganic compounds). The NIC is retained to change the TLV-TWA from 0.05 to 0.02 mg/m^3 (lower than the OSHA PEL of 0.05 mg/m^3), and to classify it as an A3 carcinogen.*

MANGANESE (and its inorganic compounds). The NIC is retained to change the TLV-TWA from 5.0 to 0.2 mg/m^3, more toxic.

NICKEL. The NIC is retained to change TLV-TWAs for both soluble and insoluble nickel compounds to 0.05 mg/m^3. It remains classed as an A1 carcinogen.*

OIL MIST. ACGIH has retained for another year the NIC to change the TLV-TWA's to: 1) "severely refined" (highly purified) oil which is 5 mg/m^3; and 2) "mildly refined" oils (containing highly toxic/carcinogenic impurities) which is 0.2 mg/m^3. Mildly refined oil is listed in class A1.*

OZONE. ACGIH intends to set a TLV-TWA of 0.05 ppm and a TLV-STEL of 0.25 ppm. This is more protective than OSHA's PEL-TWA of 0.1 ppm and their TWA-STEL of 0.3 ppm

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*** ACGIH CANCER CLASSIFICATIONS:**
A1--Confirmed Human Carcinogen
A2--Suspected Human Carcinogen
A3--Animal Carcinogen
A4--Not Classifiable as a Carcinogen
A5--Not Suspected as a Human Carcinogen

RULES FOR USING CANCER RATINGS:
A1 agents with no TLV: Equip workers to eliminate to the fullest extent possible all exposure.
A1 agents with TLVs & A2 and A3 agents: Worker exposure by all routes should be carefully controlled to as low as reasonably achievable below the TLV.

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October 1993 Vol. 7, No. 10

At a reader's request, we devoted this issue to a single substance used by many types of artists.

ALL ABOUT WAX

Artists encounter wax in many products including crayons, resists for batik and ceramic glazes, cosmetics, vehicles for oil paints and encaustic, modeling wax for lost wax jewelry and foundry casting, candles, polishes, and more. There are three major sources for the many waxes used in these products.[1]

animal: beeswax, lanolin, shellac wax, Chinese insect wax, etc.
vegetable: carnauba, candelilla, bayberry, sugar cane, etc.
mineral: a) fossil or earth waxes--ozocerite, ceresin, montan.
b) petroleum waxes--paraffin, microcrystalline, etc.

WAX HAZARDS. Handling solid wax products at room temperature is not dangerous. Wax only becomes hazardous when heated or burned. All waxes emit similar substances when heated because waxes actually are mixtures of similarly structured organic chemicals. And because they are mixtures, it also is difficult to predict the exact temperature at which they begin to decompose.

Decomposition occurs when heat breaks down large wax molecules into many smaller ones. Almost no decomposition takes place when wax is just warm enough to melt. As the temperature increases, decomposition accelerates creating more and more small molecules. Some of these are very toxic gases that are released into the air. They account for the typical "hot wax" odor we smell around wax pots or when batik resists are ironed. Among these gases are acrolein and aldehydes such as formaldehyde and acetaldehyde.

Acrolein and the aldehydes are irritants which can damage the respiratory tract. Artists chronically exposed to small amounts may develop more colds and respiratory infections than usual because their irritated sinuses and respiratory membranes are less able to resist invasion by infectious organisms. More serious problems such as bronchitis and chemical pneumonia may develop in people who are exposed to larger amounts of these chemicals.

Besides being an irritant, formaldehyde causes cancer in animals, probably causes cancer in humans, and is known to cause allergies in many people. Acrolein, acetaldehyde, and other aldehydes are not well-studied, but many experts suspect they cause effects similar to those caused by formaldehyde including cancer.[2]

Wax molecules also vaporize and recondense above hot wax to form tiny airborne wax particles called "wax fume." These small fume particles can be inhaled deep into the lung's air sacs where the body finds it difficult to remove them. Wax fume is usually invisible, but when wax is greatly overheated, it appears as a fog hovering around the wax surface. This fog can explode or flash into fire if a spark or flame is present.

AIR QUALITY STANDARDS. Some wax emissions are regulated in the workplace by the Occupational Safety and Health Administration (OSHA) and/or have workplace limits assigned to them by the American Conference of Governmental Industrial Hygienists (ACGIH). Some of these limits are in the table below.

Employers or administrators are required by law[3] to train their workers (artists or teachers) about these OSHA and ACGIH standards and to provide protection such as ventilation sufficient to keep wax emissions below these limits. Establishing ventilation rates may require air testing. One such air study done recently in a tourist-oriented candlemaking shop showed that the limits for both paraffin fume and acrolein were exceeded.[4]

THRESHOLD LIMIT VALUES FOR POSSIBLE WAX EMISSIONS

Emission	Air-quality limits*		
acetaldehyde	25.	ppm	TLV-CEILING
acrolein	0.1	ppm	TLV/PEL-TWA
crotonaldehyde	2.	ppm	TLV-TWA
formaldehyde	0.75	ppm	PEL-TWA
glutaraldehyde	0.2	ppm	TLV/PEL-CEILING
paraffin fume/mist	2.0	mg/m^3	TLV/PEL-TWA

* Threshold Limit Values (TLVs) are workplace air quality standards set by the American Conference of Governmental Industrial Hygienists. The amounts in the air are expressed in parts per million (ppm) or in milligrams per cubic meter (mg/m3). TLVs are designed to protect the majority of healthy adult workers from adverse effects. There are three types:

1. TLV-Time Weighted Averages, which are airborne concentrations averaged over the eight hour working day.
2. TLV-Short Term Exposure Limits, which are 15 minute average concentrations that should not be exceeded.
3. TLV-Ceiling, which are concentrations that should not be exceeded even for an instant.

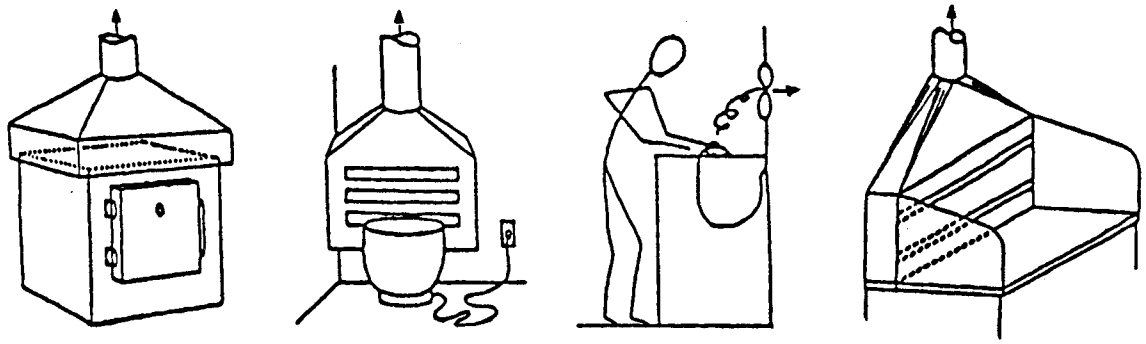
Similar limits called permissible exposure limits (PELs) are set by the Occupational Safety and Health Administration (OSHA). Prudence dictates using which ever limit is the strictest. These limits are in this table.

RESPIRATORY PROTECTION. Air-purifying respirators are not recommended for wax emissions. In fact none are approved[5] for acrolein because the concentration at which most people can smell acrolein is unhealthy. This means that respirator users risk over-exposure because they would not be able to detect the odor if their cartridges wore out and acrolein began leaking though.

Another reason respirators are not recommended involves the number of cartridges that would be needed: a formaldehyde cartridge for formaldehyde; a fume filter for paraffin fume; and an organic vapor cartridge for glutaraldehyde and other organics. And there are other emission many of which are not even known. Clearly, exhaust ventilation is needed to protect people from wax emissions.

VENTILATION. Local exhaust ventilation such as a canopy hood or a side draft slot hood should be used to capture emissions from burn-out kilns, hot wax pots, and similar operations. The ventilation system should exhaust to the outside. If the amounts of wax are large and the temperature of the wax is kept very high, the system also will need to be explosion-proof.

For ironing out batik or sculpting with a hot knife, a table-level window exhaust fan may be suitable if local codes allow the use of this method. If not, a slot hood table will work.



CANOPY HOOD SLOT HOOD WINDOW EXHAUST FAN SLOT TABLE

EQUIPMENT FOR HEATING WAX. Since hot wax is a fire hazard, gas burners should not be used to heat it. Instead, electric stoves, crock pots, and electric frying pans may be used if their controls can be set at the lowest temperature at which the wax remains liquid. Irons for pressing wax out of batik fabrics also should be set at the lowest temperature needed to remove wax.

These types of heaters do not eliminate the emissions because they usually control temperature by simply switching "on" and "off." When it is "on," the wax near the heating element or at the bottom of the container overheats and decomposes. It is better to use a double boiler heated by an electric burner because the temperature of the wax cannot rise above 212 ° Fahrenheit.

WAX PRECAUTIONS. Ceramic artists can avoid wax emissions completely by using cold wax emulsions as resists. Batik artists can use vegetable matter resists which can be washed out with soap and water. Some batik artists boil most of the wax out of the fabric (which keeps the wax at 212 ° Fahrenheit) and then send the fabric to professional dry-cleaners for complete wax removal.

Projects such as candle making and melting crayons should not be used with children in grade six and under. Not only is the wax a hazard, but some pigments also emit toxic chemicals when heated. When the children are older, candles and crayons can be melted with proper ventilation. Be wary of taking children to candle making shops where strong perfumes are used to mask the odors unless the wax pots have local exhaust ventilation.

Encaustic paintings should not be smoothed over with torches. Instead, hair dryers and other low temperature devices should be used. Sculpture and jewelers wax can be cut and tooled without heat. There are modeling waxes that can be shaped with the heat of hands. And If hot tools or heaters must be used, good local ventilation should be provided.

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1. There are other less commonly used waxes which will not be covered here. They include:
   a) ethylenic polymers and polyol ether-esters ("Carbowax," sorbitol, etc.)
   b) chlorinated naphthalenes (called "Halowaxes," they have many uses including as insect and flame proofing. They are toxic by ingestion and skin contact.)
   c) Fischer-Tropsch synthesis waxes: made by a process involving steam and coke not done in the U.S.

2. "Carcinogenicity of Acetaldehyde and Malonaldehyde, and Mutagenicity of Related Low-Molecular-Weight Aldehydes," NIOSH Current Intelligence Bulletin 55, September 1991.

3. The Hazard Communication Standard, 29 Code of Federal Regulations (CFR) 1019.1200.

4. Information given to the author by a municipal health department officer after consultation. The shop was one in which both employees and customers could dip candles. The perfume covered the acrolein odor.

5. The National Institute for Occupational Safety and Health (NIOSH) sets standards for respiratory protection. NIOSH currently does not approve any air-purifying respirator for acrolein.

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TLV BOOKLET AVAILABLE FROM ACGIH

For those artists and teachers who are still unfamiliar with the Threshold limit values (TLVs) mentioned in the article above, the latest American Conference of Governmental Industrial Hygienist's (ACGIH) fast reference booklet of TLVs is now available.

TLVs are recommended maximum exposure levels for airborne chemicals and other hazardous substances in the workplace. All employees who use chemical products, including teachers, professional artists, and theater workers should be acquainted with TLVs through their OSHA-mandated hazard communication training. Many trained workers use the ACGIH's 132 page booklet which lists TLVs and guidelines for physical agents such as radiation, lasers, and noise. The booklet is now available for $10.00 a copy from ACGIH, 6500 Glenway Ave., Bldg D-7, Cincinnati OH 45211; 513/661-7881, fax 513/661-7195

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November 1993 Vol. 7, No. 11

US PIRG REPORTS ON ART MATERIALS LABELING LAW

POISON PALETTES, Bill Wood, U.S.PIRG October 1993

October 14, the U.S. Public Interest Research Group (US PIRG) released a report titled "POISON PALLETS: The lack of Compliance of Toxic Art Supplies With Federal Law." The document describes the history of the Labeling of Hazards Art Materials Act (LHAMA) and illustrates the lack of compliance with the law by examining the labels on 18 products chosen because they were likely to possess chronic hazards. A survey of these products shows that:

* None of the 18 products list all the chronic hazards associated with the products.

* Over half of these products (10) did not carry conformance statements (Conforms to ASTM D-4236) as required by law.

* Over half of the labels (10) did not carry telephone numbers for consumers to get further information about potential chronic hazards as required by law.

The 18 products included turpentine and paint solvents, permanent markers, and brush and spray paints with toxic pigments. US PIRG evaluates the labels on these products by comparing label warnings with data from the products' material safety data sheets (MSDSs). By using this method, US PIRG endorses ACTS contention that users need as much information as MSDSs provide workers, since artists and home crafters often are exposed more intimately and to greater amounts of materials for more hours than industrial workers.

ACTS also thinks that good labels are good for business. The art materials industry risks losing and angering their customers if they find out that information is being withheld from them or they have been mislead by label terms.

The US PIRG report surveys many labels which are likely to make consumers angry. Most striking are those from three common cadmium paints which carry the "AP Nontoxic Seal" from the Arts and Crafts Materials Institute (ACMI). Consumers will see the "non-toxic" term as misleading because cadmium is actually toxic and causes cancer, especially by inhalation. Perhaps ACMI's toxicologist thinks labeling these products "Do not spray apply" will keep artists from inhaling it. But artists not only spray paints, they sand, abrasive blast, heat paint surfaces, and find ingenious ways to make paint fly. Users need to know that the paint must not be made airborne in any way, **and they need to know why.**

In addition, the AP seal was used for many years to indicate that a product was safe for children. While the labels on the cadmium paints also state that the paints are not for children, the AP non-toxic seal clearly weakens that message.

The cadmium paint labels also don't warn against ingestion. ACMI's toxicologist probably relies on the fact that some cadmium pigments are "insoluble" when in contact with weak acid or synthetic gastric juice. This may make them pass through the body undigested. However, some substances that are insoluble in acid are readily absorbed when ingested by test animals.* Soluble or not, consumers should be warned that cadmium is a carcinogen and very toxic.

The report also criticizes CPSC for allowing the term "non-toxic" to be used on products whose toxicity is unknown because they have never been tested. US PIRG cites as an example the replacement of a known cancer-causing plasticizer in a popular modeling material (Sculpey) with a very similar chemical which has never been tested for cancer. This reformulated product legally can be labeled "non-toxic" (see also ACTS FACTS, January 1992).

US PIRG recommends that: 1) enforcement of the law be strengthened by the Consumer Product Safety Commission; 2) use of toxic art supplies in elementary schools be banned (as they already are in California); and 3) legislation be passed to ban the most hazardous chemicals and reduce the use and production of others.

Teachers and users of art paints and related products should obtain a copy of this eye-opening report. It is available for $ 10.00 from US PIRG Education Fund, The National Association of State PIRGs, 215 Pennsylvania Ave., S.E., Washington DC 20003 - 202/546-9707.

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* "Lead Silicate Toxicity: A Comparison among Different Compounds," E. Sartorelli, R. Loi, and R Gori, Environmental Research, 36, 420-425 (1985). Study showed "insoluble" lead mono- and bi-silicate solubility to be similar to that of lead tetroxide (a raw lead compound).

==========

EVEN A DAB IS TOO MUCH CADMIUM FOR LABELS

Bill S. 5834 introduced by New York State Senator Seward was passed. This bill would have allowed art supply manufacturers to use a small amount of cadmium on paint container labels to display the color of the material inside the package. The bill was vetoed by Governor Cuomo on July 26.

==========

NEW RULE MANY AFFECT COSTUME SHOP DRY CLEANING MACHINERY

58 FR 49353-49380, Sep 22, 1993

A new final rule setting National Emission Standards for perchloroethylene from dry cleaning facilities may apply to costume shops that have small dry cleaning machines. For further information, contact George Smith at 919/541-1549 or Fred Porter at 919/541-5251. Ask for the September 22 update of 40 CFR Parts 9 and 63.

==========

ARTIST'S PARKINSONISM MAY BE MANGANESE-RELATED

Jane Lanyon, a potter in Western Australia, was recently diagnosed with "Parkinson's Disease possibly related to manganese poisoning." The likelihood that this diagnosis is correct is increased by the fact that she has lived in manganese mining areas where additional sources of manganese exposure were present.

Jane has written an interesting article combining a personal account of her illness with information about manganese from technical sources. The article warns potters that manganese poisoning occurs after years or months of exposure and that "there are reports that patients have developed major symptoms several years after exposure to manganese had ceased." Early symptoms include "fatigue, apathy, weakness in the legs, tremors of the hands, muscular spasms and leg cramps, loss of co-ordination, with symptoms resembling Parkinson's Disease."

The article says further that "once established manganism is an intractable and permanently disabling disease for which there is no cure although it is treatable with drugs." For this reason, potters should avoid exposure to manganese-containing dusts and kiln emissions. ACTS will be happy to make the article available to potters who want more information about manganese Parkinsonism. Send a self-addressed stamped envelop with your request.

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WALT DISNEY WORLD CITED BY OSHA

BNA-OSHR, 23(17), Sept. 22, 1993, p. 445

Walt Disney World Co., MGM Studios, Lake Buena Vista, Florida, is contesting a serious citation and an $ 8,625 penalty for alleged violations for failure to guard open-sided floors or platforms four feet or more above the ground by standard railing (1910.23(c)(1)), for failure to equip flights of stairs with at least one standard handrail (1910.23(d)(1)(i)), and for failure to provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new hazard is introduced into their work area (1910.1200(h)). This last rule is a provision of the Hazard Communication Standard or "Right-to-Know" law so often ignored by entertainment companies.

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ART HAZARDS BOOKS OUT OF PRINT

The Artist's Complete Health and Safety Guide by Monona Rossol has been sold out sooner than expected and is now out of print. An updated edition is planned to be published late in 1994 or early in 1995. In the meantime, copies can still be obtained from ACTS for $ 16.95 plus $ 3.00 for postage and handling.

Also out of print is NCECA's 80 page booklet, "Keeping Clay Work Safe and Legal." While they last, copies can be obtained from ACTS for $8.00 including postage and handling.

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BRANDON LEE SHOOTING MAY RESULT IN OSHA FINES

BNA-OSHR, (23)19, Oct 10, 1993, pp. 497-498

September 28, the North Carolina Division of Occupational Safety and Health (NCOSHA) issued three citations against Crowvision Inc., and proposed $ 84,000 in penalties in connection with the shooting death March 30 of actor Brandon Lee. The citations are:

1. A willful serious citation (for $ 70,000) that Crowvision did not prohibit or prevent live ammunition from being brought onto a studio lot, stage, or location when not needed.

2-3. Two serious violations (for $ 7000 each) that Crowvision did not make sure that all firearms were checked before each use and that the company did not prevent guns from being pointed or fired at people during filming.

A spokesperson for the NCOSHA said that these actions violate movie industry safety guidelines. Crowvision will appeal all of the citations. They claim that the incident occurred when .44 caliber projectiles were used to manufacture dummy bullets. Prior to the incident in which Lee was wounded, a dummy bullet containing a live primer was discharged during handling on the set. The projectile lodged in the revolver barrel. In a subsequent scene, the gun again was used to fire a full-load blank. The pressure created by the fired blank propelled the lodged projectile which struck Lee.

ACTS will watch this appeal for answers to several important questions: Who "manufactured" the dummy bullets and could they have been defective? Couldn't pre-manufactured safety blanks have been used? If dummy bullets were needed for a close-up shot, why wasn't the weapon checked each time before and after firing? Why was the weapon pointed at Lee when there are safe ways in which the appearance of shooting directly at someone should be simulated? Hopefully the answers to these questions can be used to prevent similar accidents.

==========

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D-LIMONENE: NEW DATA

Amer. Indust. Hyg. Journal, 54(11), Nov 1993, A369-A370

Cancer Research, 52, 4021-4026, July 15, 1992 and 53, 3849-3852. Sept. 1, 1993

D-limonene, a citrus rind-oil-derived chemical touted as "natural" or "non-toxic," has a long list of uses including paint thinner, cleaner, EPA-registered pesticide, and food additive. It has an acute oral toxicity (in rats) similar to that of turpentine (LD^{50} = 4.4 grams/kilogram for limonene, 5.76 for turpentine), and is an experimental tumor and birth defect agent. The only cancer study of d-limonene showed equivocal results (clear evidence in male rats, no evidence in female rats or mice of either sex). Now two new facts can be added to data about d-limonene:

1. The American Industrial Hygiene Association (AIHA) set a Workplace Environmental Exposure Level (WEEL) guide for d-limonene at 30 parts per million (ppm). WEELs are similar to Threshold Limit values (TLVs). The TLV for turpentine is 100 ppm, indicating that **AIHA considers d-limonene's vapor more toxic than turpentine's.**

2. **D-limonene is being tested in England as a human cancer drug.** Studies showed it caused mammary carcinomas induced in rats to regress when included in their diets at high levels (7.5 %).

Artists must beware of "non-toxic" solvents and oil paint thinners containing this highly active chemical. Brands include Grumtine, Permtine, Citrisolv, and many more. Readers may send for (enclose SASE) an ACTS data sheet on d-Limonene documenting its many hazards and they are encouraged make copies for their colleagues.

OSHA DESCRIPTION OF "INADEQUATE ENFORCEMENT"

BNA-OSHR, 23(22), Oct 27, 1993, pp. 651-652

A classic description of an inadequate enforcement policy was included in a brief filed by the Secretary of Labor to the U.S. Court of Appeals for the Third Circuit in a case against a construction company that was cited for failure to wear hard hats (*Jersey Steel Erectors v. Secretary of Labor*, CA 3, No. 93-3306, brief filed 10/12/93). The description reads:

> ***Jersey Steel's inadequate enforcement method can be summed up as follows: (1) tell the employee he is supposed to wear his hard hat: (2) verbally abuse him if he does not wear his hard hat; and (3) in the event the employee continues to resist wearing his hard hat, quietly, and politely lay him off when the job is winding down anyway.***

This passage should remind employers and supervisors that enforcement policies must include real penalties to avoid OSHA citations.

HOLIDAY GIFT IDEAS: SAFE PUBLICATIONS

FABRIC PAINTING AND DYEING FOR THE THEATRE

Fabric Painting & Dyeing for the Theatre, Deborah Dryden, Heinemann, Portsmouth NH 1993

To protect against lawsuits, new art and craft books often include a safety chapter. In many books we've reviewed, these chapters contain errors and/or their advice is contradicted repeatedly in the rest of the book. This is not the case in Deborah Dryden's *Fabric Painting and Dyeing for the Theater*. It has an excellent safety chapter and integrates practical safety recommendations into every subject. In addition, this 272 page, color-illustrated book's technical data and directions for dye use are chemically correct.

The book covers: setting up the dye shop; selection of equipment; use of each major dye class and process; use of each major type of fabric painting and printing medium; and creating theater effects like aging and distressing. Except for the theatrical effects, the subjects in this book are relevant to any dyer's work. All theater, art, and craft dyers can benefit from this reference. Ask your local bookstore to order copies or call 1-800-541-2086 for information about obtaining a copy.

==========

AIRBORNE PARTICLES IN MUSEUMS

Airborne Particles in Museums, The Getty Conservation Institute, Nazaroff, et al, 1993

Museum workers and conservators interested in how surfaces and artifacts get soiled should send a check for $ 20 to the Getty Book Distribution Center (P.O. Box 2112, Santa Monica, CA 90407) for a copy of *Airborne Particles in Museums*. This book is a fascinating compilation of data on factors influencing particle deposition.

One drawback: the authors made a serious error in their recommendations for preventing soiling. They suggest reducing museum ventilation to a minimum of 8.5 meters^3 per hour (m^3/hr) per person--a rate considered adequate by the American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) in 1985 before "sick building" problems were considered. Today's standard, ASHRAE 62-1989, recommends at least three times more fresh air: 25 m^3/hr (15 feet^3/minute). Even with air filtering and control of indoor air pollutants, reduction of fresh air to 8.5 m^3/hr/person is likely to keep surfaces clean while making museum workers sick.

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NAEA STARTS TECHNICAL NEWSLETTER

Pen, Pencil & Paint, NAEA, Vol. 1 No.1

Artists interested in technical issues related to the pigments, paints, and pencils they use should subscribe to the National Artists Equity Association's (NAEA) new Pen, Pencil & Paints newsletter. Edited by Joy Turner Luke, the first 8 page issue includes important and useful information on tests for permanence, labeling issues, health notes, and profiles of art materials experts and companies. Members of NAEA will receive the newsletter automatically. Nonmembers can send $ 12 for 4 issues per year to: NAEA, P.O. Box 28068, Washington DC 20038.

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NURSES FILE SUIT AGAINST LATEX GLOVE MAKERS

BNA-OSHR, 23(14), Sept. 1, 1993, p. 362

Two California nurses filed a class-action suit on behalf of state medical and dental workers against 10 latex glove makers alleging severe allergies from the gloves. The nurses charge the glove makers with negligence, strict liability, failure to warn, negligent misrepresentation, and breach of warranty. They claim that they were led to believe "that the product would provide appropriate protection and safety without side-effects."

In 1991, a similar suit was filed by a Milwaukee radiologist who alleged that her asthma and four episodes of anaphylactic shock were caused by her examination gloves (ACTS FACTS, Nov.1991). The Food and Drug Administration has confirmed that latex allergies are related to skin rashes, breathing difficulties, and anaphylactic shock--including sixteen deaths from anaphylaxis in hospital patients from use of latex-cuffed enema tips (ACTS FACTS, Oct. 1991).

If rashes or other symptoms occur during use, readers should consider using substitutes for latex gloves or for certain other intrusive rubber latex devices (which boggles the mind).

==========

BOOK MOLD CAUSES ILLNESS

Abbey Newsletter, 17(4), September 1993, p. 52

The University of Minnesota/Duluth library spent $ 100,000 and closed for three weeks in June to have dust and mold cleaned from the ventilation system, books, and periodicals. The university's Department of Environmental Health and Safety advised the cleanup after an investigation of staff illnesses. Fifteen workers on a project to computer barcode the library's holdings reportedly had breathing problems, eye irritations and skin rashes. Now they handle books with gloves and masks. The library director noted that other libraries might have to take similar precautions.

==========

FRICK ART MUSEUM FINED BY OSHA IN EMPLOYEE FATALITY

Newsday, September 5, 1993 & BNA-OSHR, 23(25), Nov 17, 1993, p. 775

The Occupational Health and Safety Administration (OSHA) has assigned the Frick Collection museum in New York City $ 40,600 in penalties for 17 serious and four other-than-serious alleged safety violations. Most of the violations relate to faulty sidewalk elevator equipment which resulted in the death of the museum's chief engineer and injury to another employee on April 9, 1993.

==========

WELL-KNOWN ART BOOKSTORE CITED BY OSHA

BNA-OSHR, 23(22), Oct 27, 1993, p. 665

Rizzoli International Bookstores' New York operations manager was served with a serious OSHA citation on October 20, 1992. She then left town and forgot the citation until after the 15-working-day period to file a notice of contest had passed. She filed November 30, 1992 for approval for a late contest filing which was dismissed as being "without merit" October 10, 1993. The citation now stands.

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D-LIMONENE

Many paint solvents, strippers, and cleaning agents contain d-limonene. This chemical is a major component of citrus rind oil. Trade names of products containing it include Citrus Turp, CitriSolv, Grumtine, Lithotine, Citrus Clean, and many others.

Advertisements for these products often emphasize that the FDA allows small amounts of d-limonene in food as an additive and that it is present in some citrus fruit foods naturally. This information is useless unless you intend to eat the product. In addition, the ads fail to mention that d-limonene is Mother Nature's own, very effective pesticide and it is EPA-registered for use as an active pesticide ingredient.

We mention d-limonene's EPA registration because it is ACTS' policy to balance industry's misleading and irrelevant claims about food use with equally irrelevant pesticide use. The following is a more rational look at the toxicity of d-limonene.

ACUTE ORAL TOXICITY is measured by a two-week-long Lethal Dose 50 (LD_{50}) test. This test determines the dose at which 50 percent of the experimental animals will die. A product must be labeled with acute warnings (under the Federal Hazardous Substances Act) if its LD_{50} is less than 5 grams per kilogram of the test animals' body weight. Accordingly, d-limonene is acutely toxic to rats (4.4 g/kg) and just misses being acutely toxic to mice (5.6 g/kg).[1] This borderline status allows sellers to label their product with no warnings or to call it "non-toxic."

One company that failed to put a warning label on their product was sued when it's fruity odor tempted a young boy to drink some. The boy was hospitalized. This company now includes an acute warning on the product's label.[2] Others companies should do likewise.

SUBACUTE TOXICITY In 13 week tests, d-limonene caused kidney damage in male rats but not in female rats or mice of either sex. This pattern of damage in male rats was strikingly similar to that produced by pentachloroethane, 1,4-dichlorobenzene, unleaded gasoline, and other hydrocarbon solvents and fuels.[3]

CHRONIC TOXICITY. One chronic (long-term) two-year study was done by the National Toxicology Program (NTP) in 1988.[3] This study concludes that d-limonene shows no evidence of cancer in female rats or in mice of both sexes, but clear evidence of carcinogenicity in male rats. These results may be related to a mechanism that cannot be extrapolated to humans. However, liver effects in male mice and increased mortality in female rats at relatively low doses (0.5 and 0.6 g/kg) indicates that d-limonene can be expected to be chronically toxic to humans.

Other studies have indicated that d-limonene regresses induced mammary tumors in rats and it is currently being used in England as an experimental treatment for human breast cancer.[4,5] Clearly d-limonene is a very active substance.

WORKPLACE LIMITS. Advertising copy and/or the manufacturer's Material Safety Data Sheets may also state that d-limonene is not regulated by OSHA (it has no Permissible Exposure Limit or "PEL"). This is not an endorsement by OSHA. There are many toxic substances for which OSHA has not set limits.

However, the American Industrial Hygiene Association (AIHA) set a Workplace Environmental Exposure Level (WEEL) guide for d-limonene at 30 parts per million (ppm).[6] WEELs are similar to PELs. **The AIHA's WEEL for d-limonene is lower (more restrictive) than the PELs set by OSHA for turpentine (100 ppm), toluene (50 ppm), n-hexane (50 ppm), and other very toxic solvents.**

OTHER HAZARDS. D-limonene can be absorbed into the body by skin contact. Skin irritation and allergies also have been noted, especially in people previously sensitized to other "natural" solvents like turpentine and anise oil.[6] An animal study concluded that allergenic compounds form when d-limonene is exposed to air.

PRECAUTIONS FOR SAFE USE

Users of d-limonene can assume its vapor is more toxic than that of petroleum distillates or turpentine. Its slightly lower volatility will result in less exposure by inhalation during use. However, home users should remember that it will all evaporate in time. D-limonene should be used with the same precautions taken with other very toxic solvents with particular care to avoid skin contact (some glove companies recommend nitrile gloves). Children should never use it and it should be kept out of their reach.

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1. SAX's Dangerous Properties of Industrial Materials, 8th edition, Richard J. Lewis, Sr., Van Nostrand Reinhold, 1992, p. 2117.
2. "Grumtine Odor a Hazard?" Art Hazards News, Vol. 6, No. 6. July 1982.
3. Toxicology and Carcinogenesis Studies of d-Limonene in F344/N Rats and B6C3F1 Mice (Gavage Studies)" (TR 347), NTP Public Information Office, MD B2-04, P.O. Box 12233, Research Triangle Park, NC 27709.
4. Cancer Research, "Limonene-induced Regression of Mammary Carcinomas," 52, 4021-4026, July 15, 1992.
5. Ibid, "Increased Mannose 6-Phosphate/Insulin-like Growth Factor II Receptor and Transforming Growth Factor B1 levels during monoterpene-induced Regression of Mammary Tumors," 53, 3849-3852, Sept 1, 1993.
6. "d-Limonene," Workplace Environmental Exposure Level Guide, American Industrial Hygiene Assoc.,1993.

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