ACTS

ARTS, CRAFTS AND THEATER SAFETY

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ACTS FACTS SOURCES

The Federal Register (FR) is ACTS FACTS' major source of information. The FR is a compilation of all the regulations and public notices issued by federal agencies. Published daily, this vast amount of printed matter often contains items which affect the health and safety of artists, theater, or crafts people. Other sources of include the Bureau of National Affairs Occupational Safety & Health Reporter (BNA), the Centers for Disease Control (CDC), HazChem Alert, and many other sources. ACTS cites its sources and answers inquiries about them.

LOOKING BACK--AND FORWARD

ACTS FACTS wishes readers a healthy, happy, prosperous 1991.

1990 was another good year for ACTS. This year, as in the past five years, we will not solicit donations from readers and clients. ACTS, a not-for-profit corporation, receives sufficient income from fees for services such as lectures and consults provided at below market value, sale of publications, and unsolicited contributions.

The coming year promises to be as profitable and interesting. We predict that major health and safety issues of special concern to ACTS FACTS readers will include the following.

AN INTERNATIONAL ISSUE

GOVERNMENTAL AND NATIONAL STANDARD SETTING AGENCIES in the U.S. and Canada will increasingly incorporate aspects of the laws and standards of other nations, especially those of the European Economic Community. Our products must meet laws and standards mandated by each country into which they are imported. Our workers look to protective legislation in other countries for models. Workplace air quality standards, cancer status, and other health and safety parameters incorporate data collected world-wide. And industrial pollution does not stop at borders. Hopefully, world health, safety, and environmental laws and standards will advance toward greater compatibility in 1991.

1991 ISSUES - IN THE U.S.

THE ART MATERIALS LABELING ACT will be "enforced," which means the Consumer Product Safety Commission will assist non-complying art materials manufacturers to meet the requirements. The real battle will be behind the scenes as guidelines are set which define chronic toxicity and how to test for it.

TALC. The argument will continue over talc hazards. OSHA was ready to remove non-asbestiform tremolite in talc from regulation when the American Thoracic Society released a report in October

which concluded that this mineral is as hazardous as asbestos. OSHA has reopened hearings. And recently (December 4), a California Jury awarded more than a million dollars to six former employees of a rubber plant who were exposed to Pfizer and R. T. Vanderbilt Corporation's talc. Industry may appeal.

ASBESTOS ABATEMENT rules similar to those which affect schools will be adopted by various states and municipalities and applied to public buildings. These rules in time will be extended to apartment buildings and other multiple dwellings.

LEAD PAINT REMOVAL REGULATIONS based on the Housing and Urban Development guidelines (see ACTS FACTS, Vol 4 No. 6) will be mandated in some states for schools and some multiple dwellings. The rules are similar to the asbestos abatement regulations requiring: a written abatement plan; formal notification of all affected agencies and people; medical pretesting and monitoring of abatement workers; training of workers; provision for protective clothing showers, changing areas, and containment barriers on the site; pre- and post-abatement monitoring of the air and dust in the area; and proper clean up and removal of lead-containing waste.

INDOOR AIR QUALITY. More states will propose new indoor air quality regulations which incorporate the American Society of Heating, Refrigerating and Air-conditioning Engineer's 1989 standard. This standard requires 20 cubic feet per minute outside air per person for most common indoor situations.

WORKPLACE AIR QUALITY. Threshold Limit Values (TLVs), which were designed to protect healthy adults, will be replaced by indoor air quality standards in places employing the disabled, elderly, chronically ill, and other high risk groups. This should be especially true for performing arts venues where children are employed.

MORE RIGHTS FOR DISABLED INDIVIDUALS. Handicapped access provisions (section 504 from the Rehabilitation Act) will be enforced in more schools, non-profit's and other institutions. The Americans with Disabilities Act will require all existing entertainment venues to be fully accessible and to provide special provisions for those with visual or hearing impairments by 1992. Both professional and amateur theaters, performing arts and entertainment facilities must employ signers, supertitles, and/or furnish hearing assistance devices as well as a sound system to feed the devices. Visually impaired people will require hearing assistance devices with an audio track describing stage action. Demonstrating "undue burden" will be the only way to be relieved from compliance.

SOME GOVERNMENT AGENCIES WILL COORDINATE ENFORCEMENT EFFORTS. Environmental, health and safety law-breakers are likely to find themselves in trouble with more than one agency at a time now. Agreements between OSHA and EPA (see page 2), and between FDA and EPA are already in the works. Only the Office of Management and Budget will continue to remain an adversary. (see page 4).

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OSHA, EPA JOIN FORCES

(BNA-OSHR, Dec. 5, 1990, p. 1115)

The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) issued a 14-page memorandum of understanding which establishes a framework within which the two agencies will cooperate on enforcing environmental and occupational safety and health regulations at facilities under their jurisdiction.

Among major items are:

* The capacity to make joint inspections, either as part of a work plan or in response to accidents or fatalities;

* A system of referrals between the agencies on potential hazards identified during inspections by either agency;

* An exchange of data relating to complaints, inspections, investigations, violations discovered, or imposition of civil monetary penalties; and

* Periodic cross-training programs for personnel in both agencies to ensure that all inspectors are knowledgeable of the regulations and compliance requirements of each other.

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EPA REDEFINES "PESTICIDE RESIDUE"

(55 FR 50282-50300)

The EPA has published their final rule on new Procedures To Establish, Modify, or Revoke Food Additive Regulations under section 409 of the Federal Food, Drug, and Cosmetics Act (FFDCA), 21 U.S.C. 348. Of great importance in this new rule is the redefinition of two terms: "pesticide chemical" and pesticide residue."

The term "pesticide chemical" used to be restricted to the active pesticide ingredient. Now it "means any substance which alone, or in chemical combination with or in formulation with one or more other substances, is a `pesticide'.... The term includes any substance that is an active ingredient, intentionally-added inert ingredient, or impurity of such a `pesticide.'"

And now the term "pesticide residue means a residue of a pesticide chemical or of any metabolite or degradation product of a pesticide chemical."

As a result, EPA and FDA can consider, without taking any special action, the hazards of every chemical in a pesticide formulation and all the breakdown products of those chemicals when deciding what is safe in our food or our environment. About time.

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STEAM HUMIDIFICATION HAZARDS

Mortality & Morbidity Weekly Report,
CDC, Vol. 39, No. 47 Nov. 30

Dry winter air is often modified for health and comfort by releasing steam into the air. Apropos, the Centers for Disease Control published an article about a 1988 incident in which 77 employees in a manufacturing plant became ill when boiler steam used to humidify the air was contaminated with the corrosion inhibiting chemicals diethylaminoethenol (DEAE) and cyclohexylamine.

The report also listed three previous clusters of illness related to boiler steam containing DEAE or related corrosion-inhibiting chemicals that were investigated by the National Institute for Occupational Safety and Health. One of these incidents was at an art museum where DEAE not only made people feel ill, but deposited on surfaces and caused damage to the varnish on paintings.

Steam humidification, properly used, can keep people comfortable and healthy, and keep artifacts from drying and cracking. Steam also can be used to create special effects in some entertainment facilities. However, the source of water for steam should be carefully monitored for contamination.

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OSHA PROPOSES STRICTER LIMIT FOR FORMALDEHYDE

(BNA-OSHR, Vol. 20, No. 27, Dec. 5, pp. 1115-6)

An OSHA draft proposal of a rule to further reduce the Permissible Exposure Limit (PEL) of formaldehyde (from 1.0 part per million to 0.75) and implement remedial removal protection for workers was returned for reconsideration by the Office of Management and Budget (OMB). OMB wants proof that a more stringent standard is needed.

The proposal was drafted in response to an order from the U.S. Court of Appeals, District of Columbia Circuit, instructing OSHA to reconsider the standard. The proposal was based largely on a version agreed upon by labor and industry representatives last summer developed as a means of avoiding further litigation on the issue. If OMB obstructs the adoption of the new standard, a reopening of the rule and time-consuming and expensive litigation will probably result.

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ACTS

ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

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CPSC GAINS ACCESS TO LAWSUIT INFORMATION

(Public Law 101-608)

As of January 1, companies are required to report settlements of some product safety lawsuits to the Consumer Product Safety Commission (CPSC). The lawsuits involved are those in which the plaintiffs contend that a product caused death or a disabling injury. The CPSC must be informed when three such suits involving the same product model occur within a two year period, and are either won by the plaintiff or settled out of court.

This last requirement is especially important because many product suits are settled out of court and case records are routinely sealed. Sometimes "gag orders" are included in the settlement which prevent the plaintiff from discussing the case or the amount of the settlement. Companies then may deny that the product caused harm and any pre-trial data gathered is not available to those filing subsequent suits. Most important, this information is not available to the CPSC for the purpose of identifying hazardous products. Now, these settled suits must be reported.

This rule should be a great improvement in consumer protection. However, it could have been even better. Pamella Gilbert, the legislative director of Public Citizen's Congress Watch, said that originally the rule to required lawsuits to be reported as soon as they were filed, instead of when they were settled which could be years later. The three lawsuit rule was a compromise between consumer groups and business.

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1990 OSHA CITATIONS

Violations of the Hazard Communication Standard (the federal Right-to-Know) were cited most frequently by OSHA in 1990. There were 22,578 citations in the construction industry, and 20,938 in general industry. These numbers were well over three times greater than the next highest categories of citations which were for scaffolding (5399 in construction) and for recordkeeping (6,109 in general industry).

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SLEEP DEPRIVATION MAJOR CAUSE OF ACCIDENTS

(BNA-OSHR, Vol. 20, No. 32, Jan. 16)

William C. Dement, Chairman of the National Commission on Sleep Disorders Research revealed some data from a commission study that is scheduled to be published in October. The study found that sleep deprivation and sleep disorders are a major cause of accidents and lost work productivity. Those most prone to sleep problems are those with irregular hours such as transportation workers and hospital workers. In fact, the National Transportation Safety Board's examination of truck accidents concluded sleep deprivation was a more important factor than drug or alcohol abuse, Dement noted.

Employers have been slow to recognize the need for proper sleep to achieve optimal alertness. Yet experiments in which shift rotation schedules are changed to provide proper sleep have demonstrated dramatic increases in productivity and decreases in accidents. One such experimental program reduced Philadelphia Police Department accidents by 43 percent.

Clearly employers and administrators who set up sleep-depriving schedules increase the risk of accidents. Some traditional sleep-depriving jobs which should be rescheduled include: film and theatrical production, performance, and travel schedules; end of term schedules for college and university art courses and student exhibitions; and duty shifts for medical interns.

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OSHA MAY OFFER ALTERNATIVE TO VENTILATION

(BNA-OHSR, Special Report, pp. 1234-5, Jan 9, 1991)

Ventilation is clearly the most effective method of controlling toxic airborne substances. OSHA limits the use of respirator as primary protection to types of work for which ventilation is not feasible (e.g. asbestos abatement), which expose workers only occasionally (e.g. less than 30 times a year), for emergencies, or when ventilation is being installed, repaired, or serviced. Industrial employers often urge wider use of respiratory protection, especially in industries where the type of ventilation needed is particularly costly.

Charles Adkins, OSHA's director of health standards programs, told the Bureau of National Affairs that the agency may take a new approach by establishing two permissible exposure limits (PELs) for certain substances. Employers would be required to meet the higher PEL through ventilation, while a lower more protective limit could be met through other methods such as respiratory protection.

The more protective standards for respiratory protection would also involve some type of surveillance and monitoring program to verify that exposures are controlled and mitigated. Adkins said that this rule might be applied to cadmium. A final rule on cadmium could be published as early as September.

Depending on the cost of monitoring, this system also might provide a less expensive alternative if it is applied to some of the substances used in art and craft work such as silica, certain metal dusts and fumes, and wood dust.

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LEAD IS STILL NEWS

Lead issues can be expected to be prominent in the news in the next few months. New guidelines on lead exposure to children will be issued soon by the Department of Housing and Urban Development, Department of Health and Human Services, and the Centers for Disease Control. The Supreme Court is considering whether Johnson Controls was justified in barring women of childbearing age from jobs involving lead exposure. Bills which will affect the use and disposal of lead will be introduced. These bills are expected to be similar to the three bills (S-1112, S-2637, and S-2593) which failed to pass the Senate last year. Other lead-related issues include the following:

MALE-EXPOSURE MAY PUT FETUS AT RISK. The New York Times (Tuesday, January 1, 1991 pp. 1 and 36) ran an article on lead which cited evidence that lead exposure to male test animals can produce defects in their offspring. More importantly, the article deplored the lack of research on this important phenomena. One reason given by some experts for failure to study the male role in transmission of damage from toxic chemical exposure was the "macho sperm theory of conception," that is, the mistaken idea that only the fittest sperm are hardy enough to fertilize the egg.

OVEREXPOSURE STILL SEEN IN INDUSTRY. An article in the American Journal of Industrial Medicine (Vol. 18, No. 1, 1990) included OSHA air sampling data taken in 52 industries. Airborne lead concentrations exceeding the Permissible Exposure Limit were found in 40 percent of the 5,681 samples taken. Pigment manufacture and brass/bronze foundries were among the six industries with the highest exposures. A significant portion of high results also were found in the painting job category. Authors of the article concluded that the problem appears to be widespread and that research should be done on the potential toxicity of lead pigments or primers, and on better ways to control these exposures.

WILDLIFE PROTECTED. A final rule published in the Federal Register (56 FR 1446-7, Jan 14, 1991) by the Department of the Interior describes all the areas of the country in which lead shot will be prohibited for the taking (their word for killing) of all waterfowl, coots and certain other species by the 1991/1992 hunting season. The rule concludes a program which began in 1986 to phase-out the use of lead shot because the spent shot often poisons and kills the wildlife that consume it. Steel shot with which lead can be replaced has been available for many years.

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VDT ORDINANCE SIGNED IN SAN FRANCISCO

(BNA-OSHR: Vol. 20, No. 30, Jan 2, 1991, pp. 1181-2, 1185; and Vol. 20, No. 33, p. 1280)

On December 27, San Francisco's Mayor Art Agnos signed an ordinance regulating the use of Video Display Terminals (VDTs) which will affect about 56,000 workers. The ordinance provides guidelines for ergonomic workstations for operators who spend four hours or more a day at the VDT. The guidelines call for detachable keyboards with low profiles, monitors which are adjustable for tilt and brightness, adjustable chairs, glare-free light sources, and noise reduction measures for impact printers. The ordinance also encourages employers to provide alternative work breaks for operators who work continuously at a VDT for more than two hours, suggests vision examinations at least once a year, and calls for training of all VDT workers and their supervisors.

On January 18, the City's Mayor signed amendments to the ordinance which extend the deadline for compliance from two years to four years, and which set a schedule of interim deadlines for partial compliance.

The ordinance is an attempt to stem the growing tide of eye problems, wrist and back injuries sustained by VDT workers. Some experts also think long hours at the VDT may effect the fetus. However, a new epidemiological study done by researchers at the California Department of Health Services found the use of VDTs during pregnancy does not appear to be linked to miscarriage or low birth weight. Reported in the American Journal of Industrial Medicine (Vol. 18, No. 6) the study did show a somewhat higher risk for intrauterine growth retardation among women with greater VDT use. The authors of the study called for further research and urged those conducting future studies to separate prenatal growth retardation from premature birth when planning their research.

The San Francisco VDT ordinance currently is the only one regulating VDT use in the U.S. Prior attempts to institute VDT ordinances have not met with success. A New York state court struck one down in Suffolk County, former New York City Mayor Ed Koch vetoed one affecting municipal workers, and California Governor George Deukmejian vetoed one in 1990. Canadian Government workers have fared better and also have the right to be transferred from VDT work without loss of pay during pregnancy.

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WHITE GLUE, HOW HAZARDOUS IS IT?

In November 1990, Conros Corporation, maker of Ross-Conros Adhesives, sent notification to Boards of Education in all fifty states recommending against the use of their own PVA (polyvinyl acetate/polyvinyl alcohol) white glues. Conros had reason to believe that a contaminant present in all PVA glues might be a carcinogen. They recommended as alternatives their non-PVA glues.

THE PROBLEM. PVA glues are made 1) by reacting a catalyst and a monomer called vinyl acetate to form a sticky polyvinyl acetate plastic or 2) by reacting vinyl acetate with a chemical which converts (alcoholizes) it to polyvinyl alcohol plastic. The plastics are then emulsified with water to make the common white glues. Unfortunately, some of the toxic vinyl acetate monomer remains in the emulsions.

Vinyl acetate is a clear, colorless liquid with a sweet fruity smell. It has a Threshold Limit Value of only 10 parts per million because it is known to be a strong respiratory irritant. Other than its acute respiratory effects, little is known about its long-term effects on people.

Long-term animal studies, however, indicate that it causes tumors in the nose and lungs. A 1989 study, sponsored by the Society of Plastics Industry (SPI), also found nasal cancer in three rats exposed to high levels of vinyl acetate. On the basis of this study, the SPI filed a significant risk notice with the Environmental Protection Agency (EPA).

In December, 1990, the EPA sent letters to Ross and other manufacturers of PVAs citing the SPI study and requesting data on the amounts of vinyl acetate monomer in their products. The EPA letter also encouraged manufacturers to reduce the monomer to the

lowest level possible in their products. This action precipitated Ross' decision to reduce children's exposure to zero by withdrawing their product from the school market.

PVA CERTIFIED NON-TOXIC. The Ross product and several other PVA glues have been certified non-toxic by the Arts and Crafts Materials Institute (ACMI). Different brands of PVA glue contain varying amounts of vinyl acetate. Ross claims their "Kid's Glue" and their "School Glue" contained 0.021 and 0.02 % respectively. ACMI's toxicologist, Woodhall Stopford, says that even 0.6 % vinyl acetate would still allow a product to qualify for the non-toxic AP seal.

ACMI guidelines require extrapolation from existing data to provide a risk of cancer lower than one in 1.4×10^7 in a life-time of exposure--an extremely small risk. On February 15, ACMI released a statement which reaffirmed their original determination that the white glues do not present a chronic health hazard. They also said that the SPI study was flawed because the vinyl acetate used was contaminated with acetaldehyde, a known nasal carcinogen.

ACETALDEHYDE. Acetaldehyde, whose toxicity is similar to that of formaldehyde, is known to cause nasal cancer in animals. The contamination of PVA with acetaldehyde is not unexpected, since vinyl acetate reacts with water (hydrolyses) to form acetaldehyde and acetic acid (vinegar). In fact, one E.I. DuPont-sponsored basic research program which is expected to be completed this year includes an investigation of vinyl acetate hydrolysis to acetaldehyde in rodent and human nasal tissue--which may be the mechanism by which vinyl acetate causes cancer.

Even more relevant to users of PVA glues is the likelihood that hydrolysis of residual vinyl acetate monomer is ongoing in the glue itself since it is in a water emulsion. Perhaps this also explains the slight vinegar odor of some white glues.

ACTS's PVA POLICY. Although there are unanswered questions about the carcinogenicity of vinyl acetate and the acetaldehyde content of the PVA glues, the risk from PVA glues is probably small. It is ACTS's policy, however, to avoid exposing children to suspect carcinogens whenever possible. We suggest that teachers use up their PVA glues and reorder substitutes as needed. Vinyl acetate-free substitutes include Ross Purple Glue Stick, Ross Kidstik, and Ross-Conros Mr. Natural School Glue.

We applaud Conros Corporation's actions and hope to see more manufacturer's alerting consumers to potential hazards as soon as there is reason to suspect that there is a problem, rather than waiting until all the data are in (which may take years). Erring on the side of caution is proper when assessing risks to children.

ACTS FACTS will continue monitoring and reporting PVA research.

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LEAD GLASS

(The Lancet, Vol 337: No. 8734, p. 141-142;
NY Times, Feb 19, 1991, p. C3; NY Times, Feb 20, 1991, p. B6)

A study of lead exposure from lead crystal was reported in Lancet, January 19, 1991. Various alcoholic beverages whose lead (Pb) content was known were placed in glasses and decanters for varying periods of time. Analyses of the the beverages showed that lead begins leaching from crystal within minutes and "that each set of glasses and indeed each individual glass within a set had its own characteristic elution pattern." However, the concentration of lead is limited to relatively small amounts by the short time wine usually remains in a glass or goblet.

Decanters, on the other hand, present a greater risk. The study showed "that alcoholic beverages stored in crystal decanters steadily increase in Pb concentration over time and that spirits kept in decanters for a long time [years] may achieve Pb concentrations comparable with those in the notorious sweetened wines of Roman times."

Steuben of New York City, a division of Corning, Inc., has temporarily suspended the manufacture and sale of its lead crystal decanters and flasks as a cautionary measure, a spokeswoman told the New York Times. She also said Steuben had long advised customers not to store liquids in its decanters. (This editor first heard this advice and remembers reading information about lead crystal leaching some 15 or 20 years ago.)

HOW MUCH IS TOO MUCH? The US EPA maximum allowable level for lead in drinking water is 50 micrograms per liter (ug/l) and is expected to drop to 20 ug/l later this year. Wine containing 33 ug/l at the time of pouring was seen to increase in lead content to above drinking water levels in some types of glasses in under 30 minutes. This still would not be a hazard to adults unless they drank a lot of it. Storage of wine in decanters is much more hazardous. Wine stored for four months resulted in lead levels ranging from 2,162 to 5,333 ug/l. Two samples of brandy stored for more than 5 years contained 19,920 and 21,530 ug/l.

There are no Federal standards for the amount of lead that is permitted to leach from crystal, but the Food and Drug Administration (FDA) says that standards for ceramic ware can be used for comparison. A large ceramic storage (hollowware) piece (one that will hold 1.1 liters or more) is permitted to leach 2,500 ug/l in a 24 hour period when it contains a solution similar in acidity to white distilled vinegar. Smaller storage pieces can leach 5,000 ug/l. The FDA is currently reviewing changes which would lower the standard for large pitchers to 100 ug/l.

ADVICE FOR CRYSTAL USERS. Jerry Burke, the director of FDA's Office of Physical Science made the following recommendations (quoted in the NY Times):

** Do not use lead crystal every day. Occasional use is all right, but if you have a daily glass of wine, don't drink it from a crystal goblet.

** Don't store foods or beverages for long periods in crystal. This is particularly true for acidic juices, vinegar and alcoholic beverages. Mr. Burke defines a week or two as long. Others say overnight is the maximum.

** Women of child-bearing age should not use crystal ware.

** Don't feed children from crystal bottles or tumblers.

Mr. Burke also suggested that people test their crystal with the Frandon Lead Alert Kit. The kit is available for $29.95 plus 3.50 shipping and handling from Frandon Enterprises, P.O. Box 300321, Seattle, WA 98103; (800) 359-9000.

ACTS's ADVICE TO THE FDA. Asking people to test and restrict their use of crystal products is not as helpful as getting industry to produce safer ware. Toward this end, ACTS suggests that the FDA:

** Establish lead and cadmium tolerances for all food use ware including crystal, other types of glass, glazes, and enamel.

** Lower the standard for hollowware to the proposed 100 ug/l.

** Establish standards for all toxic substances which occur in glass, glazes and enamel foodware including: arsenic and antimony (opacifiers); barium and lithium (fluxes); manganese, chrome, and other colorants. Criteria used to establish EPA'S drinking water standards could be adapted and modified.

** Research leaching characteristics of non-acidic foods and beverages. It is very possible that certain types of glazes, glass and enamels may be more responsive to basic substances.

** Research changes in leaching characteristics of glass, glazes and enamels with respect to time, use, and dishwashing practices. (A study in the Journal of the Association of Analytical Chemists [Vol. 73, No. 3, 1990] indicated that multiple dishwashing and scrubbings affect glaze leaching in unpredictable ways.)

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ARTS, CRAFTS AND THEATER SAFETY

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MAKING SENSE OF METAL HAZARDS

METALS are used in many art products, such as solders, brazing metals, pewter, jewlery and casting alloys. Currently, many of these products are being reformulated to replace highly hazardous metals such as lead and cadmium. Some of the substitute metals also are hazardous. This column is designed to help artists assess the hazards of both the old and the new products.

HOW EXPOSURE TO METALS OCCURS

HARD METAL. Hazards from handling the hard metal occurs from exposure to metal oxides, sulfides, and other corrosion products found on metal surfaces. You can see the formation of such compounds when silver tarnishes. This phenomenon explains why merely touching or handling some metals provides sufficient contamination of the skin to cause systemic damage if workers subsequently transfer these contaminants to the mouth by eating or smoking before washing up. These corrosion products are also thought to be involved in the development of allergic reactions to metals such as nickel, chrome and cobalt.

Larger amounts of metal corrosion products are created if metals are allowed to weather (especially in polluted city air) or come in contact with acids or other chemicals which attack the metal. Cleaning or brushing corroded metal surfaces may be hazardous to workers if the dust is inhaled.

DUSTS. Metal dusts are created when metals are cleaned, ground, polished, cut, and the like. Bronze powders and metallic pigments also are metal dusts. Dusts can vary in size from large particles which drop immediately to surfaces, to fine respirable particles. In general, the smaller the particle size, the deeper the dust can be inhaled and the more toxic it is liable to be.

When inhaled, some metal dusts, such as lead and zinc, dissolve in a short time and are released into the blood stream. These metals then can be transported by the blood throughout the body. Other metals, such as cerium or titanium, dissolve very slowly. They will remain in the lungs a long time, perhaps a lifetime. Their effects are on the lungs themselves.

FUMES. Metal fumes are created when metal is heated to its melting point or above. First metal vapors form. These immediately oxidize and condense into tiny metal oxide particles. These particles are too small to be seen with the naked eye, but may be noticed as a bluish haze when in formed large quantities. Since metal fumes are exceedingly small particles, they can float for hours in the air. Eventually they settle as dust throughout a workspace or in workers hair or clothing. When they are inhaled as a fume or accidentally ingested from contaminated food or hands, they are likely to be absorbed by the body. Metal fumes are generally more toxic than metal dusts.

METAL-CONTAINING GASES. Some metals, such as arsenic, antimony and selenium, emit highly toxic gases when in contact with acids. This can happen when acid etches, fluxes, cleaners, or patinas are used with arsenic/antimony contaminated metals or solders, or when patinas are formulated with acids and selenium compounds.

EXPOSURE STANDARDS

The American Conference of Governmental Industrial Hygienists (ACGIH) sets Threshold Limit Values (TLVs) for exposure to airborne concentrations of metal dusts and fumes (see Section 1). OSHA also sets enforceable limits called "permissible exposure limits (PELs). TLVs and PELs for most metals are identical. When they differ, there is usually a political rather than a toxicological cause for the difference. For this reason, we will use the most protective of the two in the table below.

TLVs and PELs can be expressed in milligrams per cubic meter (mg/m^3). Ten mg/m^3 (TLV) is often referred to as a nuisance dust level, meaning that even dusts without significant toxic hazards should not be inhaled in concentrations greater than ten mg/m^3. TLVs which are lower than 10 mg/m^3 indicate the substance is more toxic. The 10 mg/m^3 nuisance dust limit also is for "total dust," that is, both respirable and non-respirable dust is included. When only respirable size nuisance dust particles are considered, the TLV would be five mg/m^3. Metal fume particles are by nature in the respirable range and the same rule would apply.

WORKPLACE AIR QUALITY STANDARDS FOR METALS

(Threshold Limit Values or Permissible Exposure Limits, which ever is the most protective)*

SUBSTANCE	TLV or PEL* milligrams/meter3		MAJOR HAZARDS
zinc			A temporary condition called
oxide dust	10	(TLV/PEL) total dust	metal fume fever.
oxide dust	5	(PEL) respirable dust	
metal fume	5	(TLV/PEL)	
boron oxide	10	(TLV/PEL) total dust	Eye and respiratory irritant.
bismuth	none set for oxide, fume		Effects similar to lead, but at much larger doses.
tin			Causes benign lung condition.
metal, oxide, compounds	2	(TLV/PEL)	
copper			Respiratory irritation and
dust and mists	1	(TLV/PEL)	metal fume fever.
fume	0.1	(PEL)	
antimony			Systemic poisoning.
metal and compounds	0.5	(TLV/PEL)	Animal carcinogen.
selenium			Systemic poisoning.
compounds	0.2	(TLV/PEL)	Suspect carcinogen.
hydrogen selenide gas	0.16	(TLV)	
lead			Permanent nervous system,
dust, fume, compounds	0.05	(PEL)	kidney & reproductive damage.
cadmium			Acute lung damage, chronic
cadmium oxide fume	0.05	(TLV)**	kidney damage, & cancer.
silver			A harmless, ugly darkening
metal & soluble compounds	0.01	(PEL)	of the skin & whites of eyes.
arsenic (inorganic compounds)			Systemic poisoning. Cancer.
arsenic & soluble cmpds	0.01	(PEL)	
arsine gas	0.16	(TLV)**	

** These TLVs are expected to be lowered in the near future.

USING TLVs TO SELECT THE SAFEST METALS

TLVs are set to avoid the most hazardous effect of each metal. TLVs, then, cannot be directly compared. One might be comparing the hazards of a temporary condition such as metal fume fever with a serious effect such as cancer. However, in general, the lower the TLV, the more hazardous the metal. Therefore, two criteria should be considered when choosing the least toxic metals:

1. They should not have serious permanent effects at low levels.
2. Metals with high TLVs should be preferred.

Applying these criteria and using the data in the table above, the metals which we should try to avoid because they cause serious long term problems or cancer and have low TLVs include:

ARSENIC, CADMIUM, LEAD, SELENIUM, ANTIMONY.

Metals which are less toxic or at least are not expected to have long-term systemic effects except in cases of excessive exposure include:

TIN, ZINC, COPPER, SILVER, BORON, BISMUTH.

Some of these safer metals have very low TLVs or PELs, but they are set to avoid conditions which are not life-threatening. For example, the low limit for silver is set to protect workers from a permanent, unsightly, but non-hazardous staining of the skin, eyes, and lungs called argyria. And the low limit for copper is set to protect workers primarily from a temporary condition called metal fume fever and irritation of the nasal passages. Long-term systemic toxicity is not expected at even significant amounts above the TLVs of both of these metals.

The low TLVs and PELs of metals such as silver and copper will, however, make it necessary for ventilation and other controls to be installed order to meet workplace standards and laws.

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NIOSH ALERT ON DMF

The National Institute for Occupational Safety and Health (NIOSH) has issued an alert on the solvent Dimethylformamide (DMF). DMF is commonly used in art conservation, and is found in products such as paint strippers, textile dyes, printing inks, and adhesives.

DMF is a colorless, water-miscible liquid with a faint ammonia-like odor. It can be inhaled and is rapidly absorbed through the skin. DMF has been shown to cause liver damage, abdominal pain, constipation, nausea and vomiting, headache, weakness, dizziness, skin problems, and alcohol intolerance. The alcohol intolerance (anxiety, palpitations, headache, flushing of the face and trunk, nausea, and vomiting) may occur even below its very low Threshold Limit Value of 10 parts per million.

The International Agency for Research on Cancer found "limited evidence" that DMF causes cancer indicating that the data is inconclusive at this time. Similarly, its reproductive effects in humans have not been adequately studied. DMF does cause malformations in the offspring of mice and rabbits.

NIOSH recommends engineering controls, substitution of less toxic materials, separation of the worker from the process and other precautions. Supplied-air respirators or self-contained breathing apparatus are recommended when engineering controls are not feasible. **A copy of the alert can be obtained by asking for Publication No. 90-105 from Publications Dissemination, DSDTT, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226. 513/533-8287.**

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SUPREME COURT DECIDES MERCURY AND LEAD CASES

(BNA-OSHR, Vol. 20, No. 41, pp. 1493, 1494)

MERCURY. The U.S. Supreme Court refused to review the Pymm Thermometer case which involved criminal charges brought against the employers of a worker who was seriously impaired by exposure to mercury on the job. Refusing to review the case opens the way for similar prosecution of employers under state criminal laws.

LEAD. In the Johnson Controls case, the Supreme Court ruled that women of childbearing age cannot be barred from jobs involving lead exposure. This ruling is confusing from a health point of view, since the OSHA Lead Standard allows workers to be exposed to lead at levels above those at which reproductive effects are expected to occur. The Standard permits worker's blood lead counts to be at or below 40 micrograms per 100 grams of blood (ug/100 g). Yet the Standard states (29 CFR 1910.1025, Appendix C, II, 5) that "...OSHA recommends a 30 ug/100 g maximum permissible blood lead level in both males and females who wish to bear children."

Logically then, the Standard either should be revised to protect all workers from reproductive effects, or lead work should be restricted to women past childbearing age and other people who can demonstrate that they are infertile. A conundrum.

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EMPLOYER ON OUTDOOR WELDING JOB FINED

(BNA-OSHR, Vol. 20, No. 40, p. 1476; Amer. Weld. Soc. J., Sept, 1988, pp. 25-26)

Maryland's occupational safety and health division levied its highest fine ever ($ 130,000) against a construction firm whose welders were resurfacing a lead-painted bridge. The employee's tasks included oxyfuel gas cutting, arc welding, and grinding. The employer assumed that excessive exposure to lead could not occur because the work was outdoors and the crosswinds were so severe that the State Highway Administration had posted a sign warning motorists of this hazard.

After a number of workers suffered lead poisoning, air sampling was initiated which showed that in almost all cases, employees were exposed to lead in excess of standards. Lessons here for art welders and teachers are that 1) taking work outdoors may not eliminate the hazard, and 2) to avoid fines, paid jobs involving lead exposure for more than 30 days per year require compliance with OSHA lead regulations including initial air monitoring.

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CREDIT:Reprinted from ACTS FACTS,
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New York, NY 10012

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ACTS

ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

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LEAD HAMMER STRIKES TWO

(BNA-OSHR, Vol. 20, No. 46, April 24, pp. 1620-1)

A machinist and his wife filed a personal injury suit against Boeing Company on April 15 claiming they were exposed to toxic levels of lead from a hammer he used in his job as an aircraft finisher. The machinist was exposed to lead because he used a disk sander and abrasive drill to burnish his hammer once or twice a week over a year's time. His blood lead level reached 145 micrograms per deciliter (ug/dL), and his wife was found to have a blood lead level of 53 ug/dL from lead brought home on her husband's shoes, clothing, hair and body. Blood levels above 40 ug/dL are considered significant exposures.

To rule out other sources of lead exposure, Frandon Enterprises investigated the machinist's apartment. Nothing significant was found there. (Frandon enterprises makes the lead testing kits used by potters and other artists.)

The machinist is covered by worker's compensation in Washington state and may not sue his employer for his injuries. However, the wife may sue Boeing for her injuries and her husband may sue for loss of consortium and other damages related to his wife's injury.

==========

REID INTRODUCES ANOTHER BILL TO REDUCE LEAD EXPOSURE

(BNA-OSHR, Vol. 20, No. 38, Feb. 27, pp. 1430)

On February 7, Sen. Harry Reid (D-Nev) and 10 other senators introduced a measure that would put controls on certain uses of lead and provide training and research roles for the Department of Labor and NIOSH (National Institutes for Occupational Safety and Health). It would amend the Toxic Substances Control Act and address training of lead abatement workers, ban lead from some uses, compile and update an inventory of lead-containing products, require warning labels on certain consumer products, issue guidelines on lead contamination in soil, and appoint an EPA official to coordinate all lead pollution prevention and abatement activities at EPA.

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

PROPOSAL FOR LEAD STANDARD IN CONSTRUCTION BY YEAR'S END

(BNA-OSHR, Vol. 20, No. 38, Feb. 27, pp. 1429-30)

Gerald F. Scannell, assistant Secretary of Labor for OSHA says that the agency "is placing top priority on developing a lead standard for construction." The construction worker's Permissible Exposure Limit (PEL) for lead will be revised from 200 micrograms per cubic meter (ug/m3) to a more protective limit like the 50 ug/m3 PEL for general industry workers. Standards will be established for respirator use, training, welding, cutting and heating lead-containing substances. Lead paint abatement procedures will also be considered. Artists engaged in on-site art conservation, or architectural preservation and restoration will be affected by the standard.

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NIOSH URGES STATE LEAD SURVEILLANCE SYSTEMS

(CDC-MMWR, Vol. 40, No. 10, pp. 169-171)

The National Institute for Occupational Safety and Health (NIOSH) called for a state-coordinated approach to protect workers from the effects of high lead exposure. NIOSH believes that state action is necessary in order to meet the Department of Health and Human Services'(HHS) national health objective of eliminating occupational exposure to lead that results in blood lead levels above 25 micrograms per deciliter of whole blood by the year 2000. This level should protect adults from reproductive problems, blood changes and other health effects.

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NIOSH STUDY OF NEW YORK TALC AVAILABLE

An updated study of workers at an R.T. Vanderbilt talc mine supports earlier findings that the mine is associated with excess risk of lung cancer and non-malignant respiratory disease, NIOSH says. The updated study adds eight years of observation to the white male workers who were employed between 1947 to 1978. These workers risk of contracting lung cancer is twice as high as that of the general risk for the U.S. white male population. The risk for all non-malignant respiratory diseases was more than 2.5 times as high, according to NIOSH. Copies of the report are available from NIOSH, Hazard Evaluations and Technical Assistance Branch, 4676 Columbia Parkway, Cincinnati, OH 45226.

NIOSH recommends that appropriate controls continue to be used to reduce worker's exposures and that the study be reanalyzed after 10 more years of observation. ACTS recommends that ceramic art materials manufacturers do not wait another 10 years before removing this talc from casting slips and white clays used by hobbyists and children.

==========

PROPOSED ART LABELING GUIDELINES PUBLISHED

(56 FR 15672-15710, April 17)

The toxicological guidelines for the labeling of art materials have been published. Comments on these guidelines must be submitted by July 1. Contact Murray Cohn, CPSC, 301/492-6994.

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VACUUM CLEANERS FOR VISUAL AND PREFORMING ARTS

Our ordinary household, shop, and industrial vacuums are known to pass fine respirable particles through their filters and back into the environment. Regular use of such vacuums actually can increase the proportion of respirable particles in the dust.

Respirable particles are extremely small (10 microns in diameter and smaller) and do not constitute a significant proportion of common dust. However, dust in many theaters, shops, museums, and studios is not common. Sources of respirable particles in such dust may include: pigments; dyes and other fabric treatment chemicals; asbestos from old wiring, asbestos curtains and insulation; ground talc from industrial and cosmetic talcum powders; metal fumes from welding, soldering, brazing and casting; clay and silica dust; and the fine particles from grinding and polishing processes. Theaters may also accumulate fume particles from ammonium chloride "smoke cookies" and other smoke and pyro special effects. Tar particles from tobacco smoke and many types of bacteria and other microorganisms are also respirable size.

To capture these substances, some institutions are purchasing vacuums specially filtered with high efficiency particulate air (HEPA) filters. These filters must meet a NIOSH test which certifies that they will capture 99.97 per cent of particles that are 0.3 microns in diameter. In order to force air through these fine filters, HEPA vacuums are specially engineered.

Many artists could benefit from using HEPA vacuums to reduce respirable dust in shops and studios. Used in theaters and opera houses, they also could reduce the dusts implicated in causing some singers vocal problems. Several vacuum manufacturers also sell HEPA filtered models to highly allergic individuals who are bothered by the very small amounts of respirable dusts in their homes. Allergic artists and performers might also benefit from cleaner home air.

Another reason for using HEPA vacuums was discussed in an article by Lisa Goldberg, a move conservator from the Smithsonian Institution (AIC Newsletter, Vol. 16, No. 2, March 1991, p. 11). She had previously used a water trap vacuum for cleaning pesticide and preservative dust from ethnographic objects, but the amounts of arsenic and mercury present in the water classified it as hazardous waste. It could not be discharged into drains. Dry HEPA filters which have collected arsenic and mercury also must be treated as hazardous waste. However, disposal will cost less because they will not have to be disposed of as often as the water.

HEPA vacuums can be purchased from many safety equipment suppliers at prices ranging from $500 to several thousand depending on their size. Although ACTS does not endorse products, a general list of suppliers of this equipment can be obtained by writing ACTS FACTS. Enclose a self addressed stamped envelope.

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SOME NTP STUDIES COMPLETE

(BNA-OSHR, Vol.20, No. 41, Mar 20 pp. 1508-9)

The National Toxicology Program (NTP) has finished studies on a number of chemicals. Summaries of some of the results follow.

NAPHTHALENE. A National Toxicology Program peer review panel agreed that a two year inhalation study of naphthalene produced no evidence** of carcinogenic activity in male mice, but showed some evidence** of carcinogenic activity in female mice. Naphthalene is found in mothballs, disinfectant products such as toilet cleaners, and in cigarette smoke.

C.I. ACID RED 114. A two-year drinking water study of C.I. Acid Red 114 (C.I. 23635) showed clear evidence** that it caused cancer in rats. This dye is a diazo (also called disazo) dye with over 40 different common names. It can be used to dye silk, jute, wool, and leather. NTP is concerned about human exposure through dye worker's inhalation of the dust or mist, or from direct skin contact. The general public may be exposed through clothing or through contaminated water.

C.I. PIGMENT RED 23. A two year feed study of C.I. Pigment Red 23 (C.I.12355) produced equivocal evidence** of carcinogenic activity in male rats and no evidence** in female rats or in either sex of mice. This apparently safer pigment is used in paints, inks, textile printing, alkyd resin enamels, water emulsion paints, lacquers, paper, and for many other uses.

2,4-DIAMINOPHENOL DIHYDROCHLORIDE. A two-year study of this chemical showed no evidence** of carcinogenic activity in rats or in female mice but some evidence** of carcinogenicity in male mice. This is good news for photographers who are exposed to it when it is used as a color accelerator in developers.

TRINITROFLUORENONE (TNF). An oral feed study showed TNF to be very toxic, causing weight loss, a variety of effects including testicular degeneration and reduced sperm counts in male rats. The chemical was once used widely as a major component in photocopying toners. The report said that exposure could occur through contact with new or spent toners, through dermal contact with photocopy paper, or through proximity to the atmosphere surrounding photocopy equipment which contains it. IBM no longer uses TNF and has incinerated its inventory of the chemical.

** The NTP uses five categories of evidence of carcinogenic activity to summarize the strength of the evidence observed in each experiment: 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 experiments that because of major flaws cannot be evaluated (inadequate study).

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PERFORMER UNIONS COMMISSION REPORT ON THEATRICAL FOGS AND SMOKES

A report on the health hazards created by theatrical fogs and smokes, written by Monona Rossol, was commissioned by the American Guild of Musical Artists. Actors' Equity Association, the American Federation of Television and Radio Artists, and the Screen Actors Guild have joined in the effort and defrayed part of the study's cost.

The document, Theatrical Fogs and Smokes: A Report on Their Hazards, identifies the chemicals found in these products, describes how they enter and affect the body, provides information on air quality standards for theatrical worksites, outlines the rights and obligations of performers and producers with respect to chemical exposures, lists precautionary measures, and discusses strategies for improving on-stage conditions.

The report is available for $ 7.95 including shipping and handling from the American Guild of Musical Artists, 1727 Broadway, New York, NY 10019-5284.

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BARIUM SULFATE NOT EXEMPT FROM EPCRA REPORTING

56 FR 23668-72, May 23, 1991

The EPA is withdrawing its proposed rule to exempt barium sulfate from reporting requirements under the category "barium compounds," Section 313, of the Emergency Planning and Community Right-to-Know Act (EPCRA). After reviewing the data, the EPA concluded that the highly toxic barium ion can be released from barium sulfate under anaerobic conditions (bacterial action in the absence of oxygen).

Now included in the environmentally toxic "barium compounds" category are many substances used by painters and potters: barium sulfate (barite, barytes, blanc fixe, C.I. Pigment White 21, Permanent White, Lithopone [with zinc compounds]); and other more luble compounds such as barium carbonate (whitherite, C.I. sigment White 10), and barium chromate (C.I. Pigment Yellow 31).

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ANOTHER PAINT ADDITIVE FELLS FAMILY

CDC-MMWR, Vol. 40/No. 17, p. 280-1, May 3, 1991

A Wisconsin woman and her two children became ill after her apartment was painted with an interior paint containing an organic tin additive called (bis[tributyltin]oxide or TBTO). About nine days after painting, the Wisconsin Department of Health and Social Services collected an air sample which was found to contain 0.002 milligrams per cubic meter (mg/m^3) of TBTO as tin. The industrial standard for TBTO (OSHA PEL-TWA) is 0.1 mg/m^3. However, it is likely that much higher concentrations had been present prior to this test.

The woman was also in the third trimester of pregnancy when she and her children became ill. Twelve weeks after giving birth to an apparently healthy baby, she reported that the baby had been taken to the pediatrician several times for persistent vomiting, rashes, an respiratory difficulties. The woman herself had burning pain in her nose and forehead for at least 3 months after exposure. Her older children recovered without persistent symptoms.

This was not the first case of TBTO-related illnesses. In February of 1988, the Washington Department of Health issued a health advisory against using TBTO in interior paint based on an investigation of six incidents of illness. In July 1988, the Washington Department of Agriculture established regulations banning the sale of interior paints containing TBTO in the state.

At the federal level, the EPA registered TBTO for use as a fungicide in both interior and exterior paints. EPA determined that the risk was low even though animal tests show that weight loss, immunosuppression, and anemia results from dietary exposure to TBTO. Reproductive tests also showed an increase in the incidence of cleft palate, and inhalation exposure produced lesions in the lungs of mice and guinea pigs.

Both the Wisconsin and Washington investigations suggest that use of paint containing TBTO represents a source of toxic, short-term exposure. The health effects of chronic, low-level exposure are unknown. ACTS believes that paint manufacturers should test the off-gasing behavior of their paints prior to putting them on the market. They should then provide consumers with information about the substances which will off-gas, how much will off-gas, and when painted rooms can be reoccupied without risk.

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ROHM AND HAAS TAKE FORMALDEHYDE OFF MSDS

Rohm and Haas, Incorporated, is the major manufacturer of acrylic emulsions used as vehicles for most American-manufactured artist's acrylic paints. In a recent letter to its customers, Rohm and Haas claims a new non-destructive analytical test shows that there is no free formaldehyde present in their product. The formaldehyde they add as a preservative apparently reacts with the ammonia which is present in the emulsion to form another compound called hexamethylenetetramine (HMT). This compound will break down and release formaldehyde only under acid conditions. Rohm and Haas acrylic emulsions are alkaline.

As a result, Rohm and Haas says they will delete formaldehyde from the ingredients section of their Material Safety Data Sheet (MSDS) and add a reference regarding the potential for liberation of formaldehyde under acid conditions. Artists should be aware that some acrylic paint manufacturers also may change their MSDSs in this way.

WHAT IS HMT? HMT is moderately toxic by ingestion and causes tumors in animal experiments. There is human mutagenic data for HMT and it is an irritant to skin, eyes and mucous membranes. Some people suffer skin rashes if they come in contact with it. Pure HMT can be taken internally in small amounts and it has been used in medicine as a urinary antiseptic. HMT sublimes (converts to vapor) at 280 °F.

UNANSWERED QUESTIONS. Acrylic paint manufacturers need to find out how HMT is affected when they add various pigments and paint additives to the emulsion. It is also unclear what happens to HMT when the paint dries. It is possible that either formaldehyde or HMT itself out-gases from dried or drying paint. Until more is known, artists still should consider acrylic paint as a possible source of low level formaldehyde exposure or of HMT.

==========

DRINKING WATER RULES REDUCE "MCL" FOR LEAD

56 FR 26460-26564

The new Maximum Contaminant Level (MCL) Goals and National Primary Drinking Water Regulations for Lead and Copper were published in the Federal Register Friday June 7, 1991. The new remedial action level for lead has been lowered from .050 to .015 milligrams per liter (mg/L)[1]. The new guideline for lead in drinking water is zero. However, a guideline is not enforceable. Rather it defines EPA's water quality goal.

Of special importance to artists is EPA's rational for the lead guideline. It is based on the following three considerations (quote: 56 FR 26467, col. 3):

1) The occurrence of a variety of low level health effects for which it is currently difficult to identify clear threshold exposure levels below which there are no risks of adverse health effects;
2) the Agency's policy goal that drinking water should contribute minimal lead to total lead exposures because a substantial portion of the sensitive population already exceeds acceptable blood lead levels; and
3) the classification of lead as a Group B2 (probable human) carcinogen.

Translated from "Government-ese" this means roughly that 1) at present no level has been identified below which adverse health effects are known not to occur; 2) that children can ill afford to be exposed to any additional lead because so many already have more in their bodies than is healthy; and 3) for carcinogens it is probable that no safe level of lead exists for some people.

FOOTNOTE 1. The action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period is greater than .015 mg/L.

The action level for copper is set at 1.3 mg/L. Although copper is an essential nutrient, high doses cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease are especially at risk, because their ability to metabolize copper is compromised.

==========

SCHOOL SUBCONTRACTOR SUED BY EMPLOYEE

BNA-OSHR, Vol. 21, No. 4, p. 90, June 26.

Reversing an earlier discission, an Illinois court ruled that a painter employed by a school district may sue the company hired by the district to manage the department in which the painter worked for injuries sustained when the scaffold he was working on fell. (Illinois Appellate Court, First District, Third Division, June 19 (*O'Loughlin v. Servicemaster Co.*, No. 1089-3203.) The court ruled that the painter was not a borrowed employee of the company and the company did not have immunity under workers' compensation laws.

The court considered that in this case the school hired the painter, paid his wages, and evaluated his work. Although the subcontractor was responsible for the painter's day-to-day direction, that alone did not give the company "control" over the painter.

==========

STUDY SHOWS CHRYSOTILE/MESOTHELIOMA LINK

BNA-OSHR, Vol. 21, No. 1, p. 9, June 5, 1991.

Australian researchers have concluded a study showing that exposure to chrysotile asbestos fibers presents a statistically significant risk of mesothelioma (a rare and fatal cancer associated with asbestos exposure). Reported in the April 1 issue of the Australian medical journal Cancer, the findings indicate that chrysotile is less hazardous than other forms of asbestos, but presents a significant health risk nonetheless. This study is especially important because the claim that chrysotile causes mesothelioma has been publicly disputed in American medical and scientific journals, by asbestos manufacturers, and before Congress.

The Australian research team evaluated lung tissue samples taken in 221 definite and probable cases of malignant mesothelioma and compared the fiber content of those samples with the content of samples from 359 postmortem cases without mesothelioma or other lung diseases. Using both light microscopy and transmission electron microscopy (TEM) the researchers counted and measured crocidolite, amosite, and crysotile fibers. They found the number of fibers corresponded to the risk of contracting mesothelioma and that this relationship was evident for all fiber types, regardless of whether they were present individually or in combination. Longer fibers were found to be more hazardous, and crocidolite and amosite were found to be more dangerous than chrysotile fibers. Cases of pleural (chest) and peritoneal (abdominal) mesothelioma were found in 25 instances where only chrysotile was present, and 12 of these cases were exposed to substantial amounts of chrysotile.

Dispute over the effects of chrysotile is important in the U.S. because this mineral accounts for most of the asbestos installed in our buildings and is the one to which construction and maintenance workers and building occupants are most often exposed.

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STUDY LINKS SOLVENTS AND MISCARRIAGE

BNA-OSHR, Vol. 21, No. 1, p. 9, June 5, 1991.

A study of electronics workers shows that women with occupational exposure to solvents during the first trimester of pregnancy were three to four times more likely to have a spontaneous abortion than their non-exposed counterparts. There was no increased risk of spontaneous abortion for women doing electronics assembly work without solvent exposure which tends to rule out other factors such as toxic metal exposure and ergonomic stress.

According to the study in the May Journal of Occupational Medicine (Vol. 33, No. 5), solvent exposure was not associated with low birth weight and none of the 42 children born to solvent-exposed women had birth defects. However, conclusions about the negative associations with birth weight and birth defects are limited by the small numbers of births. Although over 1,000 pregnancies were studied, only 52 women were solvent-exposed.

==========

OSHA/NIOSH RELEASE JOINT DOCUMENT ON LEAD IN CONSTRUCTION WORK

BNA-OSHR, Vol. 20, No. 49, p. 1704, May 15.

A document called "Working with Lead in the Construction Industry (OSHA 3126) is now available. The booklet would be particularly useful to workers doing building restoration, large art or architectural conservation projects, or installing art or sculpture in buildings. Single copies of the 22 page booklet can be obtained by sending a self-addressed label to the OSHA Publications Office, Room N-3101, U.S. Department of Labor, Washington, D.C. 20210.

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SKIN DISEASES ELEVATED IN PRESSROOM WORKERS

BNA-OSHR, Vol. 21, No. 4, p.87, June 26.

Artists who use solvents should find a study of similarly exposed pressworkers interesting. Reported in the Journal of Occupational Medicine (Vol. 33, No. 6), this study showed a significantly elevated risk of skin disease in pressworkers who cleaned, maintained and operated presses when compared to compositors who do not have contact with ink, lubricants or cleaning solvents. Pressroom workers reported dry or cracked skin (47 %), itching (43 %), or redness (35 %), while fewer than 20 percent of the compositors had similar conditions. Acne also was reported by 17 percent of the press workers. None of the compositors had acne.

Three solvent were used most often in the pressroom: Solvent Type 1™ (a mixture of mineral spirits and naphtha); Cleansall™ (aliphatic hydrocarbons, pine oil, and detergents); and isopropyl alcohol. The researchers noted that the rate of dermatitis did not increase until workers used two or three of the solvents and that "....a likely synergistic effect of these solvents should be considered."

The pressroom workers were exposed to the solvents in part because they were given latex gloves. Glove manufacturers specified neoprene and nitrile gloves for the solvents and inks used here.

==========

IMPORTED ITEMS NEED MSDSs, TOO

BNA-OSHR, Vol. 20, No. 49, May 15, p.1708

Olevia Colors, Inc., Scotia, NY is contesting citations and a $ 1,720 penalty for seven violations including failure to have a written hazard communication program (1910.1200(e)(1), and failure to determine the hazards of imported chemicals (1910.1200(d)(1).

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- **steps to comply with health and safety laws**
- **safety checklists for shops and classrooms**
- **recommendations for proper protective equipment**
- **sources of additional technical and medical help**

MONONA ROSSOL is a chemist, artist, and industrial hygienist. She was born into a theatrical family and worked as a professional entertainer from the ages of three to seventeen. Since 1977, she has worked as an industrial hygienist specializing in the hazards of art and theater and in right-to-know training of theater workers and teachers in the United States and Canada. She lectures and consults frequently in the United States, Canada, Australia, and England.

Author of *The Artist's Complete Health and Safety Guide* (Allworth Press), She is currently coauthoring a revision of *Overexposure: Health Hazards in Photography*, and also edits a monthly newsletter, *ACTS FACTS*, on government regulations and research which affect the arts and theater. She is President of ACTS (Arts, Crafts and Theater Safety), a not-for-profit corporation she founded in 1987, which is dedicated to providing health and safety services to the arts.

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Monona Rossol is a chemist, artist, and industrial hygienist. In addition to working seven years as a research chemist and teaching art and ceramics for fifteen years, since 1977 she has been an industrial hygienist specializing in visual and performing arts hazards. She is the founder and president of ACTS (Arts, Crafts and Theater Safety), a not-for-profit corporation dedicated to providing health and safety services to the arts. She lectures and consults frequently in the United States, Canada, Australia, and England, and is the author of *Stage Fright: Health and Safety in the Theater.*

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ACTS

ARTS, CRAFTS AND
THEATER SAFETY

FIRST STEPS

An elegant, authoritative video on the subject of art hazards is now available. Called "First Steps," the video is the perfect introduction to the subject for audiences from middle school-aged children to senior citizens. Even those well-versed in the subject will be riveted by the personal interviews with artists and young students, the testimony of health and medical experts, and its positive approach to precautions.

The video and its accompanying text was produced in Australia by Michael Nott, PhD, for the "Artsafe Project" at the University of Melbourne. Michael is a senior lecturer in Toxicology in the Faculty of Medicine, Dentistry, and Health Sciences at the University. He specializes in the areas of medical education, audio-visual learning, and arts health and safety. He works closely with artists and occupational health and safety experts in Australia, Canada, and North America, and is a member of the ACTS Board of Advisors. To produce this video, Michael gathered a team of professional video production people, graphic designers, and health experts from two continents.

As a result, the "First Steps" educational and training video is applicable to artists young and old around the world. And the Australian flavor lends a special charm to the presentation.

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I am enclosing $ 175.00 U.S. for "First Steps" in the form of a check drawn on a U.S. bank____ or an International Money Order____ made out to ACTS, Inc. I understand that ACTS is the U.S. distributor for "First Steps," and that $ 150 of my payment will go to the Artsafe Project in Australia. The other $ 25 repays ACTS for their postage, handling and promotional costs. Please send my VHS video tape and booklet to:

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ACTS
ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS

August, 1991
Vol. 5, No. 8

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The Federal Register (FR) is ACTS FACTS' major source of information. The FR is a compilation of all the regulations and public notices issued by federal agencies. Published daily, this vast amount of printed matter often contains items which affect the health and safety of artists, theater, or crafts people. Other sources of include the Bureau of National Affairs Occupational Safety & Health Reporter (BNA), the Centers for Disease Control (CDC), HazChem Alert, and many other sources. ACTS cites its sources and answers inquiries about them.

LABELING LAW COSTS THREATEN GLASS AND GLAZE MAKERS?

The new Labeling of Hazardous Art Materials Act (LHAMA) was designed to provide consumers with information about the toxic hazards of art materials. But if it is not used properly, LHAMA could prove to be a serious financial problem for the makers of some products. At particular risk are manufacturers of enamels, ceramic glazes, and ground glass (e.g. for glass paints, fusing, and pate de verre).

THE PROBLEM. LHAMA requires that art material labels reveal all toxic ingredients present in sufficient amounts to cause chronic health effects and provide specific warnings about those effects. However, warnings are not required for toxic ingredients which are not bioavailable, that is, they cannot be solubilized and absorbed from the material by the body).

There are tests to determine the bioavailability of toxic ingredients. However, testing frits, glass, and glazes may be prohibitively costly because each individual product, perhaps even each batch, may have to be tested. This is because the solubility of these materials can vary significantly from batch to batch. A small variation in crucial ingredients such as boron or trace copper, slight differences in particle size, incomplete mixture of ingredients during glass formation, and many other factors affect solubility.

A SOLUTION. The Consumer Product Safety Commission's toxicity guidelines provide relief for this kind of problem. The guidelines allow the manufacturer to forego testing and assume the worst; that is, that each toxic ingredient is 100 percent bioavailable. For example, if the total amount of cadmium present exceeds the amount which is considered hazardous, it would be reported on the label with cancer warnings even if testing would have shown that the amount of bioavailable cadmium was below the amount to warrant labeling.

For frits and glazes, labeling for 100 percent bioavailability is probably not only the cheapest, but the best labeling strategy. This is because these materials are not only used as sold, but they are subsequently kiln-fired. Although toxic substances may not be bioavailable from a frit, they may be emitted from it during firing as kiln fume or redeposited inside the kiln on other ware.

Firing also changes the bioavailability of ingredients in glazes, glass paints and enamels. Consumers may be exposed to these altered fired materials if they are finished in ways which produce dust (e.g. polished, cut, reground) or if they are used on food surfaces. Attempting to predict which substances will be emitted during firing or from finished material is not practical because consumers fire at different temperatures and under various conditions. They also commonly mix these materials with other ingredients or fired them over or under other products.

EDUCATION OF USERS. The worst consequence of labeling for 100 percent bioavailability is that some materials may be labeled for hazards they do not have. This may make some customers reluctant to purchase them. Manufacturers can counter such adverse responses by providing educational materials about labeling terms and about how to work safely during application, firing, and finishing. Consumers who cannot digest this kind of information should not be working with glass and glaze materials.

Customers also can use ingredient information to exploit their materials artistically. They can predict and alter glass or glaze qualities when they know precisely which fluxes, colorants, and opacifiers are present.

THE CATCH 22. Although labeling for 100 percent bioavailability is allowed under the LHAMA guidelines, manufacturers still must find toxicologists to certify that the labeling meets the standard (ASTM D-4236-88). However, some toxicologists are opposed to labeling materials as 100 percent bioavailable when they are not. They want the companies to test their products.

THE ANSWER. Hopefully, the industry will work with those toxicologists who will develop criteria for labeling on the assumption of 100 percent bioavailability. Once established, manufacturers could simply submit their formulas and affidavits of their accuracy to the toxicologist. Then proper warnings could be assigned and certification that the product's label meets D-4236 would be essentially routine.

This would reduce labeling costs for manufacturers and provide the ingredient information necessary for consumers to protect themselves not only during application of the material as sold, but during firing and finishing of the products. It would also aid them in exploiting their medium knowledgeably for artistic purposes.

M. Rossol, Editor

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CPSC DEADLINE FOR COMMENTS ON LHAMA

56 FR 31348-9

The deadline for comments on the three proposed guidelines for determining when customary or reasonably foreseeable use of art materials or other products can result in a chronic hazard has been extended to September 30, 1991. A public hearing on the proposals is scheduled to October 17.

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NTP PEER REVIEW COMPLETE ON SOME STUDIES

BNA-OSHR. Vol,. 21, No. 7, July 17, pp. 194-196.

A number of cancer and toxicity studies were reviewed in a two-day meeting of the National Toxicology Program. Some of these are of interest to artists:

C.I. PIGMENT RED 3, known to artists as hansa red, toluidine red, segnale light red, and other common names, produced no evidence of carcinogenic activity* in a feed study of female mice and some evidence* in male mice and both sexes of rats.

1,2,3-TRICHLOROPROPANE caused cancer in a two-year gavage (forced ingestion) study. It was chosen for study because the chemical is finding increasing use as a paint and varnish remover and can be currently purchased in local hardware stores. Members of the panel would like to see studies by inhalation and skin contact since these are the routes by which people would be exposed.

HC YELLOW 4, a semi-permanent hair dye caused equivocal carcinogenic activity* in male rats and showed no evidence* of such activity in female rats or either sex of mice.

FORMIC ACID, which occurs naturally in plants, fruits, mammalian tissues and insect venom, is used in textile dyeing and as a fumigant. Two-week and 13-week inhalation studies in rats and mice showed it causes chemical irritant effects at concentrations above 32 parts per million, but causes no significant systemic toxicity.

MERCURIC CHLORIDE, a highly toxic mercury compound, also produced some evidence of carcinogenic activity* in male rats, but only equivocal evidence* in female rats and male mice, and no evidence* in female mice. Many of the animals also died of kidney damage in the higher dose group.

ETHYLENE GLYCOL in feed caused no evidence of carcinogenic activity* in a two-year study of mice. This is good news since the chemical is so often used in art materials to protect them from freezing. It is very toxic at high doses, however.

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* The NTP uses five categories of evidence of carcinogenic activity to summarize the strength of the evidence observed in each experiment: 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 experiments that because of major flaws cannot be evaluated (inadequate study).

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SYNTHETIC FIBERS UPDATE

BNA OSHR, Vol 21, No. 8, July 24, 1991, pp. 230-1

OSHA has determined that fibrous glass products must carry labels warning that exposure to the substance may cause cancer. A review of current literature by OSHA's directorate of health standards programs found several epidemiological studies of fiberglass production workers showing a statistically significant increase in respiratory tract cancer. Ceramic and mineral wool fiber products already carry cancer warnings.

OSHA plans to establish permissible exposure limits (PELs) for fibrous glass, mineral wool, and refractory ceramic fibers. The proposed rulemaking is scheduled for the fall. In a position paper submitted to OSHA, the AFL-CIO's Building and Construction Trades Department recommends a 1 fiber per cubic centimeter (f/cc) PEL for fibrous glass and all other synthetic fibers except ceramic fibers. For ceramic fibers, they suggest a limit of 0.1 f/cc--the same as OSHA's proposed asbestos limit. Fiber industry representatives, of course, disagree with AFL-CIO's position.

OSHA's final decision will affect the arts as well. Ceramic fiber use is widespread as insulation for many hot processes such as ceramic, enameling, and glass kilns, and paper for molds and separation of glass pieces during slumping and fusing.

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NEW LEAD POISONING DRUG

FDA Consumer, June 1991, p.2

The first oral medication for the treatment of severe lead poisoning in children was approved by the Food and Drug Administration (FDA) on January 30, 1991. The drug, Chemet (succimer), will be used to treat children whose blood lead levels are above 45 micrograms per deciliter (ug/dl). Until now, that level of lead poisoning required hospitalization and a series of painful intramuscular or intravenous injections.

The course of treatment lasts 19 days an should be combined with identification and removal of the source of lead exposure, since the drug does not prevent further lead poisoning. The extent of clinical experience with Chemet is limited; So the FDA recommends that patients be monitored by their doctors during treatment.

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IMPORTANT DYE PROPOSED FOR NTP CANCER LIST

56 FR 37366-7, August 6, 1991

Color Index (C.I.) Disperse Blue 1 has been proposed for inclusion in the National Toxicology Program's (NTP's) Eighth Annual Report on Carcinogens in the category of "reasonably anticipated to be carcinogens." The dye and all the proposed new entries have already undergone a multiphased peer review process involving a variety of Federal research and regulatory agencies.

Disperse Blue 1 (CAS 2475-45-8) has many other names. The NIOSH Registry* lists 44 names including C.I. 63400, C.I. Solvent Blue 18, Acetoquinone Blue L and R, Acetate Blue G, and 1,4,5,8-tetra-aminoanthroquinone. This last name explains why information about this dye is so important. Disperse Blue 1 is actually is one of the simpler anthraquinone dyes to which dozens of other dyes and pigments are related.

Anthraquinone dyes are currently used in Tintex^{RT} and many other household, hobby and professional dye products. Some artist's pigments are also anthraquinone-based. Alizarin crimson (C.I. Pigment 83) is natural or synthetic anthraquinone (1,2-dihydroxyanthraquinone). A number of blue pigments sometimes called indanthrene blues also are based on anthraquinone including Pigment Blue 21, 22, 60, 64, and 65.

Another anthraquinone, 2-aminoathraquinone (CAS 117-79-3), has been listed as a carcinogen by NTP since 1983. It also is a direct precursor for many other dyes and pigments including: C.I. Vat Blues 4, 6, 12, and 24; Vat Yellow 1; and Pigment Blue 22.

The anthraquinone dyes were often used to replace dyes based on the potent carcinogen benzidine. It is likely that the anthraquinones are safer than the benzidines, but the new status of Disperse Blue 1 should remind us of the need to practice good hygiene and take precautions when using all dyes and pigments.

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* The National Institute for Occupational Safety and Health's Registry of the Toxic Effects of Chemical Substances (NIOSH RTECS).

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UNIVERSITY CITED FOR RIGHT-TO-KNOW VIOLATION

BNA-OSHR, Vol. 21, No. 13, August 28, 1991, p. 382.

St. Johns University in Jamaica, New York is contesting a serious citation and a $ 2,625 penalty for failure to develop and implement a written Chemical Hygiene Plan for hazardous chemicals used in the school. The violated code is 29 CFR 1910.1450 (e) (1) which is the "Occupational Exposure to hazardous chemicals in laboratories," is better known as the Laboratory Right-to-Know Standard.

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BARIUM

56 CFR 30266-30281, National Primary Drinking Water Regulations; Final Rule (40 CFR Parts 141, 142, and 143). July 1, 1991

The EPA (Environmental Protection Agency) has set new maximum Contaminant Level Goals and Maximum Contaminant Levels (MCL) for a number of pesticides, and barium. The MCL for barium was raised from 1 milligrams per liter (mg/L) to 2 mg/L. EPA explained that the change was made because the level uncertainty about the toxicity of barium is great due to the lack of toxicity data about this chemical. However, of interest to potters and other using barium is the fact that the amount of barium allowed in water (2 mg/L) is still less than that allowed for fluoride (4 mg/L).

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ANOTHER MOU

56 FR 29965-6, July 1, 1991

The Food and Drug Administration (FDA), National Center for Toxicological Research (NCTR), and the EPA's Health Effects Research Laboratory (HERL) have signed a memorandum of understanding (MOU) to conduct a cooperative research program in connection with the development of neurotoxicity risk assessment procedures. The damage chemicals cause to the human nervous system is a complex problem. It will be more efficiently studied by combining FDA and NCTR experience in cross-species extrapolation and quantitative risk assessment procedures and EPA/HERL expertise in neurotoxicity methods and assessment. This is just one more instance of the trend toward more interagency cooperation. In the January 1991 issue, ACTS FACTS reported on the EPA/OSHA MOU to cooperate in enforcement of workplace regulations.

==========

MERCURY PAINT ADDITIVES REGISTRATION CANCELLED

56 FR 31403-5, July 10, 1991

Troy Chemical Corporation's Troysan PMA-100 and Cosan Chemical Corporation's Cosan PMA-100 have booth been cancelled effective July 1, 1991 at the request of their makers. Both were phenylmercuric acetate. EPA will permit sale and distribution of existing stocks until September 30, 1991.

Hopefully, all mercury paint preservatives will be banned from indoor and outdoor house paints soon. Organic tin compounds, which are of comparable toxicity, should also be banned.

==========

GENTIAN VIOLET LOSES GRAS STATUS

56 FR 40502-7, August 15, 1991

For years, gentian violet was generally recognized as safe (GRAS) by the Food and Drug Administration (FDA). Gentian violet, also known as methyl violet, is used both as a fungicide and a colorant. Some of us may remember it as a purple-staining medication used in the past for treatment of fungal skin conditions.

Now FDA concluded on the basis of studies conducted by its National Center for Toxicological Research that gentian violet causes cancer in test animals. The agency's literature search also found that gentian violet tends to have mutagenic, genotoxic and other toxic properties. This information is of particular concern to the FDA because gentian violet residues occur in the edible tissues of chickens under its current use as a fungicide in chicken feed. Gentian violet's GRAS status has been revoked and after September 16, it may no longer be used in chicken feed.

This change of status also is important to artists, since methyl violet and its derivatives have been used as dyes and pigments in printing inks, some paints such as designer gouache, colored pencils, crayons, chalks, and other products where light fastness is not crucial. The new art materials labeling law should require that items containing these colorants also carry cancer warnings.

GENTIAN VIOLET AND ITS MAJOR DERIVATIVES

C.I. number	C.I. name	How methyl violet is altered
42535	Basic Violet 1	unaltered methyl violet
42535:1	Solvent Violet 8	made basic
42535:2	Pigment Violet 3	made a phosphorous/tungsten/ molybdate acid salt)
42535:3	Pigment Violet 27	complexed with copper ferrocyanide

NEW OSHA BOOKS AVAILABLE

Artists and craftspeople who restore buildings, conserve artworks on site, and install or create works on site, may want a copy of a new Occupational Safety and Health (OSHA) publication. OSHA has put in a single volume all the safety and health standards that apply to construction work, as well as all general industry standards that may apply to construction. The volume (publication No. 2207 [029-016-00122-1]) is available for $ 21.00 from the Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402; (202) 783-3238.

For other artists and teachers who are not employed in jobs considered to be construction, OSHA's general industry standards are available in two parts. The price is $ 24.00 for part I, safety standards (869-011-00109-2); and $ 12.00 for part II, health standards (869-011-00110-6).

HOME LEAD TESTS

FDA Consumer, July/August 1991, p. 30.

In an article on lead, the FDA listed four sources for home lead test kits for testing glass and ceramic products. These are:

Test for Lead in Pottery ($ 25) and the **FRANDON Lead Alert Kit** ($ 29.95), Frandon Enterprises Inc., P.O. Box 300321, Seattle, WA 98103. 1-800/359-9000.

LeadCheck Swabs ($ 25) or **LeadCheck Swabs-Half Packs** ($15), HybriVet Systems, Inc., P.O. Box 1210, Framingham, MA 01701. 1-800/262-LEAD.

LeadTest ($ 10), Verify, Inc., 1185 Chess Drive, Suite 202, Foster City, CA 94404-1109. 1-415/578-9401.

LEADCHECK II ($ 25), Distributed by Michigan Ceramic Supplies, 4048 Seventh St., P.O. Box 342, Wyandotte, MI 48192. 1-313/281-2300.

Regarding testing water in your home or business, the FDA recommends getting the water analyzed. They say a lab test usually costs around $ 15.

Other advice they give is not as useful. If tests show the lead in your water is 20 parts per billion or higher, they suggest letting water run before first use in the morning for 30 seconds or until the water runs cool. This may work for people living in houses, but a long time is needed to get water to run cool in apartments whose water may run through several floors of the building before reaching your tap. This is doubly frustrating advice if you live in an area where you are also being asked to conserve water.

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BURT REYNOLDS CATCHES FIRE

An accident during a stunt planned for the Shady Lane television series resulted in the ignition of Burt Reynolds' toupee, smoke inhalation, and an overnight hospital stay for the actor. The stunt involved a stove fire which was to be put out with a fire extinguisher. The extinguisher was charged with talcum (talc) baby powder. Preliminary tests showed talc easily put out the fire.

When the scene was shot, corn starch baby powder was accidentally put in the extinguisher. The corn starch powder caused the fire to flare which illustrates that:

1) a fire cannot be put out by spraying it with something that burns; and
2) the special effects and stunt people should have been more careful and knowledgeable about the chemicals they use.

Burt Reynolds has appeared on several news programs to show a clip of the fire and to speak out against corn starch baby powder. He pointed out that a baby would be at risk if the mother had a cigarette or lighter around when powdering her infant. While this is another good reason not to smoke near children, banning corn starch baby powder is not the answer.

It would have been far more useful to the public if Burt Reynolds had pointed out that all powdered organic substances are flammable. This includes foods such as flour and powdered sugar, diaper rash treatment powders and other medications, grain dust which causes grain elevators to explode, rosin dust which cause printmakers' aquatint boxes to explode, and much more.

Burt Reynolds also might have mentioned that the talc in the original baby powder has hazards which are not so obvious. When talc is inhaled, it settles in the lung's air sacs (alveoli) and may remain there for life. Mineral talc is inert and is not dissolved by lung fluids or ingested by microphages (cells which clean up the lungs). In significant amounts, talc particles reduce the lung's efficiency. In large quantities, they can cause a lung-scarring disease called "talcosis" which is seen in talc miners.

It is not wise to expose infants to an inert mineral dust that they may carry in their lungs for the rest of their lives. Corn starch is safer if we keep in mind that all powdered organic substances can catch fire when suspended in air and flame is applied.

SUMMARY OF TALC AND CORNSTARCH BABY POWDER HAZARDS

Massive inhalation. Deaths of infants due to inhalation of talcum powder have been documented, but any powder poured in an infant's face in quantity can causing respiratory distress and death.

Inhalation of small amounts. Inhaled talc may remain in the lungs for long periods of time, even for life. Cornstarch particles can be removed by the lung's clearing mechanisms.

Allergies. Fragrances in either product may cause allergies in some people. Fragrance-free products are always preferred for children. Some children are allergic to corn products.

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APPEAL TO POTTERS

Monona Rossol would like to talk to anyone who took ceramics courses at Eastern Washington University in 1978 or 1979.

==========

LATEX ALLERGIES

FDA Consumer, September 1991 p. 3

The FDA receive a number of reports of allergic reactions to latex-containing medical devices such as surgical gloves, catheters, and dental dams. Reactions range from skin rashes to breathing difficulties and shock. Several people died from severe allergic reactions during barium enema procedures with latex-cuffed enema tips.

It appears that proteins in the latex cause the reactions. Manufacturers are now trying to manufacture latex with very low protein levels for surgical and medical purposes. There is no information on whether they also are reducing the sensitizing proteins in industrial latex products.

Artists who use surgical or examination gloves should be alert to skin reactions that may be caused by the gloves. Artists using latex rubber for casting and other purposes, and makeup artists applying latex for special effects may be at even greater risk.

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NOTICE: CANADIAN BUYERS OF "FIRST STEPS" VIDEO

The barriers to democracy around the world are falling fast, but trade barriers are not. Due to the amount of paper work required, we have decided that it would be easier for Canadian customers to order the "First Steps" art hazards video directly from Australia. Canadians may write to Dr. Michael Nott, Dept. of Pharmacology, Univ. of Melbourne, Parkville, VIC 3052, or phone 011-613/344-5674.

==========

ACTS COMMENTS ON CPSC PROPOSED LHAMA GUIDELINES

The following is excerpted from comments submitted to the Consumer Product Safety Commission (CPSC) on the proposed chronic hazard guidelines for the Labeling of Hazardous Art Materials Act (LHAMA).

Experience gained at the hundreds of workshops and Right-to-Know seminars given by Arts, Crafts and Theater Safety (ACTS) has demonstrated that the public has two major misconceptions related to the toxicity of consumer products:

1) products labeled "non-toxic" are hazardless; and
2) consumer products are thoroughly tested for toxicity.

The first of these misconceptions is being addressed by LHAMA which now requires warning labels for art materials containing ingredients known to have chronic hazards. The second remains unaddressed.

ASSUMPTION THAT ALL PRODUCTS HAVE BEEN TESTED. Consumers commonly assume that chemicals must be thoroughly tested and their hazards labeled or they would not be allowed in stores. They often express disbelief when told that many chemicals they use have never been studied.

If the CPSC's guidelines are implemented as they are currently proposed, consumers of art materials will continue to be mislead. They will assume that products requiring no chronic warnings have been tested and shown to have no chronic hazards.

This is especially serious because of the large number of untested pigments and dyes used in art products. In addition, many of these unstudied colorants are related to chemicals which are known to be toxic or carcinogenic.

For example, two anthraquinone-related chemicals (2-amino-anthraquinone and 1,4,5,8-tetraaminoanthraquinone) have been studied and shown to cause cancer in animals. The first of these has been listed as a carcinogen by the National Toxicology Program (NTP) since 1983 and the second was proposed recently by NTP for the Eighth Annual List of Carcinogens. A number of related unstudied anthraquinone-based pigments and dyes commonly are used in art paints and in craft and household dyes (Appendix, p. 1). Consumers would clearly be mislead if products containing the untested anthraquinones could be sold without a chronic hazard warning. (Note: the Appendix is your September ACTS FACTS)

Similar arguments could be made for pigments and dyes related to benzidine, o-toluidine, dianisidine, aniline, gentian violet (Appendix, p. 3, see above), and other carcinogenic dye precursors.

To correct this problem, ACTS encourages the CPSC to develop guidelines and labeling that would identify ingredients for which cancer data is unavailable or incomplete, and/or for which the chemical is related to a cancer-causing substance.

Similar categories should be instituted for unstudied neurotoxicants and developmental and reproductive toxicants.

SUMMARY: Informing consumers about the known hazards of art material ingredients is only half the battle. It is equally important to inform them about what is unknown. For this reason, ACTS believes the CPSC must develop labeling guidelines that:

1) disallow use of the term "non-toxic;"
2) dispel the illusion that all product ingredients requiring no chronic hazard warnings have been tested and shown to be safe;
3) identify ingredients for which toxicity information is unavailable or incomplete; and
4) identify ingredients which are untested, but chemically related to known toxic substances.

Like this nation's workers, consumers have a right to know. This includes the right to know what is unknown.

==========

SO YOU DON'T HOLD FIRE DRILLS

The Imperial Food Products company in Hamlet, NC had a fire on September 3 in which 25 employees were killed. As expected, law suits are now being filed. The various complaints allege that the company was negligent because they had no written fire safety and evacuation plan, no instructions on exits, no fire drills, and no general safety training.

Art schools, museums, business, and theaters with these same flaws in their safety programs risk similar disasters.

==========

OVEREXPOSURE OUT--STILL HOT FROM THE PRESS

There's no advertizing or flyers yet, but people who want a copy of OVEREXPOSURE: Health Hazards in Photography by Susan Shaw and Monona Rossol can send orders to Allworth Press, 10 E. 23 Street, New York, NY 10010. The book costs $ 18.95. U.S. customers add $ 3.00 shipping for one copy and $ 1.00 for each additional copy. Canadians add $ 7.00 and $ 2.00 for each additional copy. All other countries add $ 12.00 and $ 3.00 for each additional copy.

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ACTS

ARTS, CRAFTS AND THEATER SAFETY

ACTS FACTS November, 1991
Vol. 5, No. 11

ACTS FACTS SOURCES

The Federal Register (FR) is ACTS FACTS' major source of information. The FR is a compilation of all the regulations and public notices issued by federal agencies. Published daily, this vast amount of printed matter often contains items which affect the health and safety of artists, theater, or crafts people. Other sources of include the Bureau of National Affairs Occupational Safety & Health Reporter (BNA), the Centers for Disease Control (CDC), HazChem Alert, and many other sources. ACTS cites its sources and answers inquiries about them.

LEAD IS NUMBER ONE

56 *FR* 52165-52175, Thursday, October 17, 1991

The Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service published a revised list of hazardous substances found at hazardous waste sites. This list is unique because for the first time it ranks substances in order of their "hazard potential." The criteria used are:

1. Frequency of occurrence at priority waste sites
2. toxicity, and
3. potential for human exposure to the substance.

At the top of this list of 331 substances is lead, followed by arsenic, mercury, vinyl chloride, benzene, cadmium, polychlorinated biphenyls (PCBs), chloroform, benzo (b) fluoranthene, and trichloroethylene. The list contains many other metals, solvents, and chemicals found in art, craft, and theater materials.

The list also will prioritize governmental efforts in toxicological research, study of human health effects, and environmental research. We can expect that much of this research will be aimed at reducing the amounts of lead and other priority substances in the waste stream.

==========

NIOSH RECOMMENDS LOWER LEAD LEVELS

BNA-OSHR, Vol. 21, No. 21, October 23, 1991, pp. 576-577.

The National Institute for Occupational Safety and Health (NIOSH) has recommended measures to eliminate worker exposures that result in greater than 25 micrograms of lead per deciliter (ug/dl) of whole blood. The recommendation was made in a hazard alert on preventing lead poisoning in construction workers. The document also discusses the cases of 42 workers at eight different sites who developed lead poisoning while abrasive blasting, sanding, burning, cutting or welding on lead-painted bridges.

NIOSH recommendations often are incorporated into OSHA regulations. Should this happen in this case, the 25 ug/dl limit represents a substantial reduction from the 40 ug/dl goal in the current OSHA Lead Standard.

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BAN PROPOSED FOR MERCURY-CONTAINING ANTISEPTICS

FDA Consumer, Oct., 1991, p.2, & 56 *FR* 33644-33680, July 22

Medications such as tincture of merthiolate, mercurochrome and calomel lotion may soon be banned because they contain mercury. A Food and Drug Administration (FDA) panel has determined that there is no proof that mercury compounds are safe or effective in over-the-counter (OTC) antiseptic products. The FDA's proposed ban on all mercury OTC antiseptic ingredients includes:

- ammoniated mercury
- merbromin
- mercufenol chloride
- mercuric chloride
- mercuric oxide, yellow
- mercuric salicylate
- mercuric sulfide, red
- mercurous chloride (calomel)
- mercury
- mercury oleate
- mercury sulfide
- nitromersol
- para-chloromercuriphenol (mercurochrome)
- phenylmercuric nitrate
- thimerosal (merthiolate)
- vitromersol
- zyloxin

Merthiolate and other medicinal dyes such as gentian violet[1] also are used occasionally as art pigments and photo-retouching dyes.[2]

1. ACTS FACTS, October, 1991, p. 3.
2. Ralph Hattersley, Photographic Printing, Prentice-Hall, 1977, p. 221.

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HOSPITAL WORKER SUES FOR LATEX ALLERGY

BNA-OSHR. Vol. 21, # 18, p. 499, October 2, 1991

A Milwaukee radiologist alleges that her asthma and four episodes of anaphylactic shock requiring treatment in an intensive care unit were caused by latex examination gloves. The asthma and shock episodes began in 1898 after the woman had worked around latex products for about 12 years. In 1991 she was diagnosed with latex sensitivity and claims she can no longer work in a hospital environment. (See also Latex Allergies, ACTS FACTS, October, 1991.)

==========

PEST STRIP PESTICIDE A CANCER RISK IN FOOD

56 *FR* 50190-3, October 3, 1991

Dichlorvos is a pesticide used for insect control in a variety of food crops, on stored and processed foods, in commercial, institutional, and industrial buildings, and in household pest-strip products. Pest-strips also are used in some museums as a fumigant, although dichlorvos is not registered for this use.

On October 3, the Environmental Protection Agency (EPA) proposed to eliminate use of dichlorvos in bagged and processed food. Dichlorvos has been allowed in these foods for years even though EPA classified it as a Group B_2 (probable human) carcinogen in 1987. This classification does not prohibit its use in food if the amount in food is so low that the risk is determined to be insignificant (de minimis). However, a recent review of data indicates that the dichlorvos residues in food may substantially exceed the legal tolerances.

==========

KODAK DECLARED NEW YORK STATE'S TOP POLLUTER

NY Daily News, July 24, 1991

A report by Citizen Action of New York ranks corporate polluters based on information gathered by the Environmental Protection Agency in 1989 (the last year for which complete figures are available). Kodak was found to be the worst corporate polluter of New York's air, water, and land ahead of Bristol-Myers Squibb, Occidental Petroleum, International Paper, and General Motors. Kodak also led in the release of cancer-causing chemicals ahead of International paper, Bethlehem Steel, General Motors, and Grumman Corp.

More than 20 million pounds of legally emitted toxic chemicals were released despite Kodak's efforts to reduce toxic emissions in 1988 and 1989. Kodak officials claim that in 1990 that they reduced total toxic emissions by 21 percent at Rochester's Kodak Park. This Editor wonders what the totals would look like if all the chemicals subsequently dumped by Kodak customers were added.

==========

SOME JADES CONTAIN ASBESTOS

George E. Harlow, *Natural History*, August, 1991, pp. 4-10.

The term jade applies to a range of different rocks. The Most important of these are jadeite rock or jadeitite, and nephrite. **Jadeitite** is composed principally of the mineral jadeite, a sodium aluminum silicate. In pure form it is white. The green color occurs when a small fraction of the aluminum is substituted by iron (and less commonly chromium). **Nephrite** consists principally of felted, intergrown, fiber-like crystals of tremolite and actinolite. These asbestos minerals are calcium magnesium silicates. The green color occurs when varying amounts of the magnesium are substituted by iron.

The term jade is further complicated because it is often applied to other green rocks such as those the Maya and their neighbors sculpted in Mexico and Central America. These include certain quartz rocks (notably chrysoprase and fuchsite jasper), green albitite, and serpentinite. **Serpentinite** or **serpentine** rock is usually in the form of chrysotile, a type of asbestos which is always in a fibrous form. Real jade also is found as masses or veins within serpentinite.

ACTS is not aware of any studies of asbestos exposure among people working with nephrite and serpentine, but it is clear that this risk is present. Lapidaries wishing to avoid asbestos exposure should investigate the mineral composition of their jades.

==========

REQUEST FOR HELP FROM READERS

Have you caught an error in the Artist's Complete Health and Safety Guide? Is there a fact that has changed since publication? Let us know. We are preparing an update/errata for the book and will make it available to subscribers who have copies of the book.

==========

EMPLOYERS CAN REJECT DISABLED OVER SAFETY ISSUES

NY Times, July, 23, 1991 & 56 *FR* 35726-35756, July 26, 1991

The Equal Employment Opportunity Commission's new final rule on Equal Employment Opportunity for Individuals With Disabilities will allow employers to reject job applicants or discharge employees with disabilities if the companies can show that the applicant's condition poses a threat to safety and if no accommodation can be made which will either eliminate the risk or reduce it to an acceptable level. The perceived threat to safety must not be based on subjective perceptions, irrational fears, patronizing attitudes, or stereotypes about the disability.

To demonstrate a substantial risk to the individual's safety, the employer should consider:

1) the duration of the risk;
2) the nature and severity of the potential harm;
3) the likelihood that the potential harm will occur; and
4) the imminence of the potential harm.

The rule illustrates such risks with an example: "An employer would not be required to hire an individual, disabled by narcolepsy, who frequently and unexpectedly loses consciousness for a carpentry job the essential functions of which require the use of power saws and other dangerous equipment...."

Enforcement of this rule will involve delineating difficult issues involving the civil rights of disabled individuals and real threats to health and safety. The use of the rule must be carefully monitored to protect the rights of disabled individuals, but it clearly makes sense not to employ workers who are likely to cause themselves or others harm on the job.

==========

NOT ALL PESTICIDE INERT INGREDIENTS ARE HAZARDOUS

56 *FR* 41464, August 21, 1991

Pesticides usually contain "inert ingredients" which do not actually kill the pest, but may serve some other function such as a solvent or carrier for the pesticide. Many inert ingredients are highly toxic. On August 21, one inert ingredient was granted an exemption for a tolerance (the amount allowed in a particular crop) when used as a carrier for pesticides applied to the soil around the roots of crops. This ingredient is called "biologically processed animal waste material" or, more simply, manure.

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ACTS

ARTS, CRAFTS AND THEATER SAFETY

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EPA TO REVIEW CERAMIC FIBER HAZARDS

56 FR 58693-5, Nov. 21, 1991

A priority review of the hazards of refractory ceramic fibers (RCFs) has been undertaken by the Environmental Protection Agency (EPA). The EPA will review data and accept comments about RCFs until January 6, 1991. ACTS will be submitting comments.

The review was initiated because preliminary data from animal tests and workplace exposure studies indicate that RCFs "present or will present a significant risk" of cancer. EPA expects that this review also will provide support for OSHA's on-going development of a Permissible Exposure Limit (PEL) for workplace RCF exposure. In the interim, EPA recommends that exposure be reduced to the "lowest achievable level," and that RCFs be used only with careful handling, local exhaust ventilation, HEPA-filtered vacuums or wet mopping for dust control and clean up, and prompt disposal of waste RCF materials.

==========

CARPENTERS SCREENED FOR LUNG SCARRING

BNA-OSHR, Vol. 21, No. 21, October 23, 1991, p. 577

A health screening of more than 900 delegates to a convention of the Carpenters and Joiners of America in Atlantic City revealed that almost half of the carpenters with more than 40 years experience and 8 percent with less than 20 years have asbestos scarring of the lungs. The screening was conducted by four medical institutions: the Mount Sinai School of Medicine; the Harvard School of Public Health; NIOSH; and Hoffman-Laroche Laboratories.

In a statement about the study, the union also noted that recent surveys show that carpenters die an average of eight years earlier than white-collar workers in the same age range, 300 percent more often from lung and respiratory diseases, and 50 percent more often from cancer. The union plans to release the complete findings of the Atlanta study in about 90 days and to take steps to prevent further exposures and find medical assistance for active members and retirees.

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CDC CHILDREN'S LEAD GUIDELINES

Preventing Lead Poisoning in Young Children, A Statement by the Centers for Disease Control (CDC), was published this October. In this statement, CDC revises its 1985 children's intervention blood lead level downward from 25 micrograms per deciliter (ug/dL) to 10 ug/dL. In explanation, the CDC states that "blood lead levels as low as 10 ug/dL, which do not cause distinctive symptoms, are associated with decreased intelligence and impaired neurobehavioral development. Many other effects begin at these low blood lead levels, including decreased stature or growth, decreased hearing acuity, and decreased ability to maintain a steady posture." (p. 9)

The CDC clearly does not want the 10 ug/dL to be regarded as a "safe level," but rather as the lowest level at which ill effects are currently documented. They state that: "Some studies have suggested harmful effects at even lower levels, but the body of information accumulated so far is not adequate....to be evaluated definitively. As yet, no threshold has been identified for the harmful effects of lead." (p. 2)

Of special interest is the CDC's statements regarding the effect of the mother's blood lead during pregnancy: "Maternal and cord blood lead levels of 10-15 ug/dL appear to be associated with reduced gestational age and reduced weight at birth. Although researchers have not yet completely defined the impact of blood lead levels <10 ug/dL on central nervous system function, it may be that even these levels are associated with adverse effects that will be clearer with more refined research." (p. 9) This assertion makes it even more difficult to justify the current 40 ug/dL blood lead goal in the OSHA Lead Standard, especially now that the Supreme Court reasserted women's right to work with lead (the Johnson Controls case).

The CDC publication also discusses common sources of children's lead exposure from damaged lead paint, water, and industrial air pollution as well as "take-home" exposures from dust and fume brought home by parents on work clothes or scrap materials taken home from work. Workers in brass/copper foundries, glass pro-ducts, and firing ranges were among those mentioned.

In addition to work exposures, the CDC covers sources of exposure from art and craft activities. They state: "Many hobbies can result in substantial exposure to lead. For example, molten lead can be used in casting ammunition and making fishing weights or toy soldiers; leaded solder is used in making stained glass; leaded glazes and frits are used in making pottery; and artists' paints many contain lead. Furniture refinishing may also result in lead exposure." (p. 25) If these activities are hazardous when practiced as "hobbies," then we can assume that they are even more hazardous when practiced more intensively as cottage industry or business ventures undertaken at home.

The CDC notes that children's lead exposure through food is much reduced today due to restriction of the use of lead-soldered side-seam cans, and reduction of lead in food itself due to the reduction of lead in soil from lead gasoline additives. However, urban gardens still are a potential source of exposure, as is food stored in contact with lead soldered vessels, improperly glazed lead ceramics, or leaded crystal.

The CDC's plan for lead poisoning prevention begins with asking health care providers to identify children who are at high risk for lead poisoning by asking questions about housing, hobbies, and other potential sources of exposure. Then the CDC recommends universal blood lead testing for children. The high risk children should be tested at 6 months of age and the remaining lower risk children at 12-15 months of age.

Various follow-up intervention strategies are suggested depending on the degree of elevation above 10 ug/dL. These strategies range from rescreening and educating parents about lead sources and nutrition, to environmental investigation and lead abatement of the home and medical intervention. The CDC recommends that the efforts of health care providers be coordinated with services provided by public agencies into a concerted, societywide effort to eliminate this disease. For as they point out on the first page of the statement, "lead poisoning is one of the most common and preventable pediatric health problems today."

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RESPIRATOR SUPPLIER MAY BE SUED FOR WORKER'S INJURY

BNA-OSHR, Vol 21, No. 24, Nov. 13, 1991, p. 668

A company that sold a respirator to an employer even though they knew that the respirator would not protect the employer's worker may be liable to the worker. The Indiana Court of Appeals for the First District ruled (Cox v. American Aggregates Corp., Ind. CtApp, No. 30A01-9105-CV-159, 10/28/91) that a trial court erred when they dismissed the worker's case, and that the worker has the right to sue the supplier.

The worker's employer was seeking to protect him from manganese and chromium fumes during welding. The supplier sold them a respirator (Glendale model GR-2022) which is approved for acid gases and formaldehyde, but offered no protection from fumes.

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STROKE RELATED TO LEAD EXPOSURE

BNA-OSHR, Vol 21, No. 24, Nov. 13, 1991, p. 672

A 24-year study of long-term exposure to lead among newspaper typographers suggests that low level lead exposure can increase risk of stroke. The study subjects were typographers at the New York Daily News and the New York Times. Their exposure was assumed to be below levels permitted by OSHA until exposure ceased in 1974 when both papers switched to computer-generated cold type. For printers employed 30 years or more, stroke as a cause of death was significantly elevated. The study's was presented at the American Public Health Association's annual meeting by David Michaels, associate professor of epidemiology at the City University of New York's Medical School.

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KILN COMPANY CITED FOR RIGHT-TO-KNOW VIOLATIONS

BNA-OSHR, Vol 21, No. 24, Nov. 13, 1991, p. 677

Olympic Kilns, a division of Haugen Manufacturing, Inc., Atlanta, GA, was cited for failure to develop, implement, and maintain a written hazard communication program and for failure to provide employees with information and training on hazardous chemicals in the workplace [29 CFR 1910.1200(e)(1) and (h)].

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APPEAL TO POTTERS

Did you take ceramics courses at Eastern Washington University in 1978 or 1979? A classmate of yours needs your help.

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