ACTS FACTS

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

January 2004 Vol. 18, No. 01

ACTS wishes you a healthy, happy 2004

WELDER WINS $1 MILLION VERDICT IN CASE LINKING MANGANESE FUMES TO PARKINSONISM

BNA-OSHR, 33(48), pp. 1166-1167, 12/4/03

Heavy manganese exposure, such as in mining, has been known to cause a type of Parkinsonism since the 1930s. But proving a link between early onset Parkinson's disease and lower levels of exposure such as in mild steel welding has been harder. Recent studies make the connection stronger and this evidence was used successfully by attorneys for a welder with Parkinson's disease in Illinois. A jury affirmed the welder's claim that welding equipment makers should be held liable for his medical condition (*Elam v. BOC Group Inc., Ill.* Cir. Ct., No 01 L 1213, *verdict* 10/29/03).

The jury awarded $1 million to 65-year-old Larry Elam: $100,000 for disfigurement; $100,000 for future disability; $70,000 for emotional distress; $30,00 for care and treatment; and $700,000 for future care and treatment. This verdict is the first victory for a welder suing the manufacturers of welding equipment even though the first cases were filed more than a decade ago.

Attorneys for the defendants say there is no link between welding and Parkinson's and the jury award was a fluke. They want a new trial. They don't want to let this decision stand because one of the defendants, The BOC Group Inc, is a party to about 150 more of these cases involving around 9,700 plaintiffs. One of these cases filed in West Virginia alleges claims for over 3,700 claimants.

COMMENT. ACTS knows of several potters that have Parkinson's-like neurological damage which they attribute to manganese exposure. This new research may support their claims as well.

TRAINING VIDEO NOW ON DVD

Two training videos: "Play it Safe: Introduction to Theatre Safety" narrated by David Fenner and "Firearm Safety OnStage" with Robert B. Chambers are now available in DVD format from Theatre Arts Video Library. These productions are useful for high school, college, and community theater safety programs. Call 800/456-8252 or visit www.theatreartsvideo.com for details.

ALMOST NONTOXIC MOLD MAKING

Product recommendation

Start out the year with a safer mold making system. This is not a new method, but I first saw it used at Louisiana State University this year. The sculptors there purchase silicon caulk in tubes which are extruded by a caulking gun. They extrude it around the object in a layer about 1/2 inch thick. Since it is not completely opaque (kind of cloudy), you can see if there are any bubbles or imperfections while making the mold.

The silicon mold must be allowed to set up for a day or more. After this it can be pulled off or cut like a rubber mold. It holds its shape very well and can be used more than once. The silicone caulks are not very expensive and they only emit small amounts of acetic acid or ammonia when they set up which only requires a little general ventilation. This method can be used safely even with younger artists.

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BARIUM X-RAY SOLUTIONS KILL 15 IN BRAZIL

MMWR, 52(43), October 31, 2003, p. 1047-1048

In May, 2003, 223 radiology clinic patients in Goias State, Brazil, ingested or were given enemas of barium sulfate contrast solutions for x-ray studies. Of these, 44 (20%) had suspected toxicity, 11 (26%) were hospitalized, and 9 (21%) died. Later, investigations in other states in Brazil identified suspected barium toxicity in another 25 persons and six (24%) died.

All the deaths occurred within 24 hours of exposure and were traced to one lot of the contrast solution which was found to contain contaminants of soluble barium compounds. A national recall of the product was announced. The report of this incident in the *Mortality & Morbidity Weekly Review* noted:

> *Radio-opaque solutions containing barium are used worldwide to provide contrast for diagnostic radiographic examinations, mainly of the gastrointestinal tract. Barium sulfate has minimal toxicity when used in contrast solutions because this salt is insoluble in water or lipid and not normally absorbed.... Nevertheless, severe, life-threatening intoxication can occur after ingestion or inhalation of even minute amounts of the absorbable salts of barium (e.g., barium chloride, carbonate, or sulfide) during radiologic examination or in occupational settings (e.g., mining, refining, operations, or production of fireworks or rodenticides).*

COMMENT. Barium carbonate is used in ceramic and glass production. However, acute exposure by ingestion is not likely in the studio. Instead, artists should be concerned about high blood pressure and chronic heart damage that may result from chronic exposure due to inhalation of small amounts of barium carbonate dust or from ingestion of barium which leaches into food from barium-containing ceramic glazes or glassware. To prevent these effects, the EPA set a maximum contaminant level of 0.2 parts per million for barium in drinking water--the same level ACTS suggests as a guideline for leach tests of ceramic and glass foodware.

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VASSAR FINED FOR VIOLATING EPA WASTE REGULATIONS

EPA Press Release #03133, Wednesday, November 5, 2003

The U.S. Environmental Protection Agency (EPA) announced that it is seeking $97,581 in penalties from Vassar College in Poughkeepsie, New York for violating numerous requirements of federal and New York State hazardous waste regulations.

EPA discovered the violations at Vassar during a March 2002 inspection of the college. These violations included improper disposal of several types of waste and chemicals, as well as failure to determine that they were hazardous wastes. In addition, the college did not have a permit to store hazardous waste, and did not meet the protective management requirements needed to be exempt from a permit. Hazardous waste containers were not closed or identified with the required markings; emergency response agencies were not notified of hazardous waste stored at the facility; and the college did not minimize the possibility of fire, explosion or unplanned release of hazardous substances into the environment. No records were kept to document the efficacy of leak detection systems in underground fuel storage tanks, and none of the personnel responsible for hazardous waste management were trained in how to handle it.

Finally, the school did not have a hazardous waste emergency response plan. The college has been working to correct the violations. It has 30 days to respond to the complaint.

COMING SOON TO YOUR AREA. Since 1999, EPA has had a program called the "Colleges and Universities Initiative." The program was established because EPA found that many institutions of higher learning were not aware of their responsibilities under various environmental laws. At the start of the program, EPA sent letters to 365 colleges and universities in New Jersey, New York, and Puerto Rico, held free workshops to help colleges and universities comply, set up a Website that provides information about their duties under the law, and warned them that EPA inspections of their facilities with the risk of financial penalties were imminent.

"Vassar could have avoided most, if not all of, the penalties for violations of hazardous waste regulations by participating in EPA's voluntary self-audit program," said EPA Regional Administrator Jane Kenny. "Participation in the self-audit program helps educational institutions avoid most penalties and learn to better manage their hazardous waste, safeguarding both people and the environment."

To date EPA has signed self-audit agreements with only five colleges and universities in the region. These schools have committed to audit, disclosure and remediation schedules in exchange for the benefits of the voluntary self-audit program. Complaints with penalties totaling $2 million have been levied against 10 colleges and universities who are not in the program, and settlements reached to date total $1.3 million in penalties or supplemental environmental projects.

More information about hazardous waste regulations can be found on EPA's Web site at: http://www.epa.gov/epaoswer/osw/index.htm.

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RIGGING SEMINARS

Three four-day rigging seminars will be held in 2004: in Orlando on Feb 1-4; Las Vegas on May 2-5; and Denver on June 27-30. There are three days of instruction on rigging principles and practices and hands-on training. The instructors are two highly respected rigging experts: Jay Glerum, author of the Stage Rigging Handbook; and Harry Donovan, author of Entertainment Rigging. To learn more about the Rigging Seminar course or to register, call 206/283-4419 or visit their website www.Riggingseminars.com

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NICKEL CAUSES 12% OF BRITISH CONTACT DERMATITIS CASES

BNA-OSHR, 33(47), 11/27/03, P. 1147

Nickel was a suspected agent in 12 percent of all cases of contact dermatitis reported by British dermatologists from 1993-1999, according to a study in the December journal of *Occupational and Environmental Medicine*. Nickel exposure was reported as a possible factor for industrial dermatitis in hairdressers, bar staff, cooks, nurses, sales assistants, and electronic and general assemblers, the study said.

Women were twice to three times a likely as men to be affected by nickel sensitivity and the highest rates were seen among workers aged 16-30, the study said.

COMMENT. This is consistent with US data. In December, 1998, *ACTS FACTS* reported on a *NY Times* interview of Dr. David Cohen, a New York University dermatologist who noted that over the last decade the percentage of Americans who are sensitive to nickel has risen from 10.5% to 14.3%. Dr. Cohen and other experts think the increase is linked to the current piercing craze. This also explains why more women than men have the allergy.

In the May, 1997 *ACTS FACTS*, we reported that Europe had passed the Nickel Directive, a law which essentially bans the use of nickel in jewelry. There is no similar ban in the US, but there should be. Responsible jewelers do not use nickel alloys.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources.

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February 2004 Vol. 18, No. 02

PRUSSIAN BLUE, BLUE PRINT, CYANOTYPE CHEMICALS ARE CYANIDES, SAYS EPA

The Environmental Protection Agency (EPA) issued a Final Administrative Determination[1] on September 24, 2003 affirming that all ferri- and ferro-cyanates (chemicals containing the hexacyanoferrate group ($Fe(CN)_6$)) qualify as "cyanides" under the Clean Water Act (CWA). The cyanide question was raised when Blackstone Power company contested a citation for dumping their Prussian Blue ferric ferrocyanide waste (*ACTS FACTS*, 2/02). Blackstone claimed Prussian blue is an inert complex cyanide that should be exempt.

The EPA emphasizes that it is not adding Prussian Blue ferric ferrocyanide to the cyanide list. Instead, it says that this chemical has always been on the list because 1) EPA always defined cyanide compounds as those containing the cyanide (CN) ion, and 2) ever since the CWA was established in 1973, the test specified to characterize cyanides is one which will identify all cyanides including hexacyanoferrates.

CYANIDE COMPOUND/SYNONYMS	USE IN ART
ALKALI FERRIC FERROCYANIDE ferric ferrocyanide ferric ammonium ferrocyanide alkali ferrocyanide Prussian Blue Milori Blue Iron blue, iron cyanides C.I. P.Blue 27, C.I. 77510 & 77520	PIGMENT art paints of all types, paper, leather, textiles, etc. cosmetic pigments
POTASSIUM FERROCYANIDE ferrioprussiates	BLUE PRINT (cyanotype)
POTASSIUM FERROCYANIDE & related ferro- & ferri-cyanides Farmer's Reducer Carbro Reducer	PHOTOPROCESSES Iron Printing: cyanotype, platinum & kallitype palladium printing carbro & three-color printing oil & bromoil printing gelabrom & bromide printing some modern color photoprocesses
SODIUM FERROCYANIDE	PHOTOGRAPHY: some color photoprocesses
POTASSIUM CYANIDE*	SOME HISTORIC PHOTOPROCESSES: Photogravure, collodion, ambrotype & tintype
METALLIC CYANIDES:* potassium, sodium, silver & gold cyanides	CYANIDE PLATING & PATINAS Jewelry & metal work

* Unlike hexacyanoferrates, these simple cyanides are very dangerous to use.

TOXICITY. The hexacyanoferrates are not very toxic to people. For example, Blackstone argued that ferric ferrocyanide should not be on EPA's list because the Food and Drug Administration authorizes its use as a color additive in cosmetic products.[2] However, the fact certain highly purified grades of Prussian blue are safe for consumer products does not mean they are safe for the environment. It has been documented that the hexacyanoferrates damage the environment by releasing free cyanide under both acid and alkaline soil conditions. This release is accelerated in the presence of ultraviolet light from the sun.

This hazard was known since 1948 when fish kills associated with cyanide discharge from hexacyanoferrates was documented. Similar toxic events were reported in 1966 and 1973.[3] More recently, a study of Blackstone's Prussian blue waste provided further evidence that ferric ferrocyanide releases free cyanide to the environment.[4]

STORAGE/HANDLING. The hexacyanoferrates are not dangerous unless they are exposed to strong ultraviolet light or acids which cause them to release cyanide gas. Prussian blue also must not be stored with lead chromate pigments (e.g., chrome yellow or chrome green) because the combination can ignite spontaneously. Compounds that ignite spontaneously in air are also created when Prussian blue reacts with ethylene oxide (a fumigant sometimes used to preserve art works) or is mixed with sulfonated or blown castor oil.[5]

DISPOSAL. Artists or schools planning to use any cyanide material should contact their local publicly owned water treatment plant to determine if the amounts released in waste water will exceed the discharge limits imposed by this treatment facility. In some cases, I have seen the discharge limit for cyanide set at one part per million. This is too low, for example, to accommodate the wash water from significant numbers of cyanotype prints.

In such cases, waste water must be collected in proper containers and hauled off by a toxic waste disposal company. Using cyanides legally can be expensive. To see if your school or business uses cyanide compounds, check the table above. ACTS welcomes information from readers who know of any other cyanide art or craft materials to add to the list.

FOOTNOTES:

1. Final Administrative Determination (FAD) on Ferric Ferrocyanide, G. Tracy Mehan, III, Assistant Administrator for Water, U.S. EPA September 24, 2003 (Announced in the Federal Register: 68 FR 57690-1, October 6, 2003).

2. "Preliminary Administrative Determination (PAD) that ferric ferrocyanide is a "cyanide" under 40 CFR 401.15, 302.4 & Table 302.4," J. Charles Fox, U.S. EPA, January 25, 2001, p. 14.

3. PAD, p. 6.

4. FAD, p. 5.

5. *Sax's Dangerous Properties of Industrial Materials*, Van Nostrand Reinholt, 1992, p. 2007.

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JAIL, FINES FOR FIREWORKS CEO's

CPSC Press Release #04-022, October 29, 2003, and #04-035, November 21, 2003

The US Consumer Product Safety Commission obtained six successful prosecutions in 2003 against Midwestern fireworks violators. The two last cases are summarized here.

CASE #6. On November 21, the U.S. District Court, Central District of Illinois, sentenced 63-year-old Archie Crouch to 30 months in federal prison and two years of supervised release for selling explosive materials and illegal flash powder devices without an Alcohol, Tobacco and Firearms (ATF) license. Crouch admitted he sold over 1,000 pounds of explosives in violation of federal law.

CASE #5. On October 29, a 58-year-old, Wichita, Kansas, man pled guilty to conspiracy to illegally sell professional fireworks. Gerald Lee Dunnegan, owner of Advanced Imports Inc., faces a maximum of 10 years in federal prison and a $250,000 fine for conspiring to sell highly explosive display fireworks to an out-of-state buyer who had falsified ATF documents. Under the plea agreement accepted by the U.S. District Court for the District of Kansas, Dunnegan is banned from operating a fireworks-related business in the future and must forfeit over $400,000 in earnings.

COMMENT. ACTS covers these cases because they are not covered in fireworks publications such as in the *Pyrotechnic Journal* or the *American Fireworks News*. Clearly, it is "news" when six Midwestern fireworks sellers are prosecuted in one year. And even more shocking, the convicted people are respected owners of established business. For example, Dunnegan, at one time was on the Board of Directors of the American Pyrotechnics Association.

In October, 2003, *ACT FACTS* covered another prosecution of two fireworks companies for trying to block federal investigations into explosions at a fireworks plant which claimed two lives and injured at least three others, and for violating federal workplace safety regulations. ACTS feels there are problems in pyrotechnic and fireworks industry that need attention.

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A FASCINATING FACT ABOUT DRIER SHEETS

FirefighterFDMT@comcast.net (Seth M. Robbins, MEd, ATC, CSCS, EMT)

The November 2002 issue of *ACTS FACTS* covered a Consumer Product Safety Commission (CPSC) report on fabric softeners which render fire retarded fabrics more flammable. The CPSC advised not using liquid fabric softeners on fire retarded fabric, but said that drier sheets were safe to use.

An Internet discussion about drier sheets elicited amazing information from firefighter Seth M. Robbins. He says that Bounce® dryer sheets are so flammable that "arsonists would fling the roll around a few times, spreading this HIGHLY flammable material around and light one end with a mere match or lighter. It would then run the length of the unwound spool spreading the destruction." He says this is why Bounce® is sold in sheets now rather than rolls. ACTS has advised limiting use of drier sheets on costumes worn on stage when theatrical pyrotechnic or fire effects are used.

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EMPLOYER/SCAFFOLD DESIGNER JAILED FOR MANSLAUGHTER

"Contractor Gets Jail For Scaffolding Collapse" - by Karen Freifeld Staff Writer for *Newsday* - January 14, 2004.

A Manhattan judge sentenced to prison the man responsible for the collapse of an illegally-constructed scaffold that killed five immigrant workers and seriously injured four others. State Supreme Court Justice Rena Uviller said she imposed the 3½ to 10½ year sentence on Philip Minucci, 32, of Commack, to reflect "the magnitude of the tragedy" and as a deterrent.

"This sentence will, I trust, serve as a warning to others who, in pursuit of their own economic interests, care to be cavalier about the lives of others," the judge said. The five laborers killed were among 20 masonry workers on a job in Manhattan on October 24, 2001. Most were illegal immigrants who were paid $7 an hour in cash. Four of the workers were asphyxiated and the fifth was crushed to death when the scaffold collapsed.

"The collapse of this scaffold, designed and built by Mr. Minucci, was not a tragic accident," Uviller said. "Rather it was a tragic certainty."

While imposing her sentence, Uviller said the case had given her an education in how "astonishingly ineffectual" the federal government has been in protecting workers' lives. The judge pointed out that the Occupational Safety and Health Administration penalties amount to a $10,000 fine and a maximum six-month prison sentence for an initial conviction. For a second-time offender, $20,000 and a maximum one year sentence.

"Why Congress has adopted such a spineless response to industrial malfeasance is best left to voters to assess," Uviller said.

COMMENT. Readers should be aware that OSHA usually doesn't even prosecute employers who cause occupational deaths. ACTS suggests readers get a copy of the article: "U.S. Rarely Seeks Charges for Deaths in Workplace," David Barstow, *New York Times*, December 22, 2003, pages A1, A28, A29. The outrageous data are all there.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources.
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CANADA SCENE SHOP FINED $60,000 AFTER WORKER FALLS

http://www.ohscanada.com/article.asp?id=26627, *OSH CANADA* magazine, 1/27/04

F & D Scene Changes Ltd., a Calgary, Alberta-based company which operates Great Lakes Scenic Studios, a custom manufacturer of theatrical and film sets in Burlington, was fined $60,000 on January 19, 2004 for a violation of the Occupational Health and Safety Acts that resulted in foot injuries to an employee.

On September 16, 2002, a carpenter was helping dismantle a background set, which was to be shipped to the United States, when the carpenter walked onto an elevated area of the set that was not secured. The area became detached from supporting tubular posts and the carpenter fell about 3.33 meters (10 feet, 11 inches) to the concrete floor below. The carpenter fractured both heels and suffered ankle injuries.

A Ministry of Labour investigation found the carpenter was not wearing any fall arrest equipment at the time of the accident, nor had F & D Scene Changes Ltd provided the carpenter with any fall arrest equipment or support systems. F & D Scene Changes Ltd. pleaded guilty to failing to ensure that safety measures and procedures were carried out.

COMMENT. Scene shop workers must wear fall protection at every stage of building and dismantling of scenery when falls are possible. Builders must plan construction strategies in advance to prevent falls, or provide guarding or fall protection equipment for the construction workers. Designers should create sets that do not have fall hazard elements.

UPDATE ON "ALMOST NONTOXIC MOLD MAKING"

Product recommendation

In the January issue we recommended using clear silicon caulks sold in tubes for making "almost nontoxic" molds. We said that the caulks "only emit small amounts of acetic acid or ammonia when they set up which only requires a little general ventilation."

It was brought to our attention that there are two types of caulks. The ones that are relatively safe release acetic acid and unknown amounts of silane monomers. But the type that smells like ammonia is actually releasing methyl ethyl ketoxime--a chemical that is a possible carcinogen based on animal studies and quite toxic.

To select the safer clear caulk, ACTS suggests obtaining MSDSs on the products and checking the second section where toxic ingredients are listed. Choose products whose MSDSs list acetic acid rather than those that list methyl ethyl ketoxime (CAS# 96-29-7).

CANADA & US EMPLOYERS CRIMINALLY LIABLE FOR SAFETY

http://canada.justice.gc.ca/en/dept/pub/c45/index.html#1 & *NY Times*, December 22, 2003, A1, A28-29.

The Canadian Parliament amended its code making companies criminally liable for the safety of persons in the workplace. Employers and supervisors must take reasonable measures to protect workers and public safety. If this duty is disregarded and bodily harm or death results, the company can be charged with criminal negligence.

ACTS hopes Canadian workers will have better luck with their law than we have had with ours. Over a span to two decades, from 1982 to 2002, OSHA investigated 1,242 horror stories of workplace deaths--all instances in which OSHA itself concluded workers died because of their employer's "willful" safety violations. Yet in 93 percent of those cases, OSHA declined to seek prosecutions.

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ALUMINUM AND PLASTIC DUST EXPLOSIONS KILLED 14 IN 2003

BNA-OSHR, 33(45), p. 1097, 11/13/03; 33(28), p. 655, 7/10/03; 33(26), p. 606, 6/26/03 & csb_automailer@CSB.GOV, 1/17/04

ALUMINUM DUST. A fatal accident last October at the Hayes Lemmerz International, Inc. automotive parts plant in Huntington, IN, involved an explosion of aluminum dust, according to investigators from the U.S. Chemical Safety and Hazard Investigation Board (CSB). A series of explosions severely burned two workers, injured a third, and damaged the manufacturing plant, according to investigators. One worker died the next day.

Investigators determined that aluminum dust, which had accumulated on surfaces, was ignited by a flash fire that escaped from the dust collection hood over the furnace. A secondary explosion occurred some minutes later in the plant's dust collection equipment. "The chip processing produced aluminum dust, which like many other finely divided metals, is flammable when mixed with air," CSB said.

PLASTIC DUSTS. Two additional incidents involving dust explosions were investigated by the board in 2003. In February, a fire and explosion that killed seven workers and injured 30 more at the CTA Acoustics plant in Corbin, KY was caused when a fine polyethylene plastic dust ignited.

In January, a fine plastic powder, used in the manufacturing of rubber products, caused an explosion at a medical supply facility in Kinston, NC. Six workers were killed and dozens more were injured. Fine polyethylene dust particles created during production accumulated above the tiles of a false ceiling. Investigators have not yet determined what ignited the dust. Tests are now underway to determine whether an undisturbed layer of dust can be ignited by a hot surface or spark.

COMMENT. Metal, wood and plastic powders are used as pyrotechnic ingredients. They burn rapidly or explode with force when exposed to a source of heat, flame, or a static electric discharge. Materials found in art and scenic art studios of concern include wood dust, rosin dust (aquatint), metallic pigments, aluminum and bronze powders, and dust from cutting or machining plastics.

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PERFORMANCE ARTIST BRINGS OUT THE BOMB SQUAD

NY Times, January 25, 2004, Alan Feuer, "Blast Gives Performance Artist an Audience of Men in Uniforms"

The Police Department's bomb squad, fire marshals, and New York City's elite counterterrorism unit all arrived to investigate an artist's loft on 217 Butler street in Brooklyn. Its owner, Christopher Hackett, 31, was found fully connscious but burned and bleeding. He was holding some sort of propane or acetylene torch. In the loft's cluttered workshop, authorities found two AK-47 assault rifles, a World War II-era British Sten gun, several hundred rounds of 7.62-caliber ammunition, and lots of gun powder. There were also photographs of the World Trade Center and maps of New York City.

While Mr. Hackett lingered in stable condition at Lutheran Medical Center in Brooklyn with burns and a broken jaw, investigators found that he was not a terrorist, but a misguided performance artist. He was trying to construct a confetti gun from a two-foot-long metal tube to be used as the starter pistol in a shopping cart race from Brooklyn to Manhattan he was planning.

Mr. Hactkett's gun powder and assault rifles, while illegal, were not weapons meant for some dark purpose. They were ingredients for eccentric public happenings and pyrotechnic works of art. Mr Hackett was arrested and charged with several weapons violations.

Mr. Hackett's block of Butler Street has become a gritty haven for artists in the last 10 years or so. He moved into the neighborhood three or four years ago and slowly attracted the attention of the local teenagers, some of whom would hang out in his workshop ogling his odd inventions and collection of junk. The *NY Times* report implied this was a good thing for the kids. However, ACTS believes young people should not be in unsafe shops in which there are real guns and gun powder.

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TEENAGE ASPIRING ARTIST POISONS HIMSELF WITH MERCURY

Kirsten Searer, Las Vegas Sun, January 15, 2004, (www.lasvegassun.com/sunbin/stories/text/2004/jan/15/516182364.html)

Michael Coleman, age 17, wanted to be an artist. He loved playing video games and drawing. He became intrigued by possessions of his great uncle Eddie which were left in the house after he moved away. Uncle Eddie had worked in a gold mine in the 1960s and had acquired a small glass jar which contained several inches of silver liquid.

First, Michael took the jar to the backyard. "I poured it on the ground, so just in case it exploded the house would be OK," Michael said. The liquid broke up into shiny beads on the ground. Then Michael took it inside, where he and friends played with it. The 17-year-old said he ran it through his hands and swatted it so that little beads flew through the air and into his mouth. He played with the silvery liquid for a few weeks.

SYMPTOMS BEGIN. At Thanksgiving, his grandmother threw the jar in the trash. Around this time, Michael developed a rash all over his body. An emergency room doctor told Grandma that it was a simple allergic reaction and soon the rash faded. But over the next weeks, Michael felt his energy draining.

Then Michael's mother returned to the family home after a long business trip. She found her son behaving strangely. He was missing school, taking as many as six hot baths a day, and locking himself in his room--the room in which he had played with the silver liquid. His fingers tingled, and he couldn't run.

Michael's mother did some research on the internet to find out if Michael's illness was related to the substance he played with more than a month before. She wondered if it was mercury. It was.

TESTING THE HOME. The Environmental Protection Agency (EPA) began testing the four-bedroom house where Michael and his grandmother resided. Everything down to the home's washer and dryer was removed and tested. The family moved to a motel room paid for by the local chapter of the American Red Cross.

Contamination levels 100 times higher than acceptable were found in the home and 30 times higher than acceptable were found in the Grandmother's car. It was estimated that it could take a month and cost about $500,000 to clean up the home, though those numbers could go up or down depending on how much mercury is in the walls and ventilation system, said EPA spokesman Mark Merchant.

The lives of all the family members have been turned upside down by the contamination. Clark County Health District officials have contacted 11 of them as well as the family of one neighborhood boy who came in contact with the mercury.

MICHAEL'S HEALTH. Michael said he is feeling much better, and he can shuffle short distances through the hospital. "I have to walk real slow or I fall," he said. Michael says he takes about 12 pills every 8 hours and feels tingling in his hands. His systolic blood pressure continues to spike as high as 197.

POISONING ROUTES. Mercury can be absorbed through the skin, but it's primary route is inhaling the vapor that off gasses from the liquid metal. However, Michael had never learned about mercury. "I've never been good at science," said the high school sophomore and aspiring artist. "That was pretty much my sleep class."

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ACTS HAS NEW WEB SITE

Editorial

ACTS invites you to go to **artscraftstheatersafety.org** and take a look at our new web site. This web site links to our old site which was developed and maintained for many years by Don Case. Don has turned over authoring and maintenance responsibility to a web design class at the Cattaraugus/Allegany BOCES (Board of Cooperative Educational Services) in New York. It enables the web design class to participate in real life projects. ACTS is proud to be associated with this project.

Our new site concentrates on providing information about ACTS' consulting services while the older site covers our publications.

PUBLIC SCHOOL MUSIC TEACHERS RISK HEARING LOSS

Journal of Occup & Environ Hygiene, Vol 1, April 2004, pp, 243-247

There is an abundance of literature showing that musicians risk hearing loss. However, there is little data regarding the exposure of music teachers in school environments. One reason may be the difficulty in determining a typical day for a music teacher whose schedule varies from day to day. Now the April *Journal of Occupational and Environmental Hygiene* contains a study which considers the various activities of music teachers. (Students were not studied since the number of hours they are exposed is low.)

The study found that classroom activities such as band, choir, recorder (a flute-like instrument), and percussion all exceeded the 85 decibel (dB) levels that are generally accepted as protective for most people. Keyboard classes were just below 85 dB. However, the levels experienced in various activities must be averaged out over an 8 hour day to determine if the generally accepted threshold limit of 85 dBA is exceeded. When this was done, the researchers found that the music teachers they studied experienced noise at levels below the limit, but so close to the limit that there is a potential risk of hearing loss. They determined that measures should be implemented to reduce exposure.

Based on the exposures in various classes, the authors also calculated the maximum number of hours teachers should conduct each classroom activity in order not to damage their hearing.

"Safe" limits	Choir	Percussion	Keyboard	Recorder	Band
Hours/day	4.3	5.5	9.4	3.8	2.1
Hours/week	21.4	27.7	47.0	19.1	10.3

The authors further recommend that schools institute hearing programs which include the following elements:

* *Raising awareness of the effect of excessive noise and the risk of hearing loss.*

* *Instituting the use of hearing protectors. The protector should be the "musician earplug" type that offers a flat frequency response (does not "color" the music) and does not excessively attenuate the sound level. Proper use, fit and care of the plugs should be taught to all users.*

* *Performing audiometric tests and follow-up. The only way of knowing if the environment affects noise-exposed workers, students, etc., is by performing periodic (once every 2 years) audiometric tests, which should be of the screening type, that is, air conduction of pure-tone, as opposed to other more complex, diagnostic tests.*

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ART WELDERS' FUME EXPOSURE TO BE ASSESSED

The University of Illinois (UIC) School of Public Health is researching welding fume exposures of artist welders in order to better serve artists who weld. They have developed a questionnaire that will help them assess fume exposure. It takes about 30 minutes to complete. Welders who want to help the School of Public Health develop this data base should contact Laurel Berman, UIC Ph: 312-996-2094, Fax: 312-413-9898, Email: lberma2@uic.edu

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WARNING FOR PYROTECHNIC USERS

"Indoor Pyrotechnics --- A Brief Cautionary Message," M.J. McVicar & K.L. Kosanke, prepublication copy available on request.

The same forensic equipment used to study gun shot residues on people suspected of crimes was used to study the residues left on surfaces by pyrotechnic devices. Studies of these residues combined with data on the initial ingredients of 150 small consumer-grade pyrotechnic devices purchased in the US revealed that over 30% contained some proportion of lead, 5% contained antimony, and 80% contained barium. The pyrotechnic devices included products sold as family fireworks.

In Canada, an examination of 18 consumer grade pyrotechnic devices, manufactured around the world and submitted for testing prior to acceptance for marketing, revealed that more than 60% contained lead, 50% contained antimony, and more than 75% contained barium. Further, another device, designated and marketed for indoor use on stage was found to contain lead, barium, and antimony. This device is probably no longer being sold.

Canadian regulations do not permit the use of lead in indoor devices. However, lead has been observed in consumer pyrotechnics from a number of countries and these may be repackaged for sale in the US. The authors of this study are concerned that some suppliers are selling items for indoor use without knowing whether or not their ingredients are suitable for this purpose.

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FURNITURE MAKER FINED $104,050 FOR OSHA VIOLATIONS

BNA-OSHR, 34(8), 2/19/04, p. 175

The Occupational Safety and Health Administration (OSHA) cited a New Jersey furniture maker for failing to protect workers from machinery hazards. The Munire Furniture Co. in Clifton, NJ, faces $104,050 in fines after an employee was injured while operating a ripsaw. Police notified OSHA when a worker was hospitalized with a pelvic-area puncture wound after a piece of wood flew from the saw.

Munire was cited for alleged serious violations--carrying $8,505 in fines--including use of defective ripsaws and failure to train employees on the use and limitations of fire extinguishers. And another $96,000 was proposed for three willful violations, including having a deficient lockout/tagout program, failure to train employees who operate forklifts, and failure to develop and implement a chemical hazard communication program.

COMMENT: Art and theater woodshops commonly have defective table saws that lack kick back protectors, no lockout/tagout programs and inadequate chemical hazard communication programs.

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PRINTER FINED $93,000: LEAD, CADMIUM, SOLVENT HAZARDS

BNA-OSHR, 34(8), 2/19/04, p. 175

A commercial printer in Fairport, NY, was cited by the Occupational Safety and Health Administration (OSHA) for failure to correct previously cited occupational hazards and fined $93,000 in proposed penalties, the agency said. Mastercraft Decorators Inc. had been cited in April 2003 for violations of the agency's lead, cadmium, and hazard communication standards and received a fine of $3,000 after agreeing they would correct all cited hazards. OSHA began a follow-up inspection in October, 2003, after the company failed to submit proof that the hazards had been corrected.

Mastercraft was cited with six failure-to-abate violations, carrying a fine of $90,000, OSHA said, for failing to:

* determine whether employees were exposed to lead and to cadmium;
* train employees in lead and cadmium hazards;
* provide employees with information and training on hazardous chemicals other than cadmium and lead, such as lacquer thinners and printing inks, in the workplace; and
* establish and implement a hazard communication program for employees exposed to hazardous chemicals.

OSHA said Mastercraft was also issued three serious citations with penalties of $3,000, for not storing combustible waste materials and residues in covered metal receptacles; not using electrical receptacles in accordance with their listed use; and not maintaining all surfaces as free as practicable of accumulations of lead.

COMMENT. Many print departments in art business and schools also use lead and cadmium inks and have not monitored worker exposures or implemented all of the precautions listed above.

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CADMIUM EXPOSURES AT BRASS & BRONZE FOUNDRIES FROM AN UNEXPECTED TRACE SOURCE

J. Occup. & Envir. Hygiene, Vol. 1, No. 1, Jan. 2004, pp. 39-44

Material safety data sheets (MSDSs) are not required to report toxic ingredients present in amounts <1% or known carcinogens <0.1%. This is one reason that small amounts of toxic substances in foundry metals are ignored as a source of occupational exposure. Now a study in the *Journal of Occupational and Environmental Hygiene* shows that even traces of cadmium ranging from 0.003% to 0.0004% in a component metal (zinc) used in three brass and bronze foundries, resulted in exposures over the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL).

Three foundries were studied which ranged in size from a small family operation with 7 employees to foundries with 41 and 70 employees. The study was originally intended to monitor lead emissions, a primary contaminant of non-ferrous casting alloys. And in fact, the study did find lead exposures up to 9 times the OSHA PEL. But cadmium also was found. This came as a surprise to researchers because cadmium was not listed on the MSDSs.

Cadmium exposures at the three foundries varied but, in general, the most hazardous job was adding zinc to the liquid metal to replace that lost during heating. The metal pourers had the next highest exposures followed by finishing workers and furnace operators. Many of these workers were exposed over OSHA's PEL. Some recommendations made in the study include:

* Heat alloys more slowly to reduce the need for adding zinc.
* Cover full ladles during transport and avoid walking in the plume of fumes rising from the molten metal.
* Allow the plume to dissipate before transporting the metal.
* Ventilate the furnace in compliance with industrial standards.

COMMENT. This study shows that metals not listed on MSDSs such as cadmium, lead, or even arsenic, could result in overexposures during foundry work. Artists who cast metals need to remember that their MSDSs may not list trace metals.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Nina Yahr, Diana Bryan, Sharon Campbell, Robert Pearl, Brian Lee; Staff: John Fairlie, OES.

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May 2004 Vol. 18, No. 05

EPA CALLS CITRUS OIL AN "EXOTIC" SOLVENT

SOURCE: 68 *FR* 65585-65619, 11/20/03. Part III. EPA 40 CFR Parts 260 & 261, Hazardous Waste Management System: Identification and listing of Hazardous Waste: Conditional Exclusions from Hazardous Waste and Solid Waste for Solvent-Contaminated Industrial Wipes; Proposed Rule

The Environmental Protection Agency (EPA) has proposed a rule that would lower the cost of disposing of solvent-contaminated rags, or industrial wipes. The rule would apply to both disposable and reusable wipes. This may help art businesses, schools, and theater shops that generate paint and solvent stained rags.

Of special interest to ACTS was a section of this proposed rule titled "'Exotic' solvents" in which EPA discusses the citrus solvents and other terpene "natural" solvents on the market:

> *In the process of developing this proposed rulemaking, the Agency has learned that there are new, "exotic" solvents on the market, such as terpenes and citric acids, that, while labeled as non-hazardous, could actually be flammable. Although the solvents do not exhibit the ignitability characteristic in 40 CFR 261.21, stakeholders have told us that, under certain conditions that have yet to be determined, oxygen can mix with the industrial wipes that contain these exotic solvents and spontaneously combust. According to some representatives of industrial laundries and fire marshals, resulting fires have caused major damage to facilities. Some stakeholders have suggested that EPA propose that generating facilities be allowed to transport their industrial wipes off site with free liquids* [liquid solvents] *if the facility is using one of these "exotic" solvents that could react or spontaneously combust, so that generators can wet down the wipes with water prior to sending them off site. They explain that this is consistent with what laundries do now with their customers.* (p. 65600)

COMMENT. *ACTS FACTS* has published many articles on the citrus and terpene solvents since 1990. The reprinted articles are available free on request. In general, ACTS recommends oil painters avoid citrus oil solvents in favor of safer solvents such as Gamsol®.

Exotic solvents are in products such as artist's brush cleaners (e.g., Grumtine®), paint strippers, furniture polishes, room deodorizers, cleaning agents and hand cleaners such as Fast Orange Hand Cleaner® and GoJo®. Most products that are labeled "safe" or "natural," should be checked for exotic solvents. Some names used for them are: citrus oil, orange oil, d-limonene, 1-methyl-4(1-methylethyenyl) cyclohexene, 4-isopropyl-1-methyl cyclohexene, p-mentha-1,8-diene, cinene, cajeputene, terpene or dipentene.

FIRE MARSHALS PETITION CPSC FOR CANDLE REGS

69 *FR* 18059, 4/6/04

The Consumer Product Safety Commission (CPSC) received a letter from the National Association of State Fire Marshals (NASFM) requesting that the Commission issue mandatory fire safety standards for candles and candle accessories such as candleholders. NASFM asserts that standards are needed because of the inherent danger posed by the open candle flames, coupled with the increase in residential fires caused by candles over the past decade.

Specifically, NASFM requests that the CPSC adopt standards substantially based on the requirements in the American Society for Testing and Materials (ASTM) International Provisional Specifications for Fire Safety for Candles (PS59-02). This standard addresses four major safety issues:

1) Flame height (various heights allowed for different types of candles, with the most common limit being 3 inches high);

2) Secondary ignition (preventing flames other than the one on the wick such as from flashover of the liquid wax or when decorative inclusions in the candle wax ignite);

3) End of useful life (requiring a candle to go out when it burns down rather than remain lit and break the candleholder, exhibit excessive flame height, or burn the holder or materials); and

4) Stability (will not tip when tested on a 10° incline).

In addition, NASFM requests that the standards incorporate:

- Flammability performance requirements for candle accessories, including candleholders;

- End of useful life requirements for all candle types including those in appropriate candleholders which currently are not included in PS59-02's end of useful life standards; and

- Miscibility and flashpoint requirements for gel candles which bar use of gels with flash points that are dangerously low).

COMMENT: *ACTS FACTS* has published 12 articles concerning candle hazards since 1995. We are particularly concerned about potentially defective candles and candle accessories made by craftspeople or by students in children's and adult art classes. Candles must meet safety standards no matter who makes them.

For example, school teachers could be liable for damages caused by fires linked to candles or candleholders made by their students.

Craftspeople also must not make and sell candles or candleholders unless these items meet performance standards. Candleholders made of ceramic or glass which can shatter or break when heated, which are made of wood or any material that burns, or which can tip could cause fires for which the maker could be liable.

==========

WHEN IS A HEPA NOT A HEPA?

Chemical Health & Safety, March/April 2004, 11(2), p. 33.

High Efficiency Particulate Air (HEPA) filters, by definition, capture a minimum of 99.97% of airborne particulate matter 0.3 microns (μm) in diameter or larger. People buying or specifying HEPA filters must be aware that filters labeled "HEPA-type," "HEPA-media" or "hospital-grade HEPA," are not real HEPAs. They only range between 90 and 99% efficient at 0.3 μm.

HEPA filters were first designed in the 1940s by the consulting firm Arthur D. Little in Cambridge, MA under a classified government contract for use in the Manhattan Project which developed the first atomic bomb. The term "HEPA" is primarily a US term. Europeans call the same filter an S-Class filter. There is also a newer ultra low penetration air (ULPA) filter on the market which has an efficiency of 99.999% at 0.12 μm.

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PROPOSED AID FOR GROUND ZERO WORKERS AND RESIDENTS

BNA-OSHR 34(16), 4/15/04, pp. 401-402, and HR 4059

A bill, called the "Remember 9/11 Health Act," (HR 4059) was introduced in the House of Representatives on March 20 by Carolyn Maloney (D-NY), Christopher Shays (R-CT) and 12 other representatives. According to HR 4059, lingering problems from the terrorist attacks have not been appropriately addressed. The bill includes the following findings:

- Thousands of rescue workers and local residents continue to suffer significant medical problems as a result of compromised air quality and toxins at the attack sites;
- Of approximately 9,000 first responders and Ground Zero workers examined at the Mt. Sinai Center for Occupational and Environmental Medicine in NYC, more than 50 percent show physical or mental health problems directly related to their work at the World Trade Center and Fresh Kill recovery sites;
- Many responders have no health insurance, lost their health insurance as a result of the attacks, or have inadequate health insurance;
- Workers and volunteers have had their workers' compensation claims denied, delayed for months, or redirected, instead of receiving assistance in a timely and supportive manner;
- Research into poor air quality from the site indicate health impacts include lower pregnancy rates, lower birth weights in babies born nine months after the attacks, and higher rates of respiratory and lung disorders in workers and residents near the attack sites; and
- Confusions still exists among recovery workers and responders about where to obtain compensation for their services in the recovery effort.

COMMENT: ACTS has covered the air quality problems in lower Manhattan since October of 2001. We are gratified that this bill recognizes these problems. We have not formulated an opinion about whether or not this particular bill is the best solution to the problem. On March 10, 2004, a class action lawsuit was filed against EPA seeking similar and additional remedies.

==========

ADULT FILM MAKERS & THE OSHA PATHOGENS RULE

BNA-OSHR 34(17), 4/22/04, p. 426

Two adult film actors were found to be HIV positive in recent weeks and the Los Angeles County Department of Health has asked the California Occupational Safety and Health Administration (Cal/OSHA) to conduct inspections of the production companies where the actors worked. Cal/OSHA officials may begin inspections of the industry to enforce the bloodborne pathogen standard plus a state regulation that requires employers to have an illness prevention program, a spokeswoman for Cal/OSHA said April 20

For several years, the adult film industry has required actors to take monthly HIV tests in an effort to create an HIV-free community. However, the latest cases show that this approach is not working. Dr. Jonathan Fielding, Director of Public Health for Los Angeles County, would like Cal/OSHA to consider requiring condom use in the industry to prevent the transmission of disease.

"We are not ready to say everyone is going to have to use condoms," said Cal/OSHA spokeswoman Susan Gard. The agency's approach will be the same as it is with other industries, she said. "You have to figure out how to protect your workers..." she said.

Gard made it clear that the adult film industry is "a workplace like any other workplace." If workers will be exposed to blood or "other infectious material" such as semen, the employer must comply with the bloodborne pathogen standard, Gard said.

If a Cal/OSHA case is opened, the agency also will have to establish an employer/employee relationship between the actors and the adult film production companies. In the past, the studios have contended that adult film actors are independent contractors. If that assertion is made, Cal/OSHA would need to ask the state's Division of Labor Standards Enforcement for a ruling on the independent contractor issue, Gard said.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Nina Yahr, Diana Bryan, Sharon Campbell, Robert Pearl, Brian Lee; Staff: John Fairlie, OES.

ACTS' financial support is primarily earned income from industrial hygiene services, lectures, and courses provided at below market value to schools, art and theater organizations, museums, and other art-related entities. Other income is from sale of publications and unsolicited donations from individuals and foundations. ACTS takes no money from industry or any party having a financial interest in our opinions about art products.

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June 2004 Vol. 18, No. 06

RIGGING FATALITY CANCELS DAVID BOWIE CONCERT

Miami Herald, AP, May 6, 2004, "Worker Killed at venue hosting David Bowie Concert." *ESTA Standards Watch*, Late May 2004, Vol 8, No. 10, p. 1.

On May 2, a David Bowie concert was cancelled minutes before he took the stage. Stereophonics, the opening act for Bowie's show, had finished their set for a sold-out crowd of about 4,600 people. Wally Thomas, a "followspot operator," was 45 feet above the stage on a wire rope ladder, apparently trying to adjust lighting in preparation for Bowie's performance. Thomas was wearing a fall arrest harness but the harness was not clipped into anchorage when he fell. He was pronounced dead at Jackson Memorial Hospital.

STANDARDS AND REGULATIONS. Wire rope ladders are hard to climb, but there are no Occupational Safety and Health Administration (OSHA) rules directly addressing these ladders. A standard has been developed by the Entertainment Services and Technical Association (ANSI E-1.1-1999). However, OSHA does not need a wire rope ladder standard to cite the employers for the fall protection infractions. OSHA's investigation of this accident will probably consider:

* why the worker was not tied off and whether or not there were readily available 5000 pound anchorage sites to which a worker climbing the ladder could attach;

* whether unreasonable demands were made on the worker, such as for speed, which would have encouraged the worker to take risks.

* the effectiveness of the employer's fall protection program;

* the training the injured worker had under the program;

* the worker's past experience and fitness for the job;

COMMENT. The "show must go on" tradition rightly was not applied here. Risk-taking is never acceptable.

==========

VENTILATION COURSE FOR ARCHITECTS, ENGINEERS, CULTURAL RESOURCE MANAGERS, & CONTRACTORS

RESTORE, a nonprofit corporation providing services related to building conservation, is presenting a day-long workshop on June 24 on ventilation. Presenter Monona Rossol will teach participants to identify design problems, evaluate air quality test data, measure air flow, debunk bogus claims for air purifiers, and recognize by sight systems which do not meet current standards. Architects are eligible for 7 AIA Continuing Education Credits by attending. Contact: www.RESTORETraining.org for cost, locations and details.

==========

PLANET APE EXTRAS CAN'T MONKEY WITH CLASS ACTION

BNA-OSHR, 34(21), p. 539, 5/20/04

Movie extras working on the 2001 remake of *Planet of the Apes* lost their bid to sue their employer in a class action suit for injuries on the job. Instead, they must seek workers' compensation, Justice Orville A. Armstrong of the California Court of Appeals ruled May 10 in an unpublished opinion (*Clark v. Fox Entertainment Group Inc.*, Cal Ct App., No. B168002, *unpublished opinion* 5/10/04)

In May, 2002, *ACTS FACTS* covered the initial filing of this class action lawsuit.* It was brought on behalf of all the extras who worked in a dust storm scene. During the three-day-long filming of a human-ape battle, wind machines propelled a substance known as fuller's earth to simulate a giant continuous dust storm.

FULLER'S EARTH. Historically, "fullers" were people who "fulled" cloth, that is, applied clay-like substances to make cloth thicker, fuller, and remove grease and dirt. Any type of clay used for this purpose can be called "fullers earth." Commonly included are bentonite, diatomite, and attapulgite. The fuller's earth used at the Planet of the Apes was another clay identified as "pyrolite." This is not a recognized mineral name and it probably was actually pyrophylite. Like most clays, this one also contains free silica.

FREE SILICA can cause cancer and other lung diseases.* It is regulated by federal and state agencies, yet none of the extras were given a particle mask or other respiratory protection. But the court rejected Clark's arguments that the violent and forceful way in which the silica dust particles were propelled at the extras took the case out of the realm of workers' compensation and into the realm of criminal or common law battery.

The court said "that the meaningful factual allegations of the complaint are that respondents knowingly exposed employees to a dangerous material in violation of health and safety regulations and concealed the risk from them." However, nothing in the complaint indicates an intent to injure the extras. "At worst, the complaint alleges indifference to the safety of the extras in the battle," the court said.

COMMENT. In other words, employers can knowingly expose workers to cancer-causing substances in direct violation of OSHA rules, conceal the risks from them, and demonstrate indifference to their safety without being sued. The remedy, instead, is a small workers' compensation stipend paid by the employer's insurance carrier. You must protect yourself, because the courts won't do it for you.

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* *ACTS FACTS*' May 2002 issue also covered an incident in which Camera operator Carol Wetovich was exposed in 1998 during the filming of the sitcom, *Spin City*, to fuller's earth used as a special effect dust storm. Shortly after exposure, Ms. Wetovich was treated in an Emergency Room for chest pains and respiratory distress. A CAT scan done early in her treatment showed fibrotic lung damage. She also developed asthma. Ms Wetovich developed asthma and permanent lung damage and won workers' compensation.

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PINE AND LEMON FRAGRANCES FORM HAZARDOUS PARTICLES

Nature News Service/Macmillan Magazines Ltd, www.nature.com/nsu/040503/040503-11.html, May 10, Mark Peplow, and Liu, X, Mason, M., Krebs, K & Sparks, L., *Environ. Sci. & Technol.*, published on line, doi:10.1021/es030544b, (2004)

US Environmental Protection Agency (EPA) researchers found that a potentially harmful smog can form inside homes through reactions between air-fresheners and ozone, a common air pollutant. The smog particles contained formaldehyde, classed as a probable carcinogen, and related compounds that many experts believe are responsible for respiratory problems.

The researchers studied the reactions between ozone and fragrance molecules such as pinene (pine) and limonene (citrus), which are emitted by air-fresheners that plug into electrical outlets. "If you open a window on a high-ozone day, you could trigger these reactions," says Mark Mason, an environmental scientist at the EPA's National Risk Management Research Laboratory, North Carolina. Mason led the study, which is published in *Environmental Science and Technology*.

Even worse, people who use ozone generators in their homes to mask unwanted odors, can create indoor ozone levels that are much higher than those in the study. "If you are concerned about indoor air, you should not introduce any extra chemical sources to your home, and that includes volatile organic compounds and ozone," Advises Frank Priciotta, director of the EPA's Air Pollution Prevention and Control Division.

PARTICULATE EXPOSURE. Mason's team found that mixing ozone and air-freshening chemicals generated particles of formaldehyde-related compounds at a concentration of about 50 micrograms in each cubic meter of air. This is close to the EPA's Air Quality Limits for outdoor particles.

"This EPA study is only preliminary because it is based on work in a room-sized test chamber rather than a house," Cautions Ken Giles, public information officer at the US Consumer Product Safety Commission, which regulates products such as air-fresheners. But we do not think that 'freshening' air is a good way to deal with air pollution," he adds.

PREVIOUS STUDIES. *ACTS FACTS* (Jan, 2001) published an article on a related study. It was initiated by a chemist who noticed a white message board in his lab kept turning dingy with a coat of submicron d-limonene particles. He found that using a lemon scented wax on his wooden coffee table released significant airborne concentrations of limonene. When limonene at this same level was released in a test chamber and combined with typical "smoggy day" ozone concentrations, submicron particles of d-limonene were formed. Particles of this size can be inhaled deep into the lungs.

COMMENT. Severe reactions to fragrances reported by some people may well be related to such phenomena. More importantly, artists are exposed to far greater amounts of terpenes and limonene if they use turpentine or the "natural" turpentine-substitutes (turpenoids) which often contain d-limonene. Examples include Grumtine®, Gobo®, Fast Orange Hand Cleaner®, Citrus Clean®, and many others.

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PYRO SMOKE EMPTIES COLISEUM

Corpus Christi Caller-Times, May 17, 18, 2004

A pyrotechnic incident at a high school football game in Corpus Christi, Texas, resulted in clouds of smoke that forced some players and most of the spectators to the exits gasping for air. The fire department and EMS reported to the Coliseum and gave fans and players oxygen if needed.

According to Ron Smith, director of sales and Marketing for Pyro Spectacular, the California-based company handling the display, they had never had a similar incident. However, this was not the first such incident at the Coliseum. "Basically the same thing happened a few years ago at an Ice Rayz game," said Assistant Fire Chief/Fire Marshal Michael Hernandez.

Despite this previous incident, the Fire Marshal permitted the show based on a demonstration (preshoot) that did not include all the planned pyrotechnic effects. The aerial effects used in the preshoot did not create much smoke. There were other effects in the actual show. "We did use blue columns on the sides of the stage not in the demonstration," Smith said. "There was more blue smoke than usual from them."

Ron Smith also cited other causes of the problem. "For one thing, there were motorcycles in there with the engines running," Smith said. "People being in the building make a difference too, and the building doesn't have any roof vents to help let smoke escape." This ventilation problem alone should have indicated to the technicians that the whole display should have been tested first.

COMMENT. This report from Corpus Christi is one of many which should cause National Fire Protection Association members to rethink their Standard for the Use of Pyrotechnics before a Proximate Audience (NFPA 1126). This standard has guidelines for safety, but is silent on the health effects of the smoke. Its section on Smoke Control only says, "...the quantity of smoke developed shall be controlled so as not to obscure the visibility of exit signs or paths of egress." The Corpus Christi paper has a wonderful photo of a football player evacuating the Coliseum in a haze of smoke. Behind him is an exit sign glowing clearly.

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OSHA ANNOUNCES ALLIANCE WITH PYROTECHNIC GROUP

BNA-OSHR, 34(24), 6/10/04, p. 598

On June 9, OSHA announced an alliance with the American Pyrotechics Association (APA) that will focus on providing information, guidance, and access to training resources to ensure that workers are safe when working with commercial display pyrotechnics and manufacturing consumer fireworks.

OSHA and APA plan to develop joint training and education programs on the safe and proper use of commercial display fireworks. They will also develop information on the recognition and prevention of pyrotechnic hazards in the workplace, and provide that information to employers and workers throughout the industry.

According to OSHA, both organizations will speak, exhibit, and appear at agency or APA events, such as the APA's Winter Educational Conference and its Fall Annual Meeting. APA will also share information among OSHA personnel and safety and health professionals in the industry regarding their best practices or effective approaches.

COMMENTS. It's about time something is done. *ACTS FACTS* has covered a number of incidents recently in which professional pyrotechnic events have gone wrong. There are two more of these cases in the following articles. We hope these are the last.
==========

PYRO DESTROYS STAGE AT AWARDS SHOW

NBC 4, posted 6:22 PDT May 17, 2004 Updated: 8:40 AM PDT May 17, 2004,
http://www.nbc4.tv/print/3313034/detail.html

A pyrotechnic stunt performed at the 4th annual Taurus World Stunt Awards in May at Paramount Studios created a fireball far bigger than planned, organizers said. To the surprise of co-hosts Dennis Hopper and Carmen Electra, as well as 1,500 audience members, including Governor Arnold Schwarzenegger, Keanu Reeves, Sarah Michelle Gellar and Burt Reynolds, the finale of the show resulted in almost total destruction of the platform stage.

Toward the end of the show, co-host Electra pulled a cigar from second-year host Hopper and threw it at a predetermined area where it was to ignite in a mock explosion. Instead, the explosion produced a fireball that created enough heat to be felt in the first row of the crowd. There were no injuries, but even experienced stunt people were reportedly stunned by the explosion, according to a statement from TWSA. The stunt thrilled the crowd, few of whom realized the stunt had gone awry.
==========

PYRO DEVICE BURNS CONTESTANT IN REALITY SHOW

The New Zealand Herald, Online, Sunday May 23, 2004

A reality television stunt went wrong, badly burning a man in the process. The accident cost top New Zealand television production company, Julie Christie's Touchdown Productions, $65,000.

On July 17, Mahesh Muralidhar, who had earlier won a $10,000 prize in the Going Straight program, agreed to a re-enactment. The safety officer had left the site, light was fading, helicopter time was running out, yet the company decided on a "minefield challenge" shoot at the beach. When the pyro went off, Muralidhar received second- and third-degree burns to 12 percent of his body. His upper body was in flames for about 15 seconds and he had to wait 45 minutes for an ambulance while his skin was peeling off.

Judge Thomas Everitt, in a New Zealand District Court, said Touchdown Productions failed to make sure Muralidhar was adequately protected and claimed it did not know the pyrotechnic device contained a flammable substance. The company pled guilty to one charge of failing to take all practical steps to ensure that Mr. Muralidhar was not harmed. Judge Everitt fined the company $30,000 and also ordered them to pay $35,000 in reparations: $10,000 for losses suffered by Muralidhar and his family; $20,000 for the pain and suffering he experienced; and $5000 for the consequential losses he suffered as a result of the physical harm he received.

Judge Everitt said he was dissatisfied that the company responsible for the pyrotechnic device, Film Effects, had not been prosecuted. He would like to have heard them explain their actions at the time.

==========

DYE-PACK FELLS BYSTANDERS, ROBBER ESCAPES

NYPOST 6/9/04, Erica Martinez, NYPOSTONLINE.COM

On June 8, more than a dozen New York City straphangers were sickened after a bank robber fled into a Manhattan subway station and his bag of loot exploded, sending red dye and toxic fumes into the air, police said. Dye packs hidden in stolen money are used by financial institutions to deter robbers.

The drama began at 9:25 am, when a man entered a bank on 14th Street and passed a threatening written demand for cash to a teller. He was handed an undisclosed amount of money, ran out of the bank and fled into the Union Square subway station, cops said.

The dye pack in the stolen money detonated near the subway turnstiles. Fifteen people suffered burning eyes and ears and throat irritation, and were treated by EMS at the scene. Two people had difficulty breathing and were taken to St. Vincent's Hospital by ambulance, fire officials said. In the chaos, the robber fled onto an F-line train and escaped, police said.

COMMENT. Here's a new dye and/or pyro hazard! Two dyepacks brands, SecurityPac® and FlexPac®, contain Disperse Red 9, an anthraquinone dye which may be a sensitizer and is similar in chemical structure to dyes that cause cancer in animals. The explosive mechanism is a trade secret and some dyepacks also contain tear gas! They should be redesigned to target the robber and not bystanders.

==========

IT IS NOT JUST PLASTER

Editorial

Recently I inspected a school whose environmental safety office had decided that ventilation was not necessary for jewelry casting because the faculty said the mold material was "just plaster." The label on the container of the jewelry investment mold product, however, showed that its major ingredient was actually highly hazardous respirable silica. Ventilation was clearly needed.

While this mistake was based on misinformation supplied by the faculty, material safety data sheets (MSDSs) should always be obtained on casting products, even real plasters.

TRUE PLASTER. Common plaster products sold to artists and schools are made by US Gypsum Company (USG). When a small art company's name is on the label, the plaster has probably been purchased from USG and relabeled. This makes it hard to find out which of the many types of plaster USG formulates is in the bag.

For example, a generic MSDS from 1990[1] listed 37 types of plasters USG makes such as those for dental and metal casting, fillers for wood and wall cracks, and ceramic molds. The MSDS also listed the ingredients that cause the properties of these plasters to differ.

INGREDIENT	%	INGREDIENT	%
Plaster of Paris	80-100	Ammonium tartrate	0-0.3
Calcium Carbonate	0-5	Hydrolyzed protein	0-0.3
Portland Cement	0-5	Monosodium phosphate	0-0.2
Lime	0-3	Sodium naphthalene sulfonate	0-0.2
Hydroxy ethyl ether of cellulose	0-2	Potassium sulfate	0-0.2
Polyvinyl alcohol	0-2	Methylhydroxypropyl cellulose	0-0.07
Starch	0-2	Calcium lignosulfonate	0-trace
Wood Fiber	0-2	Sodium potassium tartrate	0-trace
Potassium Naphthalene Sulfonate	0-0.8	Tributyl phosphate	0-trace
Aluminum sulfate	0-0.5	Alkyl ether sulfate	0-trace
Sodium citrate	0-0.5		

ART PLASTERS. Three types of plasters used in art are White Art Plaster, Pottery Plaster, and White Moulding Plaster. Current MSDSs for these products do not list any of the additives above probably because they are in amounts below required reporting.

SILICA. The 1999 and 2003 MSDSs on the three products report respectively <5% and <1% crystalline silica, a known carcinogen. The 2003 MSDSs is unclear about the amount that is respirable, that is, silica that can be inhaled deep into the lungs. Section 2 of the MSDS says "Testing of dust from USG plaster of paris has not detected respirable crystalline silica." But Section 11 says "the weight percent of respirable crystalline silica has not been measured in this product." Inhalation should be avoided.

SKIN WARNING. The 1999 and the 2003 MSDSs on all three products say:

> *When mixed with water, this material hardens and becomes very hot--sometimes quickly. DO NOT attempt to make a ...[cast] enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue or amputation of limb. ...*

There are probably a number of cases of injury, but I know about two of the amputation cases. One was reported in the Art Hazards News, July/Aug 1984 issue.[2]

> *Four female pupils at the technical school received hand burns while trying to make moulds of their hand using a dental plaster instead of ordinary plaster-of-Paris. In three cases the burns were so severe that several fingers had to be amputated due to irreversible tissue damage. The severity of the burns is explained on the basis of an experimental study where it was demonstrated that the temperature of hardening dental plaster rose to 70 o C and had a hardness that was 10-times greater than ordinary plaster-of-Paris. This should serve as a warning against the use of dental plaster in direct casting of living tissue. However, the technique used here is also considered dangerous as ordinary plaster-of-Paris under certain circumstances could also cause severe burns.*

The second incident is reported in personal correspondence (11/3/84) from Everett E. Littlefield of the Theater Arts Department at the University of California, Los Angeles.

> *We recently had a plaster-casting accident here this summer that I think that your organization should know about. One of our female students lost her left ring finger from the knuckle down. As reported, ... the casting plaster (US Gypsum, Industrial Plaster) set up too quickly and caused extreme heat. ... The plaster was sent to the Campus Research & Safety for analysis, and as reported, there were no impurities or anything unusual in the mixture.*

PRECAUTIONS FOR USING PLASTER. Plaster is still one of the safer materials artists use. But artists should be aware that silica (a carcinogen) and other additives present. Good hygiene and clean up are recommended. Never cast body parts with any plaster except those specifically intended for use on the body such as the medical products used for casting broken limbs.

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1. MSDS on US Gypsum Co , 101 S. Wacker Drive, Chicago, IL 60606-4385, June 27, 1990

2. Heat Generation in Plaster-of-Paris and resulting hand burns - Hedeboe J Moller Larsen F., Lucht U. and Christensen S.T. - Sep. Orthop. Surg., Aarhus Munic. Hosp., DK - 8200 Aarhus DNK - BURNS 1982 9/1 (46-48), Excerpta Medica abstract.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Nina Yahr, Diana Bryan, Sharon Campbell, Robert Pearl, Brian Lee; Staff: John Fairlie, OES.

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LEAD POISONING LINKED TO ART & CRAFT HOBBIES

MMWR, CDC, 53(26)578-584, 7/9/04

The Centers for Disease Control (CDC) released its lead surveillance data for the year 2002. The data is more complete than in previous years because 1) more state laboratories are reporting high blood lead levels (BLLs) and 2) both occupational and non-occupational exposures are now reported in some states.

During 2002, a total of 10,658 adults from 35 states were reported with BLLs ≥ 25 micrograms per deciliter (µg/dL). (Greater than 10 µg/dL is considered significant.)

OCCUPATIONAL EXPOSURE. Twenty seven of the states identified the industries in which the occupationally exposed people worked. It is significant that "painting, paperhanging and decorating" was the second highest category. In this category, 863 workers had BLLs of ≥ 25 µg/dL and of these 236 workers had BLLs of ≥ 40 µg/dL! If all 51 states reported, clearly the totals would be much higher.

NON OCCUPATIONAL EXPOSURES. Of most importance to artists were reports from the 27 states that identified non-occupational lead exposures. This data is summarized below:

ACTIVITY	> 25 µg/dL
Shooting firearms	23%
remodeling and renovation	19%
hobbies (e.g. casting, ceramics, and stained glass)	13%
retained bullets or gunshot wounds	11%
Pica (adults ingesting or mouthing lead materials)	7%
Lead-contaminated food, drink, alternative medicines	4%
other sources or unknown	23%

Obviously, 13% (45 people) in 27 states were identified with elevated blood leads from hobbies such as casting, ceramics, and stained glass. These 45 people lived in the 27 reporting states, went to their doctors, and asked to be tested. Clearly many more people are harmed by these activities than are on this list. And this data does not include children.

COMMENT: Often I'm told that art hobby activities must be safe or there would be statistics showing a problem. But statistics on hobbyist are rarely complied. Now there are a few figures showing an association. And the numbers are probably just the tip of an iceberg. Worse, these cases are preventable because there are many good substitutes for lead. It really is time to get the lead out.

CHILD POISONED BY COMMERCIAL FRENCH DINNERWARE

"Childhood Lead Poisoning from Commercially Manufactured French Ceramic Dinnerware, New York City, 2003." *MMWR*, CDC, 53(26), 7/9/04, pp. 584-586

The Centers for Disease Control reported that in July 2002, a routine lead screening test of a 12 month-old New York child was recorded at 12 micrograms per deciliter (µg/dL). Like many states, New York requires reporting and follow up of children whose blood lead levels (BLL) are 10 µg/dL or higher--a level at which a loss in mental acuity (IQ) occurs. A follow up test at age 15 months found the child's BLL had increased to 18 µg/dL. The parent's home was investigated. No lead paint was found.

By age 18 months, the child's BLL rose to 23 µg/dL. A more complete survey of the child's home found no lead sources, although one investigator raised concerns about dinnerware the child used. The family got a home lead test kit and the ceramics tested positive.

In March 2003, the child was referred to Mount Sinai's Pediatric Environmental Health Specialty Unit for treatment. A plate the child used was sent to a regional Food and Drug Administration (FDA) lab. A test showed the ceramic plate leached 29.6 µg/mL (micrograms/milliliter or parts per million) of lead, a level exceeding FDA's guidelines 3 µg/mL for plates.

COMMENTS: There were five disturbing issues in this CDC article:

1. In a post script the editors say: "Lead can leach out of ceramic ware when the glaze is improperly fired or when the glaze has broken down because of wear...." These medical editors clearly do not know that glazes can leach lead even if the firing is perfect and the glaze is unworn. It depends more on glaze composition.

2. It is sad that after two home lead inspections, the family had to identify the source by using a home lead test. Inspectors should be equipped with FDA field test kits. Much of the damage this child probably has suffered could have been averted.

3. The authors use FDA's lead leach limits: 3 µg/mL for plates and 2 µg/mL for cups. But most ware sold in the US meets California's standards: 0.226 µg/mL for plates and 0.1 µg/mL for cups. In 1989, FDA proposed adopting these lower limits, but the ceramic industry convinced FDA that lower limits would destroy them economically. California adopted the limits anyway and required companies to put lead warnings on ware that didn't comply. Within two years, all major US ceramic producer easily met the California standards. Yet FDA and the authors of this article still used the outdated limits.

4. The article provided a site which lists dinnerwares that have been restricted for importation by FDA: www.fda.gov/ora/fiars/ora_import_ia5208.html. The CDC authors should have informed their readers that this list is woefully incomplete due to a lack of surveillance testing by FDA at our ports and no surveillance of domestic ware from small potteries and artists studios.

5. It would have been helpful for the authors to remind us that, over the years, some items in every category of foodware have been shown to leach lead: imported and domestic, antique and new, brightly colored and white, ceramic, porcelain and glass crystal, made by large and small companies or individual artists.

==========

OLD CAULKING COMPOUNDS MAY CONTAIN PCBs

Robert F. Herrick, Michael D. McClean, John D. Meeker, Lisa K. Baxter & George A. Weymouth, "Unrecognized Source of PCB Contamination in Schools and Other Buildings, *Environmental Health Perspectives*, Vol. 112, No. 10, July 2004.

Polychlorinated biphenyls (PCBs) were used for many purposes prior to a ban on their manufacture in 1977. In a 1999, EPA published the following list of old materials in which PCBs may still reside:

> *...some wool felt insulating materials, plastics, paint formulations, small rubber parts, adhesive tape, insulating materials used in electrical cabling, fluorescent light ballast potting materials, gaskets in heating, ventilation and air conditioning and other duct systems, caulking, coatings for ceiling tiles, flooring and floor wax/sealants, roofing and siding materials, adhesives, waterproofing compounds, anti-fouling compounds, fire retardant coatings, coal-tar enamel coatings for steel water pipe and underground storage tanks..., and any number of other chemicals uses such as additives and plasticizers.*[1]

CAULKING. Not much has been known about the hazards posed by the caulking used to seal joints between masonry units and around windows. Several investigations between 1993 and 2002 in Germany, Sweden, and Finland found relationships between PCBs in caulking and levels of PCBs in indoor air, settled dust, and in soil around the building. In the US, a 2002 study[2] documented elevated PCB levels in the air and dust in a university office building in which PCB caulking was present. The caulking contained PCBs as high as 33,000 parts per million (ppm). This is 600 times the EPA limit of 50 ppm above which materials are regulated as PCB waste.

NEW STUDY. Then in 2003, researchers studied 24 schools and public buildings built between 1960 and 1970 in the Greater Boston Area in which union workers[3] remembered installing caulking products like those used in the contaminated University office building. This study revealed that one-third of the buildings (8 of 24) still contained caulking materials with PCB content exceeding 50 ppm by weight. PCBs were found in: government office buildings; University student housing, classrooms and offices; elementary, middle and high schools; church offices; and a synagogue.

REGULATORY GAP. PCBs are considered "probable Human carcinogens" by EPA. There is also evidence that they cause adverse effects on the immune, reproductive, nervous and endocrine systems. EPA regulations under the Toxic Substances Control Act (TSCA) stipulate procedures for handling and disposing of PCB-containing materials. However, TSCA does not require that materials such as caulking be tested for PCBs prior to demolition! As a result, discarded and untested caulking is probably being sent to landfill.

COMMENT. In November 2000, *ACTS FACTS* reported that PCBs also were common plasticizers in many interior and exterior paints manufactured from the early 1950s until PCB production was halted in 1977. Dried film of these old paints commonly contained 15-25% PCBs. Yet no one routinely tests old paint for PCBs either. Paint, caulking, and many other materials from buildings constructed or renovated from 1950 to 1980 should be routinely tested for PCBs.

FOOTNOTES

1. 64 FR 69358-64, 12/10/99, page 69359 quoted.
2. "Characterization of polychlorinated biphenyls in building materials and exposures in the indoor environment," Indoor Air 2002, 147-152.
3. International Union of Bricklayers & Allied Craft Workers (BAC)

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CATHOLIC UNIVERSITY FINED FOR WASTE VIOLATIONS

Safety Focus, Campus Safety News, *Campus Safety, Health & Environmental Management Association*, a division of the National Safety Council, June 2004, pp. 1-2

The Pontifical Catholic University of Puerto Rico (Catholic University) faces $280,619 in penalties for alleged violations of hazardous waste regulations at its main campus in Ponce, PR.

An Environmental Protection Agency (EPA) inspection of Catholic University's main campus revealed the school failed to determine if wastes it generated were hazardous; stored hazardous wastes without a permit; stored hazardous waste in open containers; and stored hazardous waste in containers that were in poor condition. Further, the university did not maintain and operate its facility to minimize the possibility of fire, explosion and other risks if an unplanned or sudden release of hazardous waste to the environment should occur. Many chemicals were stored unsafely, significantly increasing the risk of fires or explosions.

The University also did not provide employees with required training in hazardous waste management or develop emergency contingency plans or make arrangements with emergency responders and nearby hospitals in the event of sudden or unexpected releases of hazardous wastes to the environment. Catholic University has informed EPA that it is working towards correcting the violations found at its main campus.

COMMENT: One benefit of attending Catholic universities is that they usually provide a strong traditional education. But it is my experience that when traditional programs are maintained in science and art, teachers tend to use the same traditional chemicals and processes they used decades ago without upgrading their safety training, equipment, and regulatory programs.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Nina Yahr, Diana Bryan, Sharon Campbell, Robert Pearl, Brian Lee; Staff: John Fairlie, OES.

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NANOPARTICLES PROVE SIZE MATTERS

BNA-OSHR, 34(17), 4/22/04, pp. 440-446; BNA-OSHR, 34(33), 8/12/04, pp. 846-847; BNA-Daily Environment Report, # 59, 3/29/04, pp. A7-A10 &
http://www.washingtonpost.com/2004Jul29

Scientists have known for decades that small particles can be more toxic than larger ones when inhaled deep into the lungs. In recognition of this fact, the Environmental Protection Agency (EPA) sets more restrictive outdoor air quality standards for particulate matter (PM) that is only 2.5 microns in diameter (PM2.5) than for the larger 10 micron particles (PM10). Research shows that the smaller the particle, the greater its association with respiratory and heart problems and stroke. The mechanism by which the particles cause heart attacks and strokes is unknown.

SKIN ABSORPTION. Studies on beryllium were among the first to show that small particles also can penetrate the skin. Researchers found that one micron-sized beryllium particles can enter workers' bodies through the skin, sensitizes them to beryllium, and cause the deadly and untreatable disease called "beryllosis." This phenomena explains why workers who wore respirators fell ill while workers who wore both gloves and respirators stayed well.

NANOPARTICLES. Today, particles much smaller than one micron are being created in a hot new field called "nanotechnology." In this area of research, scientists manipulate atoms and molecules or grind substances so fine that the tiny particles have amazing and useful new properties. The particles can be made in a great variety of shapes: tiny fibers, balls, hollow tubes, and more.

The nanoparticles are measured in nanometers, a scale 1000 times smaller than the micron scale. For example, PM2.5 micron particles are 2500 nanometers in diameter. However, the term "nanoparticle" is generally only applied to particles that are 100 micrometers (0.1 microns) or less. Products containing particles as small as 5 nanometers are already on the market. Tens of thousands of these nanoparticles will fit on the point of a pin.

NANO-PRODUCTS. As expected, manufacturers put products containing nanoparticles in our hands before the hazards are fully studied. Products already available include wrinkle and stain-resistant fabrics, paints, pigments, cosmetics, special abrasives, carbon black in tires, clay particles in tennis ball polymers, digital camera displays, and high resolution printer inks.

NANO-HAZARDS. Preliminary animal experiments have shown that some nanoparticles are highly toxic. They entered the body and moved

through cellular membranes and damaged the animals' lungs, brains and other organs. Tests on titanium dioxide nanoparticles, however, did not show these effects. But unless all the nanoparticles are studied, we will not know which are highly hazardous.

Workers and consumers exposed to nanoparticle dusts cannot prevent inhalation with air-purifying respirators or air filters. HEPA filters only capture 99.97% of particles 0.3 microns--300 nanometers--in diameter. The rarely-used ultra low particulate air (ULPA) filters only capture 0.12 micron--120 nanometer--particles effectively. In addition, nanoparticles probably absorb through the skin. And no one knows if they can permeate gloves.

ART PIGMENTS. Pigments have been available in the range of 100 nanometers (0.1 microns) for years. ACTS thinks that these have already found their way into some types of pastels and raw pigments sold to artists. Now paint industry journals and web advertisements tout pigments in sizes as small as 5 nanometers. Powdered or dusty art materials simply should not contain nanoparticles.

COSMETICS. Of great concern to ACTS is the use of nano-versions of pigments such as iron oxide and zinc oxide in cosmetics and sun screen products. In July, a joint report to the British Government by Britain's Royal Society and Royal Academy of Engineering, strongly recommended that these nanoparticle-laden cosmetics be kept off the market until proven safe for use on skin.

Linda M. Katz, director of the US Food and Drug Administration's Office of Cosmetics and Colors, said the agency is examining the nanoparticle issue and expects results within two years. But Katz admits that FDA doesn't have a list of the cosmetics that contain nanoparticles and that product labels do not identify cosmetics containing nano-sized ingredients. In other words, consumers cannot know if they have been exposed to nanoparticles or avoid products that contain them.

ACTS is concerned that nanoparticles may be in the popular airbrush makeups which may be inhaled as well as skin-absorbed. FDA only approves cosmetic ingredients for use on the skin, not by inhalation so airbrush makeups clearly are a misused product under FDA rules. Yet FDA does not speak out against them except in the case of tanning spray booth color additives (*ACTS FACTS*, 12/03).

RECOMMENDATIONS. Cosmetics users and theatrical workers should pressure FDA to take nanoparticle-containing products off the market until they are fully tested. Never use airbrush makeups.

Artists who use dusty materials such as pastels, chalks, pigments, and ceramic chemicals or glazes, should ask manufacturers for particle size data. The art materials manufacturers should already have this data because the large companies from which they buy their pigments, binders, or ceramic chemicals already provide it. The data is usually in the form of a graph which represents the percentage of particles in various sizes from small to large. For products which are mixtures of ingredients such as pastels, charts on the individual pigments and the vehicles can be made available.

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HIGH SCHOOL STUDENT TEACHES US ABOUT PAINTS

SOURCE: *JCT*, June 2004 p. 17

The best way to find out what manufacturers actually put in their paints is to subscribe (as ACTS does) to the technical journals of the paint industry itself. In the June issue of the *Journal of Coatings Technology* there was a short item which provided good basic information. And it was written by a high school student.

Laura Matthews, was one of 50 Philadelphia high school students invited along with their chemistry teachers to participate in a "scavenger hunt" at the 2003 International Coatings Expo. The hunt's purpose was to visit the exhibits of raw material suppliers and equipment manufacturers to learn how to make a batch of paint. Each novice was invited to write an essay on their findings. Here is a part of Laura Matthews' winning essay.

> *In order to create a paint of any kind, you need to start with several ingredients. There are typical standard ingredients used in all paint types: Pigment, water, propylene glycol, potassium tripolyphosphate, also known as KTPP, leveling agent, rheology modifier, wetting agent, surfactant, defoamer, mildewcide, dispersing agent, fibers, film formers, etc.*
>
> *A great example is a latex stain. In order to start creating this stain, you premix these materials and chemicals: Water (solvent) 40%; KTPP ... (thickener/binder) 5%; propylene glycol (binder) 25%; DA27NA (leveling agent) 5%; BYK-022 (rheology modifier) 5%; Stodex PX-90 (wetting agent) 5%; Dowanol DPnB (surfactant) 5%; Texanol (defoamer) 5%; and Trysan Polyphase AF-21 (dispersing agent) 2%. The next part is the pigment grind, which consists of: Tronox CR-828 (pigment) 35%; Atomite (pigment) 35%; No. 417 W/Zinc Oxide (pigment) 10%; and Stainban 209 (pigment) 20%.*

Laura was wise to choose a stain to write about. There are even more ingredients in paints. But keep this little essay in mind the next time you read the label or the material safety data sheet for a latex stain or paint and see the usual 3 to 5 ingredients listed.

Even if the manufacturer did tell you all the ingredients by their trade names as Laura did, you still don't know what's in the paint! The chemical compositions of many of these are trade secrets.

BIOCIDES. The most toxic of the unlisted paint chemicals are the biocides--the mildewcides, fungicides, pesticides, and bactericides. These keep microorganisms from degrading the paint. There are at least two types in almost all paints:

1) **Biocides to protect wet paint in the can from degrading.** These usually evaporate as the paint dries and can be inhaled.
2) **Biocides which remain in the paint after it has dried to protect painted surfaces from degrading.** These biocides usually can only be inhaled when dry paint films are sanded or when wet paints are sprayed.

OTHER INGREDIENTS. In addition to biocides, paints may include many of the following:

adhesion promoters
antioxidants
anti-sag & settling agents
anti-skinning agents
anti-static agents
defoamers
dispersants
driers (to speed drying time)
emulsifiers
flame retardants
flatting agents
flow modifiers
freeze-thaw stabilizers
light stabilizers
mar and slip aids
moisture scavengers
pH (acidity) control agents
plasticizers
rheology modifiers
rust inhibitors
surfactants (detergents)
UV (sunlight) absorbers
wetting agents

The identity of most of these chemicals are trade secrets. Those that are known often have names as long as your arm. Most have never been tested for their chronic effects on people. Some are expected to be toxic based on their chemical class. Yet these chemicals are usually not listed on the MSDS and most paints are labeled "nontoxic" under the crazy labeling system in this country.

ADVICE. The next time someone tells you that you can't possibly be harmed or have symptoms from exposure to paints that are "water-based" and "nontoxic," tell them that even high school students know better than this!

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NIOSH CREATES NANOTECHNOLOGY WEB SITE

BNA-OSHR, 34(23), 6/3/04, pp. 573-574

The National Institute for Occupational Safety and Health (NOSH) has created a website on nanotechnology. The site describes occupational health concerns that have been raised about the use of nanotechnology. "Workers within nanotechnology-related industries have the potential to be exposed to uniquely engineered materials with novel sizes, shapes and physical and chemical properties, at levels far exceeding ambient concentrations," NIOSH's site said.

The site describes research NIOSH has already conducted and research it will be funding in the future. It provides links to other agencies and research institutions where additional information can be found. NIOSH's information can be found at http://www.cdc.gov/niosh/topics/nanotech/ on the World Wide Web.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Nina Yahr, Diana Bryan, Sharon Campbell, Robert Pearl, Brian Lee; Staff: John Fairlie, OES.

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181 THOMPSON ST., # 23, NEW YORK, NY 10012-2586 PHONE 212/777-0062

October 2004 Vol. 18, No. 10

ARE HAZARDS IN CERAMIC STUDIOS A MYTH?

Editorial

In a book called *Safety in the Ceramics Studio*, published in 2002, author Jeff Zamek says that hazards in pottery such as metal poisoning and silicosis are essentially a myth. As proof he cites the lack of statistics and studies showing that potters are getting sick and injured. This editorial will address this premise.

OSHA DATA. First, there are no statistics on occupational illnesses in ceramic businesses, potteries, art schools and universities because the Occupational Safety and Health Administration does not compile them. In addition, these businesses and schools are notoriously secretive about their illness and accident records.

SELF-EMPLOYED ARTISTS. There is no collection of data on self-employed artists either. Even artists' deaths from toxic exposures usually are not studied. For example, I personally know three artists[1] who died from mesothelioma--a disease caused almost exclusively by asbestos exposure. Not one of these deaths were reported in the literature. How many more could there be?

Most relevant to this discussion was the death of Audrey Eichelmann on August 14, 1981 at age 54. She was a doctor's wife who never smoked and never worked outside the home. Her only known contact with asbestos was the talc-containing porcelain used in her doll-making hobby that blossomed into a small business.

POTTERS HEALTH & SAFETY QUESTIONNAIRE. As ultimate proof that there is no hazard, Jeff Zamek calls his readers' attention to a health and safety survey of potters sponsored by the National Council on Education in the Ceramic Arts (NCECA). From 1999 through 2001, NCECA distributed a questionnaire to potters.

The summary of the data from this survey is in Zamek's book, but the truth in surveys always lies in the raw data. Zamek's book refers readers to the appendix of the study for this data. However, Zamek is withholding the appendix from me and apparently from anyone else who wants it.[2] The only way I can present the data is to provide selected portions of Zamek's testimony in a recent trial in which a potter unsuccessfully sued a ceramic supplier for alleged neurological damage from exposure to cobalt and manganese.[3]

At trial, Zamek offered the NCECA survey filled out by 316 potters as proof that potters don't get metal poisoning.[4] Zamek also testified that there probably are between 80,000 and 110,000 people in the United States making pottery. Then, in cross examination, he was asked about the 316 questionnaires:

Q. (lawyer): How many was it [the questionnaire] distributed to?

A. (witness): Twelve hundred

Q. Twelve hundred people. So, out of 110,000 or 80,000 people 316 answered the survey? ...

A. That's correct.

Next the lawyer asks about Question 15 on the survey which asks "Do you know of anybody who has an injury or illness?" According to the survey 51.6% said "No" and 48.5% said "yes." The questionnaire asked what illness or injury they were referring to and these answers were in the survey's appendix. The appendix was introduced as evidence and the lawyer proceeds:

Q. ...can you see down here at the bottom where it says, "Carpal Tunnel, magnesium or manganese poison."?

A. Correct.

Q. Did you see that? So, somebody said one of the serious illnesses that they had was carpal tunnel syndrome and manganese poison, correct?

A. Correct.

Q. And that was just one person, right?

A. That's correct.

Q. But then right underneath it there's another one--carpal tunnel, respiratory, metal poison. Did you see that?

A. Correct.

Q. So, now we've got two people who have indicated either manganese or metal poison, correct?

A. That's Correct.

....

Q. Did you see over here on the next page manganese poison, manganese poison, heavy metals? Did you see those three people? Three more people out of the 316 on your survey....

....

A. Right, That's correct.

Q. Oh, you also said earlier, I think, that potters aren't getting silicosis, is that right?

A. That's correct.

Q. Did you see down here that one of them did? I'm sorry, four of them reported silicosis?

A. That's correct.

Q. Oh, by the way back up here did you see these folks with lead poisoning -- lead poisoning? Did you see those folks there?

A. That's correct.

Q. ... At least, with regards to your survey, there were indeed people who responded that they had metal poisoning, manganese poisoning, lead poisoning, silicosis, is that correct?

A. They responded that way.

....
Q. All right, Now, we found ... eight people complained of heavy metal poisoning?

Next the lawyer uses the lower figure of 80,000 potters, divides it by the 316 people who answered the questionnaire. The result is roughly 253 and he continues.

Q. So, if you extrapolate that information from your survey, which you claim is statistically valid, and do it over and over and over until you get to 80,000 then that means you would do it 253 times, right?

A. Correct.

Q. And if you got the same results, because your survey is in fact statistically valid, then you could extrapolate the number of people who claim to have been poisoned by heavy metals -- manganese, magnesium, lead and those types of things. Multiplied eight times 253....That's 2,024 people, correct?

A. The math is correct.

Next the lawyer asks if the witness had followed up any of these people's claims by calling or writing them. Zamek had not done so. Clearly, Zamek who claims the survey shows there are no hazards, ignored evidence that could contradict his opinion.

SILICOSIS. In addition to the eight people that reported metal poisoning, there were four that reported silicosis on the NCECA survey. And 4 x 253 = 1,012 potential reports of silicosis.

None of the people surveyed were asked to provide medical data so we only have these peoples' opinions. And that's the fault of the questionnaire. To provide valid data, questionnaires should be written and evaluated by epidemiologists, not potters. But the raw numbers here indicate follow up is needed.

CONCLUSION. Ceramic industry spokespersons like Jeff Zamek are ignoring a common sense rule in occupational health: never assume an absence of statistics proves an absence of chronic illness in a population. In other words, the fact that there are no statistics on potters simply means that potters have not been studied!

-----FOOTNOTES----------

1. The three people I knew who died of mesothelioma were Audrey Eichelmann (see above), painter Carolyn Ellingson who died on April 26, 2002 at age 65 (see *ACTS FACTS*, 8/02), and scenic artists Ron Bellizzi who died September 10, 2002 at age 62.

2. Zamek's book says that "The complete questionnaire, including appendix, is available through NCECA..," but this is not true. I called NCECA's current Executive Director, Nancy Steinfurth. She had not heard of the survey. Apparently the only copy of the survey and its appendix is held by Zamek. Nancy Steinfurth wrote back to me that: "Mr. Zamek was unable to send the statistical data because he plans on using it in his next book." It is not proper scientific protocol to withhold such data.

3. *Leslie M. Bowers & Sarah Bowers v. Minnesota Clay Company*, Circuit Court of Adair County, Second Judicial Circuit, State of Missouri. The potter lost his suit, but I plan to write about this case in detail. I have approval from the Bowers' lawyer to interview the jurors and medical experts.

4. Testimony of Jeff Zamek from the jury trial held on August 15, 2003. The questioner is Sly James, attorney for the plaintiff. Jeff Zamek and I were both expert witnesses in this trial.

==========

ACTS' HOTLINE RESPONDS

It was 7:21 am on Saturday when the phone rang. I was barely awake, but I know that most people are considerate enough not to call on off hours unless it is important, so I listened carefully.

The woman on the line asked what chemicals are in silicon caulks that are used to seal new fixtures and tubs in bathrooms. I explained that most are of two types: one is quite safe releasing small amounts of acetic acid (similar to vinegar); and the other releases a nasty chemical called methyl ethyl ketoxime. She asked me to spell the name of this chemical.

Her next question was how to find out from the workmen which type of product had been used in their bathroom. I told her to ask the workmen for a material safety data sheet on the product, but to be aware she may have to pressure them to get a copy. And if she gets an MSDS, I said I would be glad to help her interpret it.

She then asked if methyl ethyl ketoxime could affect a pregnancy. I explained that this chemical is not fully evaluated for its effects on the fetus, but that many solvents in general are thought to have adverse effects at high levels. The woman began to cry.

She said she had tried for 7 years to become pregnant and that last Friday at the doctor's office all was going well. She heard the baby's heart beat. This Friday, however, the heart beat was gone and she was miscarrying. Just before this happened, she had been aware of the unpleasant odor of the caulk and feeling sick. My heart broke for her. But there is no way to know if this chemical was in the product used in her home or if the concentration in the air could have been high enough to have any effect at all.

OUR POLICY. Pregnancy inquiries are among the most difficult ones we answer. The March of Dimes and the Pregnancy Environmental Hotlines refer inquiries to ACTS and it is our policy to recommend safe alternatives for toxic products whenever possible. Toxic chemicals certainly aren't good for the baby. And if anything goes wrong, it is difficult for the mother to find closure. She may always wonder if the chemical could have harmed her baby.

It is also our policy to answer truly important inquiries like this one even during non-business hours whenever we are able.

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ACTS FACTS sources: the *Federal Register* (*FR*), the *Bureau of National Affairs Occupational Safety & Health Reporter* (*BNA-OSHR*), the *Mortality and Morbidity Weekly Report* (*MMWR*), and many technical, health, art, and theater publications. Call for information about sources.
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November 2004 Vol. 18, No. 11

PYROTECHNIC SMOKE "ALLEGEDLY" KILLS RODEO SPECTATOR

Editorial

On October 7, 2001, Robbie Curry and her stepsister, Anita Merrick, went to a Rodeo in Tulsa, OK, at the Tulsa Expo Square Pavilion. Robbie Curry was an asthmatic. She never smoked. She developed asthma as an adult. She was hospitalized twice for attacks that seemed to be brought on or exacerbated by respiratory infections. However, the disease did not keep her from living a normal life on a farm with her husband and their two daughters.

On the afternoon of October 7, Robbie and Anita entered the arena and found their seats in the balcony. After some announcements and promotional material, the lights when out, there was an unexpected loud bang and the fireworks began. Neither Robbie nor her sister had known there would be pyrotechnics at the event. As various competing bull riders were introduced, pyro fountains were set off highlighting their walk to the center of the arena.

Billows of smoke were created by the effects, but according to Anita[1], the smoke went up the center of the arena to the ceiling and was not present in the air around their seats. Then some time after the effects were over, it suddenly got smoky in their area. Robbie Curry said she'd have to leave and she used her inhaler.

Outside the arena, Robbie used her inhaler again and Anita asked the Pavilion security guards for oxygen. After a few minutes, Anita asked for the paramedics instead. The ambulance arrived promptly and Robbie was taken to the hospital. She was conscious when the ambulance left, but within a couple of hours after admittance to the hospital, she died of a massive asthma attack.

THE LAWSUIT. Robbie was 41 years old when she died. She left a husband and two daughters in their late teens or early twenties. The devastated family contacted Andrew B. Morsman a lawyer with Bonham & Howard in Tulsa. A lawsuit was filed. The defendants included the Tulsa State Fair and the Tulsa County Public Facilities Authority; and Western Enterprises, Inc., the pyrotechnic company. Some of the issues in this case included the efficacy of the arena's ventilation system, professional standards for use of the effects indoors, and warnings before pyrotechnics are used. I was one of the Curry's expert witnesses.

VENTILATION. The Pavilion is an indoor arena that seats 5000 to 6000 people. The engineer who renovated the ventilation system was called to testify and asked about the system. The system apparently met all the local codes for ventilation, but whether this was sufficient for control of pyrotechnic smoke was debated.

I testified that the type of system in the arena was consistent with the sudden appearance of smoke in the seats where Robbie and Anita were sitting. The smoke rose to the center of the arena near the ceiling where the intake vents were located. The vents sucked in the smoke, drew it through the ducts, and released it from the diffusers that were just above the seats where the two women sat.

STANDARDS. Also at issue was the National Fire Protection Association standard, NFPA 1126, *Standard for the Use of Pyrotechnics before a Proximate Audience*. Western Enterprises claimed they complied with this standard. However, NFPA 1126 only prohibits smoke in amounts so thick that it obscures exit signs! I testified that, although there were small violations of this standard by Western Enterprises, the real problem is that NFPA 1126 is a safety standard only, and is silent on the health effects of the smoke.

WARNINGS. NFPA 1126 also does not require audience notification. It only requires advising "all performers and support personnel that they are exposed to a potentially hazardous situation when performing or otherwise carrying out their responsibilities...." Local Oklahoma laws do not require warnings either, although some other state laws require notification.[3] Yet common sense dictates that audiences usually include asthmatics, children, the elderly, and others who should be warned about when smoke will be present.

OUTCOME. Before trial, the Tulsa County Public Facilities Authority settled for $100,000, leaving only Western Enterprises as a defendant. The matter went to trial in May of 2001. The jury awarded the Curries $1,739,000 reduced by 35% for contributory negligence or $608,650. Western Enterprises then filed a motion for a new trial which was summarily denied. Rather than fight a possible appeal to the Oklahoma Supreme Court, the family settled for an undisclosed amount. The gag order on this settlement means that, despite the jury verdict, the word "alleged" must be applied to the facts of this case now.

EPILOG: At this year's Tulsa State Fair Rodeo at the Expo Square Pavilion there was a sign in the lobby stating, "If you have respiratory problems, please be aware that pyrotechnics with ensuing smoke will be used in the performance." ACTS thinks the Curry family paid far too high price for this sign.

ACTS thinks notification of audiences prior to pyro displays should be standard practice and that NFPA 1126 must either be revised to address the hazards of the smoke or the standard should be rewritten to make it clear that the hazards of the smoke are not covered by this standard.

FOOTNOTES

1. Deposition of Anita Merrick, 3/8/2004, p. 63

2. John Curry individually and as Personal Representative of the Estate of Robbie Curry, et. al., v. Board of County Commissioners of Tulsa County d/b/a Tulsa State Fair and the Tulsa County Public Facilities Authority; Processional Bull Riders, Inc., and Western Enterprises, Inc., District Court of Tulsa County, State of OK.

3. E.g., Texas law, Subchapter F, Chapter 2154.253(1)(b)(2) says "before flame effects or pyrotechnics are used inside a building, an announcement to the assembly must be made...."

==========

TWO WAYS TO FIT TEST

69 *FR* 46986-94, Aug 4, 2004

The Occupational Safety and Health Administration (OSHA) has approved another fit testing protocol for tight-fitting air-purifying respirators. The protocol uses the same test equipment as the older method, but includes only three test exercises followed by two redonnings (taking off & putting back on) of the respirator. The older approved method included eight test exercises and one respirator redonning. The procedures for administering the new test is described as follows in the rule:

* *Facing forward. In a normal standing position, without talking, the test subject must breathe normally for 30 seconds; then, while facing forward, he or she must hold his or her breath for 10 seconds for the test measurement.*

* *Bending over. The test subject ... must bend at the waist for 30 seconds as if he or she is going to touch his or her toes; then, while facing parallel to the floor, he or she must hold his or her breath for 10 seconds for the test measurement.*

* *Head Shaking. The test subject must shake his or her head back and forth vigorously several times while shouting for approximately three seconds; then, while facing forward, he or she must hold his or her breath for 10 seconds for test measurement.*

* *First redonning (REDON-1). The test subject must remove the respirator, loosen all facepiece straps, and then redon the respirator mask; after redonning the mask, he or she must face forward and hold his or her breath for 10 seconds for test measurement.*

* *Second Redonning (REDON-2).* (Same procedure as REDON-1.)

OLD EXERCISES. In the older method, the test subjects unfamiliar with the respirator are directed to don the mask several times and adjust the straps each time to become adept at getting proper tension on the straps. The test exercises involved 1) normal breathing in a standing position; 2) deep breathing in a normal position; 3) turning the head side to side; 4) moving the head up and down; 5) talking loud enough to be heard by the operator (reading, counting backwards from 100, or reciting a memorized poem or song); 6) Grimacing by smiling or frowning; 7) Bending over (or if the test chamber will not allow for bending over, the subject can jog in place); 8) Normal breathing test done again.

Both the old and the new protocol are now accepted and either can be used for fit testing with the isoamyl acetate fit test, the saccharin solution aerosol protocol, the Bitrex® method, and the irritant smoke test (now restricted in use).

COMMENT. If you are wearing a respirator on the job, your employer is in violation of the OSHA regulations if he/she does not have a written respirator program that you can see at will, has not had you medically certified by a health professional for respirator wear, has not had you fit tested with one of these protocols administered by a person trained in the procedure, and you have not been trained in the use of the equipment. And remember that none of the fit test methods can be used on workers with beards.

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NEEDED: ONE COURAGEOUS LAWYER IN ILLINOIS

A young man in Illinois would like to sue the school from which he just received his art degree. He has done some reading and now knows that the school did not prepare him to either make art or teach art safely or legally. Instead, he graduated completely unfamiliar with the laws that govern the work, had never even seen art practiced safely, and he was only are prepared to set up dangerous and illegal studios and classrooms patterned after the unequipped and unventilated classrooms he saw in the school.

This young man feels he has been defrauded and asserts that his training and education was defective. He thinks he should get his money back!

ACTS sympathizes and thinks that this suit could be joined by many other graduates as well. We would be interested in discussing this situation with lawyers in the Chicago area.

==========

IF YOUR E-MAIL IS NOT ANSWERED.....

ACTS tries to answer every e-mail within a day or two. If you do not get a prompt answer, consider that your message may have been deleted. This will happen if your address contains a "suspect" word, is from an unknown sender, if there is no subject or the subject is not relevant to our concerns, or if an attachment must be opened to see the message. And sometimes, there is just no explanation why e-mails go astray.

If we do not get right back to you, Please try again. Every inquiry is important to us.

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December 2004 Vol. 18, No. 12

BABIES BORN TO MOMS WHO WORK WITH SOLVENTS STUDIED

Sources: "Child Neurodevelopmental Outcome and Maternal Occupational Exposure to Solvents," *Archives of Pediatric & Adolescent Medicine/* Vol. 158, Oct 2004, pp 956-961; *The Toronto Star,* 10/5/04, p. A2 & *The Canadian Press,* 10/5/04, http://www.cp.org/.

A new study of children of women exposed to solvents on the job during pregnancy shows these children have poorer language, memory and attention skills, more hyperactivity, and are more impulsive than children born to women who did not use solvents.

HISTORY. It has long been known that one solvent, alcohol, is associated with birth defects and developmental problems in children exposed to drinking mothers. Fetal damage can also occur when alcohol is inhaled either from alcohol-containing products that are abused (sniffing) or from using alcohol-containing products such as paints, shellacs, lacquer thinners and inks.

Many other solvents such as petroleum distillates, toluene, and acetone are also present in common products. It was assumed that adverse effects could be caused by much smaller amounts of these solvents because they are more toxic than alcohol. This assumption was borne out by animal studies which showed birth defects and delayed development in offspring of rodents exposed to solvents. The same effects were seen in infants delivered to mothers who abused solvents during pregnancy. However, not much was known about lower levels of solvent exposure on the job.

THE 1999 STUDY. The first study showing a connection between on-the-job solvent exposures and birth defects was published in the *Journal of the American Medical Association* (March, 1999, see *ACTS FACTS*, 5/99). The study followed the offspring of Canadian women employed as factory workers, laboratory technicians, artists or graphic designers, printing industry workers, chemists, painters, office workers, car cleaners, veterinary technicians, funeral home employees, carpenters and social workers. The study found that "women exposed occupationally to organic solvents had a 13-fold risk of major malformations as well as increased risk for miscarriages in previous pregnancies."

THE NEW STUDY. A second Canadian study was published in the *Archives of Pediatrics and Adolescent Medicine* in October, 2004. This study, directed by Dr. Gideon Koren, founder of the Motherisk centre at the Hospital for Sick Children in Toronto, compared the children of women exposed to solvents on the job with children of women who did not work with solvents. The children of the solvent-exposed mothers were found to have poorer language, memory and attention skills, and were more hyperactive and impulsive.

THE SUBJECTS. Dr. Koren looked at 32 women exposed to organic solvents at work for at least eight weeks in their first trimester of pregnancy. The women's various occupations included graphic designers, a hair stylist, museum conservators, photo lab workers, and factory workers. These women were matched to a control group of women who were not exposed to solvents and were of the same ages, IQs, incomes, and life styles. All of the women in both groups had mainstream jobs and were of the same socioeconomic status. None were exposed to lead, mercury, alcohol, legal or illegal drugs, or did heavy lifting.

EXPOSURE. The womens' jobs did not involve excessive exposures. They were exposed to a total of 24 different common solvents or combinations of these solvents for periods of time ranging between 1 hour and 40 hours per week. All the women worked with solvents throughout their first trimester and some as long as 40 weeks. The average exposure of the women was for 28 weeks. Some of the women reported wearing respiratory protection and other protective gear.

THE EFFECTS. The children did not differ in birth weight or the age at which they reached developmental milestones. However, the children of women exposed to solvents, who ranged in age from 3 to 9 years old, had lower scores on a variety of language, memory and dexterity tests than did the children in the control group. The exposed children also had lower behavioral and motor functioning scores and more attention and hyperactivity problems.

Although the children's IQs were not significantly lower, Koren points out that "A kid can be very smart, but if hyperactive he will not do very well."

All the children were perceived by their mothers as doing well, but "still, when we compare them meticulously to a control group, there were changes that were quite clear and that could not be ignored...," Koren said. "These tendencies are at times more challenging to a child, and clearly, we think women should try to minimize their exposures."

COMMENT. It is possible that the increases in hyperactivity and attention problems seen in children today may be related to solvent-exposure. I have answered inquiries from pregnant women for more than 20 years and am convinced that many of them are exposed to significant amounts of solvents in beauty and hygiene products, paints and home improvement products, cleaners, and hobby and professional art materials. Researchers would be wise to fully investigate solvent exposure from common products used both at work and at home rather than assuming more esoteric environmental exposures are at fault.

Readers should note that some of the jobs held by the women in this study were related to art and theater work such as graphic design, photography, conservation, and hair styling. Although this is a small study and very preliminary, it should be followed up. In the meantime, ACTS councils avoidance of all solvents including alcohol during pregnancy whenever possible.

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YOU KNOW YOUR OSHA INSPECTION IS GOING BADLY WHEN.....

BNA-OSHR, 34(43), 10/28/04, p. 1079

The California OSHA (CalOSHA) visited a furniture plant called Corona Millworks after a worker amputated part of a his hand on February 6, 2004. The accident occurred while the worker was feeding wood into a shaper used to make cabinet doors. The cutting heads were not guarded, according to CalOSHA.

In the course of investigating this accident, CalOSHA found out a supervisor had lost a portion of his thumb on the same shaper less than 3 months earlier. The employer failed to report the incident.

Two months later while the case was still being investigated, a worker using the same shaper had portions of 4 fingers amputated.

Corona Millworks was cited for unguarded machinery, lack of training on the shaper, listing an amputation as a laceration on the injury and illness log, willfully failing to report an accident, not covering electrical panels, having motors on a drill press and band saw that restarted automatically (putting peoples hands at risk), inadequate explosion venting on a dust collection system, having exhaust hoods on a woodworking machine that were made of cardboard, and much more!

CalOSHA proposed $158,050 in penalties for the original violations and another $53,550 for alleged hazards uncovered during the investigation. In the report, CalOSHA noted that the employer had previously been cited for not reporting an accident in 1999!

==========

TWO STUDIES SHOW MEDICAL INTERNS MAKE MORE MISTAKES WHEN THEY ARE TIRED - DUH!

BNA-OSHR, 34(44), 11/4/04, p. 1101

Two research studies conducted at Brigham and Woman's Hospital in Boston demonstrate that extended work hours and sleep deprivation increases the number of serious medical errors made by interns, while limiting continuous work schedules decreases the rate of errors. The studies were funded by the National Institute of Occupational Safety and Health and the Agency for Healthcare Research and were published in the October 28 issue of the *New England Journal of Medicine*. The studies found:

* Interns made 35.9 percent more serious medical errors while working on the traditional schedule (88 hours with shifts of up to 30 hours) than during a schedule involving only 80 hours per week and shorter days.

* The total rate of serious errors on the critical care units was 22 percent higher during the traditional schedule.

* Interns made 20.8 percent more serious medication errors during the traditional schedule.

* Interns also made 5.6 times more serious diagnostic errors during the traditional schedule.

COMMENT. Common sense, not studies, should have ended this short-sighted and dangerous intern-hazing tradition long ago.

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