

# ACTS FACTS

THE MONTHLY NEWSLETTER FROM  
**ARTS, CRAFTS AND THEATER SAFETY (ACTS)**

181 THOMPSON ST., # 23,

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## ACTS wishes you a healthy, happy 2011

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### 25<sup>TH</sup> YEAR OF ACT FACTS STARTS NOW!

*ACTS FACTS* is beginning its 25<sup>th</sup> year. And I have a confession to make. While I certainly think of you, the readers, when picking the stories and covering issues, in the end, I write and collect articles that fascinate me. This job is fun. I sincerely hope to do it for another 25 years. Impossible you say? My mother lived to age 98, so don't be too sure. And as I've explained before: I'm going to work until I'm dead, and then I'll come in half-days. Thank you all for making this possible.

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### REPEAL THE LABELING OF HAZARDOUS ART MATERIALS ACT?

Editorial & a section from *Pick Your Poison*, Wiley & Sons, to be released February

This is the hardest editorial I will ever write. To understand why, you need to know that in the 1970s and 1980s, I was one of many activists who fought for passage of the Labeling of Hazardous Art Materials Act (LHAMA). The realization that it now should be repealed came slowly and painfully.

Thirty years ago, we thought we were doing a good thing. At that time, art materials containing known carcinogens and other chronically toxic substances could be legally labeled "nontoxic." This was not against the law because the labeling regulations enforced by the Consumer Product Safety Commission (CPSC) only considered acute hazards, that is immediate health effects. The tests to determine whether labeling was required were two-week long tests by skin contact, eye contact, inhalation and ingestion called Lethal Dose or Lethal Concentration tests (LD50 and LC50). Substances like asbestos and silica, for example, don't cause cancer in test animals in two weeks.

As a result, there were obviously hazardous art products on the market even for children. One such product was Milton Bradley powdered papier mache mix called FibroClay. It contained about 50% chrysotile asbestos powder. It carried the Approved Product (AP) seal of the Crayon, Water Color & Craft Materials Institute, now known as the Arts & Creative Materials Institute (ACMI). A package of FibroClay was one of many products that activists like myself used to graphically demonstrate the faulty labeling laws in public meetings and teach-ins all over the United States.

The CPSC and the National Art Materials Trade Association refused to address this problem. Our strategy was to lobby first for labeling bills at the state level. After seven states passed bills, each one requiring slightly different labels, the industry happily supported a unifying federal bill. The Labeling of Hazards Art Materials Act (LHAMA) was passed in 1988 and in effect about 1990.

LHAMA references an American Society of Testing and Materials (ASTM) standard (D 4236) that first requires all art material manufacturers to provide a complete list of their ingredients to a toxicologist for evaluation. The list is compiled by the manufacturers who order their raw materials from companies that may not provide complete ingredient data. Often manufacturers are not chemists and can make mistakes about the identity of the chemicals they use. And under ASTM D 4236, the toxicologist is under no obligation to determine if the list is accurate or even complete.

Next, based on this possibly faulty list, the toxicologist assesses risk. If, in the toxicologist's *opinion*, there are ingredients in the product that can present a chronic hazard to users, the toxicologist selects warning phrases for the label that, in the *opinion* of the toxicologist, will enable users to safely use the product. If these warnings are used, the toxicologist certifies that the manufacturer has complied and the label can state that it "conforms" to ASTM D 4236, LHAMA, or the Federal Hazardous Substances Act. All art materials sold legally in the US must carry a conformance statement.

Unfortunately, when we fought for this regulation, we didn't consider that the toxicologists are paid for these product evaluations and their *opinions* by the manufacturers either directly or through organizations such as ACMI. This is a GIGANTIC built-in conflict of interest. The law provides no oversight or requirement that the toxicologist be independent of such conflicts of interest.

In essence, the art materials manufacturer is the client of the toxicologist. And the more satisfied clients the toxicologist has, the greater his/her income from certification. Since certification is a commercial venture for both the toxicologists and the art materials manufacturers, sales are of concern for both. In my opinion, some toxicologists use the following sales promotion strategies.

**1. Provide misleading non-toxic labels.** The "nontoxic" label, misapplied to many products before LHAMA passed, promoted sales and was still required by some schools as a condition of purchase. It was to the advantage of both toxicologists and manufacturers to continue use of the nontoxic label.

There is a flaw in LHAMA that allows this use. While the law requires warnings on known chronically hazardous products, the law is silent about ingredients whose hazards are unknown. Most of the organic pigments used as major ingredients in many art materials have never been tested for chronic hazards. Since there is no data that proves they are toxic, many toxicologists feel free to label them "nontoxic!" As a result, the nontoxic label was, and is still, applied even to products containing untested pigments in chemical classes that are suspected to cause cancer on the basis of tests of other members of their class such as the anthraquinone and aniline pigments. These "nontoxic" pigments probably will cause cancer if tested. Even worse, the nontoxic label gives consumers the impression that the ingredients in the product were tested and found to be safe. This is untrue.

**2. Tests are used to make toxic products look safe.** Some toxicologists label products containing known toxic ingredients without warnings or even "nontoxic" if they can support the *opinion* that the user will not be exposed. They can rely on a test to show that the toxicant stays in the product.

One test (ASTM D 5517) places materials in contact with acid to determine if toxic metals would be released in the stomach. This test does not consider the complex sequence of interactions in the digestive tract of acid, water, bases, enzymes, cellular activity, heat, movement, and more. The test was proven faulty when it was used to label lead-containing ceramic glazes nontoxic. After years of lawsuits, poisonings, and two deaths from "nontoxic" glazes, the practice ceased. But acid tests are still used to evaluate other art products. And there are other faulty tests.

**3. Tests are used that do not consider all methods of use.** Art products also can be labeled as safe or nontoxic if consumers use the product in ways that do not release toxic substances in amounts

that, in the toxicologists *opinion*, are not significant. But the tests they devise to prove this often do not consider the artist's intimate exposure to their materials, crowded classrooms, tiny home studios, poor ventilation, lack of sinks, and other conditions common to home studios and schools. And rarely do they test the daily exposure from accumulated dusts and particles on floors curtains, counters, and smocks after products have been used in studios for months or years.

For example, one toxicologist devised a test for exposure to pastel dust in which air samples were taken while test subjects drew on paper laid out on a table. Yet artists commonly draw on easels, smooth colors with their fingers, and blow pastel dust off the paper which creates higher dust exposures. And exposure to accumulated studio pastel dusts were not considered.

For another example, toxic substances embedded in wax as in encaustics or crayons are often deemed safe. But if encaustics are fused by heating or using torches, wax can be dissociated into toxic airborne emissions and toxic pigments can fume into the air. And asbestos-contaminated industrial talcs were used to harden the wax in children's crayons based on this theory.

**4. Failing to consider use of materials other than directed.** Artists and teachers traditionally use materials "creatively" and in ways not directed in product literature. Melting and burning crayons made into candles, using crayons for batik resist, or other heating processes cause these "nontoxic" products to release toxic fumes. They throw paint at canvases, paint with their fingers, and mix all manner of substances into their materials for textures or effects.

The creativity of the artist cannot be predicted or regulated. No toxicologist can imagine all the ways artists may devise to use their materials. The best label, then, is one that provides the identity of the ingredients so artists, specialists, or consultants can do their own risk assessments on unique uses.

**5. Using LHAMA to circumvent OSHA safety laws.** In schools, art materials come under the regulations of the Occupational Safety and Health Administration Hazard (OSHA) because they are being used by employed teachers. The OSHA Hazard Communication Standard requires schools to train teachers about any potential hazards in the class room. The primary source for this hazard information are the material safety data sheets (MSDSs) which manufacturers must provide.

OSHA requires MSDSs to reveal the presence of any potentially toxic ingredient that is present in amounts of 1% by weight or more and carcinogens at 0.1% or more by weight unless it is clearly stated that the ingredients are trade secrets. However, most of the art material MSDSs simply refer to ASTM D4236 instead. So teachers are unable to obtain the OSHA-required information.

**LHAMA and Proposition 65.** Proof that toxic substances were still in "nontoxic" art materials was provided when LHAMA regulations came into conflict with a California law called Proposition 65. While ASTM D 4236 leaves the amounts of toxic substances in art materials to the discretion of the toxicologist, California's Proposition 65 labeling law does not. This law assumes, for example, that if lead or cadmium are in a product, even in small amounts, users and parents should know. Several art material companies were sued under Proposition 65 for failing to reveal the presence of lead. Now such products must be labeled with Prop 65 warnings that begin: "This product contains a substance known to the State of California to cause....."

**LHAMA is poorly enforced.** Another reason to repeal LHAMA is it isn't being enforced. In 1995, I accompanied a cameraman and a reporter from Channel 9 in New York to a major art materials outlet. That night on the evening news, we showed viewers about a dozen imported products that

did not conform to the law. This is still true to day. A little label-reading at a major art material outlet or surfing for Internet art products will provide evidence that LHAMA is not being well-enforced.

**Proposed action:** For all the reasons above, ACTS thinks the law actually works against the interests of artists and parents. ACTS proposes the following remedies.

**1. Repeal LHAMA.** In addition to eliminating a bad law, repeal will immediately reduce operating expenses of art material manufacturers and startup costs for new art companies. Certification is costly. Repeal also eliminates the financial advantage that illegal non-certifying manufacturers currently have over those who comply with the law. The enforcement budget for the CPSC would also be reduced, but this effect would be small since they don't spend much on LHAMA.

**2. Define the term “nontoxic” and limit its use to products whose ingredients have been proven to be nontoxic in both acute and chronic tests.** This is not going to happen anytime soon since there are hundreds of untested organic pigments. Instead, it is something we need to work toward. In the meantime, consumers need to know that most of the organic pigments, even those in children's materials, are unlikely to have been studied for long term hazards. Manufacturers and toxicologists are not going to publicize this fact. So activist organizations such as ACTS, groups that enforce Proposition 65, unions, teachers, artists and others must do it.

**3. Avoid exposure.** Since so many of the ingredients in art materials are untested and unknown, all art materials should carry warnings to avoid exposure—especially on children's products. Keeping art materials off the skin, out of the respiratory system, and away from the mouth should be recommended for all products. Parents should be reminded that the colors in these products are not FDA batch-approved food dyes. And even if they were, would they really want their children exposed to these FDA dyes in these quantities?

**4. Insist on compliance with OSHA's regulations regarding MSDSs.** References to LHAMA or ASTM D 4236 on these documents is probably not legal anyway since LHAMA's rules conflict with OSHA's. This means potentially toxic substances should be identified on MSDSs at 1% or more and carcinogens at 0.1% or more. These OSHA rules coupled with the new Global Harmonization System of Safety Data Sheets which is being adopted worldwide will make these documents even more reliable sources of toxic ingredients information.

**5. Only exempt adult art materials from lead, cadmium, and other toxic substance bans.** Because art materials need to be archival, that is their colors must last for generations on art objects, adult materials should remain exempt. But presence of toxic substances in adult materials should always be disclosed on labels and MSDSs. Children's products should be free of toxic ingredients. Archival quality is not needed on ceramic pinch bowls or paintings for the refrigerator door.

**6. Place art materials under the CPSC definitions at 16 CFR § 1500.3(b)(15)(i)(A) children's products, and (B) household products, and regulate them like all other consumer products.**

**7. Expand the CPSC definition of chronically toxic at § 1500.3(c)(2)(ii) to include all types of chronic toxicity.** Currently there are only three sections here: (A) carcinogens, (B) neurotoxicological toxicants, and (C) developmental or reproductive toxicants. In 1992, the CPSC promised

to add toxic categories to this section. Hold them to it. As the law currently stands, long-term damage to the liver, kidneys or any other bodily organs are not covered and do not have to be labeled.

**8. Eliminate private approval seals until a government approved standard system is in place.** The various seals present today are confusing and are not necessarily comparable.

**9. Plan future laws using Proposition 65 as a model.** LHAMA was a failed experiment. Today, Proposition 65 provides better labeling. Even more important: Proposition 65 provides a template for future legislation because it costs almost nothing to enforce and many good causes are supported by it. Here's how it works:

Enforcement is carried out through civil lawsuits against Proposition 65 violators who don't properly label products that contain any of the chemicals on the Proposition 65 list of toxic substances. The lawsuits may be brought by the California Attorney General, any district attorney, or certain city attorneys in cities with a population exceeding 750,000. Lawsuits may also be brought by private parties "acting in the public interest", but only after providing notice of the alleged violations to the Attorney General, the appropriate district attorney and city attorney and after they conformed to all the requirements of drafting a legal Proposition 65 Notice of Violation.

A private party may not pursue an enforcement action directly under Proposition 65 if one of the government officials chooses to initiate their own action within sixty days of the notice. Private enforcers must also serve a certificate of merit which provides the qualifications of their experts who generated the reports, analyses or statements that support the violation. This is necessary to prevent frivolous enforcement actions.

This paper work is worth it because the lawsuits can be very lucrative. A business found to be in violation of Proposition 65 is subject to civil penalties of up to \$2,500 per day for each violation.

The chemicals that are regulated by Proposition 65 are in a long list developed and updated regularly by the California State Health Department. The list is made up of chemicals the Health Department has determined are capable of causing cancer, birth defects or developmental damage in children. Anyone can Google this list and see the chemicals for themselves.

Manufacturers, importers, and suppliers of products in the United States damn well better Google the Proposition 65 list and make sure that the mandated warnings are on products that contain them. Yes, I'm aware that this is a California *state* law, but it has almost the same effect as a *federal* law because California is a major market. Manufacturers who make their products available to Californians either comply with Prop 65 or they can be sued big-time in California! This means we may only need to get a better labeling law passed in a few states to make effective changes.

Now let's see how it works. Suppose, you and I live in California and are running a small non-profit green activist organization that is in need of funds. And suppose we have reason to suspect that a certain manufacturer or importer is selling products that contain a chemical that is on the Proposition 65 list without the required label warning. All we have to do for a start is take the product to a certified laboratory and get an analysis of the product to prove we are right.

This is so easy to do today. We can even rent an x-ray fluorescent device (XRF analyzer), train some of our people to use it properly, and just aim the analyzer at products in a store until we find some that flunk for lead, mercury, cadmium, chromium or any other substance we set the gun to quantify.

So we would already be pretty sure when we send the product out for confirmatory laboratory analysis that we are going to get the data we need to file suit.

Our next step is to provide the proper documentation for our legal Proposition 65 Notice of Violation and submit it to the Attorney General in our district. Now we wait sixty days. If the Attorney General's office decides we have a great case and wants to sue the violator themselves, we get a part of the award or settlement after they win. If the Attorney General doesn't file in 60 days, we get to call our staff lawyer and file ourselves. If we win, we get all of the money!

At the federal level, the US Consumer Product Safety Commission watches all these goings-on in California and may belatedly and grudgingly jump into the fray. For example, when lead-containing children's jewelry was being imported in vast amounts from China, the Consumer Product Safety Commission started a national recall of this hazardous stuff. Lost in the newspaper notices and articles about this recall was the fact that California activists were already suing some of these importers under Proposition 65 and had petitioned the CPSC to take these actions.

Remember, Proposition 65 doesn't ban chemicals. And it doesn't require citizens groups suing manufacturers to prove anyone ever got sick or was harmed by the product. Instead, Proposition 65's single issue is failure to properly label the product with warnings. And this violation carries a high penalty, high enough to have created well-qualified roving bands of lawyers and bounty-hunting activists whose income is enhanced by Proposition 65 settlements.

I cannot tell you in mere words how much this law is hated by manufacturers. But the law is fair to manufacturers and importers. They either make sure their products do not contain any of the chemicals on the Prop 65 list, or they must provide warning labels if they do. How hard is that?

The thing that makes Proposition 65 unique is its "citizen's enforcement clause." This clause enables anyone generating the proper paperwork to file suit against a manufacturer or importer. It also means the State of California doesn't need thousands of inspectors purchasing and testing products. The activists and lawyers will do it for them.

Think of any other consumer or safety law that you would dearly like to see enforced properly. For example, suppose we sponsor a law that would make it illegal to label as "nontoxic" any product whose ingredients were never actually tested for chronic toxicity? And imagine that this law had a citizen's enforcement clause. Bingo! And if the country really wants a small federal budget, here's a way to do it. Empower the people, instead of the government.

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausnei, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Daie, Kathy Hulce, Pat F. Sheffield, Staff: John Fairlie, OES.

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### HOME STUDIO ARTIST CLAIMS ILLNESS FROM MATERIALS

“A Final Cocoon: Dying at Home,” Joyce Wadler, *The New York Times*, November 10, 2010

There have been very few formal studies of the effects of art materials on artists’ health. Those limited studies that do exist, suffer from the widely differing life styles, materials, work habits, and studio conditions of the artists. These factors are called “variables,” and if there are too many, the data can be suspect.

As a result, we rely primarily on good studies of industrial workers whose life styles do not involve many variables and who are exposed to one or more of the same toxic chemicals that are in art materials. The theory is a good one: if a particular chemical is known to cause a particular disease in factory workers, it is assumed that artists exposed to the same chemical in the same amounts can expect the same health effects.

In addition, we also look at anecdotal information, that is, cases of individual artists who have developed physical responses or diseases that are consistent with the known effects of the chemicals in their art materials. ACTS FACTS has covered many such cases. And our researchers and readers usually find these for us. Last month, a sharp-eyed ACTS researcher found one in *The New York Times* in an article about the virtues of allowing terminally ill people to expire peacefully at home among family and familiar objects. The article began:

“There is some confusion about the cause of the liver disease that has given Fred Kress a short time to live. The 46-year-old handyman and house painter, who lives outside of Baltimore, had had hepatitis C, which causes liver damage, for several years. Doctors at one point suggested that alcohol abuse may have been a contributing factor, which makes no sense, Mr. Kress and his family say, because he was never much of a drinker. The real culprit, he now believes, was chemical: he didn’t wear the right mask when he was painting houses, and when he did his craft projects, making alien masks out of fiberglass resin, he worked in a small, windowless room, ignoring all the warning labels on the supplies he used.

“It said ‘will’ — not ‘can’ — cause liver and kidney damage,” Mr. Kress said. “My liver was completely fried.”

**COMMENT:** I’m not at all sure the label actually said this, but I am sure that the styrene crosslinking agent in polyester resin products and the acetone and other solvent used to clean up, certainly can cause liver damage, especially when combined with Hepatitis C viral damage. And the fact that his daytime job also involved daily use of paint solvents which are also associated with liver damage makes it even more likely. Mr. Kress is probably, on the whole, correct.

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## **\$91,000 OSHA FINE LEVELED FOR DEATH OF CAMERAMAN**

December 13, 2010 8:52 PM, <http://denver.cbslocal.com/2010/12/13/osha-fine-leveled/> (credit: CBS)

In the November 2010 ACTS FACTS we covered the death of a 20-year-old student at the University of Notre Dame who was photographing a football practice for his school newspaper. He was 30 feet up in a lift during a day with wind gusts up to 50 miles an hour. Had the school properly trained him, he would have been aware that this lift should not be extended in windy weather.

Now it appears that 5 months prior to this death there was another scissors lift accident involving a 57 year-old professional video cameraman that was investigated by OSHA. A \$91,000 fine was levied by OSHA against the production company for the June 25, 2010 death.

Stuart Keene was hired as a freelancer by Lucas Oil Production Studios to help set up for the videotaping of a Thunder Valley Motocross event. Stuart Keene died from his injuries after falling with his camera more than 20 feet from a mobile scissor lift. Investigators determined the guardrail that should have protected him from falling had been removed. The federal OSHA calls it a “willful” violation and it is the major reason Lucas Oil Production Studios is facing such a large fine.

OSHA also found there was no training to operate the scissor lift. Additionally, Lucas Oil failed to report the fatal accident in a timely manner, according to the agency.

**COMMENT.** Employing construction equipment for a non-construction purpose does not relieve entertainment producers from complying with the same training and protection regulations they would have to meet if they were construction employers. If their cameramen or other employees use scissors lifts, scaffolds, cherry pickers, cranes, fork lifts or any other equipment for which OSHA training requirements apply, it is the Producer’s job to have a written program under which the employee receives the proper training and that the equipment is properly guarded and maintained.

## **AMULET PARENTS BOUGHT TO PROTECT CHILD POISONED HIM**

*Morbidity and Mortality Weekly Report*, CDC, January 28, 2011, 60(3), pp. 69-71 & *Ibid*, 42(24), June 25, 1993, pp. 465-467 (*ACTS FACTS*, 8/1993)

The New York City Department of Health and Mental Hygiene’s Lead Poisoning Prevention Program tracked an interesting case of lead poisoning in a child of Cambodian Immigrants that may have lessons for the international craft and folk art community. In March 2009, routine testing of a healthy, nonanemic boy aged one year who was born in the US to Cambodian-born parents showed an elevated blood lead level (BLL) of 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ). This level triggers an investigation by many state health departments because permanent loss of IQ points and other physical and mental effects occur at this level.

Only six months earlier, this child had a very normal BLL test of 1  $\mu\text{g}/\text{dL}$ . Something in the child’s environment clearly had changed and the Health Department investigated. During an interview, the boy’s father denied use of imported products. No lead paint or nonpaint lead sources were identified in the home such as spices, food, candy, cosmetics, health remedies, ceramics, or jewelry.

Three months later, the child’s BLL increased to 20  $\mu\text{g}/\text{dL}$ . The father again denied any jewelry or charms, but when questioned more closely, he said that the toddler wore an amulet or “something to protect him.” The amulet, acquired by the boy’s mother in a rural Cambodian market, was a knotted string onto which grey metallic beads has been molded. The amulet’s metal beads had a total lead content of 450,000 milligrams per kilogram or 45 percent. One window sill in the apartment also was positive for lead at 2.2 milligrams per kilogram.



Within 8 days of the amulet being removed from the home, the child's BLL had decreased from 20 µg/dL to 14 µg.dL. Six weeks after the amulet was removed and 2 days after the lead paint violation was reported as abated, the child's BLL was 10 µg.dL. Five months after the amulet was removed, the boy's BLL was down to 5 µg/dL.

The toddler's cousin, aged 6 years, who was living in the same home, had lead poisoning diagnosed in September 2008. His BLL had been 17 µg/dL. After he stopped wearing his amulet, his BLL was 7 µg/dL. (Note: The reduction of blood lead does not repair the damage done during the period in which it was higher and that some of that lead is now permanently stored in the child's bones.)

Wearing amulets is common among Cambodians and other Southeast Asian ethnic groups including Vietnamese, Hmong, and Lao populations. Typically, infants and toddlers wear their "protection strings" around their necks, wrists, or waists. The amulets usually are made of black or white string with several knots, metal beads, or both. The knots and beads are believed by some to be infused with protective powers. In this case, the mother of the toddler reported that on her most recent trip to Cambodia, she had three amulets custom-made ("cooked in a pot") for the children in her family. Anecdotal information suggests that lead bullets sometimes are melted to make the beads.

**FOLK ART COLLECTIONS.** These religious or folk items are also likely to be brought in by collectors of such items. Some even end up in galleries for sale. Production of folk art and crafts may involve all manner of trash and waste such as computer parts, toxic metals melted from electronics, tin cans and plastic containers, wiring, and more can find their way into craft items.

For example, incredibly creative toys are made from cut up pieces of tin cans with their painted logos still on the sides. The internet is full of these amazing items. Some are put together with lead solder. Some of the bright package and metal can logos are paint, decals or enamels containing toxic and regulated metals.

One use of a potentially hazardous material can be easily verified by google-searching for "Zulu telephone wire baskets." These are popular gallery art items woven from recycled brightly-colored vinyl plastic-coated telephone cable wires. Artists are even teaching this art to US crafters at galleries and schools. Yet the hazards of these vinyl-coated wires has been known for decades.

**TELEPHONE CABLE WIRE.** A 1993 Centers for Disease Control report covered the case of a 46-year-old microwave technician who was found to have a blood lead level of 50 micrograms per deciliter during a routine pre-employment exam. Medical and work histories were taken and all potential sources of lead were checked. Doctors investigated fruitlessly for a year and a half for the source of lead. All the while, the man's blood tests remained about the same.

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

**COMMENT:** The international craft and folk art industry needs to consider the potential toxicity of the items they are showing in galleries and on the Net. And however cute or creative these items are, they should not be considered articles or projects for children without testing first.

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## **ISO ISSUES INHALATION TEST STANDARD FOR NANOPARTICLES**

BNA-OSHR, 41(5), 2-3-11, pp. 96-97

Toxicity research on nanoparticles is a disorganized mess. Some particles are placed in contact with cells, some injected into animals, some placed in contact with aquatic organisms, and more. Scientists argue about potential health effects based on insufficient and inconsistent data. And all the while, we are exposed to more and more of the tiny, invisible particles. Carbon nanotubes are released to our air from the wearing and burning of rubber tires. Silver nanoparticles are being washed from our socks and T-shirts into our waterways. And we are putting titanium dioxide and zinc oxide nanoparticles on our skin in the form of makeup and sun screen products.

There are hundreds of other products containing nanoparticles. The workers who make the products often are exposed to them. No one seems to care that there are no respirator filters or gloves that can provide sure-fire protection from them. Ventilation systems hurling the particles out into the environment don't seem to provoke interest. Instead, the public has once again been sold on the idea of requiring human experimentation in preference to animal tests.

**CAVALRY COMING?** The International Organization for Standardization (ISO) announced on January 27 that it has adopted a standard for inhalation toxicity testing for nanotechnology-based products. The new standard is formally titled ISO 10808:2010, Nanotechnologies—Characterization of nanoparticles in inhalation exposure chambers for inhalation toxicity testing.

Although ISO standards are voluntary, it is likely that governments will adopt this standard or refer to it in legislation since there is no other consistent method of monitoring the concentration, size, and size-distribution of nanoscale particles in an inhalation chamber. The standard should at least organize the inhalation data from future studies. There will have to be additional protocols developed for aquatic tests, skin contact, and other acute and chronic test protocols.

Now it remains for governments to actually *do* the inhalation tests. Governments will have to step up, because the public just can't seem to grasp that they should be holding the industries profiting from nanoparticles responsible for the safety of their workers or the public. Instead, we blindly buy the new products and downsize the governmental agencies that might do the testing. Amazing.

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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# ACTS FACTS

THE MONTHLY NEWSLETTER FROM

## ARTS, CRAFTS AND THEATER SAFETY (ACTS)

181 THOMPSON ST., # 23,

NEW YORK, NY 10012-2586

PHONE 212/777-0062

March 2011

Vol. 25, No. 03

### SAFE SMOKE FOUND AT LAST?

CABOT INVESTIGATES FIRE AT PLANT - POTTSMERC.COM,

<http://pottsmmerc.com/articles/2011/02/17/news/doc4d5c9e9d04c40683136567.txt>

The American Chemical Society's Safety Forum sends members a compendium of articles about fires and chemical spills found on Google each week. Some of them are worth commenting on. Here's one item:

DOUGLASS (Mont.) — An investigation is under way to determine what caused a Wednesday morning fire at a metal manufacturing plant on County Line Road just outside Boyertown.

Emergency responders were dispatched to Cabot Inc. for a blaze that broke out in a chemical dust collector shortly before 10:30 a.m.

Tim Knapp, manager of safety, health and environment for Cabot, said crews had the fire controlled and out within five minutes after arriving to the scene, giving an all-clear at around 11 a.m.

The dust collector where the fire began contained tantalum, a chemical used in the company's metal manufacturing process, he said.

Although it was initially thought dust had escaped the plant during the fire, Knapp said it was only smoke, not chemicals that were released into the air.

**COMMENT:** In response to this last statement, Bradley Norwood, Director of Arista Laboratories in Richmond VA supplied the forum with some wry humor when he said:

*At our lab, we analyze tobacco and tobacco smoke for a wide array of chemical constituents, largely for regulatory compliance to various governments around the globe (although we also do testing for government agencies and universities as well). Many of our customers are still looking for the chemical-free smoke mentioned above. Shall I refer them to Cabot Inc.??*

It is also significant that the claim that no chemicals were released into the air in this smoke was made by the company's "manager of safety, health and environment" who certainly should know better. And the dust collector in which the fire began contained tantalum which will fume with heat and which has an Occupational Safety & Health Administration (OSHA) permissible exposure limit (PEL) indicating it is toxic.

Even if, by some miracle, tantalum was not released, the smoke from whatever was burning was toxic. Smoke from all hydrocarbons such as wood, oil, coal, wax, or plastics is hazardous. For example, it is not the nicotine in cigarette smoke that is hazardous. Nicotine is only a mild narcotic and very addictive. The carcinogens are created by the burning leaf. And any burning leaf will do the same—yes, and you know ones I mean.

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## MORE INTERESTING FIRE/CHEMICAL REPORTS FROM GOOGLE

### CHEMICAL REACTION AT HOUSE FIRE SURPRISES CREWS

PORTLAND NEWS STORY - KPTV PORTLAND, <http://www.kptv.com/news/26995088/detail.html>  
PORTLAND, Ore. -- Investigators are trying to figure out what caused a house fire and a chemical reaction at a home in Northeast Portland. The fire broke out at a home on NE Sumner Street around 7:15 p.m. on Thursday.

Upon arrival, firefighters saw heavy flames coming from the front of the house. But when the crew sprayed water on the fire, a chemical reaction occurred and produced what looked like electrical arcing.

"Firefighters had to think on their feet to move past this reaction and stop the fire before it spread to the attic," said Portland Fire Capt. Jamie Klum.

Firefighters were able to extinguish the fire in about 20 minutes. Commanders called in extra resources to rotate crews in the freezing temperatures and make sure that firefighters could stay safe and warm.

Damage from the fire is estimated at \$20,000. No one was hurt, and the occupant of the home is staying with family members.

"Most house fires are like a big chemistry experiment," said Portland fire official Paul Corah. "There are chemicals in the average household that would surprise people and can impact how a fire behaves."

**COMMENT:** Corah's comments are a good summary of the problem with household chemicals, The fewer chemicals we store, the better for us and for firefighters in an emergency.

### FUMES BLAMED IN FLASH FIRE AT MIAMI HOUSE

CRIME & COURTS » *The Joplin Globe*, Joplin, MO

[http://www.joplinglobe.com/crime\\_and\\_courts/x962031238/Fumes-blamed-in-flash-fire-at-Miami-house](http://www.joplinglobe.com/crime_and_courts/x962031238/Fumes-blamed-in-flash-fire-at-Miami-house)  
MIAMI, Okla. — Firefighters believe that chemical fumes created during remodeling of a Miami home may have caused a flash fire early Wednesday that damaged a portion of the unoccupied house.

The Miami Fire Department responded at 12:39 a.m. to 1910 G St. N.W. and found a smoldering fire in a bathroom at the back of the single-story structure.

Fire Capt. Robert Wright said no one was home at the time, and no injuries were reported. Wright said the fire had extended slightly into the attic before firefighters arrived.

The owner of the residence, Butch Crockett, told firefighters that he had been using a chemical to remove caulking and glue in the bathroom as part of remodeling the house and was using some candles to help mask the chemical smell.

Wright said it appeared that fumes had caused a flash fire that turned into a smoldering blaze because of a lack of oxygen in the room.

**COMMENT:** Obviously a chemical to remove caulking and glue would contain flammable solvents. Using a candle in the same room is just foolish. And the burning wax candle, being a hydrocarbon, adds additional toxic and carcinogenic chemicals to the air in that room.

## **CHEMICAL EXPLOSION IS INVESTIGATED IN CASEYVILLE**

[http://www.stltoday.com/news/local/illinois/article\\_0847a952-3fb1-11e0-ade1-00127992bc8b.html](http://www.stltoday.com/news/local/illinois/article_0847a952-3fb1-11e0-ade1-00127992bc8b.html)

CASEYVILLE, IL - Ink from a printer mixed with chlorine Wednesday afternoon at a nonhazardous waste company, causing a small chemical explosion and shutting down a street for several hours, French Village fire officials said Wednesday night.

Assistant Chief Brian Halwachs said no one was hurt in the explosion, which sent white smoke billowing from the top of Illini Environmental Inc. at 8895 California Drive, off Highway 157 near St. Clair Avenue. St. Clair County HAZMAT officials deemed the area safe from further chemical reaction and the road was reopened late Wednesday evening.

Halwachs said the Illinois Environmental Protection Agency, which sent a mediation team into the building, has taken over the investigation into how the chemical reaction occurred.

A passer-by called 911 around 4:30 p.m. saying smoke was coming from the building. A second call, from Illini Environmental officials, was for a chemical spill. French Village fire officials called for the St. Clair County HAZMAT team to investigate. Fairview fire Deputy Chief Bruce Green said the material safety data sheets on the container said they were nonhazardous.

### **And a second article on the same fire:**

KMOV.COM | ST. LOUIS NEWS, MISSOURI NEWS & BREAKING NEWS,

<http://www.kmov.com/news/local/Hazmat-situation-in-St-Clair-County-116771829.html>

(KMOV)-- Crews were called to the scene of a hazmat situation on California Drive at Highway 157 in St. Clair County. Fairview Heights Fire Department confirmed the hazmat incident was at Illini Environmental Inc. The company owner said employees were mixing 2 drums of chlorine bath tablets (toilet bowl cleaner) with latex paint to prepare them for shipment to a landfill when they gave off a lot of vapor.

The white smoke/chemical cloud was so thick that it was first thought to be a fire. An employee called police to report a chemical spill but a passerby called 911 and reported a fire. The owner said the smoke shouldn't be hazardous but as a precaution the business was evacuated and residents in two nearby homes were told to shelter in place, stay in home with windows shut and ac/heat turned off.

**COMMENT:** The elements of this story of importance are 1) the fire official did not worry because the paint MSDS said it was not hazardous, 2) the environmental company mixed the paints with chlorine bleach tablets, and 3) the owner said the smoke was not hazardous.

Fire officials should know that most latex paint MSDSs say the products are non hazardous, but this refers to when used as directed. Many chemicals are not disclosed on these MSDSs such as a common stabilizing chemical that gives off ammonia. So the ammonia/bleach reaction could be expected on occasion with this mixture. And in this case, the smoke can be deadly in quantity.

## **COMPANY SUES B.C. CITY AFTER CHEMICAL SPILL**

BRITISH COLUMBIA - CBC NEWS,

<http://www.cbc.ca/news/canada/british-columbia/story/2011/02/25/bc-kelowna-chemical-lawsuit.html>

A chemical company is suing the City of Kelowna and its fire department for negligence after toxic chemicals were washed into a local creek following a warehouse fire last summer.

Pesticides, fertilizers and glycol were washed into a storm drain while firefighters were dousing the flames at the Univar Canada depot, one of several businesses destroyed by a fire on Kirschner Road....

The runoff turned the water in nearby Mill Creek bright green and killed dozens of small fish before working its way into Okanagan Lake.

In recently filed court documents, Univar Canada—a wholesale agricultural fertilizer and pesticide supplier—alleges fire crews didn't do enough to keep the chemicals from contaminating nearby soil and water, and ignored warnings from the company's staff about the risks.

**COMMENT:** I don't know the regulations in Canada, but here in the US, I'm quite sure the liability would belong to the company for not preparing for contingencies like spills and fires in their facility. The Environmental Protection Agency and local environmental agencies expect containment of environmentally hazardous materials and fire and emergency plans that consider emergencies.

Dear Reader,

There are no exact dates on some of these stories, but the dates are not important. They were all stories picked from about 30 items posted on Google between 2/17 and 2/25—just eight days.

I wonder if, after reading these news items, you have concluded as I have that some remedial education is needed in basic fire and chemical issues for non-chemists. I especially worry when fire department officials make these kinds of errors. These people are our first line of defense in a fire or environmental disaster. If firefighters provide us with incorrect information, lives can be lost.

And if environmental officers for corporations are either too dumb to realize they are making misstatements or are cleverly saying things they know are untrue in order to mislead, why aren't the reporters or their editors smart enough to know when they are reporting lies? Someone in the chain of people from reporters to the edited print or spoken word should know *something* about these issues before they report them as true. They fact-check other kinds of stories. Why not check ones involving chemicals? I'll bet there are many retired chemist and science teachers who would love to be on call to look over these items for journalists, could do it in minutes, and do it for a song.

I also think schools should require a courses on basic environmental and chemistry principles for a degree in journalism. And how I would love to teach a course like that. I'm sure many, many other chemists would, too. Your Editor

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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April 2011

Vol. 25, No. 04

### MAINE JOINS OTHERS BANNING BPA IN SOME PLASTICS

SOURCES: Editorial based on Yang CZ, Yaniger SI, Jordan VC, Klein DJ, Bittner GD 2011. Most Plastic Products Release Estrogenic Chemicals: A Potential Health Problem That Can Be Solved. *Environmental Health Perspectives*: doi:10.1289/ehp.1003220, *Maine Sun Journal*, 4-12-11 & *sunjournal.com*, 4-13-11

APRIL 13, 2011: Today, the Maine Senate voted 35-0 to ban Bisphenol A (BPA) in children's products. Previously, the Maine House voted 145-3 to phase out BPA. This means Maine will soon join Canada, Europe and six other states that have banned BPA. That sounds great, but it's not.

If you are a subscriber to this newsletter, you might have noticed that I have never written an article advising you which plastic bottles, food wraps and other plastics are the safest to use. In fact, when I get inquiries on this subject, I have simply referred people to various activist web sites that have nice clear advice to give. But in my heart I knew that these well-meaning activist sites were providing poor guidance. Their strategies are to help consumers identify and avoid known bad actors like the vinyl plastics or Bisphenol A (BPA). But this doesn't address the fact that there are hundreds of other chemicals in all plastics about which little or nothing is known and which could be worse.

An article in last month's *Environmental Health Perspectives* (see sources above) bears this out. The authors show that "Almost all commercially available plastic products we sampled, independent of the type of resin, product, or retail source, leached chemicals having reliably-detectable EA (estrogenic activity) including those advertised as BPA-free. In some cases, BPA-free products released chemicals having more EA than BPA-containing products." (Underline mine)

**THE STUDY.** The authors tested the plastics by placing them in saline or ethanol (grain alcohol) solutions to leach out chemicals and exposed the plastics to common-use stresses such as boiling, microwaving, and sunlight (UV light). The extracts from the solutions were tested using a very accurate cell proliferation assay which detects whether or not the cells are altered by chemicals in the same ways that they would be altered by an estrogen hormone.

The authors also identified one primary mechanism for EA. They found that all chemicals such as BPA are strongly estrogen-active if they contain a group of chemicals (called a moiety) which, if isolated, would be a phenol compound (a benzene ring with one or more hydroxyl groups [-OH] attached). And compounds containing these benzene rings that were previously thought to be stable actually can convert to phenolic moieties when they are exposed to stresses.

Even the chemicals added to plastics to protect them from degrading under stress (antioxidants) may themselves convert under stress to estrogenically active phenolic moieties! And remember, plastics are full of these and other additives such as clarifiers, plasticizers, colorants, and more.

**INTEREST CONFLICT.** Some of the authors of this article work for chemical manufacturers, which probably accounts for their up-beat conclusion that, since they have now identified the types of chemicals that can cause these effects, it should be soon possible to create EA-free plastics from

other types of monomers and additives. I would remind the authors that there are toxic effects other than estrogen mimicking. And the effects of chemicals in a petri dish full of cells does not predict the stresses the chemicals will be subjected to once they are in our bodies. Our bodies will subject these plastic chemicals and additives to a vast number of additional stresses such as metabolic forces from enzymes, acids, bases, heat, and more. And many metabolic pathways are still unknown. Without animal testing, the authors of this article have only found one piece of a much larger puzzle.

Also keep in mind that there also is no end to the chemicals that the plastic industry can substitute for those known to have bad effects. For example, six phthalate plasticizers have been banned for use in children's toys and articles. But there are hundreds of other phthalates which can be used to replace them, most of which have never been tested for any toxic effects. In fact, most of the chemicals to which we are exposed are untested for any long-term effects. There are now over 58,000,000 chemicals registered by the Chemical Abstract Service. Of these, only about 1000 chemicals worldwide have been assessed for cancer effects in animals.

**PICK YOUR POISON.** Last month, Wiley & Sons released a book I wrote called: *Pick Your Poison: How Our Mad Dash to Chemical Utopia is Making Lab Rats of Us All*. The purpose of this book is to take general readers through the history of how we got into this mess, how the laughably ineffective and cash-strapped governmental agencies fail to protect us, and what we can do about it.

I also explain that activist groups need to cease attempting to ban particular chemicals. First, they often choose the wrong chemicals. For example, activists got the cosmetic industry to stop using acetone in many nail polishes and removers. The industry simply substituted ethyl acetate which is actually more toxic than acetone by inhalation.

And second, even if the activists are successful and get a ban on a handful of substances, the chemical industry will simply create untested substitutes to replace them. And, in the bargain, they will proudly advertise and promote the "new and improved" products as "free" of these chemicals.

If every activist group got all their targeted chemicals banned tomorrow, we would not be one iota safer. Instead, we need to all work together on one objective: to require chronic toxicity testing.

We can support bills like the Chemical Safety Bill that Senator Lautenberg will introduce again in Congress soon. This bill requires testing of only 200 chemicals, but it is a start. A better system is seen in the European Union's Registration, Evaluation, Authorization of Chemicals program. REACH has identified ~30,000 chemicals manufactured in amounts over 1000 tons a year on which there is no data. REACH requires tests to be done on these chemicals or they will be banned from use in European products after 2018. Manufacturers still may not test many of these chemicals and simply replace them with substitutes. But REACH requires registration of all new chemicals and can schedule testing for the new ones, too. Sooner or later, testing will have to be done.

Once there is chronic toxicity data on tens of thousands of chemicals, we may see many patterns like the one identified in the *Environmental Health Perspective* article on estrogenic plastic chemicals. Only then can we begin to reliably predict bad actors on the basis of their chemical structures.

Our final objective must be to require chronic toxicity testing of chemicals BEFORE they are put in the products we buy. Obviously, that will take years, but let's get started. Let's organize around the central issue of chemical testing. Everything else including banning BPA is a waste of our time.



## **EXPLOSION AT DYE & PIGMENT FACTORY IN INDIA**

Thanks to the American Chemical Society's safety form, [secretary@DCHAS.ORG](mailto:secretary@DCHAS.ORG), for catching this one. Major fire guts illegal dyeing unit in Vatva, *Ahmedabad Mirror Bureau*, 3-15-2011 & *The Indian Express*:  
<http://www.indianexpress.com/news/fire-guts-illegal-chemical-factory-owners-on-the-run/762599/>

A massive fire broke out at Bright Dye and Chemicals at Vatva GIDC, a complex of industrial sites near Ahmedabad, India, on March 13, 2011. Fire Brigade men rushed to the spot in minutes, but couldn't bring the flames under control. It took staff from all the local fire stations over two and a half hours to douse it. Malfunctioning of some equipment is believed to be the reason behind the fire, but the exact cause has yet to be ascertained.

"The fire was massive so we cordoned off the factory first and placed fire extinguishers around it to prevent flames from spreading to adjoining factories. .... We had to press 30 vehicles and staff of all 12 fire stations in the city into service to control it," said Deputy Chief Fire Officer Rajesh Bhatt.

**OWNER ON THE RUN.** "The factory was illegal. Ninety barrels containing 200 litres of solvent each [55 gallon drums] had caught fire. There were other inflammable chemicals [we call these flammable] in the factory, too," said Officer Bhatt.

Police are on the lookout for the factory's owners who went into hiding soon after the incident and who did not have a license to operate a facility holding these kinds and amounts of chemicals. The local health department, environmental officials and police arrived at the factory to probe the incident. Bright Dyes and Chemical's owners allegedly fled along with the staff soon after fire broke out with a series of blasts, said a Fire Brigade official.

**COMMENT.** This is an important story because is it is a common one in India, Bangladesh, and China, the three countries where many of our dyes and pigments are manufactured. It is likely that some of the colorants artists use are from these small, often illegal, and poorly run factories. In fact, a month after the fire, I could still google-up Bright Dye and Chemical's website offering their products for sale. Dyes and pigments like these often end up being purchased by jobbers and sold/resold in the market until their pedigree is confused. This includes colorants purchased from major manufacturers who farm out work to factories in China, India and Bangladesh to save money.

This story is also relevant to artists. Both domestic and foreign companies that sell artists pigments or paints obviously do not manufacture the colorants themselves. The origins of some pigments used by these small art material manufacturers may not be known to them. This story is also relevant to art galleries that import folk and professional arts and crafts from third world countries.

The hazards of these pigments and dyes can even include contamination with highly toxic impurities such as polychlorinated biphenyls (PCBs) and dioxins. These contaminants are created when pressure, temperature, and other conditions during manufacture are not highly controlled. And it is unlikely that there are sophisticated controls in these small factories.

We may think that governmental agencies protect us from exposure to these serious hazards. For example, EPA requires the PCBs in pigments such as phthalocyanine blue and green to be present in amounts less than 50 parts per million. But you can be quite certain that imported pigments and dyes packaged for artists and paints containing these pigments are not tested at US ports for PCBs. This is another reason to use good hygiene when using art materials or textile dyes today.

## **SOLDERING IRON RECALLED DUE TO BURN HAZARD**

<http://www.cpsc.gov/cpscpub/prerele/prhtml11/11190.html>, CPSC Press Release #11-190, 4-6-10.

The U.S. Consumer Product Safety Commission, in cooperation with Cooper Tools, LLC of Apex, NC, announced a voluntary recall of about 69,000 soldering irons. The power cord can break at the flex point where the cord attaches to the handle, posing a burn hazard. The firm has received reports of the power cord breaking at the flex point, resulting in three reports of minor burns.

The recalled product is a 100 watt, 120 volt stained glass soldering iron with “Weller” and the model number W100PG, W100P3 or W100PGMX written on the light blue handle. The model number is located under the Weller brand name on the iron’s handle. Only certain date codes are included in the recall. Authorized distributors sold the iron nationwide from August 2006 to May 2010 for between \$50 and \$60. The iron was manufactured in Mexico.

Consumers should stop using the recalled soldering irons immediately and contact Cooper Tools to send the product to the company for an inspection and a free replacement soldering iron. It is illegal to resell or attempt to resell a recalled consumer product. For additional information, contact Cooper Tools at (800) 476-3030 between 8 a.m. and 5 p.m. ET Monday through Friday or visit the firm’s website at [www.cooperhandtools.com](http://www.cooperhandtools.com).

**COMMENT.** This product has been sold over a five year period, so it is likely to be in many artist’s studios. Although it was sold as a stained glass soldering iron, it is clear this iron could be used for many types of professional art and craft work and for home hobby projects. Check out your equipment. In fact, get into the habit of going to [www.cpsc.gov](http://www.cpsc.gov) and checking recalls whenever you buy new or used products. Not all recalls end up being fixed or discarded.

And check the site before you sell any of your own used equipment, too. Remember that it is illegal to resell recalled products. This includes small private transactions and sales by nonprofit groups who accept donations of equipment and supplies.

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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May 2011

Vol. 25, No. 05

### GRAPE SEED OIL BLAMED FOR FIRE AT BEAUTY COLLEGE

*The Swindon Advertiser*, UK, by Emma Dunn,

[http://www.swindonadvertiser.co.uk/news/8990554.Oils\\_blamed\\_for\\_fire\\_at\\_college/](http://www.swindonadvertiser.co.uk/news/8990554.Oils_blamed_for_fire_at_college/), 4-22-11.

FRESH towels and massage oil were identified as the cause of a fire which ripped through the fifth floor of one of the Swindon College beauty training salons on April 12<sup>th</sup>. Investigators discovered that it started after a batch of towels, which had been used for massage and had just been washed and tumble-dried, were stacked in the corner of the room.

Alan Harper, the group manager for the Swindon area of Wiltshire fire and rescue service, was in charge of the investigation. "The cause of the fire was down to some of the oils which were used as part of the health and beauty course," he said. "One of the oils, grape seed oil, ...when ...absorbed into the towels ... go through an oxidisation [UK spelling] process which starts to self heat."

In Harper's words, "It is only particular oils, vegetable-based or animal fat-based [that do this]. It is to do with carbon bonds. Because the towels ... insulated it, it builds up and builds up. As the heat increases and oxidisation increases the heat increases and it can reach that auto-ignition point. They gave the process a boost by putting the towels through the tumble dryer, it gave the oils an additional level of heat which aggravated the process and that led to the towels becoming the source of the fire."

Mr. Harper said, "Washing at 40 degrees [104 o F] did not remove all the oil and left residue. The college is looking at changing the washing process to make it more effective." He said the college had also changed the oils they use.

**COMMENT.** It is well-known that linseed and tung oils polymerize (join together) in a reaction initiated by oxygen to form a solid, insoluble, plastic-like mass. The process is also made faster (catalyzed) with the addition of certain metal compounds (e.g., lead and cobalt driers). All oil-based paints, inks and varnishes rely on this reaction.

Unfortunately, this reaction also gives off heat (is exothermic). The reaction is responsible for the multitude of fires that start in piles of paint rags. The May, 2004 issue of *ACTS FACTS* quoted sections of an EPA comment indicating that citrus oils could do the same. So it is no surprise that grape seed oil can do this. Analysis of tea tree oil and a number of other "natural" oils indicates that spontaneous combustion should not be considered an unusual property of natural oils. The beauty school's policy of changing the oils they use may not solve the problem unless they use non-polymerizing oils like baby oil (a petroleum oil).

Currently, the National Fire Protection Association's recommendation for oily rags is to put them in water. This creates liquid waste under the EPA regulations and makes it hard to dispose of the waste properly. But tests showed that hanging linseed oil rags out for even two weeks to dry did not eliminate the hazard. Laundering in very hot water and detergent (e.g., by industrial rag services) or dry cleaning probably removes the oils. But this story shows tepid water cleaning doesn't work.

### **THREE GEORGIA BEAUTY SUPPLY FIRMS FINED \$71K**

OSHA, Region 4 News Release: 11-414-ATL (151), April 12, 2011, Contact: Michael D'Aquino or Michael Wald, [d'aquino.michael@dol.gov](mailto:d'aquino.michael@dol.gov), [wald.michael@dol.gov](mailto:wald.michael@dol.gov)

The Occupational Safety and Health Administration (OSHA) has cited three companies in Doraville, GA, all owned by Jinny Corporation – JBS Beauty Club, JBS Hair Distribution Center and Jinny Beauty Supply Co. with a combined 22 violations. Proposed penalties total \$71,000.

Acting in response to a complaint, OSHA conducted inspections of the three companies. The agency cited JBS Beauty Club with six serious violations including locking emergency exits, blocking exits with shelving, not illuminating exit signs, exposing employees to electrical hazards from missing covers on electrical panels, exposing workers to live electrical parts and failing to provide training on how to operate a forklift. Penalties total \$25,000. The company also was cited for one other-than-serious violation without penalty for failing to develop an emergency evacuation plan.

JBS Hair Distribution Center and Jinny Beauty Supply Co were given penalties of \$25,000 and \$21,000 respectively for a similar variety of egress and electrical safety violations, failure to train fork lift operators, and failing to develop an emergency evacuation plan.

**COMMENT.** Jinny Corp. produces and supplies hair care and beauty products, and has operations in Atlanta, Miami, Dallas, Chicago and Los Angeles. A google search reveals this company is family owned. The business was started by Tae H. Jhin, the now deceased father of Eddie Jhin, current president of Jinny Corp. Ms Ann Jhin is a CEO, and the Atlanta branch VP is Mr. Chang Bum Seo. Some of Jhin's ads are in Chinese characters. While there are US employers running similarly hazardous workplaces, I worry that Chinese labor practices are being imported along with their products. It seems US-made goods may not always be made by US workers in safe factories.

### **IN THE CHILLI OF THE NIGHT**

Residents Cough up to a Chilli Night,

<http://www.caseyweeklycranbourne.com.au/news/local/news/general/residents-cough-up-to-a-chilli-night/2143005.aspx>

On a chilly April night, ten residents of Cranbourne North, near Melbourne, Australia were overcome by fumes. Starting with the first call at 10:30 pm, a total of five ambulances, a County Fire Authority (CFA) unit and a hazmat team responded. The victims were coughing, having trouble breathing, dizzy and nauseated. The "toxic" chemical was determined to be fumes from another resident who was cooking a box of chillis in an electric wok! Those fumes reached houses up to 150 metres away [164 yards]. One sentence in the Aussie report was confusing:

... The Hazmat unit was unable to detect the cause of the fumes because it was organic so a CFA crew was forced to rely on sniffing out the source.

Clearly, "organic" is not the right word. The capsaicin and related chemical compounds known as capsaicinoids in chillis are organic compounds. This complex mixture of organic chemicals probably was not detectable by the equipment they had with them. And ferreting out the source of an unknown toxic substance with your nose is not a recommended procedure for emergency personnel.

**COMMENTS.** This article appeared on the American Chemical Society's safety e-forum. One of the comments from Alan Hall, MD, is most interesting. Dr. Hall says that when he was:

...working in a major Emergency Department in El Paso, Texas many years back...we had quite a large number of late-middle aged Hispanic women coming in complaining of chest tightness and chest pain. After about the 4th or 5th one, we got smart enough to ask them if they were working, and if so, where.

Turned out that it was the end of the chili growing season ... and they were all employed as temps in chopping and roasting chilis for a Mexican food plant in Anthony, Texas. A site visit gave me the same symptoms. After some discussions with management, ventilation was significantly improved and the "epidemic" of what looked clinically rather like angina chest pain disappeared.

Although Dr. Hall loves his chillis and would not agree with me, my own personal view is that pain should not be considered a flavor.

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### **NIOSH SETS EXPOSURE LIMITS FOR NANO-TITANIUM DIOXIDE**

*BNA-OSHR*, 41(17), 4-28-11, pp 375-6, & *NIOSH Current Intelligence Bulletin 63*, Occup. Exp. to Titanium Dioxide

The National Institute for Occupational Safety and Health set two recommended exposure limits for titanium dioxide April 18, one for fine and one for ultrafine materials.

“**Fine**” is defined by NIOSH as those particles collected by respirable particle sampler which has a 50% collection efficiency for particles of 4 microns with some collection of particles up to 10 microns in diameter. These are the particles that are most likely to deposit deep in the lung’s alveoli.

“**Ultrafine**” is defined as the fraction of respirable particles with particle diameters under 0.1 microns (100 nanometers) also called nanoparticles. The NIOSH recommended exposure limit for ultrafine particles is first such limit set for nanoparticles. The two new limits are:

- \* fine particles - 2.4 milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ) and
- \* ultrafine or nanoparticles -  $0.3 \text{ mg}/\text{m}^3$  for ultrafine and nanoscale particles.

The new limits were set forth in NIOSH Current Intelligence Bulletin 63, “*Occupational Exposure to Titanium Dioxide*”, which also reviews carcinogenicity data, exposure monitoring techniques, and control strategies. NIOSH found insufficient human data to suggest fine titanium dioxide ( $\text{TiO}_2$ ) causes cancer, pointing to a lack of workplace studies. However, animal studies of  $\text{TiO}_2$  ultrafine particles show an increased tumor that NIOSH concluded constituted sufficient evidence. They said:

The potency of ultrafine  $\text{TiO}_2$ , which has a much higher surface area per unit mass than fine  $\text{TiO}_2$ , was many times greater than fine  $\text{TiO}_2$  with malignant tumors, with malignant tumors observed at the lowest dose level of ultrafine  $\text{TiO}_2$  tested ( $10 \text{ mg}/\text{m}^3$ ),” it said.

The ultrafine  $\text{TiO}_2$  particles often clump together, prompting some toxicologists to assume that they behave like larger particles. However, NIOSH says these agglomerated ultrafine particles still should be treated as ultrafine because they behave biologically like ultrafine particles. It seems the amount of surface area is a major factor in the toxicity of  $\text{TiO}_2$ .

NIOSH added that its findings suggest other poorly soluble, low-toxicity particles, such as coal dust and barium sulfate, among others, could pose hazards to those of  $\text{TiO}_2$ .

**COMMENT.** NIOSH listed TiO<sub>2</sub> as a carcinogen for decades before the International Agency for Research on Cancer (IARC) listed it, The IARC rating is 2B, that is, possibly carcinogenic to humans based on sufficient animal data. IARC gave it this rating in February 2006.

Once IARC lists a substance, OSHA requires the rating be included in the information on material safety data sheets (MSDSs) of products containing TiO<sub>2</sub>. OSHA gives manufacturers three months to revise their MSDSs to incorporate any significant new data. And the Labeling of Hazardous Art Materials Act which addresses chronic hazards through the ASTM D 4236 standard requires chronic hazard information, such as cancer status, to be transmitted on labels.

Art material manufacturers now have had five years to update their MSDSs and labels. Granted, I have not seen the MSDSs on all artists paints, pastels, chalks, ceramic glazes, and other items that contain TiO<sub>2</sub>. But did a quick look at the MSDSs on the products below:

**IARC INFO ON TITANIUM-CONTAINING PAINT PRODUCT MSDSs**

Type of paint	Maker	IARC 2B listed?	Date of MSDS
Acrylic	Golden Artists Colors	YES	02-10-10
Radiant Oils (white)	Gamblin	NO	02-24-07
Oils	Grumbacker	NO	06-23-08
Oils (general MSDS)*	Williamsburg	NO	05-02-11
Artists Oil	Winsor & Newton	NO	02-12-08

\* General MSDS says all colors have no hazards except cadmium, cobalt, lead & nickel

It is clear, the ASTM D 4236 standard and the art materials labeling act are failing to give artists even the basic information that OSHA requires they have. As I said in the January issue, it's time to repeal the labeling act and let art materials be covered instead under the Federal Hazardous Substances Act and have their MSDSs regulated under OSHA rules.

*ACTSFACTS* 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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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# ACTS FACTS

THE MONTHLY NEWSLETTER FROM

## ARTS, CRAFTS AND THEATER SAFETY (ACTS)

181 THOMPSON ST., # 23,

NEW YORK, NY 10012-2586

PHONE 212/777-0062

June 2011

Vol. 25, No. 06

### ACTS FACTS EDITOR PRESENTS AT SENATE STAFF BRIEFING

On May 17<sup>th</sup>, Earthjustice held a Senate Staff Briefing on chemical issues related to support for the Safe Chemicals Act, a bill that would reform the 35-year-old Toxic Substances Control Act (TSCA). The Honorary Co-Hosts were Senator Kirsten Gillibrand (D NY) and Senator Frank Lautenberg (D NJ), the author of the bill. The presenters were in order of speaking:

Moderator: Emily Enderle, Legislative Representative, Earthjustice;

Speaker: Monona Rossol, Chemist and Author of *Pick Your Poison: How Our Mad Dash to Chemical Utopia is making Lab Rats of Us All*;

Speaker: Lindsay Dahl, Deputy Director, Safer Chemicals, Healthy Families Coalition

Speaker: Jamie Silberberger, Director of Policy and Programs, Women's Voices for the Earth

My job as first speaker was to outline the problems with current chemical testing requirements and labeling. Using some of the examples from my book I showed that from the beginning of the industrial revolution, the chemical industry has considered research and development to consist of only two phases: 1) discover a chemical; and 2) find a market for it. Industry has never been required to study their chemicals for long term hazards before they are introduced into the market.

The TSCA was passed in 1976 to address this problem, but it had a built-in Catch 22 that renders EPA almost powerless to require testing of new chemicals. In order to compel industry to test, EPA must first "prove" that a chemical poses an "unreasonable risk." Clearly, if the chemical has not been tested, there is no data to establish unreasonable risk. Of the roughly 83,000 chemicals on the TSCA list, less than 200 have been tested.

The TSCA chemicals are not the only ones in commerce. Estimates now place that total number in the range of 140,000 chemicals. But worldwide, only 1000 chemicals have been studied well enough to be evaluated for cancer effects. Even fewer chemicals have been studied for their ability to cause birth defects and other organ damage. While consumers often believe products containing hazardous chemicals are labeled with warnings, I showed that the Federal Hazardous Substances Act only requires labeling of those handful of chemicals that have been tested and proven to cause cancer, neurological, reproductive and developmental damage! All other types of organ damage such as liver and kidney damage are not even covered by the Act. And untested chemicals are sometimes labeled "nontoxic."

I also showed how product label terms like "biodegradable," "no VOCs," "green" and "natural," are so limited and misleading that the most conscientious label-reader is still not given enough correct information to make good choices. We can't "buy our way out of this." We must begin to require testing. And the Safe Chemicals Act is a good starting place.

## **“GREEN,” “NATURAL” & “ORGANIC” PRODUCTS EMIT AS MANY HAZARDOUS CHEMICALS AS STANDARD ONES**

SOURCE: Potera C 2011. Scented Products Emit a Bouquet of VOCs. *Environmental Health Perspectives* 119:a16-a16. doi:10.1289/ehp.119-a16, Online: 01 January 2011

Author Carol Potera reports on the research of Anne Steinemann, a professor of civil and environmental engineering and public affairs at the University of Washington, Seattle. She and her colleagues analyzed the VOCs given off by 25 air fresheners, laundry detergents, fabric softeners, dryer sheets, disinfectants, dish detergents, all-purpose cleaners, soaps, hand sanitizers, lotions, deodorants, and shampoos. Many of the products tested are top sellers in their category.

These selected scented consumer products emitted more than 100 volatile organic compounds (VOCs), including some that are classified as toxic or hazardous by federal laws. Potera says: “**Even products advertised as ‘green,’ ‘natural,’ or ‘organic’ emitted as many hazardous chemicals as standard ones.**” A summary of Steinemann’s data reveals:

- \* 133 unique VOCs identified among 25 products
- \* 24 of these are classified as toxic or hazardous under at least one federal law
- \* Only 1 of the 133 was listed on any label
- \* Only 2 of the 133 were listed on any MSDS (material safety data sheet).

The author notes further that:

The most commonly detected [VOCs] were limonene,  $\alpha$ - and  $\beta$ -pinene (pine scents), ethanol, and acetone. The average number of VOCs emitted was 17. Each product emitted 1-8 toxic or hazardous chemicals, and close to half (44%) generated at least 1 of 4 carcinogenic hazardous air pollutants (acetaldehyde, 1,4-dioxane, formaldehyde, and methylene chloride).

**COMMENT.** This and many previous labeling articles in ACTS FACTS demonstrate how reading labels and MSDSs are not going to direct us to safer products. Instead, we need better testing and consumer labeling laws. Readers might want to read an *Environmental Health Perspectives* article that has been accepted for publication called “Scented Products Emit a Bouquet of VOCs.” (Search the site for “Potera, C 2011”).

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## **JEWELRY STUDENT BURNED BY FERRIC CHLORIDE**

[http://www.denverpost.com/search/ci\\_17967599#ixzz1M6sgrJP9](http://www.denverpost.com/search/ci_17967599#ixzz1M6sgrJP9) (The Denver Post, 4/30/11) & [http://m.timescall.com/tc/db\\_39001/contentdetail.htm;jsessionid=2E36EB90815DFC90F85FE860E01DCE76?contentguid=S2xxfR7&detailindex=1&pn=0&ps=4](http://m.timescall.com/tc/db_39001/contentdetail.htm;jsessionid=2E36EB90815DFC90F85FE860E01DCE76?contentguid=S2xxfR7&detailindex=1&pn=0&ps=4) (The Longmont Times-Call, 4/30/2011)

A Front Range Community College student in Longmont, Colorado suffered burns on her arms late Saturday resulting from a chemical reaction that reportedly occurred while she was diluting ferric chloride inside a campus building. Front Range Community College spokesman John Feeley said the accident happened in a jewelry studio classroom. The woman, whose identity was not available, was treated at the scene before being transported to Longmont United Hospital.

**COMMENT:** Ferric chloride is a safer substitute for acids that can be used to etch metals in jewelry or in metal plates in printmaking. However, ferric chloride is not without hazards. Diluting the concentrated solutions with water will create heat in the same way that diluting concentrated acids will. The most dangerous reactions occur if water comes in contact with dry, powdered ferric chloride. Art departments should always purchase this material in liquid form and dilute it to the desired concentration by adding the ferric chloride solution slowly to the water.

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## **IRON METAL DUST FLASH FIRE CLAIMS LIFE**

SOURCES: [ehstoday.com/fire\\_emergencyresponse/fire/csb-combustible-metal-dust-fatal-flash-fire-0511/](http://ehstoday.com/fire_emergencyresponse/fire/csb-combustible-metal-dust-fatal-flash-fire-0511/), EH&S, May 11, 2011 4:17 PM, By Laura Walter, CSB: Combustible Metal Dust Led to Fatal Flash Fire

The U.S. Chemical Safety Board (CSB) says that two separate flash fires at a Hoeganaes Corporation plant, was caused by an accumulation of iron dust that became airborne and combusted.

The first flash fire happened at the plant in the Tennessee plant on January 31, 2011. It killed one worker and seriously burned another.

On March 29, 2011, a second similar fire occurred at the plant resulting in one injury. The Hoeganaes plant manufactures “atomized” iron powder that is sold to the automotive and other industries for the production of metal parts using powder metallurgy.

Preliminary test results have so far confirmed CSB’s conclusion that the fires involved combustible iron dust. In the first, fatal incident, a dust collector was reported to have been out of service for the two days leading to the incident. In the second fire, a plant engineer apparently dislodged accumulated iron dust during his work replacing igniters on a furnace; the dust combusted and subsequently injured the engineer.

“Tests conducted on samples of metal powder – collected from the plant – determined that this material is combustible,” said CSB Investigator-in-Charge Johnnie Banks. “The team observed significant quantities of metal dust on surfaces within close proximity to the incident locations.”

In addition to visible dust particles in the air, 2- to 3-inch layers of dust were observed on flat surfaces, rafters and railings throughout the facility. Banks added that after reviewing company documents, CSB determined that the “presence of combustible dust was known by Hoeganaes at the times of the accidents; it appears the risks were not adequately addressed by the company.”

**COMMENT.** If you Google “combustible dust explosions” you will see that they occur often. But most of these involve organic dusts such as wood and grain dusts or sugar. Metal dust fires and explosions are also on record. In fact, another one occurred last week on May 20<sup>th</sup> killing three workers and injuring 15.\* The explosion was in a plant that makes Apple iPods at a rate of 500,000 per month in China. In the process of polishing the metal parts, aluminum dust is created and not properly cleaned up and controlled.

These stories are an important safety reminder for theatrical scene painters and artists who use metallic pigments made with similarly very fine powders of metals such as aluminum, bronze, and copper and metal-working artists who grind and polish metals. When fine metal powders are suspended in air, any spark, static discharge or source of heat or flame can ignite this dust and cause serious burns. And in an inclosed container, they can ignite with explosive force. This explosive property is the reason fine metal powders are common ingredients of pyrotechnics and fireworks.

It is safer to use metallic paints or to purchase metal pigments in paste or liquid form.

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\* <http://www.nytimes.com/2011/05/25/technology/25foxconn.html>. David Barboza, May 24, 2011, “Explosion at Apple Supplier Caused by Dust, China Says,” description: A facility in Chengdu operated by Foxconn, one of the world biggest contract electronics manufacturers, had to be partially shut

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## **RADIATION SCARE IN QUEENS TURNS OUT TO BE JUST ROCKS**

SOURCE: [http://abclocal.go.com/wabc/story?section=news/local/new\\_york&id=8150509](http://abclocal.go.com/wabc/story?section=news/local/new_york&id=8150509), Radiation scare in Astoria, Queens, turns out to be just rocks.

On May 24, a hazardous material teams investigated a possible radiation scare at a house in Queens after a box with a radiation symbol was found inside an apartment on 45th Street in Astoria. Hazmat and the bomb squad sorted through the materials left by the owner of the apartment who had died, leaving almost everything to charity. A suspicious box was discovered. The box tested positive for trace amounts of radiation. It turns out the box was full of rocks that emit low levels of radiation.

**COMMENT.** Many rocks and minerals are radioactive. Often fossils are particularly "hot," especially if the organic matter that was once in the bones was replaced by minerals containing uranium. Uranium degrades into byproducts including radon gas. Many types of rocks and soils emit so much radon that homeowners must provide special ventilation systems for their basements.

While there is little danger from a small box of rocks like the one reportedly found in Queens, we should be aware that radioactivity is one of the hazards should be checked whenever large amounts of fossils or minerals are collected. Museum collections of geological specimens and fossils can result in significant exposures to museum workers. For example, in 1996, the National Institute for Occupational Safety and Health (NIOSH) studied conditions at the National Park Service's Hagerman Fossil Beds National Monument (HAFO) in Hagerman Idaho.\* HAFO's primary activities are excavation, preparation, display, and storage of fossilized mammal skeletons.

NIOSH noted that the greatest radiological hazard to workers was from radon gas generated by the decay of uranium in the fossils. Air in the poorly vented collections room where the fossils were stored had radon concentrations of about 8 picoCuries/Liter (pCi/L). Levels inside the fossil storage cabinets ranged from 128 to 500 pCi/L. NIOSH recommended ventilation for these rooms and storage units. (EPA recommends taking action when levels in homes exceed 4pCi/L.)

Even more recently, high levels of radon gas were found in some homes that had uranium-containing granite kitchen counter tops.\*\* Home testing of radon is recommended. I suggest first reading EPA's advice at <http://www.epa.gov/radon/pubs/citguide.html>, and then picking out an inexpensive test kit from the many offered on line and in hardware outlets. There is never a good reason for not knowing if radon levels in your home are above recommended limits.

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\* NIOSH *Health Hazard Evaluation Report* 96-0264-2713

\*\* *New York Times*, "What's Lurking in Your Countertop?" Kate Murphy, July 24, 2008

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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### EU BANS CADMIUM IN JEWELRY, PLASTICS

The following short article appeared in *Chemical & Engineering News*, May 30, 2011, page 38:

The European Union has banned the use of cadmium in jewelry and all plastic products effective Dec. 20, according to an amendment added to the chemicals law Registration, Evaluation, Authorization & Restriction of Chemical substances (REACH). Cadmium is a known human carcinogen and is toxic to aquatic organisms. Previously it was used in plastics as a coloring agent and stabilizer. It has been banned in the EU in most plastics since 1992 but was allowed in some polyvinyl chloride because alternatives were unavailable.

The European PVC industry has since found alternatives to cadmium. The legislation will allow low levels of cadmium in a limited number of construction materials that are made from PVC waste to encourage recycling. The ban on cadmium in jewelry is intended to protect consumers, particularly children, from the toxic metal, which has been increasingly showing up in inexpensive costume jewelry imported from China. The legislation also bans cadmium in brazing sticks, which are used to join dissimilar metals in applications such as steam engines for model trains, because of the fumes released during the brazing process.

**COMMENT.** It is interesting to note that after the 1992 ban the EU allowed cadmium in recycled plastics and will continue to allow low levels of cadmium in a limited number of recycled construction materials. Recycled products in almost all countries have higher limits for toxic contaminants. Without those lax limits, it would not be possible to recycle the contaminated material and it would all go to landfill. But consumers should be aware that recycled products are not going to meet the higher standards of virgin materials.

We also should be aware that the cadmium in jewelry is primarily from two sources:

- 1) The metal itself may be an alloy containing cadmium. This is especially true when metals are recycled from old electronics in China. This alloy also contains lead and other toxic metals.
- 2) Cadmium is still used to “flux,” that is to lower the melting points, of some types of gold, silver, and other metal solders and brazing sticks. Solders for jewelry are usually sold in “easy, medium and hard” grades. The easy flow low-melting solders are the most likely to contain cadmium, but all solders can contain it. Always insist on material safety data sheets when purchasing solders—not just assurances that they are cadmium-free. All metals in solders should be identified. For example, the EU has also banned nickel in jewelry since the middle 1990s.

Artists paints, however, are exempt from cadmium, nickel and other bans as they are in the United States and other countries. But artists who make and sell consumer products such as jewelry, textiles, or ceramics, must comply with the safety regulations applicable to those products.

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## A TEACHING TIP

Editorial

I have found over the years that the mere mention of health and safety training can put an audience into a state of inattention similar to a coma. We need every trick in the book to keep people aware, amused, and learning. Illustrating technical issues in memorable ways is vital. One technical issue primary importance is informing workers and consumers how little data there actually is on most of the chemicals they use. They are much more likely to practice good common sense hygiene with all of their products once they understand that no one really knows if many of the ingredients can cause cancer, birth defects, or any other bodily damage.

I usually explain that there are probably around 140,000 chemicals present in our commercial products. This number is based on the European Union's registry of chemicals and the assumption that EU manufacturers probably do not use more chemicals than we do. Then I can explain that less than 1000 chemicals have been evaluated for their cancer potential and either declared carcinogens or exonerated. Even fewer chemicals have been studied significantly for their other toxic effects such as birth defects, reproductive damage, and other organ damage.

But recently, I've found a new tactic to visually illustrate this problem to share with you. You can begin by explaining the work of the Chemical Abstract Service (CAS) which has offices worldwide and which assigns a unique number to each new chemical as it is discovered. Remind them that the middle initial in CAS stands for "abstract" since most chemicals were originally found by reading the abstracts of scientific papers. Now, however the sources are primarily patents and chemical catalogs. In other words, many of the newly registered chemicals are already available in some way.

Then explain that on September 7, 2009, CAS registered the 50 millionth chemical! The CAS began registering chemicals in 1950s. The first 10 million took 33 years to register. But the 10 million chemicals prior to September 2009 were registered in 9 months at a rate of 25 chemicals per minute!

Next, bring a computer to the class on which you can call up the Chemical Abstract Service's web page ([www.cas.org](http://www.cas.org)). Show the class the counter on the home page recording each chemical as it is assigned a number. The number is now over 61 million. I like to write down the number of chemicals from this site on the board before I start lecturing. Then we look at the number of chemicals registered at the end of the class. The rate is slower than the 2009 rate, but it is still impressive to show that in a typical 4-hour hazcom training, somewhere between 2000 and 4000 new chemicals usually will have been assigned numbers.

The CAS website notes proudly that the 60 millionth chemical was one patented as a possible anti-cancer drug.\* But clearly, the purpose proposed for the chemical is not the issue here. Each chemical is likely to find more than one use. For example, even the nasty citrus solvent, d-limonene, was tried as an anti-cancer drug since it is toxic and pharmacologically very active. D-limonene is also used in paint thinners, fragrances, EPA-registered pesticides, and for many other uses. So the issue is not the use of the chemical, it is the availability of vast numbers of untested chemicals.

This issue is especially important for artists since almost none of the organic pigments used in artist's paints have been tested for cancer or other chronic hazards. And manufacturers have interpreted the law to mean that untested chemicals can be labeled "nontoxic."!

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\* This chemicals was discovered by a Chinese Academy of Medical Sciences department. And while this sounds nice, I've looked at the structure and it should kill more than viruses! It appears to have the potential to breakdown to release a fluorinated aniline molecule. So like many anti cancer drugs, it may itself be a carcinogen.

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## **COLORADO & WASHINGTON, DC MUSEUMS: PICRIC ACID TALES**

SOURCES: Update: Roads Reopened after Disposal of Acid at Pioneers Museum, <http://www.kktv.com/home/headlines/123048168.html> & WWII Girl Scout Kit Brings Hazmat Team to Tudor Place, <http://www.thegeorgetowndish.com/thedish/wwii-girl-scout-kit-brings-hazmat-team-tudor-place>.

The first two weeks in June, museum collection workers twice confronted old sources of picric acid:

**STORY # 1 (June 2-quote):** Things are back to normal around the Pioneers Museum in downtown Colorado Springs following a Hazmat situation that forced the evacuation of the building. Museum workers discovered that a Boy Scout first-aid kit from the 1930s was leaking Picric acid, an ointment used to treat wounds, which can become corrosive. The building was evacuated as a precaution. A robot used to retrieve the substance and dispose of it.

**STORY #2 (June 13-quote):** Streets surrounding Tudor Place Historic House and Gardens (31st between Q and R) were closed Monday afternoon to investigate a HazMat situation, Mandy Katz, Tudor Place communications officer told *The Georgetown Dish*. Tudor Place executive director Leslie Buhler released this note to trustees at 5:55 pm .

"During the textile inventory project a early 20th c. girl scout medical box was found. It contained picric acid gauze pads which are highly explosive. After several calls to D.C. government offices, we finally were told to call the police. That resulted in a response by more police, fire, and the bomb/hazardous waste specialists.

All staff and visitors were evacuated from the property and careful instructions were given to the HZMAT team. After 3 hours, they went into the house and removed the pads from the box. They took them out to the driveway area in a protected position and exploded them. All is safe with no injuries or damage."

**COMMENT:** Picric acid was in common use before some of its properties were identified as not being compatible with consumer products. It was used in explosives, matches, electric batteries, for etching copper, as a mordant in textile dyeing, and for many other purposes. Carefully research all historic collection materials for the potential presence of picric acid and many other toxic chemicals.

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## **CITRONELLA FUEL INJURIES**

SOURCE: <http://www.nytimes.com/2011/06/11/nyregion/a-firepot-a-safe-label-and-2-horrible-explosions.html>, June 10, 2011, David M. Halbfinger

The New York Times covered two accidents, less that a week apart, involving the jelly-like citronella fuel that is burned to ward off insects on summer nights. First, a May 28 accident left a 14 year-old Long Island boy fighting for his life when his cousin tried to light a ceramic firepot to prepare for a backyard wedding reception. The quart bottle of fuel he was pouring instead burst into flames.

Then in Manhattan on June 3, a nearly identical blaze nearly killed a 24-year-old man and badly burned his best friend as they were relaxing on the friend's terrace. The 24 year-old has been on and off a ventilator for days. Bed Bath & Beyond was the source of the product involved in both accidents. It is sold as FireGel, "the Safe Pourable Gel." But witnesses to the accidents likened the gel to Napalm which sticks to the skin while burning.

A spokesman for the Consumer Product Safety Commission said it was opening an investigation into this relatively new type of product. The commission said it had received eight reports of explosions or burns involving firepots or fuel gel, several of them serious, since April 2010, not counting the New York cases. It is unclear who manufactured the products involved in all the cases. Similar liquids, made by companies including Napa Home & Garden and BirdBrain Inc., began showing up at small retailers around 2008 and in major chains like Home Depot and Sam's Club in 2009.

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## **LESSONS FROM AN OTTAWA SCHOOL SHOP ACCIDENT**

SOURCE: <http://www.yourottawaregion.com/news/article/1015429--student-in-barrhaven-explosion-revived>  
Tags: Canada, education, explosion, injury, unknown\_chemical, 2<sup>nd</sup> post: Student Dies from Blast Injuries, Daniel Nugent-Bowman & Jessica Cunha

The following is a reformatted quote from YourOttawaRegion.com News from May 26, 2011.

Eric Leighton, who played for the Almonte Thunder, died on the evening of May 26 after succumbing to his injuries inflicted by the explosion at Mother Teresa Catholic High School earlier that day. [The] 18-year-old student is dead after succumbing to injuries from a shop-class explosion at Mother Teresa Catholic High School in Barrhaven on May 26.

Ottawa police confirmed that Grade 12 student Eric Leighton died around 8:30 p.m. in hospital stemming from injuries from the explosion, which rocked the school around 10:45 a.m. The explosion was caused by a spark that hit an empty 55-gallon oil drum. The vapours from the peppermint oil once stored inside the drum is what caused the explosion, said Marc Messier, spokesperson for the fire services. The drum was being used in a project to build a barbecue.

Leighton was knocked unconscious and covered by debris from the blast. Ottawa Paramedics commander of operations Joe Micucci said Leighton had no vital signs when paramedics arrived at the school. He was resuscitated on route to hospital but paramedics reported severe head injuries. Later that night, Leighton died.

Four other students and a 33-year-old teacher were all treated for minor injuries and taken to hospital. All five were in stable condition. Three more students from the class were treated on scene.

**COMMENT.** Clearly, students were either welding or using power tools to cut a 55 gallon drum to make a portable barbeque. The fact that the barrel originally contained peppermint oil may have caused teachers not to consider the explosion hazard. But natural oils can be just as combustible and their vapors just as explosive as synthetic oils. The vapors from these oils are especially hazardous when remnants of the liquids are in a confined space like a drum.

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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# ACTS FACTS

THE MONTHLY NEWSLETTER FROM

## ARTS, CRAFTS AND THEATER SAFETY (ACTS)

181 THOMPSON ST., # 23,

NEW YORK, NY 10012-2586

PHONE 212/777-0062

August 2011

Vol. 25, No. 08

### OSHA PROPOSES REPORTING RULES FOR THE THEATER & ENTERTAINMENT BIZ

SOURCES: 76 FR 36414-36438, 6/22/11, <http://topnews360.tcmnet.com/news/2011/06/22/5591719.htm>

OSHA is proposing to update the list of businesses that are partially exempt from reporting their accidents and illnesses. OSHA is also switching their classification system from the Standard Industry Classification (SIC) to the North American Industry Classification System (NAICS).

The reporting regulation currently provides a list of industries that are partially exempt from maintaining records. They were excluded because OSHA assumed they had relatively low rates of occupational injury and illness. However, since the exempted industries haven't kept records, it obviously is impossible to *prove* that their rates are actually low. This is especially a problem for theatrical and entertainment industries which have had a surprising number of high profile accidents recently such as those at *Spider-man* or at Disney's Orlando theme park. Now OSHA has proposed to change the list. If the proposal becomes law, we will finally have some data on the following industries:

NAICS	NAICS Industry description (of those that would have to report)
<b>7111..</b>	<b>Performing Arts Companies</b>
711110	Theater Companies and Dinner Theaters
711120	Dance Companies
711130	Musical Groups and Artist
711190	Other Performing Arts Companies
<b>7113..</b>	<b>Promoters of Performing Arts, Sports, and Similar Events</b>
711320	Promoters of Performing Arts, Sports and Similar Events with Facilities (e.g. companies in fixed locations)
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities (e.g., road companies)
<b>7121..</b>	<b>Museums, Historical Sites, and Similar Institutions</b>
712110	Museums
712120	Historical Sites
<b>7139..</b>	<b>Other amusement and Recreation Industries</b>
713950	Bowling Centers
713990	All other Amusement and Recreation Industries

The proposed rule would also require covered employers to report to OSHA, within eight hours, all work-related fatalities and all work-related in-patient hospitalizations; and within 24 hours, all work-related amputations. The current regulation requires employers to report to OSHA, within eight hours, all work-related fatalities and in-patient hospitalizations of three or more employees.

Unfortunately, OSHA has seen fit to leave on the exempt list some industries ACTS feels *should* be keeping records including:

<u>NAICS</u>	<u>NAICS Industry description</u>	
6112..	Junior Colleges	Also exempt are all companies with fewer than 10 employees. For the full lists, see the <i>Federal Register</i> of June 22, 2011, pages 36414-36438. This is a “Proposed Rule” whose comment period is still open. It may not be approved.
6113..	Colleges, Universities, and Professional Schools	
6115..	Technical and Trade Schools	
6116..	Other Schools and Instruction	

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### ANOTHER ACRONYM FOR GLYCOL ETHERS: GLYMES

SOURCE: 76 FR 40850-40860, July 12, 2011

*ACTS FACTS* has often expressed concern about a very large group of solvents called the glycol ethers. While only a few of these have been studied in any depth, those few were found to be capable of causing various type of organ damage and adverse reproductive effects in both men and women. They also are known to absorb through the skin and go through rubber gloves without changing the gloves’ appearance.

We are all exposed to glycol ethers since they are in common household cleaners, water based latex paints, and more. They are hard to avoid because they are not always listed on labels and, if they are listed, they can be identified by many confusing chemical names. For example, the most common glycol ether can be called: ethylene glycol monobutyl ether, butyl cellosolve, 2-butoxyethanol, and other names. Now, it looks like another name may be used incorrectly to describe some of these.

**GLYMES.** Various industries are applying to EPA to manufacture 14 more glycol ethers. The heading on the notice reads: “Glymes: Proposed Significant New Use Rule” (SNUR). “Glyme,” as my chemical dictionary explains, is a “trival name” applied to a group of glycol ethers composed of various glycols attached to one or more methyl ethers. The “gly” stands for **gly**col and the “me” stands for **methyl ether**. But in this EPA notice, some of the 14 chemicals are actually diethyl or dibutyl ethers. In other words, the term glyme is being applied to other groups of glycol ethers—a very misleading practice for a group of chemicals whose names are already confusing.

**WHY ARTISTS SHOULD CARE.** This notice is important to art and theater workers because EPA indicates that some of these 14 glymes about which little is known are already used in making printing inks, paints, coatings, and adhesives. EPA is taking this action under the Toxic Substances Control Act (TSCA) to collect data on the volume of these chemicals that will be used and the potential for human exposures. EPA is not requiring industry to provide toxicity testing despite the fact that the notice says:

EPA has concerns about the 14 glymes listed in this SNUR, all of which have similar chemical structures. EPA is concerned about the reproductive and/or developmental toxicity of monoglyme, diglyme, and ethylglyme and believes that individuals could suffer adverse effects from their use. In addition, EPA has concerns about the remaining 11 glymes due to the lack of available use, exposure, and toxicity information. (Page 40851)

If you think that this indicates EPA will be successful in obtaining production and exposure data and could require toxicity testing if the data indicates it is needed, read the next article.

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## **EPA RECEIVED DERMAL ABSORPTION DATA FOR 5 CHEMICALS**

SOURCE: *BNA-OSHR*, 41(26), 6-30-11 pp. 568-9, 76 *FR* 38169-38175

According to a June 29 notice in the Federal Register, the Environmental Protection Agency has received dermal absorption data on the following chemicals.

- \* **vinylidene chloride** (CAS No 75-35-4), used to make plastic wrap, adhesives, synthetic fibers;
- \* **dicyclopentadiene** (CAS No. 77-73-6), used to make insecticides, flame retardants, paints, etc.
- \* **methyl isoamyl ketone** (CAS No. 110-12-3), a solvent;
- \* **diacetone alcohol** (CAS No. 123-42-2), another solvent; and
- \* **cyclohexanol** (CAS No. 108-93-0), in finish removers, leather degreasers, plastics, etc.

This story goes back to 1991 when OSHA nominated 658 chemicals to EPA's Interagency Testing Committee, saying it needed data from a simple *in vitro* dermal absorption rate test to assess worker risk. "*In vitro*" means literally "in glass," which indicates the tests requested are fast and inexpensive ones usually done on laboratory samples of human or animal skin. Without this simple test, workers cannot know if skin contact is a risk or which gloves to wear to protect themselves. Common sense dictates that this data should be available BEFORE ANY workers or consumers are exposed.

OSHA had to ask EPA to obtain the data, because EPA is the only federal agency that can require chemical testing under the Toxic Substances Control Act (TSCA). Thirteen years later on April 26, 2004, EPA issued a final test rule that covered only 34 of the original 658 chemicals. Now on June 29, 2011, a full 20 years after OSHA's initial request, data on five chemicals has arrived. Does anyone still think TSCA is working?

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## **ADULT BLOOD LEAD STATISTICS IN THE US 2008-2009**

SOURCE: *MMWR*, 60(25)July 1, 2001, pp. 841-845

The Centers for Disease Control and Prevention (CDC) published the blood lead level (BLL) tests reported from 40 states in 2008 and 2009. The BLLs reported are usually those at 25 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) and those at 40  $\mu\text{g}/\text{dL}$  or above. However, the report notes that "recent research has raised concerns regarding the toxicity of BLLs as low as 5  $\mu\text{g}/\text{dL}$ ." The report has two references for this point including one from the Association of Occupational and Environmental Clinics in Washington, DC, which recommends intervention for pregnant women at 5  $\mu\text{g}/\text{dL}$  so that physicians can prescribe additional calcium and other therapies to reduce the uptake of lead by the fetus.

**OCCUPATIONAL CAUSES.** Approximately 95% of all elevated BLLs reported among adults in the US are work-related. The highest category is from the manufacture of storage batteries, smelting, copper foundries and other metal industries. The second highest number of elevated BLLs is among construction workers. Of these jobs, painting and paper hanging are the highest categories—which is significant to our scenic artists and film industry construction workers on location in old buildings.

**NON OCCUPATIONAL EXPOSURES.** The top two activities blamed for high BLLs in non-occupational groups were shooting firearms and "Remodeling/Renovation/Painting." Clearly painting and renovating an old structure, whether on the job or at home, is a hazardous activity.

Other causes of high BLLs were retained bullets(gunshot wounds), casting (e.g., making bullets and fishing weights), eating food containing lead, Pica (eating nonfood items), and alternative medicines (e.g., Ayurvedic medicines). Ayurveda is a traditional medicine native to India. In past reports, the CDC has also mentioned Chinese, Mexican and other folk traditions as causes of lead exposure.

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## **FYI: SPIDER-MAN OSHA CITATIONS**

SOURCE: [www.osha.gov](http://www.osha.gov)

In response to inquiries, I'm publishing the *Spider-man* citations. They are found under "8 Legged Productions, Llc" on OSHA's web site. All three "serious" citations carry proposed fines of \$4500, \$4500 and \$3500 respectively. The first is under the General Duty clause (1910.5(a)(1)). It reads:

The employer did not furnish employment and a place of employment which were free of recognized hazards that were caused or likely to cause death or serious physical harm to employees in that employees were exposed to the hazards of falls or being struck during flying routines when employees fell from an elevated platform and/or struck the stage because of improperly adjusted or unsecured safety harnesses: Foxwoods Theater: 1) On or about September 25, 2001, an employee was injured while performing an aerial routine when he struck a landing platform which was not in correct position in regard to rigging position, b) On October 19, 2010, an employee was injured while performing an aerial routine when he struck the ground in front of the landing platform, c) On December 20, 2010, an employee was injured when the employee fell from an elevated scene due to fall restraint system not being anchored properly. Among other methods, feasible and acceptable abatement methods to correct the hazards are to: Comply with Aerial Performers Part 41 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York. Supplementing Part 41 of Title 12 by use of visual confirmation that the fall protection systems are properly attached and anchored and confirmation that the state props and platforms are set prior to allowing stage managers to give approval for the computerized controlled system to perform aerial acts. NOTE: IN ADDITION TO ABATEMENT CERTIFICATION, THE EMPLOYER IS REQUIRED TO SUBMIT ABATEMENT DOCUMENTATION FOR THIS ITEM, FAILURE TO COMPLY WILL RESULT IN AN ADDITIONAL PENALTY OF \$1,000.00 AS PER 29 1903.19.0.

**The second citation** is under 1910.23(c)(1), Guarding floor and wall openings and holes, which requires guarding of all floors or platforms 4 feet or more above the floor or ground with a standard rail or "the equivalent." The equivalent measures usually allow theatrical producers a lot of options, as long as they can support their belief that their choice of fall protection measures will be as effective as a guard rail. *ACTS FACTS* has covered a number of similar citations at other theaters and it should remind us that elevated stages must be included in written fall protection programs.

**The third citation** is for the general requirements for personal protective equipment. This general rule could be used to cover the non-traditional fall protection equipment used at *Spider-man*.

*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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield; Staff: John Fairlie, OES.

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Vol. 25, No. 09

### **STAGE COLLAPSE KILLS SEVEN: LACK OF REGULATIONS BLAMED**

SOURCES: *USA Today*, Donna Leinwant Leger & Marco R. Della Cava, 8/17/11; *Projection, Lights & Staging News*, [www.plsn.com](http://www.plsn.com), Newsroom/News, Frank Hammel, 8/14/11 & *L.A. Times*, <http://www.nme.com/news/various-artists/58800>, 8-23-11, & <http://latimesblogs.latimes.com/nationanow/2011/08/indiana-fair-stage-collapse-stage-had-no-inspections-or-permits-attorney-says.html>, August 20, 2011.

On August 13<sup>th</sup>, the stage at the Indiana State Fair in Indianapolis was hit by a strong wind and it collapsed. Three died almost immediately and four more have since died. Dozens more are injured.

Two of the dead are employees, a stage hand and a security guard. These deaths bring the accident under the jurisdiction of the Occupational Safety and Health Administration. OSHA sent five investigators to study the pile of twisted metal. State fire marshals and engineers representing various parties will also be on site. Lawyers have already filed wrongful death suits. A public relations company handling media calls for Mid America Sound, the company that built the stage, said the company would not comment on the incident until the investigations are completed.

Inspectors will determine if the structure met certain safety standards and if the crew responded properly to the weather reports and the visual sighting of the approaching storm. Already, it is obvious that there is a messy patchwork of laws applying to such structures and unclear whether state building safety inspectors even had the authority to inspect the stage or impose standards. The city did not inspect the stage since it was built on state land out of their jurisdiction.

Yet just 180 miles away in Chicago, temporary stages require permits and inspections. The city's building code says all such stages must go through the same permitting process and inspection as any other building, says Bill McCaffrey, spokesman for the Chicago Department of Buildings. A builder must submit architectural plans for review, he says. The stage must have a wind gauge and be able to withstand winds of about 30 to 35 mph. The applicant must also have a high-wind action plan that provides details of the steps to be taken if the wind exceeds 35 mph.

The entertainment industry has model standards for these outdoor concert structures that are strict, but voluntary, says Karl Ruling, the technical standards manager for PLASA, a trade association for the entertainment industry. PLASA (formerly the Entertainment Services Technology Association) can only encourage local regulators to adopt their standards.

**COMMENT.** This is the third such stage incident this summer. The earlier incidents were in Tulsa, OK on August 6, when wind toppled a lighting rig at an outdoor event damaging band equipment and on July 17 when a storm collapsed a stage at an event in Ottawa, Canada. Eight people reportedly were injured. It is time to provide national regulations for temporary stages. The state or city having jurisdiction should be responsible for enforcement of these laws.

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## **CANADA TO REGULATE CADMIUM IN CHILDREN'S JEWELRY**

SOURCES:[http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/\\_2011/2011\\_103-eng.php](http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/_2011/2011_103-eng.php), News Release 2011-103, 7/25/11  
& [http://www.hc-sc.gc.ca/cps-spc/legislation/consultation/\\_2011cadmium/draft-ebauche-eng.php](http://www.hc-sc.gc.ca/cps-spc/legislation/consultation/_2011cadmium/draft-ebauche-eng.php)

In 2008 and 2009, Health Canada, the agency defined as “the Federal department responsible for helping Canadians maintain and improve their health, while respecting individual choices and circumstances,” found significant amounts of lead in children’s jewelry. As a result, Canada regulated lead at 600 milligrams per kilogram (mg/kg) total lead by weight in the piece and 90 mg/kg migratable (leachable) lead on children’s jewelry items imported, advertised, or sold in Canada. Then Health Canada found that some manufacturers substituted cadmium, an even more toxic metal, for the lead! Jewelry items containing cadmium, sometimes in the range of 90%, were found.

In July, 2011, Health Canada released a Draft Proposal for Cadmium Guidelines in Children’s Jewellery [Canadian spelling]. This is an extremely exciting document from ACTS’s point of view because its studies found that acid leachability (or migrateability as it is called in Canada) is an imperfect predictor of bioavailability, that is, the amount of the substance that is released and can be absorbed by the body. ACTS has maintained for decades that acid leach tests are not reliable.

The draft document contains a section called Total Cadmium Content versus Migration. It looks at the European Union’s Standard, EN-71-3 which specifies a 2 hour acid leach test to determine how much metal leaches out of the surface of an item. The EN standard sets limits for how many parts per million of the metal should be detected in this leach solution to determine if the toy is safe.

However, Health Canada studied leaching data over an extended 144 hour period and concluded “That using a 2-hour migration test may grossly underestimate cadmium exposure via jewellery lodged in the stomach over the course of several days as was observed in the lead-poisoning death in 2006.” This 2006 case refers to the death of a four year-old child in Minnesota in 2006 who ingested a heart-shaped charm from a bracelet given as a free gift with the purchase of Reebok shoes.

Next Health Canada plotted total cadmium vs. migratable cadmium and concluded:

The ... results show no clear correlation between the total amount of cadmium in a jewellery sample, and the amount that might migrate out of the sample in the acidic environment of the stomach over time. Therefore, any exposure scenario based on migration out of a jewellery sample will potentially underestimate exposure to cadmium. Hence, it is considered that cadmium limits in children’s jewellery should focus on total cadmium, and not migratable levels.

**US LEAD RULES FOR TOYS.** The Consumer Product Safety Improvement Act of 2008 set a total lead content by weight for children’s toys and articles provided that the final most restrictive limit was technologically feasible. On July 26, 2011, the Consumer Product Safety Commission (CPSC) published a notice in the Federal Register (76 *FR* 44463-44464) that no evidence that this limit was not feasible could be found. As a result, all children’s toys, articles, paint and surface coating that come under this restriction in the US are required to contain less than 0.01% or 100 parts per million (ppm = mg/kg) of lead as of August 14, 2011. Then CPSC clarified the policy by declaring that the solubility test is no longer required since and is replaced by the total lead test.<sup>1</sup>

The CPSIA set no limits for cadmium or other toxic metals in children’s toys and articles. A voluntary standard of the American Society of Testing and Materials (ASTM F 963—similar to EN 71-3) sets limits for acid solubility tests for antimony, arsenic, barium, cadmium, chromium, lead, mercury and selenium. After the CPSIA bill was passed, ASTM F 963 was amended to adopt the 100 ppm total weight limit on lead to be consistent with the Act. But ASTM F963 still specifies solubility tests for the other metals and it is an unenforced voluntary standard.

**US PHTHALATE RULES.** The CPSIA also limits the total amount of three phthalate plasticizers in children's toys and articles and designates another three phthalates to be banned if studies show it is warranted. Consumers might be surprised to know that this rule is not being enforced and the Commission is still studying three of the phthalates and recommends not regulating one of them at all. They say this phthalate was not found in the products they looked at. ACTS wonders if the CPSC really thinks they have looked at all the products that may be imported or that some manufacturers will not begin to use this phthalate if they know it is not banned?

**ACTS POSITION.** Regulation of children's jewelry is somewhat unique because these small pieces can be ingested and remain stuck in the digestive tract for prolonged periods of time. But there can be scenarios with children's toys that may also involve excessive exposure. ACTS believes that all toxic substances in children's jewelry, toys and articles should be regulated by the total concentration in the item rather than acid solubility tests. And the digestion test can be cheaper and take less time.

The evidence that acid solubility underestimates exposure is seen in the history of acid-insoluble ceramic glaze frits (lead compounds converted to a glass-like material). A 1985 study of insoluble lead frits showed that the blood lead levels of animals exposed by both ingestion and inhalation rose as fast or faster than animals exposed to raw red lead.<sup>2</sup> Then a number of poisonings and two deaths from ingestion of "nontoxic" lead glazes<sup>3</sup> proved the point.

The ASTM F963 solubility tests in are also applied to pigments used in art materials. The tests may be done on individual pigments rather than on the whole art material. In the case of cadmium, these tests may be done in the dark because there is a chemical change in the pigment when it is exposed to light. Pigment solubility can change when in contact with substances in paint or other products as the product ages. All this is nonsense. An art material labeled "nontoxic" should be nontoxic whether exposed to light, time, or any other condition. People use art materials in "creative" ways not easily anticipated. **Children's materials simply should not contain toxic substances. Adults just need to know if there is a toxic substance present and the amount. This information is already required by OSHA on material safety data sheets: toxic substances should be listed when present in amounts of 1 % or greater; carcinogens at 0.1% or greater. Let's just do it.**

1. <http://www.cpsc.gov/library/foia/foia11/brief/astmF963mod.pdf>, Modification to F 963 Notice of Requirements Package, July 18, 2011
2. Emilio Sartorelli, et al., "Lead Silicate Toxicity: A Comparison among Different Compounds" (University of Siena), *Environmental Research*, vol. 36, pp 420-425, 1985.
3. "Morbidity and Mortality Weekly Report," *Centers for Disease Control*, October 23, 1992 Vol. 41, No. 42 pp. 781-783. A second death from ingesting an insoluble lead frit glaze was referred to in a Press release, ACMI, Inc., Boston, *Institute Items*, Vol. 39, no 4, December 1997

## **MECHANICAL LIFT ACCIDENT INJURES TWO AT LINCOLN CENTER**

*New York Post*, By Jessica Simeone, Helen Freund and Dan Mangan, July 29, 2011, [http://www.nypost.com/p/news/local/three\\_injured\\_in\\_elevator\\_accident\\_DHeYe9ftDKv96xcifyNiLM#ixzz1TaYJabsc](http://www.nypost.com/p/news/local/three_injured_in_elevator_accident_DHeYe9ftDKv96xcifyNiLM#ixzz1TaYJabsc) & *Projection, Lights & Staging News*, Frank Hammel, 8-1-11, <http://www.plsn.com/news/21-news/7770-two-hospitalized-after-backstage-lift-accident-at-jazz-at-lincoln-center-rose-theater.html>

On the afternoon of July 29, two stagehands were hospitalized after a Genie lift fell over at a Jazz at Lincoln Center theater in Columbus Circle. The injured workers -- one man and one woman -- were taken to Cornell Medical Center, where they were listed in stable condition. The accident was "not related to any activity or equipment that occurs or is used during the performance," according to an official statement. The production that night started at 8 pm as planned.

**COMMENT.** Hmmm. Genies usually only tip if one or more of the outriggers are removed.

## **OSHA RULES IN FAVOR OF WORKERS IN SCHOOL PROJECT**

SOURCE: *Philadelphia Inquirer*, Jane Von Bergen, staff writer, August 03, 2011

Three union electricians who said they were laid off in retaliation for complaining about unsafe working conditions at a Philadelphia high school, will receive \$150,000 in lost wage and benefits from their employer, Hyde Electric Corporation. The Occupational Safety and Health Administration said that the payment was part of their enforcement of whistle-blower laws designed to protect employees who speak up about unsafe situations.

The workers, had been hired to replace the fire alarm system at the school in 2008 and they complained about potential exposure to asbestos materials in the ceiling. A vice president of Hyde Electric says they will pay the settlement, but he insists the workers were laid off for lack of work.

Under the settlement, the company also must post information on employees' rights as whistle-blowers. "Employees should be free to exercise their rights under the law without fear of termination or retaliation by their employers," Robert Kulick, OSHA's acting regional administrator in Philadelphia, said in a statement.

**COMMENT.** Note that the workers were laid off in November of 2008, almost 3 years ago. And if the \$150,000 all goes to the workers, that comes to \$50,000 each for almost three years work at about \$16,500/year. It clearly doesn't pay to kvetch.

It is chilling to know that people who complain about health and safety must be prepared to lose their jobs. In the vast majority of these cases, OSHA doesn't win these whistleblower battles. And just how willing do you think other employers will be to hire you if they know you called in OSHA?

This is one good reason for workers to unionize. A good union can negotiate a collective bargaining agreement that includes provisions requiring employers to comply with the OSHA regulations. Then an OSHA violation becomes a contract issue and the union can take over the fight. If the union has several members working on site, the employer will not even know who called in the complaint.

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# ACTS FACTS

THE MONTHLY NEWSLETTER FROM


## ARTS, CRAFTS AND THEATER SAFETY (ACTS)

181 THOMPSON ST., # 23,

NEW YORK, NY 10012-2586

PHONE 212/777-0062

October 2011

Vol. 25, No. 09 

### CASKETS USED ON STAGE: AN OSHA CONFINED SPACE ISSUE

Case Study, "Hazard Evaluation and Preventive Recommendations for an Unusual Confined Space Issue in an Opera Set Design." Anders Abelmann, Steven E. Lacy, Andrey Gribovich, Colin Murphy, David Hinkamp, *Journal of Occupational & Environmental Hygiene*, 8:D81-D85, September 2011.

At the request of the Lyric Opera of Chicago, an occupational health hazard evaluation was conducted concerning a confined space issue within the set design of an opera performance. Following one dance sequence and costume change, several dancers were to be placed inside flag-draped, military-grade human remains transfer cases for 6 to 12 minutes, then exit the cases to begin the next dance sequence. Further, at one point, a performer was to dance on top of one of the cases with another performer inside of it.

The issues were 1), the structural integrity of the transfer case under the load of the performer on top and 2) the environmental conditions for the performer inside the casket. Reinforcement of the lid did not appear necessary, but to be certain, metal reinforcements were added that would be hidden from the audience. But the second and more interesting issue was the air quality and temperature inside the case and the ability to identify and respond to a performer's possible medical emergency.

**OXYGEN.** The amount of oxygen that would remain in this small space while someone who has just been physically exerting themselves heavily was calculated. It was determined that oxygen levels would be "immediately dangerous to life and health" in about 3 minutes. The crew had originally cut out small vents in the side with mesh material over them. Instead, the industrial hygienists recommended 30 by 20 centimeter vents without mesh in the backs of the cases so that enough air would be provided and the dancers' faces could be observed at all times. It was also suggested that small fans be placed in the back of the container to provide air and cooling.

It was further recommended that an off-stage employee be designated to observe each performer during their entire confinement period. A protocol for observing the performers while inside the case was to be developed including procedures of observation and signaling, establishing emergency procedures, and how to remove a performer from the case and stage. They also recommended disabling all the latches on the cases.

**WERE THE RECOMMENDATIONS CARRIED OUT?** Technical Director, Peter Schwob, reported to the research team that the cases were modified as recommended and photos of the work were sent which showed the final openings were smaller and spaced differently than recommended. It was determined, however, that the final placement of openings would still provide adequate access to fresh air and sight line contact with performers. Fans were installed for air exchange and all latches were permanently disabled. Finally, a stagehand was assigned to each case to watch for signals or signs of distress while each performer was inside. Flags were draped over the front of the cases facing the audience but not over the backs where they could block ventilation or observation.

**COMMENT.** OSHA's confined space rules do not apply just to sewers and crawl spaces. They apply to the crazy things we think up to do on stage as well. Congrats to the Lyric Opera for using the experts at the University of Chicago's School of Occupational Medicine in this way! And as a child assistant in my father's Vaudeville magic act, I can particularly appreciate this plan.

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## **CRAFT MAKING MAY HAVE CAUSED DECLINE OF SOME PREHISTORIC CALIFORNIA INDIGENOUS PEOPLE**

SOURCE: "Could the Health Decline of Prehistoric California Indians be Related to Exposure to Polycyclic Aromatic Hydrocarbons (PAHs) from Natural Bitumen?" Sebastian K.T.S. Warmlander, Sabina B. Sholts, Jon M. Erlandson, Thor Gjerdrum, and Roger Westerholm, *Environmental Health Perspective*, Vol 119, No. 9, September 2011, pp. 1203-1207.

Indian crafts may have contributed to the decline of California's coastal indigenous people, a study in *Environmental Health Perspectives* suggests. The Chumash Indians occupied the area around the Santa Barbara Channel region for a period of 7,500 years. This region is one of the world's most prolific areas of natural hydrocarbon seepage. Large submarine seeps produce chunks of soft bitumen (tar balls) that frequently wash ashore and there are numerous terrestrial oil seeps or tar pits.

A component of bitumen is a family of chemicals called polycyclic aromatic hydrocarbons (PAHs). The negative health effects of PAHs are well established for modern human populations but this appears to be the first time they have been studied in prehistoric contexts.

**ARTIFACTS.** The rich archeological and ethnohistoric record of the coastal Chumash suggests that they were exposed in many ways to PAHs. Bitumen was a staple commodity among the Chumash, with cakes of the materials for use and trade all along the channel shores. The Chumash developed bitumen-sealed water-bottle baskets about 5,000 years ago. These were made by swirling pulverized bitumen and hot pebbles inside the basket until the interior was sealed with melted bitumen, a traditional technique that persisted into the 19<sup>th</sup> century. They began sealing their canoes with bitumen around 2,000 years ago. These uses and many others exposed the Chumash to PAHs by skin contact, inhalation of powdered bitumen, and inhalation of the fumes on heating.

Over this same period of time, the Chumash diet shifted to more and more seafood which is known even today to be contaminated with bitumen chemicals from the sea floor. All of these factors argue for an increasing exposure of the ancient Chumash to PAHs in increasing amounts over time.

**SKELETAL RECORD.** Over a century of archeological research, a vast database of skeletal populations has been excavated from island and coastal cemeteries. These indicate increasingly poor health and a decrease in cranial volumes (head size) and reduced stature. These characteristics have been seen in animal studies and in newborn babies of mothers exposed to PAHs during pregnancy. PAH exposure is also associated with cancer, but this disease cannot be determined from bones.

**COMMENT.** This study has so many lessons for us. First, making of crafts has always been a dangerous business. Second, "natural" does not mean "safe." And third, since PAHs are also in crude oil, oil spills like the one in the Gulf of Mexico may have long term effects yet to be seen.

Printmakers should pay attention to this story because other names for bitumen are "asphalt" and "asphaltum," the material used as a resist on intaglio etching plates. Some etchers also use powdered asphaltum rather than rosin for aquatint. PAHs from asphaltum can absorb through the skin, can be inhaled as a powder or as a fume when fused on hot plates—the same exposures experienced by the Chumash. Wear gloves or avoid skin contact and use ventilation when using asphaltum.

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## ALMOST NONTOXIC PRINTMAKING

A long time friend of ACTS and master printmaker, Don Messec, sent us a website showing a type of lithography done on aluminum foil, with vegetable soap as a resist and Coca Cola as the etch. It is a fast process with almost no waiting for the acid etch to work and multiple prints can be made. The demonstrator in the video used a lithography press for the first image, and did the second image without a press by rubbing the back of the print with a spoon. There are comments on the site which indicate that oil pastels, tusche, or vegetable oil can be used in place of the soap.

The process looks like fun and is just about as nontoxic a method as I've seen. The most toxic material is the ink. While these inks are only as toxic as the pigments and additives they contain, it does mean the process still should not be done in a kitchen or living area. Check it out at:

<http://www.youtube.com/watch?v=G2w0IFm7JOY>

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## BBC TELLS ORCHESTRAS TO USE EARPLUGS

The British Broadcasting Company published a report in 2008 warning the musicians in its five orchestras that they are at risk of hearing loss. Using earplugs and sitting further apart were two of the suggestions made at that time. Violinists and violists were specifically told that they need to be protected from the piccolo and the brass, and cellists and bassists also need protection if they sit too close to the trumpets.

Now two brand new publications are available from the BBC. They are very well-written and useful for explaining the technical issues to musicians and guiding safety managers. These are:

**Music, Noise & Hearing – How to Play Your Part – A Guide for Musicians – Summary** (BBC, August 2011) found at:

[http://www.bbc.co.uk/safety/pdf/safety-musician\\_noise\\_guide\\_speed\\_read\\_summary\\_v3.pdf](http://www.bbc.co.uk/safety/pdf/safety-musician_noise_guide_speed_read_summary_v3.pdf)

**Draft for consultation: Musicians' Guide to Noise & Hearing - Part II Toolkit for Managers**

[http://www.bbc.co.uk/safety/pdf/Safety-Musician\\_noise\\_guide\\_PartII.pdf](http://www.bbc.co.uk/safety/pdf/Safety-Musician_noise_guide_PartII.pdf)

**PIT MUSICIANS.** Sitting further from each other is not possible for musicians in a small theater orchestra pit, but ear protection and sound damping are options. Plastic acoustical foam can be used, but it absorbs high frequencies while having little or no effect on low frequencies. This creates a "dead" acoustic environment in which musicians often compensate by playing louder.

It is, however, possible for skilled sound engineers to design tailor-made absorbers to capture specific frequency ranges and to deflect sound with lightweight partitions. A barrier also can be attached to chairs that curves around the back of the players' heads to protect musicians' hearing.

**COMMENT:** ACTS was alerted to this publication by Janet Sellery. I met Janet years ago, probably sometime during the 9 years during which she built the health and safety program at the Stratford Shakespeare Festival. Since then she obtained her Occupational Health & Safety Certificate at Ryerson University and received her professional designation as a Canadian Registered Safety Professional (CRSP). In 2007, she was selected by Canadian Occupational Safety Magazine as "Canada's Health & Safety Manager of the Year." Most recently, she was the Health & Safety Manager for David Atkins Enterprises Productions for the Opening, Closing and Victory Ceremonies for the Vancouver 2010 Winter Olympics. She is recognized as one of Canada's leading experts in health and safety and the arts.

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## **2 WOMEN KILLED IN ILLEGAL FACTORY IN INDIA**

SOURCE: <http://timesofindia.indiatimes.com/city/hyderabad/2-women-killed-in-chemical-factory-explosion-in-city/articleshow/9655402.cms>

In the Indian town of Amberpet, two daily-wage workers died in an explosion on August 18<sup>th</sup> in a small factory (called a chemical unit) in an industrial complex. The two workers were mixing hydrogen peroxide, methyl ethyl ketone and sodium sulphate to produce a chemical substance used in the manufacturing of asbestos sheet molds and coolants. The high intensity of the explosion damaged a portion of the chemical factory's roof and severely injured both women. One died on the spot and the other succumbed to injuries during treatment at a nearby hospital.

Police said that the chemical unit was an illegal one. The owner was arrested and booked under the Indian Penal Code section 304-A (Causing death due to rash or negligent act) .

**COMMENT:** Almost every week I read about some kind of accident in an illegal factory in India, Bangladesh or China. They are making pigments, dyes, reclaiming metals from electronics, and similar activities. In this case, they were using asbestos such as that still legally exported by Canada. The workers making products with these pigments, dyes, asbestos, and metals at risk, and so is the end user of the toxic product. The US Consumer Product Safety Commission has found and recalled some of these items, but it is likely that far more of them end up in our homes and schools.

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## **STETSON UNIVERSITY STUDENT FOUND WITH URANIUM**

SOURCE: <http://www.news-journalonline.com/breakingnews/2011/09/stetson-university-student-found-with-uranium-on-campus.html>

Stetson University officials confiscated a package containing low-grade uranium from a student on September 2nd. The county's HAZMAT team, along with DeLand's police and fire departments were called to the scene. The Public Safety Office where it was held was temporarily sealed off. Authorities discovered that the amount of uranium was small enough to be possessed legally.

According to a Stetson spokeswoman, possession of uranium falls under the university's weapons policy, and the student will go through Stetson's judicial process. The Police Chief reportedly said they are "conferring with the FBI as a routine protocol."

**COMMENT.** Listen up potters and glass blowers! Occasionally I find a stash of depleted uranium oxide during an inspection. We really shouldn't be using it since it is toxic and potentially hazardous to the artist and even to the owner of the finished art work. And who needs all that commotion!

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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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield, Janet Sellery; Staff: John Fairlie, OES.

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### CARNEGIE MELLON UNIVERSITY IS ASBESTOS LAWSUIT DEFENDANT, JUDGE RULES

SOURCE: *BNA-OSHR*, 41(39), 10-6-11, p. 862

On September 22<sup>nd</sup>, the Superior Court of Pennsylvania reversed a summary judgement ruling that prohibited the estate of George P. Sabol, who died of mesothelioma, from suing Carnegie Mellon University and ordered the trial court to determine how much exposure to asbestos occurred while Dr. Sabol was acting in his capacity as a student at the school (*Sabol v. Allied Glove Corp.*, Pa. Super. Ct., No.171 BDA 2001, 9/22/11-- Judge Gene Strassburger).

Although the Sabol estate sued more than two dozen parties including General Motors Corp., U.S. Steel Corp., General Electric Co., Allied Glove Corp., Owens-Illinois, Inc., Plotkin Brothers Supply, and Inc., Premier Refractories, Inc., this appeals court decision only addresses the liability of Carnegie Mellon University, the court said. Sabol attended the Carnegie Institute of Technology (now CMU) as a graduate student from 1961 through 1965. He began work on his thesis during the summer of 1963, which included a research assistantship for which he received pay. On Jan. 31, 2008, Sabol was diagnosed with mesothelioma, and died May 5, 2009.

**COMMENT.** This is an important decision. The court ruled that the exclusive remedy provision of the Workers' Compensation law does not bar a suit alleging asbestos exposure by a plaintiff who was on the premises of a university both as a graduate student and an employee. CMU must defend against the claim that Dr. Sabol's asbestos exposure during his student activities caused his death.

ACTS will also be watching this case because some asbestos exposures allegedly were from asbestos gloves, a furnace, and high temperature insulation. These sources may be similar to the asbestos gloves, furnaces and kilns used in ceramics, glass, and foundry programs in universities in the 1960s.

### UPDATE: \$1.5M AWARD AGAINST RYOBI UPHELD

SOURCE: *BNA-OSHR*, 41(41), 10-20-11, pp. 900-901

**HISTORY:** In 2005, 25-year-old Carlos Osorio severely injured his fingers in a table saw accident. After five surgeries and \$384,000 in medical bills, Osorio's hand will remain fixed in one position.

Attorney Richard Sullivan, filed a lawsuit for Osorio in 2006 against Ryobi. After watching a video of SawStop's demonstration of their flesh-detecting device that could have prevented Osorio's accident, he assembled a team of lawyers to take on the table saw manufacturers. The lawyers for Osorio, pointed to SawStop's sales as evidence that the technology is not only feasible but financially viable. They asked for \$250,000 in damages. The jury awarded Osorio \$1.5 million instead.

Ryobi Technologies appealed claiming that Osorio used an improper "categorical liability" theory, that is, that an entire category of products (all table saws except those manufactured by SawStop) is inherently defective. The argument was rejected. The \$1.5 M jury verdict was upheld by a federal appeals court on October 5 (*Osorio v. One World Technologies, Inc.*, 1<sup>st</sup> Cir., No. 10-1824, 10/5/11).

**THE DECISION.** Judge Juan R. Torruella, writing for the appellate panel, said, “The absence of an alternative design is a defining characteristic of categorical liability theory,” In this case, he said, “an alternative design was not only offered, but also discussed, examined, and debated.” In this comment the Judge is referring to the fact that in 2002, Ryobi pulled out of a contract they had initially signed with SawStop to incorporate their device into their saws.

**COST, WEIGHT ARE FACTORS FOR JURY.** Osorio’s evidence about the new flesh-detection technology sufficiently supported the jury’s finding of liability on his design defect claim. “[W]e do not conclude that the added cost or increased weight of Osorio’s proposed alternative design is fatal to his case as a matter of law,” Torruella wrote. “It is the province of the jury to determine whether the relevant factors, properly balanced, suggest that a product’s design is unreasonable.”

**REMOVAL OF THE GUARD.** Osorio had removed the guard that originally came with the saw prior to the accident. But the court sided with Robert Holt, an expert for Osorio, who said that Ryobi’s guiding device and a traditional safety guard were defective. Further, Torruella said the testimony was relevant to Osorio’s contention “that it was common for consumers to remove this equipment and that Ryobi should have accounted for this probability in its design.”

**COMMENT:** The last part of the decision is brilliant. For decades I have begged woodworkers to use the guards and have tried to answer their complaints about them. I hereby reverse my opinion too. I now agree with all these workers—the guards are lousy! Thereby, I concur in removing any defense they or their employers have for continuing to use a saw with a traditional guard that is “inherently defective.” Were I a capitalist, I would also invest in SawStop.

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### **UNSAFE LEVELS OF LEAD AT DISNEY PARK ALLEGED IN LAWSUIT**

SOURCES: <http://www.latimes.com/news/local/la-me-lead-disneyland-20111018,0,1686724.story>, by Louis Sahagun, *Los Angeles Times*, 10-18-11; <http://www.orlandosentinel.com/business/os-walt-disney-world-lead-risk-20111018,0,5996065.story>, by Jason Garcia, *Orlando Sentinel*, 10-18-11; [http://www.upi.com/Business\\_News/2011/10/18/Suit-filed-in-Disneyland-lead-issue/UPI-30001318915528/](http://www.upi.com/Business_News/2011/10/18/Suit-filed-in-Disneyland-lead-issue/UPI-30001318915528/) *Business News*, 10-18-11; <http://www.cpsc.gov/cgi-bin/firm.aspx> & [http://www.washingtonpost.com/business/economy/recalled-items-faulted-in-numerous-consumer-complaints/2011/10/07/gIQAmgzTL\\_print.html](http://www.washingtonpost.com/business/economy/recalled-items-faulted-in-numerous-consumer-complaints/2011/10/07/gIQAmgzTL_print.html).

Dozens of leaded-glass windows, brass rail chains, door knobs and drinking water fountains at some of Disneyland's most popular attractions expose children to high levels of lead, according to Mateel Environmental Justice Foundation. Mateel filed suit in California’s Orange County Superior Court in April against Walt Disney Parks and Resorts U.S. Inc., and is now seeking an injunction to require the park to cover the items or post warnings. Their lawsuit alleges that there are excessive levels of lead in commonly touched objects like the Sword in Stone, where Disneyland photographers encourage children to pose while pulling on the sword handle.

In court documents, Disney rejected the allegations in the lawsuit and maintained that it had posted adequate warnings about lead-tainted fixtures and figurines, as required by California state law.

Tests conducted in June and December for Mateel, called wipe tests, mimic what happens when someone touches lead-tainted items. In those tests, a volunteer wiped his hands with a laboratory version of a moist towelette, then touched windows, brass chains and door knobs throughout the park. In each case, the volunteer then wiped the palms and fingers of his hands with a second towelette, which was analyzed by an independent laboratory.

The tests found hand lead exposures at the Haunted Mansion, Peter Pan Ride and Mr. Toad's Wild Ride of 1 microgram, 9.75 micrograms and 5.82 micrograms respectively, Mateel said. A wipe sample from a stained-glass Pinocchio window in the dining area of the Village Haus restaurant

registered 350 micrograms of lead, Mateel said. Under California law, warnings are required if exposure for average users exceeds 0.5 micrograms per day and it is estimated that about half of what is found on a child's hands will be ingested.

**COMMENT.** This is not the first time Disney has had issues with lead. The Consumer Product Safety Commission's recall list at <http://www.cpsc.gov/cgi-bin/firm.aspx> shows 33 items that Disney made or licensed. Five of these were recalled for violation of federal lead regulations:

- \* Children's Toy Jewelry Sets Recalled by Playmates Toys; Charms Violate the Total Lead Standard (February 2, 2010)
- \* QuinCrafts Children's Jewelry Recalled Due to Risk of Lead Exposure (May 29, 2008)
- \* Disney Store Recalls Tinker Bell Wands Due to Violation of Lead Paint Standard (May 22, 2008)
- \* Disney Store Recalls Pirates of the Caribbean Sleeping Bags Due to Violation of Lead Paint Standard (May 22, 2008)
- \* J.C. Penney Recalls Disney™ Winnie-the-Pooh Play Sets Due to Violation of Lead Paint Standard (October 11, 2007)

**ATTACKS ON RECALL LIST.** ACTS recommends consumers use this list to check on their consumer purchases. However, this recall database has been under attack by business groups and their allies since it was created as part of a product-safety reform measure in 2008. Those critics, including the CPSC's two Republican appointees, say they worry about any inaccurate information in the database that could unfairly damage a company's reputation, hurt its bottom line and mislead consumers. They also argue that the database drains precious resources from a small agency with a heavy workload. Earlier this year, they unsuccessfully pushed to strip its \$3 million in funding.

"I beg you to stop the funding of our database," Anne Northup, commissioner of the Consumer Product Safety Commission, told a Senate panel earlier this year.

But advocates of the database say the public nature of this reporting system is a huge victory for consumers, who until then were kept in the dark about safety hazards until a product was recalled. They say the database provides expansive protections for businesses and enables them to post comments side by side with the complaints. ACTS agrees and believes that Commissioner Northrup has placed business interests above consumer safety with her request to defund the recall list.

## **CHANGE IN THRESHOLD LIMIT VALUE (TLV) FOR GAMSOL**

Editorial

Last month I sent an e-mail on a technical issue to all of the teams of architects and engineers I work with planning new or renovated art buildings. However, I think it is important for readers of this newsletter to know about this as well. For the purposes of this article, I am assuming you know that the American Conference of Governmental Industrial Hygienist's (ACGIH) Threshold Limit Value (TLV-TWA) is the concentration of an airborne chemical to which nearly all workers may be exposed during a regular 8 hour/day, 40 hours/week without adverse health effects. In addition, the lower this TLV, the greater the amount of air is needed to provide adequate ventilation.

For years, I recommended a painting solvent called Gamsol® because it was safer than most other solvents based on its TLV. Now that TLV has changed. Gamlin Paint's new MSDS for Gamsol dated 2/1/11 (see their website) lists several different occupational exposure limits. The units in which the various limits are listed on the MSDS is confusing. I have reworked their list to provide complete data in both parts per million (ppm) and milligrams per cubic meter (mg/m<sup>3</sup>).

**Vapor Time-weighted average (TWA) limits of various agencies**

<u>Agency</u>	<u>Limits in mg/m<sup>3</sup> &amp; ppm</u>
OSHA Permissible Exposure Limit (PEL-TWA)	2900 mg/m <sup>3</sup> = 500 ppm
US Manufacturer's Recommended Code of Practice (RCP-TWA)	1200 mg/m <sup>3</sup> = 170--180 ppm*
EU Hydrocarbon Solvent Producers Assoc (HSPA) RCP-TWA	1200 mg/m <sup>3</sup> = 170--180 ppm*
German Fed. Republic's Maximum Airborne Conc. (MAK-TWA)	300 mg/m <sup>3</sup> = 50 ppm
ACGIH threshold limit value (TLV-TWA)	400 mg/m <sup>3</sup> = 100 ppm***

\* The US and EU manufacturer's recommended limits converted to ppm will depend on the average molecular weight of the distillate which can vary usually ranging from 160 to 180 ppm. To convert the manufacturer's limit for Gamsol (av MW 163) from mg/m<sup>3</sup> to ppm:

$$\text{RCP ppm} = \frac{24.45 \times \text{RCP in mg/m}^3 \text{ (1200)}}{\text{gram MW (163)}} = 180 \text{ ppm}$$

\*\* DFG is the German Federal Republic whose MAK values are often used by other EU countries.

\*\*\* The TLV-TWA is for CAS # 8030-30-6, a fraction of petroleum which falls within the range of molecular weights in the definition for CAS # 64742-48-9 (Gamsol's CAS #) and is applicable.

**SIGNIFICANCE OF THE CHANGE.** Note that the table above lists both the ACGIH TLV-TWA and the Occupational Safety and Health Administration's (OSHA) PEL-TWA. This OSHA PEL actually is the ACGIH TLV that was adopted by OSHA in 1971 and it shouldn't be used by professionals since it has never been updated. An industrial hygienist in the US should use the current ACGIH TLV-TWA representing the most recent evaluation of the solvent's health effects.

The formula used to calculate dilution ventilation rates incorporates a number of factors in addition to the TLV such as the solvent's specific gravity, evaporation rate, and molecular weight. (For those interested in seeing how this formula is applied, send an SASE to ACTS and ask for a data sheet on Dilution Ventilation Calculations.) When I calculate the rate using the new TLV for a painter using one ounce/hour (the most common rate of solvent-use I have observed among oil painters), the rate is ~190 cubic feet per minute (cfm). The rate using the old 300 ppm TLV was 63.5 cfm.

This change represents a considerable increase in energy costs for the facility and illustrates the folly of reductions in fresh air requirements as a strategy to cope with energy costs by groups such as the Leadership in Energy and Environmental Design (LEED). We saw how disastrous reducing air requirements was in the 1970s when many "sick buildings" were built. As the table shows: the ventilation rate in 1970 would have been calculated with a 500 ppm TLV, in 1990 with a 300 ppm TLV, and now with 100 ppm. TLVs become more restrictive as more is learned about toxicity.

*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 other publications. Call for information about sources. Editor: Monona Rossol; Research: Tobi Zausner, Sharon Campbell, Robert Pearl, Brian Lee, Pamela Dale, Kathy Hulce, Pat F. Sheffield, Janet Sellery; Staff: John Fairlie, OES.

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