ACTS FACTS

THE MONTHLY NEWSLETTER FROM

ARTS, CRAFTS AND THEATER SAFETY (ACTS)

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

January 2012 **Vol. 26, No. 01**

ACTS wishes you a healthy, happy 2012

THE 26TH VOLUME OF *ACT FACTS* BEGINS TODAY

ACTS FACTS is beginning its 26th year. The year is off to a good start with a consult at two Zayed University campuses in Dubai and Abu Dhabi. I mention this to warn readers that I will not be answering inquiries between January 9 and 14. Ordinarily I do not discuss my many trips in *ACTS FACTS* and I remain available by phone and e-mail. But this time it would be difficult. I'm asking readers to understand. I hope 2012 will be exciting for us all and a hell of a lot better than 2011!

CPSC ANNOUNCES $1.3M PENALTY AGAINST SPIN MASTER

76 FR 68167-70, November 3, 2011 & CPSC October 27, 2011 Release #12-023

In last January's *ACTS FACTS*, we called for repeal of the Labeling of Hazardous Art Materials Act (LHAMA) because it is being used to mislead consumers. This year, we will support this position with an illustration of how the law also can mislead art material manufacturers. The evidence for this is found in a November 3, 2011 Federal Register notice in which the Consumer Product Safety Commission (CPSC) announced a $1.3M penalty and settlement with a company called Spin Master.

THE CPSC'S CASE. The CPSC alleges that from about April 16, 2007 to November 7, 2007, Spin Master, Ltd., imported and sold to U.S. retailers approximately 750,000 units of various art and craft toys whose primary ingredient was called Aqua Dots–tiny plastic beads of different colors that stick together when sprayed with water allowing children to create various shapes and designs.

By mid-October 2007, Spin Master had received reports that children and a dog had become ill and received emergency medical treatment after ingesting Aqua Dots. They failed to report these incidents to CPSC as required.

On October 18, 2007, Spin Master learned that Aqua Dots contained 1,4-butylene glycol, a chemical that, when ingested, metabolizes to gamma hydroxybutyrate (GHB), a Schedule I controlled narcotic substance used on the street as a date rape drug or as a type of ecstacy. On October 19, 2007, Spin Master received information that this chemical in Aqua Dots is also harmful if swallowed, and that, upon ingestion, it targets the kidneys and central nervous system. And in the days and weeks following, Spin Master continued to receive reports of children falling ill after ingesting Aqua Dots. The firm also received reports of children falling ill after ingesting a similar product manufactured by the same "overseas factory" using the same ingredients found in Aqua Dots.

On November 2, 2007, Spin Master received a report that a child became ill after ingesting Aqua Dots. On November 5, 2007, Commission staff contacted spin Master and notified them of that ingestion incident which had occurred in October 2007. Then on November 7, 2007, Spin Master, in cooperation with the CPSC, voluntarily recalled the product. In the press release announcing the recall, Spin Master acknowledged that "[c]hildren who swallow the beads can become comatose, develop respiratory depression, or have seizures."

THE SETTLEMENT. As usual, the CPSC settlement with Spin Master allows the manufacturer to deny having knowingly violating the regulations and deny having any liability or wrongdoing. While I personally abhor this accepted practice, I sympathize with CPSC's use of this strategy to obtain a faster settlements without costly litigation. But in this particular case, I am not averse to the settlement. While the CPSC case above appears open and shut, Spin Master's defense has merit.

THE DEFENSE. First, Spin Master points out its Canadian headquarters and its US branches are only distributors of Aqua Dots. They were not involved in the design or manufacture of the products, nor was it the creator or inventor of AquaDots. Spin Master's "overseas" manufacturer did not provide them any insight into the chemical composition of the product. It remained at all times a closely guarded trade secret by the manufacturer.

Second, Spin Master ensured the product underwent all legally required testing under Federal Hazardous Substance Act regulations, CPSC lead content requirements, Canadian Hazardous Products regulations, and **ASTM labeling standards** before distribution of the product began. The product passed all such testing giving Spin Master a false sense of security.

Third., Spin Master went above and beyond all legally required testing and engaged a "highly regarded independent testing agency" to conduct live animal acute toxicity testing on June 6, 2007. On August 10, 2007, Spin Master received and reasonably relied on the testing and only after November 7 when many illnesses were known was it apparent that the live animal toxicity testing was not performed at an appropriate standard of professional care.

It wasn't until October 18, 2007 that Spin Master was advised that the manufacturer had changed one of the product's ingredients from 1,5-Pentamethylene Glycol to 1,4-Butylene Glycol. When advised of this switch, Spin Master immediately began reinvestigating the product. The next day, distributor received a Material Safety Data Sheet (MSDS) for 1,4-butylene glycol.

A week later, on October 25, 2007, Spin Master was advised of the results of a Toxicological Risk Assessment performed by a board-certified toxicologist **as required by LHAMA**, which stated that none of the ingredients in the product were banned or restricted for use in consumer products in the United States, and that the product containing 1,4-butylene glycol would be safe under the CPSC regulations when used as intended or under circumstances involving reasonably foreseeable misuses including ingestion. The distributor was advised that 4 grams of the product, or 50 beads, would have to be consumed to cause significant harm.

Then in early November 2007, Spin Master received a detailed report of yet another ingestion incident involving the product. On November 7, 2007, Spin Master voluntarily recalled the product in conjunction and cooperation with the Commission.

ADDITIONAL INFO. ACTS sent a Freedom of Information Act (FOIA) request to CPSC for more information. Among many things, we would like to know where this "overseas manufacturer"

resides, the identity of the "highly regarded testing lab" that sent defective data to Spin Master, and the identity of the "board certified toxicologist" who assured Spin Master Aqua Dots were safe even after several children had nearly died and it was known that one of the ingredients altered into a dangerous street drug. Without access to this information, how are well-meaning and honest manufacturers going to know who to trust?

The CPSC probably will withhold this information. In that case, we will consider this another reason why these no fault settlements should be replaced with action in open court. And it is high time that consumers demand the same transparency. Yes, there was a public recall at the time, but the identity of the players should not be withheld and four years should not elapse before details are provided.

TEACHERS' ISSUES. I would also hope that teachers of young children would consider this story the next time some exciting new product becomes the new rage. I searched through some Internet discussions about Aqua Dots and was appalled by the overwhelmingly uncritical enthusiasm many teachers had for the product. Instead, teachers always should have reservations about new materials. With all the public awareness of the hazards of tiny invisible amounts of chemicals that are released from water bottles and vinyl lunch boxes, they should be intuitively skeptical about tiny colored plastic dots. And the fact that the product is a trade secret should have been a red flag.

The lack of healthy skepticism among teachers is due in part to the failure of schools to provide OSHA hazard communication training as required. Without training about the real meaning of label terms and the basics of reading MSDSs, teachers will remain ignorant of the risks and will continue to assume products marketed for children must all be fully tested and safe.

LOTS OF ACCIDENTS ON SETS LATELY?

SOURCES: "Met Opera Performer Out of Hospital," *The Wall Street Journal*, 12/19/11, p. A23; "Opera Singer Stable Afer Falling Off State...", The Gothamist.com , 12/18/11 (picture of set); "Spider-Man gets stitched up," *AmNew York*, 11/11/13, p. 3; "16 zombie actors injured on 'Evil' set, AP wire, 11/12/11; http://www.cp24.com/servlet/ an/local/CTVNews/0111011/111011_fall_injuries/20111011/?hub=CP24Home; & MOL Update for Live Prformance Meeting, November 14, 2011.

Since about the middle of October I've read news reports of about a dozen accidents in theaters and film locations. Spider-Man got a few more stitches again in November, but that's nothing new. However, two of the accidents were particularly interesting because they involved elevated platforms on sets. In the first case, a person fell eight feet and had only bruises, while in a second accident several people sustained more significant injuries after a fall of four and a half feet.

AN 8-FOOT FALL. December 17, Wendy White, a veteran mezzo-soprano for the Metropolitan Opera, was released from the hospital a day after she plunged from a set platform about eight feet above the stage during a performance of Faust. Incredibly, she only sustained bruises.

According to the report in the Wall Street Journal, a hinge on a plywood platform gave way. The WSJ reporter based this statement on interviews with Met workers, so we really don't know exactly what happened. But assuming this account is true, it should remind us that any platform above the level of the stage puts performers at significant risk. Design of the platform should include backup systems to insure that failure of a single set element such as hardware cannot cause a failure.

THE 4.5-FOOT FALL. On October 11, thirteen actors on the set of *"Resident Evil: Retribution"* were injured in the accident at Cinespace Film Studios in Toronto. Most were treated and released, but one actor suffered a broken rib, another had a gash that required 10 stitches, and a third actor had a ruptured disc that will require therapy and rehabilitation, according to the Ministry of Labour.

The accident should be very well documented because the cameras were rolling as the actors fell four and a half feet during a take at the fifth instalment of the franchise based video game series. It occurred when about 50 actors, outfitted as zombies, were atop a stage assembly on wheels that was backed up to a stationary stage. The shot called for all the zombies to chase an actor down the permanent stage. When the actors started to run, it caused the stage on wheels to move away from the permanent stage leaving a gap 55 inches wide into which most of the zombies fell.

But one can only imagine the confusion of emergency workers and Police when they arrived to find a couple of dozen people on the ground who were all made up to look like they were already long dead! An EMS spokesman on the site said it was very difficult for crews to assess their injuries.

COMMENT. The Ontario Ministry of Labour sent out an inspector and an engineer and their report is available (our thanks to theater consultant Janet Sellery in Toronto for providing a copy). But it seems rather obvious that the accident is related to the same laws of physics that make it an OSHA violation not to secure the wheels of rolling scaffolds.

UPDATES ON DRUM EXPLOSIONS DURING BARBECUE PROJECTS

SOURCES: http://www.cbc.ca/news/canada/ottawa/story/2011/07/19/ott-school-explosion-welding-ban.html; http://www.floridatoday.com/article/20111129/BREAKINGNEWS/111129009/Man-wounded-by-barrel-explosion-Melbourne; & : http://www.yourottawaregion.com/news/article/1015429-- 2nd post.

The July, 2011 issue of *ACTS FACTS* covered the death of a student in a shop-class explosion at Mother Teresa Catholic High School in Barrhaven, a suburb of Ottawa, Ontario on May 26. Four other students and one teacher were also injured in the explosion. The students were using empty metal drums to make barbecues. Fire officials said they believed that vapors from residual oil might have ignited as the students cut through the drum using a hand grinder.

As a result, the Ontario Ministry of Labour banned all welding, grinding and other "hot" work at the school until workers and supervisors have been informed of the hazards of working with hot cutting devices and provided with instruction on safety and precautions.

Then on November 29, a man was injured in Melbourne, FL, when he was cutting a 55-gallon drum previously used to contain flammable ethyl alcohol with a circular saw to make a fire pit. The explosion was heard more than a mile away. The man had burns around his eyes and face and was taken to a hospital.

COMMENT: Each year I read about one or two of these. People are clearly graduating from high schools and colleges without a basic common sense knowledge of science and safety.

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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February 2012 **Vol. 26, No. 02**

UCLA & A PROFESSOR CHARGED WITH 3 FELONIES

Felony charges filed..., Kim Christensen, *Los Angeles Times*, 12/28/11 and next day http://latimesblogs.latimes.com/lanow/2011/12/ucla-says-it-will-defend-outrageous-felony-charges-in-fatal-lab-fire.html; C&EN, 1/22/09 and 1/16/12, and dozens of other sources.

On January 16, 2008, a University of California-Los Angeles staff research assistant Sheharbano (Sheri) Sangji died from injuries sustained in a fire 18 days earlier in a lab accident. Sangji was working with *tert*-butyllithium, a liquid which bursts into flame on contact with air. As she was drawing the liquid from a bottle into a syringe, the plunger came out of the syringe barrel, the liquid splashed on her clothes and set them on fire and an open flask of hexane in the hood spilled and also caught fire. Sangji wasn't wearing a lab coat and she had missed the safety training when she began work in October–training that UCLA provided only at the beginning of every quarter. The lab had been cited earlier for safety violations that had not entirely been corrected at this time.

After extensive accident investigations by the Chemical Safety Board and the California OSHA, the State of California filed felony charges against chemistry professor Patrick Harran and indicted both Harran and School. UCLA faces up to $4.5 million in fines. Harran faces up to four-and-a-half years in prison. Bail was set at $20,000. The charges for the three felonies read as follows:

> **Count 1:** On or about December 29th, 2008, in the county of Los Angeles, the crime of WILLFUL VIOLATION OF AN OCCUPATIONAL SAFETY &HEALTH STANDARD CAUSING THE DEATH OF AN EMPLOYEE, in violation of LABOR CODE SECTION 6425(a), a Felony, was committed by THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, A PUBLIC CORPORATION, UNIVERSITY OF CALIFORNIA LOS ANGELES, and PATRICK HARRAN who were the employers and an employee having direction, management, control or custody of Sheharbano Sangji, who was an employee at the University of California, Los Angeles. It is alleged that the DEFENDANTS willfully violated CALIFORNIA CODE OF REGULATIONS TITLE 8, SECTION 5191(f)(4), a California occupational safety regulation.
>
> **Count 2:** [has identical wording, but the violation is of] TITLE 8, SECTION 3203(a)(6).
>
> **Count 3:** [has identical wording, but the violation is of] TITLE 8, SECTION 3383(b).

Here's the wording of the sections that the State must make the case for:

1. SECTION 5191(f)(4) reads: (f) Employee information and training. .... (4) Training.
(A) Employee training shall include;
1. Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

2. The physical and health hazards of chemicals in the work area; and

3. The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous

chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

(B) The employee shall be trained on the applicable details of the employer's written Chemical Hygiene Plan.

2. **SECTION 3203(a)(6)** reads: (a) Effective July 1, 1991, every employer shall establish, implement and maintain an effective Injury and Illness Prevention Program (Program). The Program shall be in writing and, shall, at a minimum:
   ... (6) Include methods and/or procedures for correcting unsafe or unhealthy conditions, work practices and work procedures in a timely manner based on the severity of the hazard:

3. **SECTION 3383(b)** reads: (b) Clothing appropriate for the work being done shall be worn. ...

COMMENTS: I monitored many web sites for comments on this case. As expected, Harran says that Sangji was an experienced lab worker and implies it's her fault (Sangji was 23 years old with a bachelors degree). A UCLA spokesman calls the charges "outrageous" and "appalling." But Ken Smith's comment on the American Chemical Society's safety list got to the heart of the issue:

> In my 20 years of Cal/OSHA as an IH inspector, I found that universities laboratories were places that lacked many health and safety needs. Primarily, the reasons were that the professors only gave lip service to safety as long as it did not impinge on their time and authority. They were loath to even see us when we came to inspect and had to be dragged out to even be interviewed, much less be confronted with evidence.
>
> Many did not even seem to know much about health and safety and what was needed in their labs to protect their students, and even themselves. The EHS departments had little to no authority to cause changes if the department head demurred. Not a good situation overall.
>
> Perhaps this will wake up the University of California and others around the country to the need for a decent H&S environment in the labs and where chemicals are used. ... The students need the training to protect themselves and to protect the schools from disasters such as these. But ... the professors need the training the most, and perhaps a lesson or two in being humble.

I have the same impression of many science, art and theater departments. Often my training sessions are poorly attended because administrators maintain they can't force faculty to attend. However the regulations in all states *require* employers to make training *mandatory* and to *enforce* the safety rules for all employees. That includes senior faculty, who as Ken notes, probably need training the most. Liability requires that students receive similar training and oversight.

Harran's defense that Sangji was an experienced lab worker is also null. Nowhere in the regulations in any state does is say: "Training is not necessary if you hire people with initials after their names."

SPONTANEOUS COMBUSTION STRIKES AGAIN

http://www.keyc.tv/story/16627505/vernon-center-fire-starts-from-chemical-combustion

An investigation of a residential fire in Vernon Center, MN, determined that the fire began on the back porch after rags used for staining spontaneously ignited in a trash can. According to Vernon Center Fire Chief Landon Davis, the rag-induced fire destroyed most of a one story home.

This is one more reminder to painters and crafters that all of the oils: linseed, tung, walnut, poppy seed, citrus and any setting (polymerizing) oil, can spontaneously combust when on paper or rags.

DEADLY RED BEAD USED IN CRAFT JEWELRY

http://bioprepwatch.com/news/305208-uk-customers-urged-to-return-bracelets-made-with-deadly-castor-bean-relative, Bio Prep Watch, Ted Pulain, 12/29/11

According to an alert in *The Telegraph*, a group of 36 retailers in the United Kingdom is urging customers to return red and white bracelets made from the Jequirity bean, a poisonous relative of the castor bean, which is the main ingredient of the chemical warfare agent ricin. The Jequirity bean contains the toxin abrin, which is a controlled substance under the U.K. Terrorism Act. Those who bought the bracelets are urged to place them in a bag and then wash their hands thoroughly without touching their eyes. The stores that sold the bracelets are offering full refunds.

Rainstick Trading, a Peruvian wholesaler, originally supplied the jewelry to stores in the United Kingdom it was reported that 2,800 of the bracelets were sold over the past year.

WHAT IS ABRIN? Abrin is chemically related to ricin, but is considered more deadly. Some experts say it can kill in doses 75 times smaller than ricin. Symptoms of abrin poisoning include acute gastroenteritis with vomiting, diarrhea, shock and kidney failure.

Abrin is a natural poison found in the seeds of a plant called Abrus precatorius commonly called Jequirity, Crab's Eye, Rosary Pea, John Crow Bead, Precatory bean, Indian Licorice, Akar Saga, Giddee Giddee or Jumbie Bead in Trinidad &Tobago. It is also known as Gunja in Sanskrit and Ratti in Hindi. The plant belongs to the family Leguminosae, and is an ornamental, twining, woody vine which grows to a height of 10 to 20 feet when supported by other plants. It is native to Indonesia, but grows wild in the tropical and subtropical areas of the world where it has been introduced. It has a tendency to become weedy and invasive.

The plant is best known for its seeds, which are used as beads in jewelry and in percussion instruments. The most common variety of seed is glossy, bright scarlet, with the area around the hilum (point of attachment) of black. There are other less common varieties of this plant that produce different colored seeds: for instance, black with a white spot, and white with a black spot.

POISONING CASES. Most cases of poisoning involve the ingestion (inadvertently or deliberately) of these attractive red seeds. Deliberate ingestion is a common method of suicide in India. And I read a 2005 report of an unusual case in India of Abrus poisoning in a man who was "prescribed" the white seed variety as an aphrodisiac by a folk medical practitioner, and suffered serious consequences before finally recovering after a long period of supportive medical treatment.

According to Gary Greenberg, MD MPH, of the University of North Carolina's School of Global Public Health, there have been three recorded cases of Jequirity beans killing children who swallowed them in the United States. There are also several recorded cases of jewelry makers who have died after pricking their fingers with the needles they used to bore through the seeds.

COMMENT. I was amazed at the close up picture of these seeds on Wiki. I immediately recognized them as the seeds in necklaces from South America that I played with as a child. I don't know how I missed learning about these seeds all these years.

Had I known about abrin, I surely would have covered it in my book for folk artists (*Artisans Health & Safety Manual*, Aid To Artisans, Inc., published in hard copy and online Feb 1, 2009, available free in English, Spanish & French). Chapter 8 on plants and trees mentions ricin, but not abrin. If you use this book, you might want to slip this article in at page 37.

HALIDE LIGHT MYSTERY SOLVED: AGAIN

http://www.myfoxphilly.com/dpp/news/local_news/Father_Judge_Hazmat_Mystery_Solved_122111; Father Judge High School Hazmat Mystery Solved

Early in December, dozens of people went to hospitals complaining of eye irritation after a weekend cheerleading tournament held at Father Judge High School in Northeast Philadelphia. The school was tested for hazardous materials and was even closed for a couple of days while officials investigated. On December 21st, health officials announced that the eye irritation was due to a defective metal halide light that emitted ultraviolet (UV) rays. The school is repairing the fixture.

Adverse effects from these lights has been known since at least 1982.* And a specific school gym incident and it's effects on legislation were reported *ACTS FACTS* (4/2005, 7/2006, 9/2007). In this case, teachers at Bryant Elementary School in Lake Oswego, OR, had skin and eye inflammations after attending a training session in the gym for a few hours on November 18, 2004. Symptoms reported included burned and swollen eyes, temporary blindness, irritated skin similar to a sunburn, blurred vision, and headaches. The protective glass covering one of the gym's ceiling-mounted metal halide lights had been broken after being struck by a volleyball the previous month, but the light continued to operate. As a result, teachers were exposed to a full day's UV radiation exposure in as little as eight minutes, according to tests reported in the OR-OSHA inspection narrative.

While the most recent Philadelphia incident is not expected to result in any permanent damage, the fact is that exposure to strong UV radiation can damage the eyes and increase skin cancer risk. The doctor for four of the Oregon teachers says the UV radiation has damaged their eyes, made them hypersensitive to light, and limits their ability to produce tears. Three of these teachers were the ones who were sitting directly under the damaged light and received the highest dose of UV. The fourth was a physical education teacher who spent several hours a day under the defective light.

The injured Oregon teachers lobbied for a bill to prevent further incidents. On June 11, 2007, Gov. Ted Kulongoski signed the bill which bans use of bulbs that don't self extinguish within 15 minutes if there is a crack or break in the outer protective lens. **All states should enact similar laws.**

* Thun, MJ; Altman R, Ellingson O, Mills LF, Talansky ML (1982). "Ocular complications of malfunctioning mercury vapor lamps". *Ann Ophthalmol.* **14** (11): 1017–20

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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AMERICAN IDOL CONTESTANT FALLS OFF STAGE

SOURCES:http://latino.foxnews.com/latino/entertainment/2012/02/09/american-idol-contestant-falls-off-stage-in-first-hollywood-episode/#ixzz1ltOcAnYM, American Idol Contestant Falls Off Stage in First Hollywood Episode, Published February 09, 2012 Fox News Latino

During the first episode of Hollywood week for American Idol, one contestant fell off the stage. Symone Black, 16, from California had just finished singing "(Sittin' On) the Dock of the Bay" much to the delight of the judges. One of the newspaper reports said "she started to touch her head, stumble around the stage, until seconds later she fell right off." But that's not how I saw it.

I invite you to go to the link above and look at the video. Symone sings a few lines and then judge Steven Tyler, stopped her and asked her why she chose this song. She said to "reach out to an older crowd." Then Tyler asked,"Does this mean you think we are older?" Symone said "no," and her hand went to her head in confusion. She was walking toward them tentatively apparently searching for something to say. She stumbled on the ridge at the edge of the stage and fell over.

Symone fell head first and onto a camera man kneeling at the foot of the stage. Her father is shown sprinting towards the stage. Someone called for a medic. Jennifer Lopez said. "Oh My God," and Steven Tyler said ""She hit her head." [Mick Jagger must have said something because a bright blue oval was over his mouth on the still.] A second video on the site shows Black being asked when she ate last while she was given something to drink. Someone said she might have had low blood sugar. She got to her feet and she and her father were seen going to the hospital to be checked out.

COMMENT. Unfortunately, I have watched many videos of pit falls. First, the configuration of this stage is one of the more dangerous. It has a small platform (~ 4' by 4' square) extending passed the stage lip and out over the pit. A few steps in any of three directions can result in a fall.

Symone was also a minor, inexperienced, and she may have had health issues. It is amazing that the industry thinks it is acceptable to put such a high risk individual at the edge of a hazardous fall. That same elevated hazard would be illegal if it was on a construction site or located anywhere else in the building. There are many ways to protect people with warning devices a couple of feet from the edge, hire a spotter, install a pit net, or hold blocking rehearsals. Instead, there was a thin white line around the very outer edge of the extended platform. In my opinion, this was not suitable protection for amateur and minor contestants.

ACTS FACT ISSUE IS LATE

We apologize for the late mailing of this issue. It seems that one type of flu virus which was not expected to rear its ugly head this year was not including in this year's shot. Many New Yorkers have succumbed to the bug. Your Editor was one. Don't get this one, it is at least a three week ordeal for most of us.

SOME ABRASIVES MAY EXPOSE ARTISTS TO BERYLLIUM

SOURCES: *BNA-OSHR,* 42(4), 1/26/12, p. 73; *BNA-OSHR*, 25(9), 2/2/95, p. 368-369 & *ACTS FACTS*, 9/95

According to Public Citizen, the various manufacturers of coal slag abrasive have not provided workers with material safety data sheets (MSDSs) that inform them that highly toxic beryllium is present in the slag and using it as an abrasive blasting grit will expose them to levels above the OSHA permissible exposure limit. They have called on OSHA to enforce the hazard communication standard (29 CFR 1910.1200) provisions for MSDSs.

MANUFACTURER	PRODUCT NAME
Harsco Corporation	Black Beauty
Abrasives, Inc	Black Magic
American Indistrial Minerals	BlackMax Coal Slag
ATI Black Diamond	various
Ensio, Inc.	Patriot Blast
Mobile Abrasives, Inc.	Black Blast
Opta Minerals, Inc.	Blackblast
U.S. Minerals	Black Magnum

The Public Citizen Petition lists these various beryllium-containing coal slag manufacturers and their products by their brand names. **Not one of the MSDSs on any of these products lists highly toxic beryllium metal contaminants that are in their slag.**

The product I most often encounter in art and restoration work is the Black Beauty product. For example, I have seen it used to abrade wooden beams in an old mill converted into an art center after which black dust rained on people's desks for years thereafter. I have seen it used in art schools as a grit to blast metal, glass and ceramic objects in sculpture applications and the fine slag dust rises from the back of the blasting cabinet.

The Black Beauty MSDS only lists as contaminants amorphous silica, less than 0.1% quartz silica, and the oxides of aluminum, calcium, magnesium, iron, potassium and titanium. Under toxicity it says that "Coal slag is not listed on the NTP, IARC, or OSHA list of carcinogens." This is very misleading, because the MSDS I obtained on their web site is dated November 10, 2010, four years after titanium dioxide was listed as an IARC 2B (animal carcinogen, possibly carcinogenic in humans). This classification is required on MSDSs. So also is the presence of beryllium required.

SLAG USE HISTORY. Industry keeps trying to find uses for the tons of glass-like slag that is created when coal is heated to create coke or when metal ores are smelted. The problem is that coal and ores all have toxic impurities in them which are left in the slag. So uses must be found that do not expose workers, consumers, or the environment to these metals.

The most illustrative story involves the Oregon Steel Mills. They tried breaking up their ore slag into small gravel-sized bits and selling it as roofing granules. This product was approved by the Oregon Department of Environmental Quality and the U.S. Environmental Protection Agency. The product also received the 1993 Governor's Award for Toxic Use Reduction.

Then only two years later, the Oregon Occupational Safety and Health Division (Oregon OSHA) cited Oregon Steel Mills and proposed $1.4 million in penalties (eventually bargained down to $156,360). The Oregon OSHA said the Mill endangered the health of workers by exposing them to lead, cadmium, and arsenic when they used this same slag as an abrasive blasting grit.

Both the 1993 award and the 1995 fines were appropriate. The reason is that all slags contain toxic metals and other highly toxic impurities. Using slags for roofing usually can be done safely because the granules are too large to be inhaled, unlikely to be ingested and the large

granules have a small surface area from which toxic metals can leach into rain water and the ground. But reducing the slag to smaller particles and creating a fine powder during abrasive blasting exposes workers to a highly hazardous dust.

RECOMMENDATIONS. Until more complete information and trace analyses of slags are provided by manufacturers, ACTS will not recommend using any slag for abrasive blasting. Use soda lime glass bead abrasives instead.

CITATIONS ISSUED IN INDIANA STAGE COLLAPSE

SOURCES: Indiana Dept. Of Labor, Press Release 2/8/12; www.in.gov/dol/2367.htm (Safety Order and Notification of Penalty documents); & BNA-OSHR, 42(6), 2-9-12, pp. 129-130

On August. 13, 2011, a powerful storm swept into the Indiana State Fair grounds. The stage toppled onto a crowd of people who had gathered to watch the country duo *Sugarland* perform, leaving seven people dead and 58 injured (see *ACTS FACTS*, 9/11). One of those dead was a union rigger.

After the accident, it was found that there was a messy patchwork of laws and standards applying to outdoor structures in Indiana. It would appear that state building inspectors didn't have the authority to inspect the stage. The grounds are physically within the City of Indianapolis, but on land owned by the State. After the accident, the Indiana Occupational Safety & Health Administration (IOSHA) investigated and has now cited three of the organizations involved in the collapse.

Since IOSHA has no regulations exactly fitting this situation, they used their General Duty Clause (Indiana Code, Chapter 22-8-1.1-2) which says the employer must provide a place of employment free of recognized hazards. Then to demonstrate these hazards were not properly addressed, they referenced safety procedures found in two accepted national standards:

* **American National Standards Institute (ANSI) E1.21-2006**, Temporary Ground-Supported Overhead Structures Used To Cover Stage Areas and Support Equipment in the Production of Outdoor Entertainment Events.
* **National Fire Protection Association (NFPA) Life Safety 101 code**, Chapter on Existing Assembly Occupancies (13.1.7.1.3) which requires establishment of an occupant load.

IOSHA levied the heaviest fine of $63,000 against Mid-America Sound Corporation, the company that constructed the load-bearing stage roof. Also fined were the International Alliance of Theatrical and Stage Employees (IATSE) Local 30 and the Indiana State Fair Commission.

MID-AMERICA'S $63,000 PROPOSED FINES: Lori Torres, Indiana labor commissioner said, "The evidence demonstrated that the Mid-America Sound Corporation was aware of the appropriate requirements and demonstrated a plain indifference to complying with those requirements." This makes them "knowing" violations and the fines are higher. Mid-America will contest the citations.

KNOWING VIOLATION 1 ($21,000):
a) ...did not develop and implement an Operations Management Plan pertaining to .... construction....
b) ...did not prepare proper layout drawings, engineering documents, and Operations Management Plan...
c) ...did not develop a risk assessment plan and make workers aware of the [construction] hazards....
d) ...did not conduct periodic inspections by a qualified person, with appropriate documentation...
e) ...did not keep records for each structural component....

KNOWING VIOLATION 2 ($21,000):
a) ...did not provide cross-bracing as recommended by the manufacturer.
b) ...did not take into consideration the soil conditions at the location.
c) ...did not designate a competent person.

KNOWING VIOLATION 3: Mid-America Sound: ($21,000)
a) ...did not have current engineering calculations, design notes, and test results for the structure...
b) ...did not have adequate knowledge of the engineering documentation pertaining to the construction...
c) ...did not take into full consideration weights of all equipment including but not limited to follow-spot chair, temporary personnel occupancy and reactions from fall protection systems...

THE UNION'S $11,500 PROPOSED FINES (The union will contest the fines.)

SERIOUS VIOLATION 1: ($3,500) IATSE's head rigger, required to make determinations on the construction and guy wire attachment points and placement of anchors on the load bearing roof structure...did not take into consideration the soil conditions at the location.

SERIOUS VIOLATION 2: ($3,500) Employees ... erecting the load bearing roof ...were not provided with fall protection ...[when] working 4 feet or more above ground level.

SERIOUS VIOLATION 3: ($3,500) The employer did not conduct a personal protective equipment hazard assessment of the work site to determine the personal protective equipment required when erecting the load bearing roof or any other jobs they perform at the Indiana State Fair Grounds.

NON-SERIOUS VIOLATION 4: ($1000): The employer did not maintain the OSHA 300 and did not have records of an OSHA 300A for the years 2011, 2010, 2009, and 2008.

THE INDIANA STATE FAIR COMMISSION received one Serious Violation for failing to conduct a life safety evaluation of the fair grounds. The Commission paid the fine and have set about developing the evaluation and plans.

COMMENT. I hope all readers will look over this article for the principles it illustrates. First, it demonstrates that it doesn't matter if there are no regulations written specifically for the specific hazardous conditions. It also doesn't matter if no agency seems to have jurisdiction or the right to inspect the worksite. If some one is injured or killed, an agency will step up and appropriate standards will be found–standards the employer should have known about and should have followed.

Some of the citations are questionable. For example, can IOSHA cite the IATSE union as an employer when their contract says their member/workers on that site are employed by Mid-America? But whether or not IOSHA's citations are upheld is also not very important. Instead, the fact that IOSHA's investigation found these agencies at fault means the inevitable lawsuits on behalf of the injured and dead will proceed with this evidence already in the public record. The moral here is: **Never take risks in theater or art productions even if it seems the laws allow you to do so.**

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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ACTS FACTS

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ARTS, CRAFTS AND THEATER SAFETY (ACTS)

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

April 2012 Vol. 26, No. 04

OSHA SUES MANATEE SCHOOL FOR THE ARTS

OSHA, Region 4 News Release: 11-1815-ATL (085), March 12, 2012 & *Bradenton Herald* (www.bradenton.com), "OSHA sues Manatee chart school for whistleblower violations," by Christine Hawes, 3/13/12.

According to a press release at www.OSHA.gov, the U.S. Department of Labor's Occupational Safety and Health Administration has sued Renaissance Arts and Education Incorporated, doing business as Manatee School for the Arts in Palmetto, FL, to reinstate a former employee with full back wages and benefits. The suit results from an OSHA investigation that found the privately-run charter school had unlawfully and intentionally terminated the worker's employment for voicing and reporting concerns regarding hazards in the school's two theaters – activities that are protected by the whistleblower protection provisions of Section 11(c) of the Occupational Safety and Health Act.

The complaint, (*Solis v. Renaissance Arts and Education Inc.* Civil Action File Number 8:12-cv-00514-SDM-MAP) alleges that on June 20, 2009, the employee submitted a letter to his direct supervisor that addressed alleged safety hazards, specifically, improperly placed extension cords and a lack of sprinkler systems. The school did not respond to the letter. On July 14, the employee filed a complaint with OSHA reporting the same concerns. After OSHA communicated with the school, on July 30, the employee disputed the school's response to the safety complaint, and the employee was notified that his position was being terminated. On August 4, OSHA performed a safety inspection and cited the school for safety violations related to the employee's expressed concerns.

The Labor Department's suit asks for an order that includes a permanent injunction against the school to prevent future violations of the OSH Act. It also seeks the reinstatement of the former employee with full benefits; payment of back wages, punitive and compensatory damages; removal of references to the matters at issue in this case from the employee's personnel file; and any other appropriate relief.

COMMENT. It is my experience that most teachers who complain about safety issues are either fired or they are the first to be laid off. It is a brave thing for a teacher to carry a compliant this far. It is one of the reasons that so many schools I inspect are not in compliance with safety regulations. This also is a good reason for teachers to have a union that will speak for them because whistleblowing always results in a long battle, as this complainant has found out. The employee was fired on July 30, 2009, and this lawsuit is likely to take many more months.

DYES KILL ONE, SICKENS HUNDREDS AT HINDU CELEBRATION

http://www.nydailynews.com/life-style/health/toxic-dyes-kill-child-sicken-hundreds-hindi-celebration-india-article-1.1036161, *New York Daily News*, 3-9-12, as reported in *The Times of India & Metro*, 3/12/12.

Toxic dyes killed a thirteen year old boy and sent more than 200 people to hospital in Mumbai, India following the two-day Festival of Colors called Holi in which celebrants toss vibrantly colored powders at each other. The hospitalizations began after revelers began complaining of giddiness, nausea, vomiting and burning sensations on the skin. Police suspect the mass poisoning was caused by chemicals dumped by local leather dealers. "There is a major leather tanning industry in Dharavi,"

said assistant commissioner of police Prabhakar Satam. "It is possible that some children mistook leftover tanning dye for Holi colors and traded in it."

For a decade, Indian health authorities have been cracking down on dangerous chemicals often found in the brightly colored pigments used, such as lead, mercuric sulfide, Prussian blue and silica. And Holi in practiced throughout the world. The New York free *Metro* newspaper's front page had pictures of purple yellow and green dye-covered celebrants at the Indo-Caribbean festival in Queens.

COMMENTS. This is such a bad idea. There are no dyes and pigments that should be considered safe to inhale in quantity–not even food dyes or colorants from vegetable sources. Many dyes with no obvious symptoms may have long term hazards.

SOME TEST REQUIREMENTS FOR DYES & PIGMENTS REVOKED

77 FR 15609, March 16, 2012 Revocation of TSCA Section 4 Testing Requirements for Certain High Production Volume Chemical Substances (15609-15617).

The Toxic Substances Control Act covers about 83,000 chemicals, but only around 200 of these chemicals have been tested to TSCA requirements. The Act is administered by the Environmental Protection Agency (EPA) and they recently have required testing for a number of production volume (HPV) chemicals, that is, those manufactured in amounts over 1000 tons per year. But in a March 16 Federal Register notice, EPA removed ten chemicals form the testing requirement. Two of these chemicals caught my eye: one pigments and one dye.

1. **Benzenesulfonic acid, [[4-[[-(phenylamino)phenyl]][4-(phenylimino)-2,5-cyclohexadien-1-ylidene]methyl]]phenyl]amino]-,** better known as **C.I. Pigment Blue 61.** The Color Pigments Manufacturers Association (CPMA) submitted summaries of existing data which described studies of **C.I. Pigment Blue 56** which as a pigments that is closely chemically related (called an analog) of Pigment Blue 61. EPA accepted the data on the other pigment for toxicity to fish, but did not find enough data for acute toxicity to *Daphnia** and algae and these tests must be done.

2. **C.I. solvent Black 7.** The Synthetic Organic Chemical Manufacturers Association (SOCMA) submitted 8 unpublished studies of this chemicals and asked EPA to determine if they satisfied some of the requirements. The studies on biodegradation, fish acute toxicity, *Dapnnia** acute toxicity, toxicity to algae, acute mammalian toxicity, chromosomal damage and repeated-dose 28-day oral toxicity in rodents were deemed sufficient. However, the 28-day oral toxicity study lacked a required screening test for reproduction/developmental toxicity and the *Daphnia* study was not done long enough (10 days instead of 21) so only these two studies will need to be repeated.

WHY DO I BOTHER YOU WITH THIS? I would like artists to understand how few of their chemicals are tested at all and that EPA's requirements for tests can be appealed by powerful trade associations who often produce unpublished studies. Two other important issues are these:

1. When industry claims their chemicals are "tested," they may mean they have been tested under EPA's TSCA requirements. These tests do not include the two-species, two-year long animal tests that are required in order to determine if a chemicals is likely to be human carcinogens. They also do not test for mammalian birth defects, reproductive or developmental damage. TSCA instead evaluates tests data primarily on aquatic species, some chromosomal damage in microorganisms, and some chronic data on water fleas* that may not translate to chronic human effects.

2. Since EPA gives the benefit of the doubt to industry by accepting analog data from similar chemicals, then EPA also should consider data on related chemicals to establish that they are

similarly toxic. For example, five anthraquinone-based chemicals have been tested and found carcinogenic in animals and are listed as Reasonably Anticipated to be Human Carcinogens by the National Toxicology Program. Yet a number of closely related anthaquinone pigments and dyes are considered "nontoxic" on the basis of their acute toxicity tests alone since there is no chronic or cancer data. At the least, consumers should be told: a) products they use contain ingredients that have never been tested for long-term hazards; and b) that these chemicals are anticipated to cause cancer or other chronic hazards based on tests of closely related (analog) chemicals.

* Water fleas or *Daphnia* are tiny planktonic crustaceans, between 0.2 and 5 millimeters in length. They live in various aquatic environments ranging from acidic swamps to freshwater lakes, ponds, streams and rivers. They are used to test the effects of toxins on an ecosystem.

LAGUNA CLAY ADDED TO LIST OF DRUM EXPLOSIONS

SOURCE: http://www.insidesocal.com/sgvcrime/2012/03/two-workers-injured-in-industry.html, by Brian Day, "worker badly burned in explosion at industrial pottery company," 3/24/12 & http://www.nwcn.com/home/?fld=146006125&fPath=/news/local&fDomain=10202.

On March 24th, a chemical explosion at Laguna Clay, a well-known ceramic art supply company, left a worker hospitalized in critical condition, authorities said. The explosion was reported at 1:17 p.m. at Laguna Clay, 14400 Lomitas Avenue, Los Angeles County. A 36-year-old employee was cutting an old metal barrel with a torch when it exploded, apparently due to residue of an unknown flammable material that had been stored in it, sheriff's Sgt. Tom Wilson said. The badly burned man was hospitalized in critical condition, officials said. A hazardous material (HAZMAT) crew was unable to identify what the substance in the barrel was, but determined it was non-toxic, Wilson said.

COMMENT. Re: the underline sentence. When chemicals are evaluated under HAZMAT criteria, the primary considerations are environmental toxicity. Since this chemical volatilized under heat and exploded, it was almost surely an oil or solvent and should not be considered nontoxic.

Since this accident occurred there was another barrel cutting explosion on March 3rd in Forest Gove, WA, which seriously burned and injured a farm worker and who was also a former volunteer fire fighter. The heat from the explosion was so intense, it melted some barn windows. Investigators believe the metal drum contained diesel fuel at one point.

The January *ACTS FACTS* reported on the death of a student in shop class at Mother Teresa Catholic High School near Ottawa on May 26, 2011 and another man who was severely injured in Melbourne, Florida on November 29, 2011 cutting a barrel to make a barbeque grill. And there are other similar accidents on record as far back as you can investigate. It seems people are not learning this lesson.

LAWSUIT ALLEGING COSMETIC TALC CAUSED MESOTHELIOMA MAY PROCEED: JUDGE RULES

SOURCE: "Suit Claiming Injury From Alleged Asbestos in Talc May Proceed," by Brendan Pierson, *New York Law Journal*, corrected version, 03-19-2012 & www.fda.gov/Cosmetics/ProductandIngredientSafety/SelectedCosmeticIngredients/ucm293184

A lawsuit filed by a woman who alleges she developed mesothelioma from using a cosmetic product tainted with asbestos is not preempted by the federal Food, Drugs and Cosmetics Act because that law's preemption clause, added in 1997, is not retroactive, a Manhattan judge has ruled (*Feinberg v. Colgate-Palmolive Co.*, 190070/11, 2/22/12, Supreme Ct. Justice Sherry Klein Heitler).

The suit, filed by Arlene Feinberg and her husband Jacob Feinberg, alleges that Ms. Feinberg developed mesothelioma from using Colgate-Palmalive's Cashmere Bouquet talcum powder from

the 1950s through 1980s. The suit claims the product contained asbestos. The Feinbergs included a charge of "failure to warn," which alleges the company should have included a warning label on the powder. Colgate moved to dismiss on the grounds that the failure to warn claims were preempted by the Food, Drugs and Cosmetics Act, which regulates the labeling of products. In1997, the FD&C Act was amended to include a clause saying that it preempted state law on the issue of cosmetic labeling, thus protecting manufacturers from failure to warn claims.

Justice Heitler wrote, "Colgate's motion must be denied because it seeks to apply the 1997 Preemption Clause to events that had their genesis more than 45 years before it existed, and which ceased to occur almost 20 years before Congress sought to legislate the labeling of cosmetic products."

COMMENT: A picture of the old pale orange can of talcum is on New York Law's website. I see these cans in prop rental houses for use in period sets and in antique shops. The talc issue was not over in the 1980s when a new container was designed.. A study of cosmetic talcs in 1991 found traces of asbestos in six of 15 samples.* We really don't know if it is still a problem today or not.

Recent questions about talc caused the FDA do a "study" of talc which is on their website. Along with the study, the FDA's limited powers are well defined. In their own words, "cosmetic products and ingredients, with the exception of color additives, do not have to undergo FDA review or approval before they go on the market." And "the law does not require [manufacturers] to share their safety information with FDA." Further, FDA can't act until they have "sound scientific data to show that it is harmful under its intended use." They claim they monitor the industry for potential safety problems, but let's look at how well they monitored talc in this study released in September of2010.

First, FDA doesn't have asbestos monitoring equipment, so they contracted the tests for the study to another lab. Only four talc suppliers and cosmetic products containing talcs from these suppliers were tested. These four supplier's mines are ones that have had clean deposits confirmed for many years, but talc is mined all over the world with the largest suppliers being China and India.

Perhaps, if a jury in this lawsuit against Colgate can decide that asbestos fibers in talc caused mesothelioma in this Plaintiff, there will be a course of action for other injured consumers. This is what happened with an industrial talc from RT Vanderbilt used in ceramics. In any case, it looks like we can't rely on the regulators. It is just a shame that people need to die first.

* Blount, Alice M., "Amphibole Content of Cosmetic and Pharmaceutical Talcs," *Environmental Health Perspectives*, Vol. 94, pp. 225-230, 1991

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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RATINGS ON AIR PURIFERS & DEHUMIDIFIERS

SOURCE: *Consumer Reports*, June, 2012, pp. 34-38

"Is Your Home making you sick?" This is a common title for articles in health and how-to magazines. And most such articles contain a mixture of good and not-so-good advice. But the article with this title in the advance June issue of *Consumer Reports* does the best job of it I've seen.

The article covered the air quality issues related to household cleaners, lead-based paint, radon and carbon monoxide, cooking and heating gases, air fresheners, candles, and incense. They also pointed out through a quote from an expert how some of the air fresheners, candles and incense are being reformulated by the better companies to replace toxic solvents and phthalates, and how reformulating also makes it "....hard to know what is currently in any given product." They even point out a fact that is often underplayed which is that all scented candles and incense "...release soot and particles into the air which can trigger asthma attacks and allergic reactions."

Next, *Consumer Reports* backs up their advice with long lists of air purifiers and dehumidifiers that they have tested and rated for efficiency. They also provide purchasing guidance including advice to "....[s]kip the odor-removal features. In past tests it took up to an hour for [the filters] to make a difference–when they did anything at all." My own research limited to talking with manufacturers and looking at studies of activated carbon convinces me that these odor filters absorb only certain VOCs and for only very short periods of time. Now *Consumer Reports* says the best strategy for controlling air contaminants in your home is to use an air purifier with a HEPA particulate filter, eliminate as many VOC emitting products from your home as possible, and controll mold by reducing humidity and good cleaning methods.

If you plan to purchase an air purifier or dehumidifier, consider subscribing to Consumer Reports right away or bumming a copy of this article from someone. Or e-mail ACTS.

STUDENT HOSPITALIZED AFTER CHEMICAL EXPLOSION

SOURCE:http://www.wcpo.com/dpp/news/region_central_cincinnati/clifton/student-hospitalized-after-chemical-explosion-on-uc-campus, April 11, 2012

A University of Cincinnati student was taken to the hospital in the early morning hours on April 9th after a toxic chemical explosion occurred overnight. Police say a female student was working with a toxic chemical alone in the engineering building around 1 a.m. when a reaction caused an explosion. The student was working on a process known as aluminum etching when the reaction caused an explosion and sprayed very dangerous chemicals all over the lab and on the student.

Officials say the student was wearing protective gear at the time, but the student's protective clothing and goggles were covered in the chemical. When she tried to take the protective wear off, some of chemical got on her arms and caused them to burn.

COMMENT: Etching aluminum is also done by art students. Many acids and solutions will etch aluminum. Included are hydrochloric acid, nitric acid, ferric chloride, Edinburg etch (ferric chloride

plus citric acid), saline sulfate (sodium chloride and copper sulfate), fluoride acids and salts, and some commercial aluminum etches. Some of these reactions produce hydrogen gas or generate heat. Clearly, something on this order happened in the Cincinnati laboratory.

Most importantly, the student should not have been working alone. No one, no matter how well-trained or protected, should work alone where there are chemicals and/or dangerous equipment. This accident might not have caused any burns if someone helped the student out of her protective gear.

RECYCLING PIGMENTS: QUALITY & SAFETY ISSUES

SOURCE: Gamblin Artists Colors, from scott@gamblincolors.com, April 10, 2012, subject: Gamblin Torrit Grey | Recycled and Ready

In an e-mail, Gamblin Artists Colors announces that their staff, which they identify as Master Paintmakers, "... have crafted some truly inspired batches of Torrit Grey this year. A beautiful range of grey is now ready to get to work - in your studio, in your painting." It is available in tubes for free with purchase of other Gamblin products.

Torrit Grey is name for its color and for the Torrit dust collection system in which pigment dust was captured from the air in the plant. Gamblin says it reflects their shared commitment to sustainability and the announcement was made in celebration of Earth Day.

This is, of course, a good idea. Now the Torrit filtered material, which otherwise would have to be picked up by a waste disposal company for analysis and disposal at significant expense, instead is used in a promotional product and provides artists with a free color. The statement that "[e]very batch is unique, ranging from warm dove grey to cool, bluish grey" reflects the fact that the color is from the particular mixture of pigments that happened to be in the air this year.

Gamblin also invites "artists to participate in our Torrit Grey painting contest" in which the only colors to be used are black, white, and Torrit Grey. Last year's winners are on their Facebook page.

COMMENT. This is a better use of the waste pigment than sending it to landfill. But it brings up the issues with all recycled products: quality and safety. Recycled materials do not have the quality that virgin materials do whether they are paints, plastics, wood products and more. Even the standards for recycled materials such as paints allow more contaminants than for virgin ones. Artists also will not know the actual composition of this pigment. The only way Gamblin could provide accurate information on content, safety precautions and light fastness would be to analyze it. But it's a great product for artists and students with limited funds and who use hygiene work practices.

FALSE & DECEPTIVE LABELING FOR FORMALDEHYDE

"Sumary of Data & Findings from Testing of a Limited Number of Nail Products," April 2012, Cal-EPA, DTSC; www.osha.gov, Release # 11-1393-NAT, 9-22-11; *ACTS FACTS*, July, 1991& letter from Rhom &Haas.

We are always told to read labels. But what if the labels lie? Every day we hear of false labeling claims that give us concern. Two of recent examples that made the news involved beauty products:

* Last month, The California's Department of Toxic Substances Control issued a report on tests which showed that five of seven nail polishes whose manufacturers claimed were free of phthalates, toluene and formaldehyde actually contained one or more of these chemicals.

* Last year, the Occupational Safety & Health Administration issued an alert on a hair straightening product called Brazilian Blowout whose label claimed it was free of formaldehyde. Tests showed the product released dangerously high levels of formaldehyde during use.

These are just two of hundreds of examples of mislabeling of products. This newsletter article will look at some of the reasons false labeling is not uncommon.

HOW FALSE LABELING OCCURS. In some cases, false labeling results from just plain fraud by manufacturers. In other cases it is ignorance, most commonly ignorance about the exact composition of the raw chemicals manufacturers make their products from. This kind of labeling error usually is made by small companies who cannot afford to send each batch of chemicals they buy to a certified testing lab. These small formulators purchase chemicals from jobbers who have purchased them from other chemical suppliers. Any mistake or lie about the actual analysis of these chemicals at any point in the chain of supply will be passed down to the small formulator.

If bad labeling is often caused by fraud or lack of knowledge among small manufacturers, you might assume that labels generated by very large manufacturers with good reputations would be more truthful. In my opinion, this is not true because larger "reputable" manufacturers are more likely to engage in deceptive labeling, that is, labeling which is technically true, but which manufacturers ***know*** will be misinterpreted by users. This gives manufacturers and their lawyers reason to believe that convoluted technical reasoning will protect them if their product is proven to cause harm.

DECEPTIVE LABELING. *ACTS FACTS* has repeatedly attacked the deceptive "nontoxic" label when it is applied to products containing untested ingredients. Manufacturers feel safe in doing this because no one can prove the chemicals are toxic. Yet they know that most consumers incorrectly assume this label means that tests have shown the product is nontoxic. In the most egregious cases, the "nontoxic" label is applied to ingredients that can be expected to cause cancer because they are in chemical classes in which other members have been tested proven to be carcinogens.

However, there are other sneaky and deceptive labeling strategies used by manufacturers. For an example, I went into our archives for a story from the July 1991 issue of *ACTS FACTS*. The article was based on a 1993 letter from Rohm & Haas in my files. This company makes most of the water-based acrylic emulsions that are the major ingredient in household and artists paints. Rhom & Haas certainly qualifies as "large" considering it was purchased by Dow in 2009 for $17.29 billion. And it might well be considered "reputable" on the basis that it has operated in the US since 1909.

R&H LETTER. The Rhom & Haas letter was in response to an inquiry by an artist/scientist who wanted to know why formaldehyde was no longer listed on material safety data sheet (MSDS) for a Rhoplex acrylic emulsion she used in painting. Here's in part what the letter said:

> Formaldehyde is added to the above product(s) as a preservative. We had always listed on our Material Safety Data Sheets (MSDS) the level of formaldehyde added as a preservative to our products.
>
> A recently developed non-destructive analytical method with a detection limit of 2 ppm, has shown free formaldehyde is not detectable in our formaldehyde-preserved products that are neutralized with ammonia. We are now using this new test method to analyze for free formaldehyde because unlike some other analytical methods, it does not affect either the pH of the product or the product itself.
>
> Further, we have confirmed that the absence of detectable free formaldehyde in the above product(s) is due to the reaction of formaldehyde with ammonia which forms hexamethylene-tetramine (HMT), also known as hexamine or methenamine. However, under acid conditions, HMT can liberate formaldehyde and ammonia. Thus, analytical methods that can lower pH or

otherwise change the product may give a false reading of formaldehyde. Also, in these types of products, process conditions that may affect the pH (such as elevated temperature and moisture, use of an acid substrate) may promote the decomposition of HMT to formaldehyde and ammonia."

..... [formulas for the formation and decomposition of HMT are inserted here]

Because we cannot detect formaldehyde in the above product(s), as shipped, it is being deleted from the Ingredients Section of our MSDS. A reference regarding the potential for liberation of formaldehyde under acid conditions will be added to these MSDSs. The revised MSDS will be sent to you as soon as it is printed.

If you are confused by this explanation, you are not alone. If instead you understand every word, you should be angry. They say that formaldehyde forms a compound (HMT) with ammonia that does not register on their new analytical test as free formaldehyde, but that in slightly more acid solutions, HMT will split again into formaldehyde and ammonia. And they don't tell you that when the emulsion dries, ammonia outgases, the pH becomes more acidic, and formaldehyde will be released! All this gobbledegook is irrelevant because users will be exposed to formaldehyde. The data the user really needs is the now omitted percentage of formaldehyde originally added to the product.

RECENT MSDS. The most current Rhoplex MSDSs I could find were from 2004. I chose one for Rhoplex MC-76, a common product used by artists and art conservators. This MSDS provides an example of another deceptive practice used by manufacturers called "substitution." The formaldehyde in Rhoplex was replaced with acetaldehyde, a closely related chemical in the same class with similar hazards, but for which there are far fewer human studies. As a result, acetaldehyde is listed by EPA as a B2 carcinogen (with sufficient evidence from animal studies, but inadequate evidence from epidemiologic studies), by the National Toxicology Program as "Reasonably Anticipated to Cause Cancer in Humans," by the International Agency for Research on Cancer as 2B (Possibly Carcinogenic to Humans), and by the National Institute for Occupational Safety and Health (NIOSH) and by California as a plain old "Carcinogen."

SUMMARY. Has Rhoplex been made safer? Not in my opinion. But it now can be labeled "formaldehyde free." Rhoplex and the other products discussed above illustrate common causes of inadequate labeling of hazardous chemicals including 1) fraud, 2) ignorance, 3) clever strategies to mislead, and 4) substitution with similar chemicals whose hazards are not fully studied. Until major changes in the rules of this "game" manufacturers play with our lives, labels are pretty useless.

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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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 2012 Vol. 26, No. 06

CONFERENCE FOR THEATER PLANNERS & WORKERS

Editorial

This is a first for ACTS. We don't publicize events as a rule, but this one is an exception. The North American Theatre, Engineering and Architectural Conference (NATEAC) will be held from July 21-24 at the New York City Hilton. It brings together leaders in the architecture, engineering and consulting fields to share their expertise in the design and construction of theatres, performing arts centers, houses of worship, auditoria, and non-traditional performance spaces.

The 2012 NATEAC will offer more than 50 panelists (including myself) at over 18 sessions on topics ranging from current automation technology to the design of state lifts and a discussion of the changes in the performance venues that will need to be made over the next 20 years.

The conference has been approved by the American Institute of Architects (AIA) Continuing Education System (CES) for continuing education credits. AIA members are required to attend CES approved classes every year in order to maintain their AIA status and this is one good way to do this.

The fee plus staying at the Hilton is pricey, but I recommend theater professionals and architects invest in this event (register before July 15 to save $100). Besides, NATEAC is an organization worth supporting. The fee also includes a NYC Harbor Cruise, two full days of sessions followed by an evening dinner at Sardi's, and backstage tours on the last day. See details at www.NATEAC.

OSHA MANDATES NEW DATA SHEETS: DEVIL'S IN THE DETAILS

SOURCES: GHS 2008 Purple book; 77 *FR* 17574-17896

On March 26, 2012, The Department of Labor published a final rule to modify the Hazard Communication Standard (HCS) to conform to the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals. OSHA determined that these changes will "reduce costs to employers while improving the quality and consistence of information provided to employers and employees regarding chemical hazards and associated protective measures." The rule has been in effect since May 15, and the rest of schedule of implementation is as follows:

* **December 1, 2013:** Employers are required to train employees on the new labels and safety data sheet (SDS) formats.
* **December 15, 2015:** GHS labels must be on all containers that are shipped by chemical manufacturers or importers.
* **June 1, 2016:** Employers must update alternative workplace labeling and hazard communication programs as necessary and provide additional employee training for newly identified physical or health hazards.

Until these specific dates, employers and chemical manufacturers may comply with either the old or the new requirements. However, I have noticed large chemical suppliers like Aldrich Chemical have begun issuing all of their updated sheets in the GHS SDS format several years ago.

I did not write about this new OSHA rule when it was issued in March because I wanted to be sure it would not be stalled by some industry coalition lawsuit like so many previous OSHA regulations. Now it looks like the GHS requirement will survive. This is probably because industry really doesn't have much choice. The switch to GHS has already been instituted in most of the rest of the world including the European Union, Japan, and China. As usual, the U.S. lags behind most countries in chemical safety and worker protection.

IMPORTANT CHANGES. I advise employers and unions to read through the new rules and look for all of the changes they will have to make in their training programs. Included are all the visual symbols required on labels to make it easy for even illiterate workers to assess known hazards of the product and the new label and MSDS terminology. However, the issue I am most concerned about for art-related products is the requirements for warning workers about untested chemicals for which there is no hazard data to report on labels or MSDSs. And it is these untested chemicals which art materials manufacturers currently label "nontoxic."

Notification when chemicals have not been tested would be provided if the UN version of the GHS SDS were implemented as written. Their Section 11 would provide the following information:

> **A4.3.11 SECTION 11 – Toxicological information**
> A4.3.11.1 This section is used primarily by medical professionals, occupational health and safety professionals and toxicologists. A concise but complete and comprehensible description of the various toxicological (health) effects, and the available data used to identify those effects, should be provided. Under GHS classification, the relevant hazards, for which data should be provided, are:
> (a) acute toxicity;
> (b) skin corrosion/irritation;
> (c) serious eye damage/irritation;
> (d) respiratory or skin sensitization;
> (e) germ cell mutagenicity;
> (f) carcinogenicity;
> (g) reproductive toxicity;
> (h) specific target organ systemic toxicity-single exposure;
> (i) specific target organ systemic toxicity-repeated exposure; and
> (j) aspiration hazard.
> **If data for any of these hazards is not available, they should still be listed on the SDS with a statement that data is not available.**

The most important line is the one I've made bold at the end of the section that requires the SDS to inform users when the tests have NOT been done. For example, this format's line (f) for carcinogenicity would either tell you the test results or evaluations of tests by agencies report or the blank must say "no data available." In this case, users would finally see that the vast majority of the substances on SDSs of the products they use have never been tested for cancer effects. The "no data available" message also would be seen repeatedly for other chronic hazards in (g) through (j).

However, the OSHA description of the same section shows clearly what's missing:

> **11. Toxicological Information** – Description of the various toxicological (health) effects and the available data sued to identify those hazards, including:
> (a) information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);
> (b) Symptoms related to the physical, chemical and toxicological characteristics;
> (c) Delayed and immediate effects and also chronic effects from short- and long-term exposures;
> (d) Numerical measures of toxicity (such as acute toxicity estimates)

(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

What this means is that manufacturers will still be able to hand pick the information they present. And this spells more of the same deliberate misinformation we have seen for decades. And that misinformation will be provided by what they choose NOT to tell us.

For example, the cancer data required by (e) above is limited to reporting the NTP, IARC and OSHA classifications. OSHA's rational is that manufacturers can't afford to do their own cancer testing and, of course, I agree. But when there is no classification because these agencies do not have enough data to evaluate, the manufacturer should not be allowed to say only that none of the chemicals in the product are listed by NTP, IARC or OSHA. Manufacturers know full well that users assume this means the substance is *not* a carcinogen and they are misleading their customers.

As it stands, people will continue to believe that the government *or someone* requires chemicals to be evaluated for cancer and other serious health effects such as birth defects and reproductive damage before they are used in their products. Instead, all workers and consumers need to know that substances that are not listed by NTP, IARC or OSHA almost surely have never been evaluated for cancer effects. In fact, if a substance was studied and found to be *unlikely* to cause cancer, it would be reported in IARC Category 4.

UNKNOWN ACUTE EFFECTS. OSHA has demonstrated that they understand the untested chemical issue in their requirements for acute data in their Hazard Identification: Section 2:

(d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration $\geq$ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.

In other words, if the mixture as a whole has not been animal tested for acute effects and one or more of the ingredients in the mixture has no acute data recorded, the SDS must disclose that there is a substance of unknown acute toxicity in the product. This should be done also for chronic data.

The acute data OSHA refers to are the lethal doses or concentrations that kill or seriously harm 50 % of test animals, that is, the LD_{50} and LC_{50} tests. But these short term tests cannot detect substances that cause cancer, birth defects and other chronic damage. Even asbestos appears perfectly safe on these tests. Artists should expect to be informed that some organic pigments in their products have not had acute testing. But chronic tests have never been done on most organic pigments even though many are in chemical classes in which other members are known carcinogens.

SUMMARY: The GHS SDS format is recommended by the UN. No one enforces it. And now it appears that the U.S. is altering the original intent. Yet even a bad interpretation of the UN's SDS would be an improvement over old MSDSs. The unique problem for artists is that currently, many art material manufacturers and their certifying toxicologists use the Labeling of Hazardous Art Materials Act (LHAMA) to withhold all chemical data from MSDSs and to label untested chemicals as "nontoxic." These MSDSs only cite the toxicologist's review and leave artists with no chemical data with which to judge the product's toxicity and properties for themselves.

If art material manufacturers continue using this ruse on the new SDSs, US artists will be deprived of ingredient and toxicity data available to most of the rest of the world. It is time to repeal LHAMA.

JUDGE UPHOLDS SEA WORLD'S OSHA CITATIONS

SOURCE: OSHRC Docket No. 10-1705, *Secretary of Labor v. Sea World of Florida, LLC*, Administrative Law Judge Ken S. Welsch, Decision and Order, June 11, 2011 (sic 2012) & *ACTS FACTS*, 9/10.

On June 11, Ken S. Welsch, a federal administrative law judge for the Occupational Safety and Health Review Commission, released his decision on Sea World's contested OSHA citations. The decision came more than two years after the death of Dawn Brancheau , a trainer who was dragged underwater and killed by an orca at the SeaWorld park in Orlando while visitors watched in horror.

OSHA cited SeaWorld for a willful violation of the general duty to provide protection from recognized hazards (Section 5(a)(1)); a serious violation for exposing workers to a fall hazard on the bridges leading to the stage platform (1910.23(d)(1)(iii)); and an other-than-serious violation for failing to equip outdoor electrical receptacles with weatherproof enclosures (1910.305(j)(2)(v)).

This electrical violation was withdrawn by OSHA. Most of Welsch's 47 page decision deals with the general duty violation which put the trainer at risk. Welsch criticized SeaWorld for asserting that their safety protocols were sufficient, for blaming the victim even though she followed all protocols, and for claiming orca behavior was 98% predictable with out sound scientific evidence. However, Welsch did not think the violation was deliberate and wilful, only serious. So the fine was reduced from $70,000 to $7,000. And now, glass barriers must always be between trainers and the orcas.

The two citations for unguarded 10' 3" falls from stairs and from a bridge to the platform were upheld as serious and the $5,000 penalty retained. SeaWorld's lawyer argued that these violations should be *de minimis* since OSHA proposed exempting entertainment stages from guardrail rules in their Field Operations Manual (75 Fed. Reg. 28861-29175, May 24, 2010). But Welsch wrote that the Manual "creates no binding authority and holds no precedent for the Commission." He ruled:

> .... The gravity of the violation is high. Employees were required to go up and down the stairways on a regular basis while carrying up to 60 pounds of fish. If an employee slipped or stumbled, the employee did not have a stair railing to prevent a fall over the edge of the stairway. If the employee avoided landing in the water, he or she was at risk for serious injuries, including broken bones. Landing in the water could potentially expose the employee to a greater risk. In 1991 at Sealand of the Pacific, trainer K.B. slipped and fell into a sea pen in which three killer whales, including Tilikum [the same orca that killed Dawn Brancheau], were kept. The killer whales prevented her from exiting the pool, resulting in her eventual death.

All the OSHA stage fall citations ACTS has covered over the years have been upheld. Rail 'em.

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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FIRE RETARDANTS IN THE NEWS

http://ehp03.niehs.nih.gov/article/fetchArticle.action?articleURI=info%3Adoi%2F10.1289%2Fehp.1204993, "Hexabromocyclododecane (BHCD) Stereoisomers in U.S. Food from Dallas, Texas, A. Schecter, et al., *Environmental Health Perspectives*, 2012.

In June, *Environmental Health Perspectives* released a study showing traces of a fire retardant, hexabromocyclododecane or HBCD, were found in peanut butter, deli meat, and other food items. Many news services treated the story as a shocking development, but it should have been seen as an expected finding. It has been known for decades that this chemical is persistent in the environment, toxic, and it can bioaccumulate. As early as 2008, The Stockholm Convention on Persistent Organic Pollutants had enough data to propose a global ban on HBCD. There were earlier studies showing this chemical is in human blood from both adults and from umbilical cords. So it was only a matter of time before HBCD would be found just about everywhere including food.

What disturbs ACTS is that some of the news services and environmental groups are saying that fire retardants are only in our consumer products because the cigarette companies didn't want to fire retard their cigarettes, that fire retardants are all toxic, and they don't really work anyway. The truth is far more complicated than this and there is a genuine need for retardants in many products. ACTS agrees instead with California Governor, Jerry Brown, who asked officials to update the State's flammable standards to reflect modern manufacturing methods with the objective of reducing the use of harmful chemicals. And he intends to include public comment in these deliberations.

WHERE ARE FIRE RETARDANTS USED? The reason BHCD is now in our food is it is the major fire retardant in extruded and expanded (foam) polystyrene. So it is in home and building insulation, packing foam, computer boards, and a gazillion other things. Industry says there is no "technically and commercially feasible alternative." This is hard to believe because there are hundreds of other commercial retardants in just about all of the plastics, fabrics, and building materials we use. They are in many different chemical classes that will work as fire retardants and the possibility for substitutes for each single one is probably in the range of hundreds.

HOW ARE WE EXPOSED? Some fire retardants outgas and are inhaled–e.g., they are part of the new car smell. Some exude from plastics we touch and can be absorbed through the skin or ingested. Some can be found in the dust in homes. Some leach out of food containers. And so on. Once we ingest, absorb or inhale them, some portion will remain in our bodies and some will be excreted. Then our waste and other waste is treated, turned into sludge, and put on soils where they are taken up by the plants that feed us or farm animals. Fire retardants also get into soil and water when waste plastics degrade in landfill. Then we eat the contaminated foods. Next, babies are born with roughly the same body burden of chemicals as their mothers. And since children absorb even more from their toys and environments, each new generation is carrying more of these. This is the cycle of bioaccumulation that will continue even long after the various chemicals are banned.

HOW DID WE GET INTO THIS MESS? To understand how we got here, we need to look at the history of devastating fires, especially those in theaters and entertainment venues. While both the Egyptians and the Romans used fire retardants, the first patent for a fire retardant was issued in Britain in 1735 for a mixture of alum, vitriol (sulfates of copper, lead or zinc), and borax that was used to back paint canvas used in theaters and public buildings. This same practice is still done today with some of these same chemicals or others such as phosphates and ammonium compounds.

The U.S. laws requiring fire retardants were instituted in response to several theater and nighclub fires. For example, in 1942, 492 people were killed in the Cocoanut Grove fire after decorations ignited. Flame spread standards and tests were developed by Underwriters Laboratories (UL) and the National Fire Protection Association (NFPA) that were incorporated into federal and local laws.

Requiring fabrics and building materials to pass these tests prevented fires and saved a lot of lives. The problem is the tests only consider the spread of flame, not what chemicals the manufacturer uses to pass the test. So manufacturers were free to take full advantage of a revolution that was occurring in the 1940s, a revolution in organic chemical synthesis. Now for instance, the chemical industry could control the amount of chlorine that attached itself to a double benzene ring chemical called a biphenyl. Manipulating the exact amount of chlorine on the 209 different polychlorinated biphenyls or PCBs produced products that had precisely the properties the plastic industry wanted. These miraculous new PCBs could do three jobs at once: fire retard, plasticize and preserve.

By the 1940s, the chemical industry knew PCBs were toxic. Their workers developed a disfiguring skin condition called chloracne and other serious physical diseases. But by 1950, PCBs were in almost all paints, fluorescent light ballasts, caulks, and most plastic materials and synthetic fabrics.

When the toxicity of the PCBs became a public issue, industry asserted that all of the paints, plastics, and fabrics would age rapidly, fail, and/or catch fire if PCBs were banned. In 1977, PCBs were banned anyway and there was no perceptible change in any of the new plastic products and paints. The reason was simple. Manufacturers substituted bromine for the chlorine on the biphenyl molecule and created a new family of 209 polybrominated biphyenyls or PBBs. Then an accidental human exposure occurred in Michigan. A farmer mistakenly thought PBBs were animal feed additives and they got in meat, milk and eggs. Consumers developed the same chloracne and diseases associated with PCBs. This very public human experiment made it clear PBBs also had to be replaced.

The replacement molecules looked exactly like the PBBs except there was now a single oxygen molecule in between the two benzene rings in the middle. This created a family of 209 polybrominated diphenyl ethers (PBDEs) that worked just like PCBs and PBBs and are probably just as toxic. But now industry had decades to use them before there was enough human and animal studies to prove they were toxic. Many now are banned in the European Union, but not in the U.S.

SUBSTITUTION. This same story is repeated *ad nauseam* with other groups such as brominating banned phthalates to create unregulated chemicals (e.g., Fire Master 550), brominating chemicals similar to the restricted Tris, and so on. This is called "substitution." Today, substitution usually means replacing a regulated toxic chemical with a new untested chemical of unknown toxicity.

Substitution has made us the lab rats that carry PCBs, PBBs and PBDEs in our blood along with HBCD and a host of others. Yes, we need to eliminate some of the highly toxic fire retardants. But as one of the experts retained in the Station Nightclub fire, I know that 100 people would be alive today if the foam insulation lining the band shell had been fire retarded. The fire standards can be

updated, but they must remain in force. In theater, we can use some of the safer inorganic chemicals used hundreds of years ago. Maybe industry should take another look at these, too.

CUTTING TREES, BURNING WOOD: ASBESTOS RISKS IN LIBBY, MT

SOURCE: http://www.tandfonline.com/doi/abs/10.1080/15459624.2012.682217. "Amphibole Asbestos in Tree Bark—A Review of Findings for This Inhalational Exposure Source in Libby, Montana." Tony J. Ward, Terry M. Spear, Julie F. Hart, James S. Webber &Mohamed I. Elashheb, *Journal of Occupational and Environmental Hygiene*, Volume 9, Issue 6, 2012, pages 387-397

From about 1920 until 1990, the leading source of vermiculite ore for the United States and the world was from a mine near Libby, MT. This vermiculite ore was contaminated with fibrous and nonfibrous asbestos in veins throughout the deposit. Today, areas surrounding the abandoned vermiculite processing/mining facilities and much of the town of Libby are contaminated with these asbestos fibers, contributing to an outbreak of asbestos-related diseases in the Libby population.

Observation of the trees in Libby and in forested areas for miles surrounding the abandoned mine showed the bark had accumulated amphibole asbestos fibers. Researchers wanted to know if these fibers in the bark were a threat to people in the area. They measured asbestos in the personal breathing zones and on the Tyvek® suits of workers harvesting firewood. They also measured airborne fibers in the air near EPA-certified woodstoves when this wood was burned and they analyzed the ash left after the wood was burned. High volume air sampling and other occupational studies of fire fighters were done during a simulated wildland fire of these trees and they studied workers' exposures during routine U.S. Department of Agriculture's Forest Service activities.

The study concludes that the trees for miles around the mine including in northwest Montana. are a reservoir for asbestos fibers deposited during the 70 years the mines were in operation. These are liberated when the trees are disturbed through common activities such as harvesting firewood, maintaining trees and cutting brush, or fighting forest fires.

Wood burning in homes also was investigated because this is the predominant method of home heating in Libby. The wood stove studies showed the fibers can be released from the stoves into the home air during combustion. However, most of the fibers remain in the ash leading to further exposure during cleaning of the stove and taking ashes out for disposal.

These findings have serious implications for the Libby cleanup ordered by EPA after the area was declared a "public health emergency" in 2009. Harvesting and burning local firewood may be an ongoing source of re-exposure within these professionally cleaned and asbestos-abated homes.

COMMENT. The porous bark of trees is apparently like carpets and upholstered furniture which also release fibers when disturbed. But trees can't be bagged up and disposed of like rugs and sofas. And I assume that tilling the soil around Libby would also release fibers. The presence of asbestos fibers in local forests means deaths from mesothelioma, an asbestos-generated cancer with a latency period of 20 to 40 years, are likely to continue occurring for another 50 years.

FURTHER RESEARCH. I suggest these authors or other researchers do a similar study on the trees around the R.T. Vanderbilt talc mines in upstate New York. My reasons for being relatively sure that similar results will be obtained near the talc mines are based in part on a study called "Reconstruction of a Century of Airborne Asbestos Concentrations," by James S. Webber, Kenneth W. Jackson & Pravin P. Parekh, Wadsworth Center, from the NYS Department of Health - Albany in *Environmental Science & Technology,* 38:707-714. 2004. This amazing study looked at the

sediments at the bottom of the lakes downwind from the talc mines and correlated the amounts of anthophyllite and tremolite asbestos in the various layers with the annual production of local talc being mined through the entire 20th century. They also showed that lake sediments up wind from these mines did not contain these asbestos fibers. This Health Department study was undertaken to find a way to quantify environmental exposures of people living in upstate New York. And it seems to me this should be only the first step in that quantification. The next logical step would be a study of exposure from trees and soil downwind from the mines as well.

"NEONATAL HERPES SIMPLEX VIRUS INFECTION FOLLOWING JEWISH RITUAL CIRCUMCISIONS THAT INCLUDED DIRECT OROGENITAL SUCTION--New York City, 2000-2011"

SOURCE: *MMWR* June 8, 2012, Vol. 61, No. 22, pp. 405-407

Herpes simplex virus (HSV) is carried by many adults. HSV-1 causes cancer sores in the mouth. HSV-2 causes sores on the genitalia. Both HSV-1 and HSV-2 may remain latent in the body for life and cause periodic outbreaks of the sores. These infections usually are not life-threatening in adults.

However, HSV in newborns whose immune systems are not yet developed, can result in death or permanent disability. From November of 2000 to December of 2011, there were 11 newborn males with laboratory-confirmed HSV after circumcision. Ten newborns were hospitalized. Two died.

The infections were due to an ultra-Orthodox Jewish Practice known as *metzitzah b'peh* which involves the circumciser (*mohel*) placing his mouth directly on the newly circumcised penis and sucking the blood from the wound. Based on cases reported during April 2006-December 2011, the risk for neonatal herpes caused by HSV-1 and untyped HSV following ritual circumcision with confirmed or probable direct orogenital suction in NYC was estimated at 1 in 4,098 or 3.4 times greater than the risk among male infants unlikely to have had direct orogenital suction.

COMMENT. I have no comment. I'm speechless.

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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GERMAN AIR STANDARD FOR CITRUS SOLVENT LOWERED

2012 Guide to Occupational Exposure Values, ACGIH, p. 114

Many common household products contain citrus oil. This oil is found in the rind of oranges and its primary constituent is d-limonene. Citrus products are touted as natural, biodegradable and nontoxic. While the first two claims are true, the last one is not. Citrus oil is one of the most toxic solvents we use. It causes skin and respiratory allergies, absorbs through the skin, reacts with pollution levels of ozone to create formaldehyde, and it can spontaneously combust on paint rags. All in all, we would well to avoid this solvent.

The material safety data sheets (MSDS) for citrus products usually state that d-limonene is not regulated by OSHA as if this implied it is safe. Actually, d-limonene is one of many toxic substances for which OSHA has not set limits. MSDSs also must report the American Conference of Governmental Industrial Hygienist's (ACGIH) standards and they didn't set one either.

Another US organization, the American Industrial Hygiene Association (AIHA), set a Workplace Environmental Exposure Level guide for d-limonene at 30 parts per million (ppm).[10] Then in 2008, the German Research Foundation (DFG) set a standard of 20 ppm for d-limonene.[14] And in 2012, the German Standard was lowered to 5 ppm.[15] The smaller the number of ppm, the smaller the amount of the substance would be allowed in workplace air by these agencies and the smaller the amount we should breathe. Comparing standards for d-limonene with those of other well known solvents demonstrates how very little of citrus solvent should be in the air.

AIR QUALITY LIMITS*

SUBSTANCES	OSHA PEL**	ACGIH TLV**	DFG MAK**
ethyl acetate (nail polish removers)	400 ppm	400 ppm	400 ppm
xylene, mineral spirits	100	100	100
turpentine	100	20	skin sensitizer
d-limonene	–	–	**5**
carbon tetrachloride (banned)	10	5	0.5

* 8-hour time weighted averages

** PEL = permissible exposure limit; TLV = threshold limit value; MAK = maximale arbeitsplatz-konzentration (maximum workplace concentration: DFG = Deutsche Forschungsgemeinschaft)

ACTS supplies a free two-page data sheet on d-limonene with all this an more data that can be useful to explain why this natural solvent should be avoided. Send an SASE and we'll send one.

MISSPELLED WORD IN THE LAST ISSUE

The Editor apologizes for saying the herpes simplex virus 1 (HSV-1) causes cancer sores in the mouth. Several readers e-mailed or called to say what I hope readers know: this virus causes canker sores in the mouth. That's one spell-check can't catch. Anyone out there want to help edit?

DEATH AT SEA WORLD: A GOOD RESOURCE

Book Review

Whether you support Sea World's right to put trainers in the water with killer whales or you think whales should never be exploited in water shows, this book will make you think about your view.

David Kirby's *Death at Sea World* provides the backgrounds and biases of the players in the life-and-death drama: the woman trainer who was killed, other trainers, expert witnesses, and more. It is also a compendium of incidents and deaths of trainers in the US and other countries. And it covers the illnesses and deaths of the orcas at *SeaWorld*. There has not been much discussion about how bad captivity is for the whales. While many wild animals live longer in captivity than in the wild, the orcas are not faring as well despite *SeaWorld's* intense medical care.

Of particular interest to me is the day-by-day coverage of the trial held when SeaWorld contested the Occupational Safety and Health Administration's citation for the death. The book ends waiting for the judges decision. But readers can complete the file by sticking a copy of the June 2012 *ACTS FACTS* article on the decision and this August article in the back of the book. The latest news is that the Occupational Safety & Health Review Commission refused to reconsider the administrative law judge's ruling that *SeaWorld* animal trainers must be prohibited from performing in close contact with killer whales unless protected by a physical barrier. Now we only have to wait another 60 days to see if *SeaWorld* appeals to the United States Court of Appeals. Stay tuned.

ALUMINUM & METAL DUST PRECAUTIONS FOR ARTISTS

NFPA 484-2012 *Standard for Combustible Metals*

In March 2004 and July 2010, *ACTS FACTS* covered deadly explosions caused by aluminum grinding and polishing dusts to remind artists that this dust require special handling. Powdered aluminum, iron, magnesium, titanium, tungsten, zinc, zirconium, lead, and alloys of these metals (e.g. bronze) can explode and are fire hazards. They are common pyrotechnic ingredients.

In general, the finer the powder, the faster the material will "burn" in air and the more explosive it is. But even large particles will ignite under the right conditions. To use fireworks to illustrate the difference, the fine powders would produce a quick flash or a noisy blast, while the bigger particles would burn more slowly and produce that "flitter" or sparkle effect. But both the fast flash and the slower-burning flitter can be deadly inside a shop or studio!

STANDARDS. While almost any metal dust can cause fires and explosions, some metals are especially hazardous. The National Fire Protection Association's NFPA 484 *Standard for Combustible Metals* applies to aluminum, magnesium, tantalum, titanium, zirconium, and alloys containing these metals. The standard applies to even very small users of these metals. For example, the presence of even 2 pounds of aluminum in an educational facility triggers this standard.

The grades of dust addressed in NFPA 484 include: Fines (< 45 microns); Super fines (< 10 microns); and Ultra fines (< 1 micron). Artists should be aware that many metal pigments are even smaller--even in nanoparticle size. These are particularly dangerous and may also be more toxic.

NFPA 484 references a test called ASTM E 1226, *Standard test method for explosivity of dust clouds*. This test is especially useful for determining the combustibility of alloys containing these metals. Alloys may be less combustible than the pure metal depending on combustibility of the other metals in the alloy. But it can be assumed that dusts of the pure metals listed by the standard are all highly combustible.

HOW EXPLOSIONS OCCUR. The Aluminum Association published a bulletin in 2006 called "Recommendations for storage and handling of aluminum powders and paste" which says:

> *Fine particles of aluminum powder...are easily dispersed in air where their low mass allows them to remain suspended or "float" in air. ... [W]hen dispersed in the proper proportion in the air, which allows the particles to mix with oxygen, the burning extends from one particle to another with such rapidity, that a violent explosion results.*
>
> *Laboratory tests by the U.S. Bureau of Mines and others have established the proportions required for an explosion. These values extend through a wide range and very little aluminum powder is needed for an explosion to occur. ... Very small amounts of energy are required to ignite mixtures of aluminum powder and air.*

Some of the sources of ignition listed by the Aluminum Association include discharge of static electricity, electric switches, broken light bulbs, electric motor commutators, loose electric power connections, metal to metal friction such as in a dry sleeve bearing, or even metal to metal impact.

CLEANING UP THE DUST. NFPA 484: 8.1.2.3.4 says that portable vacuums being used to clean up aluminum powders (e.g. pigments) and aluminum dust shall be listed or approved for group E dusts (combustible aluminum dust) and the vacuum shall be uses only with aluminum only. In other words, this very special vacuum system cannot be used for any other metal dust because mixed dusts are particularly explosive. Using the vacuum for any other metal is prohibited unless the entire system is disassembled and thoroughly cleaned prior to and after its use. A sign on the vacuum should say, for example, "Aluminum Metal Only - fire or explosion can result with other metals."

This concern for mixed dusts also must extend to other ventilation systems such as down draft tables, welding benches, and flexible duct exhausts. These all should be explosion proof in any case since all metals can ignite, but special precautions to ensure concentrations at any point in the systems hoods, ducts, fan and stack do not exceed the lower explosion limits of the metals in air. This is not always easy to predict in art schools and theatrical shops since the projects will vary. Perhaps, the use of aluminum in particular should be reevaluated by safety personnel.

Ordinary sweeping is not acceptable since static charges and friction may result. Wet mopping is not recommended as aluminum, zinc and some other metals react exothermically with water..

COLLECTORS. Hopefully art and theater shops would not generate enough metal dusts to require large dust collectors such as cyclones or bag houses. NFPA 484 has many precautions for these systems including that they must be located outdoors and the air cannot be recirculated into the building. The cost for these specially explosion-proofed systems is prohibitive for small shops.

GENERAL SAFETY PRECAUTIONS. ACTS recommends all users and generators of aluminum dust, pastes, or pigments follow the precautions in NFPA 484 (www.nfpa.org) and "Recommendations for storage and handling of aluminum powders" (www.aluminum.org). These documents provides complete precautions. Below are some of the precautions relevant to studios and shops where aluminum objects are finished or pigments are used. ACTS recommends these precautions be used for all metal dust such as bronze and steel.

1. If possible, eliminate processes that generate aluminum dusts or require powdered pigments. Aluminum pastes can replace powdered ones, but these still require special handling and storage.

2. All electrical wiring, lights and equipment must meet current codes. Areas in which aluminum dust or powders are present should be Class I or II as determined by a professional hazard evaluation.

3. Great care must be taken to prevent contact of water with aluminum powders and pastes. All leaks in water lines, roofs, or radiators should be immediately repaired.

4. Housekeeping must be frequent enough to prevent any accumulation of dust on floors, walls, overhead pipes, or other surfaces. Powder cleanup must be done with damp squeegees or soft natural bristle brushes that do not develop static charges. Scoops used with powders must be non-sparking (e.g., beryllium copper alloys. No combustible rubbish should be present such as oily rags or paper.

5. Vacuums for metal dusts should be HEPA filtered and explosion proof. Aluminum powder vacuums should be for Class E dusts and reserved for aluminum only. Mixing of metal dusts must be prohibited. A sign on the vacuum should say, for example, "Aluminum Metal Only - fire or explosion can result with other metals." Using the vacuum for another metal requires the entire system to be disassembled and thoroughly cleaned prior to and after its use.

6. Never work with or even open the cans of metal powders or pastes when welding, cutting and grinding, or any other spark producing activity is occurring within 35 feet. Smoking or using flame must be strictly prohibited. Flammable materials--even in storage cabinets--cannot be in the area.

7. Keep aluminum (or other metals) pigments and pastes in their original containers and sealed except when opened for removal of material. Reseal containers immediately. Secure storage is needed. If the shop has a pyrotechnic magazine, this would be a good place.

8. Transferring aluminum and other metal pigments should be slow, deliberate and use a non-sparking metal scoop with minimal agitation. A grounding strap should connect the two containers.

9. Work clothing should be made of smooth, hard finished, closely woven fire resistant/retardant fabrics which tend not to accumulate static charges. Trousers should have no cuffs. Pockets should be designed to keep out dust. Most proper welding togs qualify. Work shoes should be anti-static.

10. Fire precautions must be selected with professional evaluation of the amounts of powders generated or stored or the amounts of paste kept on site. Significant amounts of powder and paste require a Class D dry extinguisher and training of people on site to use it

FINAL COMMENT. I don't see these precautions in the schools and shops I visit. It may be time to reevaluate the precautions in place for aluminum and other metal dusts.

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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ACTS FACTS

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ARTS, CRAFTS AND THEATER SAFETY (ACTS)

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

September 2012 **Vol. 26, No. 09**

AVAILABLE: *ENCYCLOPEDIC DICTIONARY OF PYROTECHNICS*

Book Review

The *Encyclopedic Dictionary of Pyrotechnics (and Related Subjects)* is now available for $30 ($34 outside the US) on CD from the *Journal of Pyrotechnics* website

http://www.jpyro.com/ref-series/encyclopedic-dict-pyro/

This massive and impressive new *Encyclopedic Dictionary* consists of more than 4600 entries (not counting the 3300 cross-references, abbreviations and symbols), 1200 large-format (8-1/2 x 11 inch) pages, including 3000 photographs and illustrations, 600 pyrotechnic formulations and 500 data tables. Almost every conceivable pyrotechnic chemical and process is here.

The prime movers of this project are Ken Kosanke, Ph.D. and Bonnie Kosanke, M.S, both of whom are well-known to the pyrotechnic community for their decades of work on the *Journal of Pyrotechnics* and on the National Fire Protection Association's standard NFPA 1126 for theatrical pyrotechnic safety. Two other Primary Authors and Editors are Barry Sturman and Robert Winokur.

The Kosankes started working on this project shortly after they published a smaller work called the *Illustrated Dictionary of Pyrotechnics* in 1995. But it wasn't until about 7 years ago, the Kosankes began work in earnest. They solicited the help of more than 100 people to contribute written entries, photographs and sketches for illustrations. Then for the past two years the Kosanke's devoted their full time to editing. As part of the editing process, each entry was assigned to one of 14 technical subject areas of expertise after which they divided these areas among at least three technical editors [one of whom was *ACTS FACTS*' Editor] for editing and fact checking.

The publication is only available on CD, although the Kosankes are looking for a printer to produce a reasonably priced, limited number of copies of hardbound books in both black and white and color. If a printer is engaged, they will announce the availability of bound books on their website.

To accommodate users who want some of the material in hard copy, the CD is not password protected or encrypted. Purchasers are free to download the three large PDF files to their hard drives and to print copies for their own use. (The Kosankes are relying on people to honor their copyright by not producing copies of the CD).

The Kosanke's are already at work on a second edition and hope that readers of this first edition will:

* Offer suggestions for improvements or additions that should be made to the first edition.
* Perhaps write and submit some new entries for topics that are not covered.
* Provide images – either from photographs or from video clips, for example, to show the development of an aerial shell.

For anyone interested in pyrotechnics, I can't think of a better edition to your library.

LABELS: GHS PICTOGRAMS

Although worker training about the new globally harmonized system (GHS) of label pictograms is not required until December of 2013, we are already seeing them on products. I thought I'd share a simple list of the nine pictographs and their basic meaning for artists and craftspeople.

OXIDIZER - chemicals that evolve oxygen which make them unique fire hazards.

FLAMMABLES (and combustibles) - including self reactives, prophorics, self heating, substances that emit flammable gas, and organic peroxides.

EXPLOSIVES - self reactives, organic peroxides.

GASES UNDER PRESSURE - all types of gases including inert gases. Cylinders would also have labels for other characteristic such as a flammable label.

CORROSIVES - acids, alkalis, and other chemicals that dissolve animal tissue.

ACUTE TOXICITY (severe).

ACUTE TOXICITY (harmful) irritants, dermal sensitizers, narcotic effects, respiratory tract irritation.

CHRONIC TOXICITY- carcinogen, respiratory sensitizer, reproductive toxicity, target organ toxicity, mutagenicity, aspiration hazard.

ENVIRONMENTAL TOXICITY may be persistent, toxic to aquatic life, etc.

TRANSPORT PICTOGRAPHS. There also are pictograms that will be required on shipping containers of chemical products. These labels can be confusing because they may combine pictographs with numbers and/or background colors to help fire fighters and hazardous materials personnel respond to emergencies such as spills or fires. Users of products need instead to rely on the pictographs on the product's label.

ADVANTAGES OF THE PICTOGRAMS. We will benefit from these graphics because they provide basic information without our having to read labels–something that we rarelyl did! Even when we read the current labels, they are full of misleading and inconsistent advice. Now the new graphics should remind us without words. In addition, the GHS rules require standardized phrazers and warnings to accompany the pictograms to provide consistent and more detailed information.

The pictograms might even motivate artists in particular to provide special precautions or even replace three highly hazardous chemicals many used that carry two or even three pictograms.

ORGANIC PEROXIDES. Containers of organic peroxides used to catalyze 2-part polyester resins and some types of epoxy and urethane products would carry three pictograms: oxidizer, flammable and explosive. This display should remind us that if organic peroxides catch fire, they cannot be extinguished with water or smothered because they supply oxygen to the flame. And although these products have a peroxide crystal formation inhibitor in them, in time, this inhibitor fails and shock sensitive explosive peroxides build up in it. Artists should consider using other resins. Otherwise, use them up promptly or disposed of them within 6 months.

GLACIAL ACETIC ACID is an almost pure (~99%+) acid which is corrosive, oxidizing and flammable. It also needs to be stored alone. I hope the pictograms will help artists see that this chemical does not belong in studios or classrooms. It can easily be replaced with more dilute solutions since the various photo and etching processes in which it is used all use dilute acetic acid. For example, Purchasing a dilute acetic acid such as in a 50% solution renders it only a corrosive and it can be stored with other acids. Some safety-conscious schools use vinegar which is a 5% solution of acetic acid for photo processes.

NITRIC ACID which has pictograms identifying it as both a corrosive and an oxidizer. This means it cannot be stored with other acids or with anything whose label or safety data sheet says should not be mixed with an oxidizer–which is almost everything! So nitric acid needs to be stored alone in its own acid cabinet. Small cabinets for this purpose are available from most safety equipment supply companies. But printmakers also can switch to many safer etches.

LOWER MANGANESE TLVs EXCEEDED BY WELDING & GRINDING

SOURCE: How Would Lower Limits for Manganese Affect Welding?, Paul Blomquist & Dan Chute, *Welding Journal*, August 2012, pp 42 -47

With the understanding that an article in the *Welding Journal* may have an industry bias, there still is exceedingly good information on air sampling that is relevant to sculpture and scenic studios in the August issue (see above). This article concentrates on the affects on the industry of the Notice of Intended Change in the levels of airborne manganese announced by the American Conference of Governmental Industrial Hygienists (ACGIH). These new lower levels are proposed due to increasing evidence that Parkinson's Disease is associated with inhalation of manganese fume.

MANGANESE LIMITS in mg/m^3*		TABLE DEFINITIONS
OSHA PEL-TWA**	5.0	* milligram per cubic meter of air
Current TLV-TWA***		** permissible exposure limit, 8-hour time-weighted
total fume	0.2	average.
Proposed TLV-TWAs****		*** threshold limit value, 8-hr time-weighted ave.
inhalable	0.1	**** proposed threshold limit values for larger inhal-
respirable	0.02	able (diameters ~10-100 microns) and smaller respirable particles (< 10 microns).

The authors emphasizes that the data from the three types of air sampling done during welding show that the total amounts of inhalable and respirable particles add up to a greater total weight than the sample for total fume. The authors conclude that this data shows test methods assigned by the ACGIH are unworkable and unreliable. I do not agree. Clearly, the welding industry would like to see the new manganese limits withdrawn until better test methods are developed which would save the industry the cost of worker sampling and instituting precautions.

Instead, I think the data becomes essentially consistent with the assumption that the total fume method has never effectively collected all of the very small respirable particles. The new respirable sampling method* assigned by ACGIH has been vetted and a similar method is being used to support the same 0.02 mg/m^3 German standard for manganese which has been in effect for several years.

USEFUL DATA. All this complex stuff aside, the study provides really useful information about emissions from various types of welding. Most notably, the new respirable TLV is exceeded by all except gas tungsten arc welding. **The respirable TLV was even exceeded by plain old mechanical grinding!** Only grinding, gas tungsten and hybrid laser arc welding managed to emit below the new level for inhalable manganese! In order of decreasing amounts of respirable manganese these are:

In order of decreasing respirable Mn
Flux cored arc welding (extremely high!)
Pulsed gas metal arc welding
Shielded metal arc welding
Carbon arc gouging gas tungsten arc welding
Grinding (below inhalable TLV)
Hybrid laser arc welding (below inhalable TLV)
Gas tungsten welding (below both new TLVs)

Although these data were from shipyard workers who are exposed to more fume than would be generated in sporadic welding by sculptors or scenic workers, it is clear that exposure to manganese is of concern and that grinding cannot be ruled out as a contributor. Schools should install flexible duct welding exhaust systems and entertainment industry scenery builders should add portable HEPA-filtered welding systems to the list of equipment for shops and film locations along with their portable wood dust collection systems (note: OSHA requires welding and woodworking to be separated by a wall or to be 35 feet apart).

* Institute of Medicine (IOM) sampler and SKC™ cyclone inlets

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FOOD & DRINK: RULES FOR LABS & STUDIOS

The subject of how to refuse requests from faculty, students and administrators to place equipment such as coffee makers, refrigerators and microwaves in laboratories was opened on the American Chemical Society's e-mail safety forum. One post from Kim Gates Auletta, Laboratory Safety Specialist in the Department of Environmental Health &Safety at Stony Brook University provided a list of regulations, licensing requirements, and standards of care that prohibit eating and drinking in various types of areas in which chemicals or biological hazards exist. The list was complied by Kim and the school's architect, Michael S. Murray, R.A., AIA, NCARB Director of Design Campus Planning, Design and Construction. Here is their list with my comments and additions.

OSHA REGULATIONS:

OSHA's General Industry Sanitation Standard - 29CFR1910.141

(g) Consumption of food and beverages on the premises. . . .

(2) *Eating and drinking areas.* - No employee shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material."

(4) *Sanitary storage.* No food or beverages shall be stored in toilet rooms or in an area exposed to a toxic material.

COMMENT: I added (4) to show that you not only can't eat in such areas, you can't store your lunch in them either. This rule is in OSHA's General Industry Standards meaning both (2) and (4) apply to any area in which toxic art materials are used or stored as well, not just laboratories. So in general, this can cover art and scenic art studios, costume and prop shops, hair and makeup rooms, janitorial supply storage areas, maintenance shops, and the like.

It should include elementary school art rooms. The problem is that most of those art products contain untested organic pigments which are misleadingly labeled "nontoxic." Yet many can be anticipated to be toxic if tested for chronic hazards. If ceramic clays or glazes are used in the elementary school, these qualify as toxic under any conditions. And elementary school is where many children develop the bad habit of having cookies and snacks during or after art activities.

OSHA's General Industry Laboratory Standard - 29CFR1910.1450

Appendix A - National Research Council Recommendations (1981) Concerning Chemical Hygiene in Laboratories (Non-Mandatory)

E. Basic Rules for Working with Chemicals

1. General Rules

(D) Eating Smoking, etc.:

Avoid eating, drinking, smoking, gum chewing, or application of cosmetics in areas where laboratory chemicals are present; wash hands before conducting these activities.

Avoid storage, handling, or consumption of food or beverages in storage areas, refrigerators, glassware or utensils which are also used for laboratory operations.

COMMENT: The EPA waste disposal regulations include "art studios" under their definition of an academic laboratory. Some schools also lump their art departments with their science departments and apply the Laboratory Standard safety program to them rather than under placing the art department under the Hazard Communication Standard. I think this is a mistake since the Lab Standard assumes workers are chemically sophisticated and art teachers usually are not. But if the art studio comes under the OSHA Lab Standard, eating and drinking in the lab are still prohibited.

OSHA's General Industry Bloodborne Pathogens Standard - 29CFR1910.1030

(d) Methods of Compliance.- . . .

(ix) Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.

(x) Food and drink shall not be kept in refrigerators, freezers, shelves, cabinets or on countertops or bench tops where blood or other potentially infectious materials are present.

COMMENT. This means that body fluids and disease organisms also qualify OSHA also qualify as toxic and trigger the eating and drinking prohibition.

Keep in mind that all three OSHA rules above include "drinking" among prohibited activities. This includes that ubiquitous bottle of water which is hard to pry out of students' hands.

LICENSING REQUIREMENT(S):

Radioactive Material User's Guide — Rules for Use of Radioactive Material

Eating, drinking, smoking, the application of cosmetics or other similar activities which could lead to the uptake of radiation contamination are prohibited in areas where unsealed radioactive materials are being used.

Stony Book's list notes that "These rules must be followed by all users of radioactive materials due to a condition in our broad license." This rule would also apply to art conservation labs and museum collection areas and labs with radioactive geology collections, historic medical supplies with radon ingredients, and the like.

STANDARDS OF CARE:

National Research Council's Prudent Practices in the Laboratory, 1995.

5.C.2.2 Avoiding Ingestion of Hazardous Chemicals

Eating, drinking, smoking, gum chewing, applying cosmetics, and taking medicine in laboratories where hazardous chemicals are used should be strictly prohibited. Food, beverages, cups, and other drinking and eating utensils should not be stored in areas where hazardous chemicals are handled or stored. Glassware used for laboratory operations should never be used to prepare or consume food or beverages. Laboratory refrigerators, ice chests, cold rooms, ovens, and so forth should not be used for food storage or preparation. Laboratory water sources and deionized laboratory water should not be used for drinking water.

5E-1 Biohazardous Materials

Never eat, drink, smoke, handle contact lenses, apply cosmetics, or take or apply medicine in the laboratory.

5E-2 Radioactive Materials

Never eat, drink, smoke, handle contact lenses, apply cosmetics, or take or apply medicine in the laboratory, and keep food, drinks, cosmetics, and tobacco products out of the laboratory entirely so that they cannot become contaminated.

Centers for Disease Control & National Institutes of Health (CDC/NIH): Biosafety in Microbiological and Biomedical Laboratories "Standard Microbiological Practices" for ALL Biosafety Level 1- Level 4 labs:

3. Eating, drinking, smoking, handling contact lenses, and applying cosmetics are not permitted in the work areas where there is reasonable likelihood of exposure to potentially infectious materials. Food is stored outside the work area in cabinets or refrigerators designated for this purpose only.

ART SAFETY STANDARDS. Apparently there are none. While most articles and books provide recommendations to ban food and drink including my own, there are apparently no recognized national standards of safety for art studios. At least there are none listed by the American Society of Testing and Materials (ASTM), the American National Standards Institute (ANSI), or the National Association of Schools of Art and Design (NASAD), a major art program certifying organization.

The NASAD Accreditation Handbook mentions **safety** a number of times, but only in general. For example, Section F. Facilities, Equipment, Health, and **Safety** is says:

1. Standards ....

f. It is the obligation of the institution that all students in art/design programs be fully apprised of **health and safety** hazards and procedures inherent in the use of materials and equipment appropriate to specific disciplines and be instructed in their proper handling and operation.

g. Ventilation and **safety** treatments appropriate to art/design facilities shall be provided.

h. All instructional facilities shall be accessible, **safe**, and secure, and shall meet the standards of local fire and health codes.

i. The institution shall have a plan by which it addresses **health and safety** issues on a continuing basis.

However, precise definitions of what constitutes health and safety hazards such as eating and drinking in the studio are unaddressed. Since NASAD inspects art departments regularly, I can't imagine that they are not seeing, as I do, the microwaves, coffee makers, and little refrigerators in many studios and grad student cubicles. Maybe the students squirrel them away when NASAD inspects, but the sure don't for me. Why should they? Most see nothing wrong in this practice.

If any reader knows of a national standard of practice for art that is enforced either a licensing or accreditation requirement, please let us know. ASTM probably should develop a standard.

E-MAILING ACTS

We answer about 35 inquiries by phone, letter and e-mail a day here. And I don't want to miss anyone's inquiry. So if you e-mail ACTS, write something in the subject line that does not sound like spam or a sales pitch. E-mails without subjects or that don't look like inquiries are discarded. If you don't hear from me within 3 days of e-mailing, write again. Your inquiry is important.

COMPLYING WITH OSHA PELs CAN RESULT IN LIABILITY

Frank Mirer, The PEL is Not a License to Kill, *The Synergist*, AIHA, for September 2012, pp. 22-23

Frank Mirer wrote an article in the American Industrial Hygiene Association's news magazine, *The Synergist*, that all art and theater people interested in safety should have in their files. The article reminds us of an important 1987 Court of Appeals decision. This ruling should be our central argument when employers use OSHA's incredibly outdated air quality standards, the Permissible Exposure Limits (PELs) to evaluate air sampling tests and worker exposure data. Most PELs have not been updated since 1971 and they don't come even close to being sufficiently protective. And there are many substances for which there are no PELs that are very toxic. Instead, we need to insist that more up-to-date national or international air quality standards be used instead.

THE CASE. The decision resulted from a lawsuit brought by the United Auto workers against General Dynamics. It involved exposure of a worker to Freon, a gas for which there was no OSHA PEL at the time. There were prior incidents at General Dynamics in which workers were harmed that should have alerted management to the hazards associated with their practice of using Freon to clean the interior enclosed spaces in M1 Abrams battle tanks. Several people had been overcome by the vapors before one employee was killed. General Dynamic's defense was that they had followed the OSHA laws to the letter. But the Appeals judge found for the Plaintiff and ruled:

> Therefore if (as is alleged in this case) an employer knows a particular safety standard is inadequate to protect his workers against the specific hazard it is intended to address, or that the conditions in his place of employment are such that the safety standard will not adequately deal with the hazards to which his employees are exposed, he has a duty under section 5(a)(1) [the General Duty Clause] to take whatever measures may be required by the Act, over and above those mandated by the safety standard, to safeguard his workers. In sum, if an employer knows that a specific standard will not protect his workers against a particular hazard, his duty under section 5(a)(1) will not be discharged no matter how faithfully he observes that standard.*
>
> * *UAW v. General Dynamics*, 815 F.2d 1570 (D.C. Cir. 1987)

In other words, if a hazardous chemical has no PEL or has only an outdated PEL, the employer is not protected from citations or from liability by complying with the OSHA regulations as written. For example, a common Freon used in 1987 was dichlorofluoromethane or Freon 21. Today, the OSHA PEL for Freon 21 is 1000 parts per million (ppm) while both the US and Europe usually use more up-to-date standards of 10 ppm. The employer will need to also use these better standards.

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ACTS FACTS

THE MONTHLY NEWSLETTER FROM

ARTS, CRAFTS AND THEATER SAFETY (ACTS)

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November/December 2012 **Vol. 26, Nos. 11/12**

SANDY CLOSED ACTS

We apologize for the late November issue of *ACTS FACTS* and hope the arrival this combination November/December issue makes up for it. We were closed for a week due to lack of power and services. I want to thank my husband's daughter and her partner for putting us up and letting me work from their beautiful apartment in the East 60's.

FLOOD ABATEMENT FOR HOMES & STUDIOS

Editorial/data sheet

Most of us have done some volunteer work since Sandy. I did a mine at the Modern Museum of Art's Collections Salvage Information and Workshop, Sunday, November 4th. Since then I've been listed as a resource on their website to provide help to artists, museums, collectors, and other people who need to rescue damaged art works and studio spaces. I've also done two WNYC radio interviews, one on general abatement issues and the other on mold. As a result, I've been answering e-mails and calls from people with storm-related safety issues.

These calls are about issues similar to those we all dealt with after both 9/11 and hurricane Katrina. Worse, the same mistakes are being made. People are cleaning up their homes and businesses without any training about the hazards or proper protective gear. Equally inexperienced, ill-equipped volunteers are helping them. Many of these people can be expected to have health problems later.

WHY THE SAME MISTAKES? While some people remember the lessons from 9/11, there are still well-meaning New Yorkers and outside volunteers who think it is admirable step in to help people without proper training. Worse, there are still uneducated press reporters who glorify them. The most upsetting articles are about religious organizations whose volunteers include children. In my opinion, the reporters whose articles encourage these misguided parents are culpable.

There also are large numbers of immigrant laborers. Those lucky enough to land temporary work for FEMA or other government agencies are reportedly issued protective equipment and trained. But there are others working for private employers in ways almost guaranteed to put them at risk.

Then there are the individual home owners, owners of very small businesses, and artists trying to rehabilitate their own homes, stores and studios. Those without financial resources and good insurance policies have few options other than to do their own work. We saw some of these individuals and small communities work together after Katrina, too.

For all of these groups and individual workers, I thought I'd share some of the basic information they need to protect themselves and others during flood clean up and remediation.

AFTER THE DISASTER: CLEANING UP YOUR HOME, STORE OR STUDIO

ACTS data sheet, last revision: 12/2/12

FIRST RULE: Do not do this work if you have health problems such as heart or lung problems, are pregnant, or if you have allergies to mold. Air purifying respirators are not protective enough to prevent allergic reactions. You can seriously harm your health by doing this work.

SECOND RULE: Keep firmly in mind that you are not a qualified flood abatement worker. This means you should not do this work if you have access to any other source of money such as from insurance from which to hire a contractor. If lead paint or asbestos is present, this work is too hazardous for you. You need to find some way to hire a certified abatement contractor. Hiring a contractor is also in your own interest, since their contract usually make it possible to recover damages if the job is done poorly or they damage your property.

LAB TESTS. If your home, studio or building was erected before 1980, you need to know for certain whether or not lead and/or asbestos are present. You can hire a technician from an abatement company or a certified lab to take samples and provide the test results a day or two. If the tests show that lead and asbestos are not present, then mold will be the primary hazard.

MOLD. If there is obvious thick mold growth throughout, this also is not a job you should tackle. While it is not illegal for a property owner or volunteer to do this work, it is foolish and dangerous.

If the mold is not extensive, you may be able to do the work. Some experts say that if the total area of mold in any single room is less than about four square feet, it can be done with simple precautions such as a respirator (see data sheet below) and protective gloves and clothing.

I also have seen Sandy-damaged properties recently that were kept open to the outside air and dried with fans in which visible mold was not seen. This can happen because the local temperatures have been cold and on most days the humidity was low--conditions under which mold does not thrive.

However, these buildings must be abated anyway since they will mold eventually. It is most likely to happen in summer when the humidity is high. It will happen because the flood water contained enough nutrients for those walls and insulation to function like a petrii dish when conditions are right. This storm surge water contained contaminants from wastewater treatment plants, sewer overflows, vessel sewerage discharge, City street runoff containing offal from pets, oil spills, more.

The storm surge also stirred up sediments in rivers and bays around the city which are full of chemicals and toxic metals. The sediments from the Hudson river also contain PCBs.

MOLD IDENTIFICATION. Identification of the types of molds is interesting, but not as useful. The tests I've been seeing show Aspergillus is most abundant with lesser amounts of other species of molds, smuts, and rusts. But you can be sure every mold and it's brother is in that mess or in the air somewhere and ready to take up residence. Mold tests are most useful when people have developed allergies and need to know the types of molds to which they react.

Identification of mold might also be necessary when mold is growing abundantly on surfaces all through the building to determine if certain highly toxic molds are present. Whether toxic or not, abundant mold growth usually means the entire interior of the building must be gutted. And this should be done by trained abatement workers.

TESTS FOR WET WALLS. If you have no observable or very limited mold growth, there are two tests that can be done to help you do a good job. These are:

1. Wipe samples from the floors to test for *coliform* and *e-coli* bacteria. These are tests for fecal bacteria. The bacteria themselves are not a great threat. You should be able to tolerate minor exposure to them if you are in good health (and are not pregnant), if:
   * the bacteria do not contaminate your food,
   * you wear gloves or have only brief skin contact before washing,
   * you do not exposure cuts or breaks in your skin to them, and
   * inhalation of bacteria-laden dust from renovation work is prevented by wearing a respirator.

The presence of the bacteria, however, tells contractors where the contaminated water has been and indicates that many other infectious organisms and toxic substances are also present.

While you can survive exposure with good hygiene, this water is fatal to porous materials such as wall board, insulation, particle board, wall-to-wall carpet, upholstered furniture, mattresses, and more. The dirty water will turn porous materials into richly fertilized gardens for mold. Even if you disinfect and kill the mold, the air is full of molds that can land on this material and thrive on it when conditions are right. The contaminated materials must be removed as soon as possible.

2. Moisture meter readings. These should have been taken within a few weeks of the flood. After the walls are dry, moisture meters will not show how high up this water has wicked up into porous materials. Flood lines on materials and fecal bacteria tests only tell you how high the water rose. But you also need to know where that water went inside the materials and walls.

WHERE TO CUT? The two tests above indicate how much porous building material must be cut out and removed. If you cannot afford to have tests done, err on the side of caution. Remove several inches above the water line and watch for dampness in insulation and materials behind the wall board which may have wicked water up higher. Anything suspected to have been wet must go.

Usually, studs and beams can be dried out and disinfected. It also depends on how long water was in contact with the wood. These decisions are best made by abatement contractors or other experts.

DISINFECTING. Hard surfaces often can be simply cleaned and disinfected. Some bad advice has been floating about regarding use of natural and nontoxic disinfectants. But this is a time to employ something that will do the job. A solution of one part household bleach diluted with ten parts of water is cheap and will kill EVERYTHING--no matter what it is. Make sure that the doors and windows are open and drying fans are moving air during such processes. Also wipe down the surfaces in the flood damaged facility where you intend to live, sleep and eat after renovation.

PERSONAL PROTECTIVE EQUIPMENT DURING CLEAN UP.
   * Gloves such as nitrile examining gloves.
   * Tyvek® coveralls and booties if possible.
   * Goggles that seal to the face to protect from both dust and bleach. If ;you order them from a safety company, they should be rated for chemical splash, dusts, and impact.
   * Steel toed shoes (everyone doing construction jobs should have a pair).

HYGIENE. When returning to areas in which you are living and sleeping, make sure to bag soiled work clothes and shower immediately. Do not track Sandy into these spaces.

N95 RESPIRATORS FOR SANDY CLEAN UP NON-PROFESSIONALS

ACTS. Data Sheet: contact actsnyc@cs.com for copies or info. Revision: 12/2/12

When a disaster strikes, experience shows that volunteers and home owners will begin cleaning up flood and storm damaged properties. No amount of warnings will deter these people from trying to do ths dusty hazardous work. Yet these people usually are not medically certified, fit tested or trained to wear respirators properly. As a result we can expect to see the same respiratory illnesses after each disaster. This data sheet provides basic information about a commonly used dust mask , N95, to try to improve the effectiveness of this equipment among untrained workers.

If you are an employee paid to do clean up work, this data sheet does **not** apply to you. You come under OSHA (the Occupational Safety & Health Administration). OSHA defines the N95 as a filtering facepiece "respirator" and your employer must provide services which usually include medical certification, fit testing, and training. If this is not done, you or a fellow worker should call the OSHA regional office. They can act on your complaint without revealing your name.

This data sheet is for people who do **not** come under the OSHA regulations such as volunteers, artists or home owners cleaning up their studios or homes. Even if you do not come under OSHA, you should understand why OSHA requires three conditions for wearing respirators.

1. Medical certification means a health professional certifies that the you have no medical condition that would be made worse by the breathing stress that respirators cause. For instance, if you have asthma, heart problems, or are pregnant, it may not be wise to wear a respirator. And if you have significant allergies to mold, there is no air-filtering respirator that can insure your safety.

2. Fit testing is a procedure done by a person qualified to use an approved method to insure the mask fits properly. Fit testing also identifies those people whose faces do not conform to the masks' shape. These people simply cannot be protected by wearing the mask. Fit testers also are not allowed to test people with facial hair (beards) since masks require skin contact in order to seal properly.

3. Training. Without training people can misuse their equipment. For example, training for an N95 includes learning that the mask must be discarded after 8 hours of use, that it will only protect you against particles such as dust particles and mold but will let volatile cleaning chemicals through, that the mask must be put on and the straps place in a particular way to work properly, and more.

A recent hospital study showed that 60% of the medical personnel wearing N95 masks who were not fit tested and trained were not being protected by the masks they wore. If you plan to wear a mask for more than a few days, we recommend you contact Mt. Sinai Hospital's Occupational Medical Clinic for these services. Call us at 212-777-0062 for a referral.

GENERAL INFORMATION. When properly used, the N95 can mean the difference between remaining healthy and being sick from the pollution and mold associated with flood water clean up.

1. First be sure you have the right mask by looking for "NIOSH" and the N95 rating on the mask.
2. The N95 has two straps. All of the single strap masks are not suitable for this work.
3. The N95 will only filter out particles such as dusts and molds. Other substances go right through the mask including the volatile chemicals emitted by bleach, ammonia, solvents and other cleaners or engine exhaust. The N95 captures spores and dust from mold. But the odors molds make (which are volatile chemical to which some people are allergic) go through the N95.

4. The N95 will not provide proper protection against highly toxic dusts such as asbestos and lead. Lead paints and asbestos or asbestos-containing vermiculite insulation were used in older homes.
5. The N95 will not protect you from infections from sewerage bacteria or exposure to toxic substances in flood water by skin contact or ingestion. Wear gloves or wash up regularly during work and before eating, remove and bag contaminated clothing at the door of your home, shower immediately, and launder clothing daily.

PUTTING ON THE MASK.

* Place the N95 on your face so that the foam rests on your nose. Hold the bottom securely under your chin. Pull the top strap over your head and position it high on the back of the head. Then pull the bottom strap over your head and position it around the neck and below the ears. Adjust for a comfortable fit by pulling top panel toward the bridge of the nose and the bottom under chin.

* Place your fingertips from both hands at the top of the metal nosepiece. Using two hands, mold the nose area to the shape of your nose by pushing inward while moving your fingertips down both sides of the nosepiece.(Pinching the nosepiece using one hand may result in improper fit and less effective respirator performance. Use two hands.)

* Fit check: cover the mask as much as possible and breath out hard to detect leaks. (NOTE: this fit check is not the same as a fit test which requires special equipment.)

USE COMMON SENSE. Listen to your body. Don't work when you are exhausted, hungry, thirsty or sick. Leave contaminated areas immediately if dizziness, irritation, or other distress occurs, or if you smell strong odors. If you have delayed or continuing symptoms like shortness of breath or persistent cough, seek medical attention and do not return to the environment which may have caused the problems.

CAN MOLD TOXINS PENETRATE THE SKIN?

SOURCE. "Human Skin Penetration of Selected Model Mycotoxins." Jente Boonena, Svetlana V. Malyshevab, Lien Taeverniera, José Diana Di Mavungub, Sarah De Saegerb, Bart De Spiegeleera, *Toxicology*, Vol. 301; Issue 1-3, (November 15, 2012) p. 21-32

Mold creates toxic substances when it grows called mycotoxins. There are very few studies of skin contact hazards from mycotoxins even people can be exposed to them regularly. A recent study published in Toxicology (see source above) studied how fast six mycotoxins penetrated human skin (in vitro diffusion cell). These were aflatoxin B1 (AFB1), ochratoxin A (OTA), fumonisin B1 (FB1), citrinin (CIT), zearalenone (ZEA) and T-2 toxin (T-2).

OTA showed the highest permeation, followed by CIT. AFB1 and ZEA respectively. T-2 was found to have the lowest permeability. From literature-based mycotoxin-concentrations, dermal contact surface, exposure time and the absorption through the skin (transdermal kinetics) developed in this study, the daily dermal exposure in two industrial and one residential scenario was estimated.

Dermal exposure to the DNA-reactive genotoxic carcinogenic AFB1 was determined to be a health risk for agricultural workers which are exposed to a mycotoxin contaminated solution in a worst case situation. For all the other investigated mycotoxins, no significant health risk is calculated after dermal contact in neither agricultural nor residential environments.

CHEMICAL ACCIDENTS & FIRES: NEWS ITEMS

The American Chemical Society distributes to members short news items about the many chemicals spills, fires and accidents complied by Google from newspapers and television stations around the world. A few of these are also art and craft related. They are reprinted here to remind us that the hazards we discuss in this newsletter are also causing problems elsewhere. These stories were reported to the chemical forum from November 3rd to 23rd –just a 20 day period. Words of special of interest are in bold.

CHEMICAL FIRE CAUSES MINOR DAMAGE TO HOME

http://www.mywesttexas.com/top_stories/article_fb47a176-38e7-11e2-9012-001a4bcf887a.html

MIDLAND, TEXAS: A chemical fire in a residential garage Tuesday afternoon resulted in minor damage, according to the assistant fire marshal. Midland firefighters were called at 4:25 p.m. and found a trash can on fire in the garage.

David Hickman, assistant fire marshal, said the **home owner is a painter** who uses **paint thinners and lacquers**, which were disposed of in trash can. The chemicals reacted when coming in contact with each other and started the fire, he said. "They got real lucky," Hickman said. "I'm just glad someone was home." The fire caused minor damage to the wall of the garage, as well as some minor damage to a vehicle parked inside.

CLEANING CHEMICALS BLAMED FOR HOUSE FIRE

http://news.brevardtimes.com/2012/11/cleaning-chemicals-blamed-for-palm-bay.html

PALM BAY, FLORIDA: A probable reaction among cleaning chemicals stored in a garage is being blamed for sparking a fire that caused approximately $25,000 damage to a home in Palm Bay, Florida, according to city spokesperson Yvonne Martinez.

Just before 3 a.m. on Sunday, residents awoke to the sound of smoke alarms in the home. They immediately began removing animals and personal items and evacuating the residence. Propane fuel tanks in the garage began to explode as firefighters responded. Nearby homes were evacuated as a precaution. Firefighters contained the fire to the garage area of the home.

Further investigation by the fire marshal determined the fire appeared to be accidental as a result of a probable **chemical reaction with linseed** and other cleaners stored on a shelf. The American Red Cross is assisting the family. No one was injured.

HAZMAT SPILL AT HAUNTED HOUSE

http://www.wbal.com/article/95188/2/template-story/Hazmat-Spill-At-Haunted-House

ESSEX, MARYLAND: Baltimore County fire officials say several people were taken to the hospital after they were exposed to **formaldehyde** that spilled at a haunted house in Essex on Friday night.

The jar of the chemical was knocked over by one of the patrons at Kim's Crypt Haunted Attractions on Eastern Boulevard. Officials say the injuries were not serious. Firefighters were able to clean up the spill. The chemical was used as a **prop** at the haunted house.

COMMENT: using real chemical products for props is also a problem in theatrical productions.

CONCRETE DYE TURNED CREEK BLUE

http://pittsburgh.cbslocal.com/2012/11/08/hazmat-concrete-dye-turned-fayette-county-creek-blue/

CONNELLSVILLE, PENNSYLVANIA: The state Department of Environmental Protection is investigating the odd blue color in a local creek. On Wednesday, Connellsville-Breakneck Run turned the mysterious blue, and Fayette County Hazmat responded.

According to DEP spokesperson John Poister, Hazmat determined it was **concrete dye** that came from a nearby home where some work was being done.

COMMENT: These would be technically called "masons stains" and those of a strong blue color will be various combinations of silica and alumina reacted with cobalt, chromium, vanadium, zinc and other metals that have no business in a creek. They are not very soluble and are likely to settle to the bottom where they will release toxic metals over time.

— FIRE CREWS, TOWN PUT OUT MAGNESIUM FIRE

http://www.coloradoan.com/article/20121031/WINDSORBEACON01/310260031/Fire-crews-town-put-out-magnesium-fire-Morey-s?gcheck=1&nclick_check=1

WINDSOR, COLORADO: Windsor fire crews responded Thursday afternoon to a fire at Morey's Glass and Metals on Main Street. There were no injuries or property damage, according to Windsor Severance Fire Rescue Spokesman Todd Vess.

Magnesium, however, **does react violently with water**, so crews had to use alternate methods to put out the blaze. Crews had hose lines set around the perimeter of the fire which was about five feet by five feet, to cool the ground. Town of Windsor employees then came to dump dirt on the fire to smother it. The fire started. when **a welder was working near the pile of magnesium scraps**. A piece of metal bounced from the welder's work station and into the pile, igniting it and causing "spectacular, super white" flames, Vess said. The $800 pile of scrap was destroyed.

COMMENT: Sculptors who use scrap metals need to be very careful about the unknown metals they obtain. There are no MSDSs from the junkyard. Grinding or cutting magnesium or aluminum also can cause fires. Magnesium and aluminum dusts cannot be vacuumed up with other metals.

CHEMICAL CABINET SAVES SCHOOL FROM EXPLOSION

http://www.stuff.co.nz/marlborough-express/7988309/Chemical-cabinet-saves-school-from-explosion

MARLBOROUGH, NEW ZEALAND: Emergency services were called to their second potentially hazardous situation in as many days yesterday afternoon when smoke was spotted coming from the Kaikoura High School science laboratory. Kaikoura fire chief Ian Walker said the callout happened just after 3pm, and it was fortunate students were just leaving for the day.

Potassium that had not been stored properly **had come in contact with either air or water, causing an explosion in a chemical cupboard** [flammable storage cabinet]. Once the brigade had established the likely cause of the explosion, two firefighters wearing chemical suits and breathing apparatus were sent into the building to open the cabinet. Quantities of calcium, lithium, sodium and potassium were removed from the building and made safe outside by submerging them in oil, Mr Walker said.

COMMENT: Those metal flammable storage cabinets can save lives. It would also be wise for high schools not to have stocks of these hazardous chemicals. It is not necessary to show students how these things catch fire when there are videos easily available on the Internet which are a lot safer to view and need no special storage.

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