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TECH UPDATE

SUMMARY : 9 Jan 2012

A ARTICLE CATEGORIES: | 1. INDUSTRIAL SAFETY (chemical safety) | 2. REGULATORY |

Charges Filed in Los Angeles in the Case of a Fatality at a UCLA Research Lab

This recent case revealing an apparent failure of safety precautions illustrates both the potential for tragedy with regard to loss of human life and the potential for high litigation costs. In this case, a young woman pursuing a career in law after receiving a degree in chemistry, working in a university research lab, died of burns sustained during the spillage of a dangerous flammable chemical. It is another example of a primary rubric in industrial safety, that though the conditions which precipitate accidents may be quite rare, the cost in life as well as litigation and reputation provide ample incentive to direct routine attention to the details of prevention. A review of the MSDS, Material Safety Data Sheet very clearly reveals the extreme danger associated with this particular highly reactive, acidic and flammable chemical. The habitual use of laboratory jackets and face masks or splash shields in this case would have readily prevented the fatality and prevented or minimized injury.

JM Aerotech Environmental Consulting, Inc. – staff

B AIHA ARTICLE

Charges Filed in UCLA Lab Death

Posted Jan. 8, 2012 AIHA [Association of Industrial Hygiene]
"The Los Angeles County District Attorney's office has charged the University of California and a UCLA chemistry professor with three counts each of willfully violating occupational safety standards in connection with a 2008 fire that fatally burned a staff research assistant.

As reported in the *Los Angeles Times*, on Dec. 29, 2008, 23-year-old Sheharbano Sangji was not wearing a protective lab coat during an experiment involving t-butyl lithium, which catches fire easily when exposed to air. Sangji was transferring the substance from one container to another when the accident occurred. She suffered severe burns and died 18 days later.
UCLA and Sangji's supervisor are accused of failing to correct unsafe work practices, failing to require adequate protective clothing and failing to provide proper safety training.

In a statement, UCLA called the charges "outrageous" and said that "the facts provide absolutely no basis for the appalling allegation of criminal conduct."

The UCLA accident was one of several laboratory incidents that prompted the U.S. Chemical Safety and Hazard Investigation Board (CSB) to produce a video on lab safety at academic institutions. For more information on lab safety, visit the CSB website."

AIHA: http://www.aiha.org/news-pubs/synergist/newswatch/Pages/ChargesFiledinUCLALabDeath.aspx

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S U M M A R Y : 9 J a n 2 0 1 2

C ORIGINAL SOURCE

The LA TIMES

http://www.latimes.com/news/local/la-me-1228-ucla-death-20111228,0,7543387.story

"On Dec. 29, 2008, Sheharbano "Sheri" Sangji, 23, was severely burned over nearly half of her body when air-sensitive chemicals burst into flames during an experiment and ignited her clothing. Sangji, who was not wearing a protective lab coat, died 18 days later … Sangji was transferring up to two ounces of t-butyl lithium from one sealed container to another when a plastic syringe came apart in her hands, spewing a chemical compound that ignites when exposed to air. The synthetic sweater she wore caught fire and melted onto her skin, causing second- and third-degree burns."

Charged: "Patrick Harran, a prominent researcher who joined the faculty in July 2008."

"On Tuesday, the Los Angeles County district attorney's office charged Harran and the UC regents with three counts each of willfully violating occupational health and safety standards, resulting in Sangji's death. Harran and UCLA are accused of failing to correct unsafe work conditions in a timely manner, to require clothing appropriate for the work being done and to provide proper chemical safety training."

D1 OTHER INDUSTRY SOURCE

CSB [US Chemical Safety Board] :

New Academic Lab Safety Video: http://www.csb.gov/newsroom/detail.aspx?nid=387

"The CSB is concerned with laboratory safety because it's an area that appears in comparison to industry pretty unregulated. There is an OSHA laboratory standard but its focus is on exposure hazards and health hazards of the research work being conducted."

CSB VIDEO [The 2011 UCLA Case]: http://www.csb.gov/videoroom/detail.aspx?VID=61

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D2 OTHER INDUSTRY SOURCE

thechemistyblog.com

"A 23 year old female research associate/laboratory technician intended to add an (unknown) aliquot of 1.6 M t-bu-Li (in pentane) to a round bottom flask, placed in a dry ice/acetone bath. She had been employed in the lab for about 3 months. The incident occurred on Dec. 29, during the UCLA holiday shutdown between Christmas and New Years. Researchers are granted permission to work during the shut down for "critical research needs." There were two post doctoral researchers working in the lab and the adjacent lab, with limited English proficiency.

The principal investigator had trained the employee to slightly pressurize the bottle (an ~ 250 ml Aldrich Sure Seal container) with Argon and withdraw the desired aliquot using a 60 ml syringe, fitted with a 20 gauge needle. The PI likes to use these particular syringes because they have a tight seal. There is no evidence that the employee used this method. Speculation: she may have just tried to pull up the aliquot in the syringe. Somehow, the syringe plunger popped out or was pulled out of the syringe barrel, splashing the employee with t-bu-Li and pentane. The mixture caught fire, upon contact with air. She was wearing nitrile gloves, safety glasses and synthetic sweater. She was not wearing a lab coat. The fire ignited the gloves and the sweater." http://www.chemistry-blog.com/2009/01/20/tert-butyllithium-claims-fellow-chemist-at-ucla/
A 2007 Article illustrating the well-known and very high level of danger associated with this laboratory reagent:
http://pipeline.corante.com/archives/2007/03/01/how_not_to_do_it_tertiary_butyllithium.php

E CHEMICAL REFERENCES

thechemicalbook.com

http://en.wikipedia.org/wiki/Mold

TERT-BUTYLLITHIUM
CAS NO: 594-19-4
Molecular Weight: 64,
Boiling Point: 36-40º C
Storage Temperature: 2-8º C
Air and Moisture sensitive

HEALTH: 3
FLAMMABILITY: 4
REACTIVITY: 3
SPECIAL: ~~W~~

MSDS Warnings:

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"Hazards Identifications - POTENTIAL HEALTH EFFECTS: Pyrophoric liquid. Can catch fire if exposed to air. Reacts violently with water to give off flammable gases and corrosive dusts. Corrosive to eyes (may cause blindness), skin, nose, throat and stomach. Can catch fire on contact with body moisture or if exposed to air. Inhalation of vapors may cause dizziness, nausea, anesthesia, numbness, motor weakness in fingers and toes, incoordination, and headache. If ingested, may produce a lung aspiration hazard."

"KEEP AWAY FROM WATER, AIR AND OXIDIZING MATERIALS. Wear full face protection and gloves. Use in a closed system under argon or nitrogen."

MSDS: NOTES TO MEDICAL DOCTOR: "Product has a high pH and is corrosive to eyes, skin, and mucous membranes. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur."

JM 9 Jan 2012