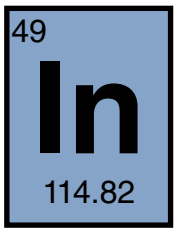
Safety Alert

We're Serious About Safety

Indium Safety

What is Indium?



Indium is a soft, malleable metal – #49 on the periodic table – generally used for surface protection or in alloys. A thin coat increases the resistance of metals to corrosion and wear. Indium is used in many industries including those that produce products such as semiconductors, optics, on-glass connectors, solar cells and specialized coatings. It is also used to coat the bearings of high-speed motors since it allows for the even distribution of lubricating oil. Indium is used to make transistors and other electrical components such as rectifiers, thermistors and photoconductors. Indium can be used to make low melting alloys and mirrors that are as reflective as silver mirrors, but do not tarnish as quickly. Canada produces the majority of the world's supply of indium, a by-product of smelting zinc and lead sulfide ores.

Health Risks

Well-intentioned employers aiming to limit workers' exposure to lead may be using indium or indium alloys. Although listed on Safety Data Sheets, employers may be unaware of the potential hazards associated with the use of indium tin oxide.

Photo credit: Nerdtalker, courtesy of wikimedia.org

While rarely encountered by most people, all indium compounds should be regarded as highly toxic. Exposure may damage the heart, kidneys and liver and it may be teratogenic, which means it is capable of causing developmental malformations of an embryo or fetus.

Exposure to indium is cumulative and can lead to fibrosis or scarring of lung tissue, pulmonary alveolar proteinosis (filling of the lungs with a surfactant) and emphysema.

In the recent past, two reported cases of indium exposure and one indium-related death occurred at a RI facility. Both workers with exposure were diagnosed with pulmonary alveolar proteinosis which has an annual incidence rate of only 1 in 2,000,000. The occurrence of two cases in one facility is quite remarkable. Exposure in each case was confirmed by lung biopsies.

According to NIOSH, "Lung disease related to indium compounds is an emerging health issue about which many questions remain." Read the full report *"An evaluation of preventive measures at an indium-tin oxide production facility"*: http://www.cdc.gov/niosh/hhe/reports/pdfs/2009-0214-3153.pdf

For Workers

1. Follow workplace practices intended to reduce exposure to indium compounds.
2. Wear personal protective equipment, such as a respirator, as instructed by your employer.
3. Participate in medical testing and air sampling offered by your employer.
4. Report new chest symptoms such as shortness of breath to your employer's health & safety official, the physician conducting medical testing for the company, and your personal physician.
5. Call NIOSH for questions and more information: 800-232-2114.

For Employers

1. Contact the state OSHA compliance assistant program.
2. Contact federal OSHA for assistance.
3. Call NIOSH for questions or more information: 800-232-2114.
4. Call Beacon Mutual: 401-825-2667.

The Beacon Mutual Insurance Co.

Beacon Mutual offers a variety of training opportunities for employees, supervisors and managers. Please check our seminar schedule for more information.
www.beaconmutual.com