



Weekly Safety Tip

SCI Safety Slogan

Protect your skin
with proper gloves
and clothing (PPE)

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of the Week

Skin Exposures and its Effects

Estimates indicate that more than 13 million workers in the United States are potentially exposed to chemicals that can be absorbed through the skin. A worker's skin may be exposed to hazardous chemicals through direct contact with contaminated surfaces, deposition of aerosols, immersion, or splashes. When substantial amounts of chemicals are absorbed, systemic toxicity can result. Contact dermatitis can also result when chemicals are absorbed through a worker's skin. Contact dermatitis is one of the most common chemically induced occupational illness, accounting for 10-15 percent of all occupational illnesses at an estimated annual cost of at least \$1 billion. Source: www.cdc.gov

Dermal Exposure

Skin exposure to chemicals in the workplace is a significant problem in the US. Both the number of cases and the rate of skin disease in the US exceeds recordable respiratory illnesses. In 2003, 43,400 recordable skin diseases were reported by the Bureau of Labor Statistics (BLS) at a rate of 4.9 injuries per 10,000 employees, compared to 19,000 respiratory illnesses with a rate of 2.2 illnesses per 10,000 employees.

Most chemicals are readily absorbed through the skin and can cause other health effects and/or contribute to the dose absorbed by inhalation of the chemical from the air. Many studies indicate that absorption of chemicals through the skin can occur without being noticed by the worker. In many cases, skin is a more significant route of exposure than the lung. This is particularly true for non-volatile chemicals which are relatively toxic and which remain on work surfaces for long periods of time. The number of occupational illnesses caused by skin absorption of chemicals is not known. However, it is argued that an estimated 60,000 deaths and 860,000 occupational illnesses per year in the US attributed to occupational exposure, a relatively small percentage caused by skin exposure would represent a significant health risk.⁽¹⁾

Dermal exposure can be controlled and prevented. Many times it is as simple as changing the chemicals being used. When that is not an option, there are many types of personal protective equipment (PPE) that are available. Being familiar with the material on this page will help in the effort to lessen hazardous dermal exposure.

- Substitution to a less toxic chemical is almost always a good option, unless the alternative chemical is much more volatile.
- Consideration should be given to re-designing the work process to avoid splashes or immersion. Where that is not feasible, personal protection in the form of chemical protective gloves, an apron, or clothing should be selected. Good housekeeping can avoid the accumulation of stable, low volatility, dermally toxic contaminants on horizontal surfaces. Enclosure and isolation may be feasible for both liquid and solid large aerosols.
- Published breakthrough information from glove manufacturers and lab test data should be used with caution. Glove breakthrough can occur in considerably less time than expected based upon many factors.

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Personal Protective Equipment (PPE)

Hand contact is a significant route of exposure. Therefore, proper glove selection is a major means of controlling dermal exposure. Factors that affect glove selection include:

- Type of chemical(s) to be handled (or used)
- Frequency and duration of chemical contact (often to rarely)
- Nature of contact (total immersion, splash, mist, contaminated surfaces)
- Concentration of the chemical
- Temperature of the chemical
- Abrasion, puncture, tear resistance requirements of the job or task
- Length to be protected (hand only, forearm, arm)
- Dexterity requirements of the job or task
- Grip requirements (dry grip, wet grip, oily)
- Glove features (e.g. cuff edge, lining, color (to show contamination))
- Thermal protection
- Size and comfort requirements
- Price



Use proper PPE when working with chemicals.



Dermatitis is a debilitating skin disease which affects up to 70% of hairdressers. In fact, hairdressers are 17 times more likely to develop dermatitis than any other group of workers. Symptoms include painful, dry, flaking, inflamed skin.

Source: www.peterborough.gov.uk

Exposure Evaluation

A variety of methods exist for estimating dermal exposure. Hand rinses, dermal/surface wipes, and skin patches are some of the tools which can be used to determine the effectiveness of gloves or the extent of the contamination in "clean" work areas, such as break rooms and lunch rooms. Biological monitoring results are also a very valuable means of determining if dermal exposure is a major route of exposure. Presently, there are a limited number of guidance values for chemicals measured in the body, that is the biological exposure indices (BEIs) which are published by the [American Conference of Governmental Industrial Hygienists \(ACGIH\)](http://www.acgih.org). In addition, there are many studies published in peer-reviewed literature which report chemical exposure levels for workers in a variety of different occupations and different industries.

- While "Skin" notation is an alert, the means to evaluate the magnitude of dermal exposure, its importance relative to airborne exposure, and the effectiveness of preventive controls, are limited.
- Limits for biological response, called Biological Exposure Indices (BEIs) by the ACGIH, have been set for 36 chemicals or chemical groups⁽²⁾; however, only 15 of these chemicals have a "Skin" notation, suggesting that less than half of these BEIs are for chemicals that are significantly absorbed through the skin. Biomonitoring methods are discussed at greater length elsewhere.⁽²⁷⁻²⁸⁾ Source: www.osha.gov

October is Breast Cancer Awareness Month

New Report Looks at the Latest on Breast Cancer

Article 9/25/02007 Source www.cancer.org

The breast cancer death rate in the United States continues to fall by around 2% a year, as it has since 1990, according to [Breast Cancer Facts & Figures 2007-2008](http://www.aacr.org), a report on breast cancer statistics and trends produced every other year by the American Cancer Society. That's an impressive winning streak for an important indicator of success in the fight against cancer, made possible in large part, the report says, by advances in [early detection](#) and [treatment](#).

Those advances have benefited women of some races more than others, data shows. For instance, the cancer death rate for white and Hispanic/Latina women fell by 2.4% between 1995 and 2004, but only by 1.6% for African-American women. And during the same time period, no change was seen in cancer death rates of Asian Americans/Pacific Islanders or American Indians/Alaska Natives.

Also in this issue, authors note a decline in breast cancer incidence -- that is, the rate at which new cancers are diagnosed -- but suggest it may be due in part to [fewer women getting mammograms](#).



Breast Cancer Death Rates Differ by Race

On whole, the report shows the continuation of a welcome trend -- a steady decrease each year in the rate of breast cancer deaths. Thanks to better methods of detecting cancers early and treatment advances, American women today are less likely to die of breast cancer than they have been in decades, said Harmon J. Eyre, MD, chief medical officer of the American Cancer Society.

Looking at the issue of race -- and the socioeconomic and genetic factors associated with race -- it becomes clear that this good news is better for some groups of women than for others. "Perhaps most troubling," said Eyre, "is the striking divergence in long-term mortality trends seen between African-American and white females that began in the early 1980s and that by 2004 had led to death rates being 36% higher in African-American women."

Other key statistics included in the report:

- An estimated 178,480 new cases of invasive breast cancer in women will be diagnosed in 2007, and approximately 40,460 deaths will be recorded. Only lung cancer accounts for more cancer deaths in women.
- In 2004 (the latest year for which figures are available), approximately 2.4 million women living in the US had a history of breast cancer. Breast cancer accounts for more than 1 in 4 cancers in US women.
- On average, the breast cancer death rate decreased by 2.2% each year between 1990 and 2004. Younger women saw an even more significant decline during that period.
- Breast cancer incidence among white women -- that is, the rate at which new breast cancers are diagnosed in this group -- fell by 3.7% a year during 2001-2004. Also declining during this time: the use of mammography and hormone replacement therapy (HRT) by white women. There was no significant change in breast cancer incidence among African-American women during this time, coinciding with stable mammography rates and HRT use.
- Among women 50 and older, incidence rates have been on a steep decline (by 4.8% per year) since 2001. Among women under age 50, incidence rates have remained stable since 1986.
- Since 2000, the incidence rate of smaller tumors has declined by 3.8% per year. In contrast, the incidence rate of larger tumors (>5.0 cm) has increased by 1.7% per year since 1992. (Larger tumor size at diagnosis is associated with decreased survival.) Both trends may be tied to an increase in obesity in postmenopausal women, HRT use, or both.

Risk Factors Detailed

The report details the major risk factors for breast cancer that women have some control over. These include:

- **Weight:** Obesity increases a woman's risk of postmenopausal (but not premenopausal) breast cancer, as does weight gain during adulthood.
- **Alcohol use:** Women who drink just 2 alcoholic beverages a day face a 21% increase in their risk for breast cancer.
- **Secondhand smoke:** Although most studies have found no link between cigarette smoking and breast cancer, the link between secondhand smoke and breast cancer remains controversial.
- **Exercise:** Women can lower their risk of breast cancer by exercising vigorously for 45 to 60 minutes on 5 or more days per week. Postmenopausal women can lower their risk, according to one study, with any level of physical activity performed on a regular basis.

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Jim Lehrke is President of Safety Connections, Inc., a (safety advisor company), capable of working with businesses of all sizes and types. Our focus is about changing the work culture and focusing on safety first. The result is dramatic reduction of injuries and worker's compensation costs. The bonus is increased productivity and quality.

Safety Connections provides a weekly safety tip at no cost. Workplace safety is a vast area and Safety Connections offers products and services that address all safety aspects. Further, Jim speaks at seminars, does team building training and motivational speaking.

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