

## Chemical Hazards – Metalworking Fluids

Metalworking fluids are liquids used in the machining process for cutting, boring or grinding. Their purpose is to reduce friction and carry away the heat. These fluids, and the additives they contain, are very useful but may cause a variety of health problems.

Skin exposure is the most common type of health problem associated with metalworking fluids, and may affect the skin following prolonged or frequent contact. Some of the fluid or additives may be absorbed by the skin, enter the blood stream, and cause adverse affects elsewhere in the body. In some cases a condition called "oil folliculitis," also known as oil acne, is produced so that the pores of the skin become plugged and the dermal glands cannot drain. These blocked glands often look like pimples. They may fill with pus, become red and cause itching and pain. The additives used in the fluids may also cause an allergic contact dermatitis. This is a reaction which produces redness and itching when even a small amount of the substance comes into contact with the skin.

Methods of avoiding direct contact with metalworking fluids include wearing chemical resistant gloves, goggles and aprons; installing deflecting shields to reduce splashes; and applying skin barrier creams when working with these substances.

Metalworking fluids may also form a mist of small droplets that are suspended in the air and can be inhaled. When these fluids are formed into a mist during the machining process, they can be very irritating to the eyes, nose and throat. This may create a burning sensation, sneezing, coughing or itching eyes. The larger droplets are trapped in the nose and windpipe, but smaller droplets can be deposited deep inside the lungs. The droplets which stay in the nose and windpipe can be swallowed, along with any metalworking fluid that may have contaminated food or beverages consumed at work.

Limited information is available about the long term affects of metalworking fluids and oil mists on the lungs. Evidence suggests that inhalation of metalworking fluid mists over a period of years may lead to lung cancer. Repeated exposure to the insoluble fluids containing mineral oil may also cause skin cancer. The Metalworking Fluids Standards Advisory Committee is currently studying methods of controlling metalworking fluid mist through technology.

Water soluble cutting oil is an option that many companies are using as a substitute, in an attempt to mitigate hazardous exposures to workers and the environment. Water soluble cutting oil has minimal requirements for protecting humans and the environment from harmful exposures.

Your first line of defense against the health hazards associated with metalworking fluids is to have a thorough knowledge of the chemicals contained in the fluids along with ways to protect yourself from exposure. This information is always contained in the product's Material Safety Data Sheets and you should have these on file and available at all times. If you cannot locate an MSDS for metalworking fluids, ask your supervisor.

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