

THE PacificComp TRAINER

BASICS OF MATERIAL SAFETY DATA SHEETS (MSDS)

At home, on the job, and everywhere in between, we encounter potentially hazardous materials everyday. From filling up a car's gas tank to using ant spray to using solvents or acids at work, we are exposed to hazardous materials. For this reason, it is important to know how to properly handle hazardous materials to avoid injuries and illnesses. A key factor in avoiding a dangerous encounter with chemicals is being able to read and understand Material Safety Data Sheets, also known as MSDS.

Quick Overview of Hazardous Materials

In order to understand the various sections of the MSDS, it is important to have a basic understanding of hazardous materials. Hazardous materials can be in the form of solids, liquids, or gases and present either physical or health hazards. Physical hazards cause injury from events, such as, fire, explosions, or reactions. Health hazards describe what the chemical can do to you such as illness, damage to liver, burns, or cancer.

We should also be aware of how hazardous materials can potentially enter the body. The most common ways are:

- Absorption: absorbing the material through skin or eyes
- Inhalation: inhaling hazardous fumes, mists, vapors, or dust into the lungs, bloodstream, or other organs
- Ingestion: swallowing of hazardous materials, for example, materials can be transferred onto food if hands become contaminated
- Direct Penetration: chemicals can enter the body through an open wound

Hazardous materials can affect the body in a variety of ways. The type of chemical, how long one is exposed, and how much of the hazardous material that one is exposed to will determine how it affects one's health. Acute effects are short-term and usually disappear once a person is no longer exposed, but chronic effects develop over time, often when a person is exposed to small doses on a regular basis.

THE PacificComp TRAINER

Material Safety Data Sheet (MSDS)

A MSDS is written by the company that produces the chemical or imports it from another country. While MSDSs are required to have certain information, there is no standard as to the format – but the following sections are common to most MSDS:

Chemical Product and Manufacturer Identification:

This section provides the chemical's name, the manufacturer/importer's name, and the manufacturer/importer's contact information.

Composition and Ingredients:

All of the hazardous ingredients are identified here as well as applicable permissible exposure limits (PEL) and threshold limit values (TLV). A PEL is the quantity of hazardous chemical that an average employee can safely be exposed to in an 8-hour day. A TLV is an air quality measurement of how much material can be in the air without adverse effects. PEL is the standard that OSHA sets; TLV is set by the American Conference of Governmental Industrial Hygienists (ACGIH).

Physical and Chemical Properties:

This section contains the physical and chemical properties of the material as well as its unique characteristics, such as, appearance, odor, physical state, pH, vapor density, boiling point, freezing/melting point, solubility in water, etc.

Firefighting:

Information on whether the chemical is flammable, combustible, or explosive is contained in this section. In addition, this section includes the type of fire extinguisher to use if the material starts to burn.

Hazardous Identification and First Aid Measures:

Information about the health effects of exposure are included in this section, and it also describes the material's appearance, potential symptoms, routes of entry, and target organs.

THE PacificComp TRAINER

Stability and Reactivity:

Potentially hazardous chemical reactions are identified in this section and include conditions to avoid, incompatibility, and decomposition.

Accidental Release:

This section includes spill clean-up materials, techniques, and precautions.

Handling and Storage:

This section includes the types of containers, storage conditions, and handling procedures to avoid overexposure.

Exposure Controls and Personal Protection:

This section includes information on engineering controls and Personal Protective Equipment (PPE) to reduce chemical exposure.

Toxicological Information:

This section provides data on the effects of the chemical to your body, for example the carcinogenicity potential (ability to cause cancer).

Ecological Information:

This section includes the impact of the chemical if it were released into the environment.

Disposal Considerations:

This section includes information on the disposal, recycling, and reclamation of the material.

Transport Information:

This section includes the packaging and labeling requirements for shipping.

Regulatory Information:

This section includes notations if the chemical is covered by an OSHA or EPA regulation.

THE PacificComp TRAINER

Other Information:

Any other pertinent information is included here.

MSDS are available for every hazardous chemical that you encounter at your workplace. Remember, before using any chemical make sure that you have been properly trained to protect yourself. Know the hazards, be familiar with the contents of the MSDS, follow the safety guidelines for the chemical, and use the appropriate PPE.

Cal/OSHA Publications: Guide to California Hazard Communication Regulation
http://www.dir.ca.gov/dosh/dosh_publications/hazcom.pdf