STANDARDS

Hazardous Communication (HAZCOM), Title 29 Code of Federal Regulations (CFR) Part 1910.1200

1.0 INTRODUCTION

1.1 The following hazard communication program has been established for the Illinois Wesleyan University (IWU) Physical Plant in accordance with University policies.

1.2 This program will be available for review by all employees.

2.0 HAZARD CLASSIFICATION

2.1 IWU will rely on safety data sheets obtained from product suppliers to meet hazard classification requirements.

3.0 LABELING

3.1 Managers will be responsible for seeing that all containers entering the workplace are properly labeled.

3.2 All labels shall be checked for:

3.2.1 Identity of the material.

3.2.2 Appropriate hazard warning for the material.

3.2.3 Name and address of the responsible party. (Only if the container is received from the manufacturer, distributor, or importer.)

3.3 Each **Manager** shall be responsible for ensuring that all portable containers used in their work area are labeled with the appropriate identity and hazard warning.

4.0 SAFETY DATA SHEETS (SDS)

4.1 Managers will be responsible for compiling and maintaining the master SDS file using MSDSonline.com.

4.2 SDSs will be available for review to all employees during each work shift. Copies will be available upon request to your **Manager**.

4.3 Posters notifying employees when new or revised SDSs are received will be located in the same location(s).

4.4 If a required SDS is not received the SDS will be obtained from MSDSonline.com.

5.0 Employee Information and Training

5.1 The **Managers** will coordinate and maintain records of employee hazard communication training, including attendance rosters.

5.2 Before their initial work assignment, each new employee will attend a hazard communication training class. The class will provide the following information and training:

5.3 Information:

5.3.1 The requirements of the OSHA Hazard Communication Standard

5.3.2 All operations in their work area where hazardous chemicals are present

5.3.3 Location and availability of the written hazard communication program and the method to access the SDS sheets.

5.4 Training:

5.4.1 Methods and observations that can be used to detect the presence or release of hazardous chemicals in the work area

5.4.2 Physical and health hazards of the hazardous chemicals

5.4.3 Measures the employees should take to protect from these

hazards

5.4.4 Details of the hazard communication program--including explanation of labeling system and SDSs and how employees can obtain and use hazard information

5.4.5 The employee shall be informed that:

5.4.5.1 The employer is prohibited from discharging, or discriminating against, an employee who exercises his/her rights to obtain information regarding hazardous chemicals used in the workplace.

5.4.6 Before any new physical or health hazard is introduced into the workplace, each employee who may be exposed to the substance will be given information in the same manner as during the hazard communication training class.

6.0 Hazardous Non-routine Tasks

6.1 Occasionally, employees are required to perform non-routine tasks (i.e., enter confined spaces, etc.). Employee will be given information about the hazards of the area or procedure. This information will include:

6.1.1 Specific chemical hazards.

6.1.2 Protection/safety measures the employee can take to lessen risks of performing the task.

6.1.3 Measures the University has taken to eliminate or control the hazard, including:

6.1.3.1 air monitoring,
6.1.3.2 ventilation requirements,
6.1.3.3 use of respirators,
6.1.3.4 use of attendants to observe procedures, and
6.1.3.5 emergency procedures.

6.2 It is the policy of **IWU** that no employee will begin performance of a non-routine task without first receiving appropriate safety and health training.

7.0 Multi-Employer Worksites -- Informing Contractors

7.1 If our University exposes any employee of another employer to any hazardous chemicals that we produce, use, or store, the following information will be supplied to that employer:

7.1.1 The hazardous chemicals they may encounter

7.1.2 Measures their employees can take to control or eliminate exposure to the hazardous chemicals.

7.1.3 The container labeling system used on-site.

7.1.4 Where applicable SDSs can be reviewed or obtained.

7.2 Periodically, our employees may potentially be exposed to hazardous chemicals brought on our site by another employer. When this occurs we will obtain from that employer information pertaining to the types of chemicals brought on-site, and measures that should be taken to control or eliminate exposure to the chemicals.

7.3 It is the responsibility of **Managers** to ensure that such information is provided and/or obtained prior to any services being performed by the off-site employer.

8.0 List of Hazardous Chemicals

8.1 A list of all hazardous chemicals used by **IWU** is on MSDSonline.com. Further information regarding any of these chemicals can be obtained by reviewing its respective SDS.

8.2 Materials which can be purchased by the ordinary household consumer, and which are used in the same fashion and amount as by the ordinary household consumer, are not required to be included in this list.

APPENDIX A: Understanding the SDS

A **Safety data sheet** is a written information sheet about a specific hazardous chemical. Provided for your information is a sample SDS in Appendix G that meets the requirements of the Right To Know Law. In order to facilitate your understanding of the SDS, a component explanation and glossary of abbreviations has been included.

Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information, includes the date of preparation or last revision.

Glossary of Terms Used on an SDS

Acute- Short term period of action. Readily apparent.

Acute Effect - An adverse effect with severe symptoms occurring very quickly, as a result of a single excessive overexposure to a substance.

Acute Toxicity - The adverse effects resulting from a single excessive overexposure to a substance. Usually a figure denoting relative toxicity.

Asphyxiate - A gas or vapor that can cause injury, unconsciousness or death by suffocation by reducing the amount of oxygen sufficient to promote life.

Boiling Point - A temperature at which a liquid turns to a vapor state. This term is usually associated with the temperature at sea level pressure when a flammable liquid gives off sufficient vapors to promote combustion.

Carcinogen - A substance or agent capable of producing cancer in mammals.

"C" or Ceiling - In terms of exposure concentrations, this is the concentration that should never be exceeded, even for a short period, for a substance.

Chronic - A long time period of action.

Chronic Effect - An adverse effect with symptoms that develop or recur very slowly, or over long periods of time.

Combustible - A term used to classify liquids, gases, or solids that will burn readily. This term is often associated with 'flash point', which is a temperature at which a given material will generate sufficient vapors to promote combustion.

Combustible Liquid - A liquid having a flash point at or above 100^0F but below 200^0F. This definition does not include mixtures containing one or more constituents with flash points outside the parameters indicated.

Compressed Gas -

1) a gas or mixture of gases having in a container an absolute pressure exceeding 40 pounds per square inch at 70^0F, or
2) a gas or mixture of gases having in a container an absolute pressure exceeding 104 pounds per square inch at 130^0F, regardless of the pressure at 70^0F, or
3) a flammable liquid having a vapor pressure exceeding 40 pounds per square inch absolute pressure at 100^0F, as determined by the American National Standard Method of Test for Vapor Pressure

of Petroleum Products.

Concentration - A figure used to define relative quantity of a particular material. Such as a mixture in air of 5 ppm Acetone in air.

Corrosive Material - A chemical capable of causing visible and irreversible damage to human skin tissue at the site of contact. Many acids are classified as corrosives.

Decomposition - The breakdown of materials or substances into other substances or parts of compounds. Usually associated with heat or chemical reactions.

Dermal - Used on or applied to the skin.

Dermal Toxicity - The adverse effects resulting from exposure of a material to the skin. Usually associated with lab animal tests.

Evaporation Rate - The rate, at which a liquid material is known to evaporate, usually associated with flammable materials. The faster a material will evaporate, the sooner it will become concentrated in the air, creating either an explosive/combustible mixture or toxic concentration, or both.

Explosive - A chemical that produces a sudden release of pressure, gas and/or heat when subjected to sudden shock, pressure or high temperature.

Exposure - Contact of an individual with a hazardous material during the course of employment through any route of entry.

Flammable Material - A substance that meets any of the following specifications: A **flammable aerosol** is a chemical substance or mixture, dispensed from a container as a mist, spray or foam by a propellant under pressure, which yields a flame of at least 18 inches at full valve opening, or a flashback (flame extending back through the valve) at any opening. A **flammable gas** is a gas which, at normal atmospheric pressure and temperature and at a concentration of 13 percent or less, forms a flammable mixture, or that forms a range of flammable mixtures with air greater than 12 percent regardless of the lower limit. A **flammable liquid** for our purposes, is defined as having a flash point below 100^0F except that this does not include any mixture where any one constituent has a flash point at or above 100^0F and makes up 99 percent or more of the total volume of the mixture. A **flammable solid** is a material (other than an explosive) that causes fire through friction, absorption of moisture, spontaneous chemical change, retained heat from manufacturing or processing, or that can be readily ignited and can remain so even after the ignition source is removed.

Flash Point - The minimum temperature at which a substance produces enough vapor to promote combustion (be ignited). Generally, the lower the flash point, the greater the danger of combustion.

General Exhaust - A term used to define a system for exhausting or ventilating air from a general work area. Not as site specific as localized exhaust.

"g", gram - A unit of weight. One ounce equals about 28.4 grams.

Hazardous Chemical- Is a substance considered as one or more of the following: a toxic material, a carcinogen, a corrosive material, an irritant, a strong sensitizer, a dangerously reactive material, a flammable material, a combustible liquid, a pyrophoric material, a strong oxidizer, an explosive material, or a compressed gas. Any chemical this is either a physical or health hazard or both.

Health Hazard - A relative term generally referring to any substance that has been shown by at least one established scientific study to produce acute or chronic detrimental health effects to exposed personnel.

Ignitable - A term used to define any liquid, gas or solid which has the ability to be 'ignited' which means having a flash point of 140 degrees F., or less.

Incompatible - Materials that could cause dangerous reactions from direct contact with one another.

Ingestion - Taking in of a substance through the mouth.

Inhalation - The breathing in of a substance in the form of a gas, liquid, vapor, dust, mist or fume.

Inhibitor - A chemical added to another substance to prevent an unwanted change from occurring.

Irritant - A chemical substance or mixture, other than a corrosive, that when contacted with the skin produces a reversible inflammatory reaction to the affected area and/or surrounding areas. Normally, irritants affect the eyes, nose, mouth and respiratory system.

LC - Lethal Concentration - In lab animal tests, this is the concentration of a substance which is sufficient to kill the tested animal.

LC_{50} - Median Lethal Concentration - The concentration in air of gas, vapor, mist, fume or dust for a given period of time that will kill 50 percent of the test animals using a specified test procedure. Inhalation is the primary route of entry.

LD_{50} - Median Lethal Dose - The dosage of a substance that will kill 50 percent of the test animals to which the substance is administered using a specified test procedure. Various routes of entry can be used for testing purposes.

LEL - Lower Exposure Limit - The lowest concentration of a gas or vapor in air that will ignite or explode if an ignition source is introduced.

(SDS) - Safety data sheet - An informational document that contains relevant information about a specific chemical or mixture. Also lists the hazards of the chemical, appropriate emergency response procedures, protective equipment that should be worn, etc.

Mutagen - A material that affects organisms at the genetic level and whose effects may be seen in subsequent generations. Normally associated with carcinogens.

NFPA - National Fire Protection Association - An organization that promotes fire protection/prevention and establishes safeguards against loss of property and/or life by fire. The NFPA has established a series of codes identifying hazardous materials by symbol and number for fire fighting purposes. These codes also classify materials in their order of flammability. With 0 being not burnable up to 4 which means it will burn spontaneously at room temperature.

Olfactory - Relating to the sense of smell.

Oral - Used in or taken through the mouth into the body.

Oral Toxicity - A term used to denote the degree at which a substance will cause adverse effects when taken through the mouth. Normally associated with lab animals.

Oxidizer - A chemical that yields oxygen readily and promotes combustion in other materials. The definition does not include explosives.

Oxidizing Agent - A chemical or substance that brings on oxidation reactions, by providing the oxygen to promote oxidation.

PEL - Permissible Exposure Limit - An exposure concentration established by the Occupational Safety & Health Community which indicates the maximum concentration for which no adverse effects will follow.

PPM - Parts per Million - A unit of measurement for the concentration of a gas or vapor in air. Usually expressed as number of parts per million parts of air.

PPB - Parts per Billion - As above, only expressed as number of parts per billion parts of air.

Physical Hazard - A chemical that is either a combustible liquid, a compressed gas, an explosive, is flammable, an organic peroxide, an oxidizer, is pyrophoric, is reactive or water-reactive.

Pyrophoric Material- A chemical substance or mixture that will ignite spontaneously in dry or moist air at below 130^0F.

Reactive Material - A chemical substance or mixture that may vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure or temperature. Includes chemical substances that can be classified as explosive, organic peroxide, a pressure generating material or a water reactive material.

Reactivity - The term that describes the tendency of a substance to undergo a chemical change with the release of energy, often as heat.

Reducing Agent - In an oxidation reaction, this is the material that combines with oxygen.

Respiratory System - The breathing system, including the lungs, and air passages, plus their associated nervous and circulatory components.

STEL - Short Term Exposure Limit - The maximum allowable concentration of a substance that one can be exposed to for less than 15 minutes and not produce adverse health effects.

Sensitizer - A chemical substance or mixture which on first exposure causes little or no reaction; however, with repeated exposure will induce a marked response not necessarily limited to the exposure site. Usually associated with skin sensitization.

Specific Gravity - The weight of a material compared to the weight of an equal volume of water. Usually expresses a materials heaviness. A material with a specific gravity of greater than 1.0 will sink to the bottom of water, whereas a material with a specific gravity of less than 1.0 will float on top of water.

Teratogen - A substance or agent, usually associated with cancer, that when exposed to a pregnant female will cause malformation of the fetus. Usually associated with lab animal.

TLV - Threshold Limit Values - These are the upper exposure limits of airborne concentrations of chemicals that are accepted as safe for employees to be exposed to on a day-in, day-out basis.

TWA - Time Weighted Average - This is the maximum airborne concentration of a material that employees working eight hours per day, 40 hours per week can be exposed to with no adverse physical effects.

Toxic - Refers to any chemical or substance that falls into any of the following categories:

1) A chemical that has a median lethal dose of more than 50 milligrams per kilogram but not more than 1000 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each;
2) A chemical that has a median lethal dose of more than 200 milligrams per kilogram but not more than 1000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours or less with the bare skin of albino rabbits weighing between 2 and 3 kilograms each; or,
3) A chemical that has a median lethal concentration in air of more than 200 ppm but not more than 2000 ppm by volume of gas vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour or less to albino rats weighing between 200 and 300 grams each.

UEL - Upper Explosive Limit - The highest concentration of a gas or vapor in air that will sustain or support combustion, when an ignition source is present.

Unstable - A chemical or substance in a pure state (nothing added) that will readily polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure or temperature.

Vapor Density - A term used to define the weight of a vapor or gas as compared to the weight of an equal volume of air. Materials lighter than air have a vapor density of less than 1.0, whereas materials heavier than air have a vapor density greater than 1.0.

Vapor Pressure - A number used to describe the pressure that a saturated vapor will exert on top of its own liquid in a closed container. Usually, the higher the vapor pressure, the lower the boiling point, and therefore the more dangerous the material can be, if flammable.

Abbreviations commonly found on an SDS:

AQTX	**Aquatic Toxicity**
atm	Atmosphere
bp	Boiling point
ca	(circa) about

CAR	Carcinogenic effects
cc	Cubic centimeter
CC	Closed Cup
CFR	Code of Federal Regulations
CNS	Central Nervous System
COC	Cleveland Open Cup
conc	concentration .
decomp	decompose
G.I. or GI	Gastrointestinal
g or gms	Grams
HW	Hazardous waste
I	Intermittent
inhl	Inhalation
insol	Insoluble
IRR	Irritant effects (systemic)
kg	Kilogram
l	Liter
LC50	Median lethal concentration
LD50	Median lethal dose
LEL	Lower explosive limit
LFM	Linear feet per minute
m^3	Cubic meter
MESA	Mining Enforcement and Safety Administration
mHg	Milliliters of Mercury
mp	Melting point
mg	Milligram
ml	Milliliter
MLD	Mild irritation effects
SDS.	Safety data sheets
MW	Molecular weight
NEO	Neoplastic effects
No_x	Oxides of Nitrogen
PMCC	Pensky-Martens Closed Cup
RDS	Primary irritation dose
Ox	Oxides of Phosphorous
ppb	Parts per billion
TLV	Threshold limit value
UEL	Upper exposure limit