

**BRITISH COLUMBIA  
CONSERVATION  
FOUNDATION**

1. **Save this document. You will need to view the Safety Data Sheet (SDS) example on page 2 during the course.**
  2. **Go to: <https://www.easy-lms.com/whmis-2015/course-19523>**
  3. **Complete the course. It should take approximately 30 minutes.**
- **See SDS Example below during the quiz.**
  - **See hard-copy of WHMIS 2015 Workbook below.**

## SAFETY DATA SHEET

Creation Date 08-Feb-2010

Revision Date 17-Jan-2018

Revision Number 4

### 1. Identification

**Product Name** Formaldehyde solution 37%

**Cat No. :** F75F-1GAL; F75P-1GAL; F75P-4; F75P-20

**Synonyms** Formalin; Methanal; Methylene oxide; Oxymethane; Formic aldehyde; Methyl aldehyde

**Recommended Use** Laboratory chemicals.

**Uses advised against** Not for food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 1
Target Organs - Respiratory system, Central nervous system (CNS), Optic nerve.	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Liver, Heart, spleen, Blood.	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Flammable liquid and vapor  
Toxic if swallowed  
Toxic in contact with skin

Causes severe skin burns and eye damage  
May cause an allergic skin reaction  
Toxic if inhaled  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of causing genetic defects  
May cause cancer  
Causes damage to organs  
Causes damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Do not breathe dust/fume/gas/mist/vapors/spray  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Keep cool

#### Response

Immediately call a POISON CENTER or doctor/physician

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

Wash contaminated clothing before reuse

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

If skin irritation or rash occurs: Get medical advice/attention

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

#### Ingestion

Rinse mouth

Do NOT induce vomiting

#### Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

None identified

#### Other hazards

Poison, may be fatal or cause blindness if swallowed. Vapor harmful. Cannot be made non-poisonous.

**WARNING.** Reproductive Harm - <https://www.p65warnings.ca.gov/>.

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Water	7732-18-5	45 - 48
Formaldehyde	50-00-0	37 - 40
Methyl alcohol	67-56-1	15

### 4. First-aid measures

<b>General Advice</b>	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Move to fresh air. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Most important symptoms and effects</b>	Breathing difficulties. Causes burns by all exposure routes. May cause allergic skin reaction. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting; Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	50 °C / 122 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to

release of irritating gases and vapors.

### Hazardous Combustion Products

Hydrogen Formaldehyde

### Protective Equipment and Precautions for Firefighters

Thermal decomposition can lead to release of irritating gases and vapors. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### NFPA

Health  
3

Flammability  
2

Instability  
0

Physical hazards  
N/A

## 6. Accidental release measures

### Personal Precautions

Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

### Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

### Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7. Handling and storage

### Handling

Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

### Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Formaldehyde	TWA: 0.1 ppm STEL: 0.3 ppm	(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm	IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm	Ceiling: 2 ppm Ceiling: 3 mg/m <sup>3</sup>
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m <sup>3</sup> (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m <sup>3</sup> Skin TWA: 200 ppm TWA: 260 mg/m <sup>3</sup>	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m <sup>3</sup> STEL: 250 ppm STEL: 325 mg/m <sup>3</sup>	TWA: 200 ppm TWA: 260 mg/m <sup>3</sup> STEL: 250 ppm STEL: 310 mg/m <sup>3</sup>

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment**

<b>Eye/face Protection</b>	Tightly fitting safety goggles. Face-shield.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	pungent
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	0 °C / 32 °F
<b>Boiling Point/Range</b>	101 °C / 213.8 °F
<b>Flash Point</b>	50 °C / 122 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	> 1.0
<b>Specific Gravity</b>	No information available
<b>Solubility</b>	miscible
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	No information available

**10. Stability and reactivity**

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents, Strong bases, nitriles, Acids, Isocyanates, Acid anhydrides, Metals, Acid chlorides
<b>Hazardous Decomposition Products</b>	Hydrogen, Formaldehyde
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

**11. Toxicological information****Acute Toxicity****Product Information**

<b>Oral LD50</b>	Category 3. ATE = 50 - 300 mg/kg.
<b>Dermal LD50</b>	Category 3. ATE = 200 - 1000 mg/kg.

Vapor LC50 Category 3. ATE = 2 - 10 mg/l.

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	Not listed	Not listed
Formaldehyde	500 mg/kg ( Rat )	LD50 = 270 mg/kg ( Rabbit )	0.578 mg/L ( Rat ) 4 h
Methyl alcohol	Calc. ATE 60 mg/kg LD50 > 1187 – 2769 mg/kg ( Rat )	Calc. ATE 60 mg/kg LD50 = 17100 mg/kg ( Rabbit )	Calc. ATE 0.6 mg/L (vapours) or 0.5 mg/L (mists) LC50 = 128.2 mg/L ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Causes burns by all exposure routes

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Formaldehyde	50-00-0	Group 1	Known	A1	X	A2
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed

*IARC: (International Agency for Research on Cancer)*

*IARC: (International Agency for Research on Cancer)*

*Group 1 - Carcinogenic to Humans*

*Group 2A - Probably Carcinogenic to Humans*

*Group 2B - Possibly Carcinogenic to Humans*

*NTP: (National Toxicity Program)*

*Known - Known Carcinogen*

*Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*

*A1 - Known Human Carcinogen*

*A2 - Suspected Human Carcinogen*

*A3 - Animal Carcinogen*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*Mexico - Occupational Exposure Limits - Carcinogens*

*A1 - Confirmed Human Carcinogen*

*A2 - Suspected Human Carcinogen*

*A3 - Confirmed Animal Carcinogen*

*A4 - Not Classifiable as a Human Carcinogen*

*A5 - Not Suspected as a Human Carcinogen*

*NTP: (National Toxicity Program)*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*Mexico - Occupational Exposure Limits - Carcinogens*

**Mutagenic Effects** Mutagenic effects have occurred in humans.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals. Component substance is listed on California Proposition 65 as a developmental hazard.

**Teratogenicity** Teratogenic effects have occurred in experimental animals.

**STOT - single exposure** Respiratory system Central nervous system (CNS) Optic nerve

**STOT - repeated exposure** Kidney Liver Heart spleen Blood

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Contains a substance which is: Toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Formaldehyde	Not listed	Leuciscus idus: LC50 = 15 mg/L 96h	Not listed	EC50 = 20 mg/L 96h EC50 = 2 mg/L 48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h

**Persistence and Degradability** Miscible with water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Formaldehyde	-0.35
Methyl alcohol	-0.74

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Formaldehyde - 50-00-0	U122	-
Methyl alcohol - 67-56-1	U154	-

## 14. Transport information

### DOT

UN-No UN1198  
 Proper Shipping Name FORMALDEHYDE SOLUTIONS, FLAMMABLE  
 Hazard Class 3  
 Subsidiary Hazard Class 8  
 Packing Group III

### TDG

UN-No UN1198  
 Proper Shipping Name FORMALDEHYDE SOLUTION, FLAMMABLE  
 Hazard Class 3  
 Subsidiary Hazard Class 8  
 Packing Group III

### IATA

UN-No UN1198  
 Proper Shipping Name FORMALDEHYDE SOLUTION, FLAMMABLE  
 Hazard Class 3  
 Subsidiary Hazard Class 8  
 Packing Group III

### IMDG/IMO

UN-No UN1198  
 Proper Shipping Name FORMALDEHYDE SOLUTION, FLAMMABLE  
 Hazard Class 3  
 Subsidiary Hazard Class 8



Packing Group III

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

## International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	X
Formaldehyde	X	X	-	200-001-8	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X

## Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

## U.S. Federal Regulations

TSCA 12(b) Not applicable

## SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Formaldehyde	50-00-0	37 - 40	0.1
Methyl alcohol	67-56-1	15	1.0

SARA 311/312 Hazard Categories See section 2 for more information

## CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Formaldehyde	X	100 lb	-	-

## Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Formaldehyde	X		-
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Formaldehyde	2 ppm STEL 0.5 ppm Action Level 0.75 ppm TWA	TQ: 1000 lb

## CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs

Formaldehyde	100 lb	100 lb
Methyl alcohol	5000 lb	-

**California Proposition 65** This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Formaldehyde	50-00-0	Carc. (Gaseous only)	40 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Water	-	-	X	-	-
Formaldehyde	X	X	X	X	X
Methyl alcohol	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Formaldehyde	11250 lb STQ (solution)

**Other International Regulations**

**Mexico - Grade** Moderate risk, Grade 2

## 16. Other information

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 08-Feb-2010  
**Revision Date** 17-Jan-2018  
**Print Date** 17-Jan-2018  
**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

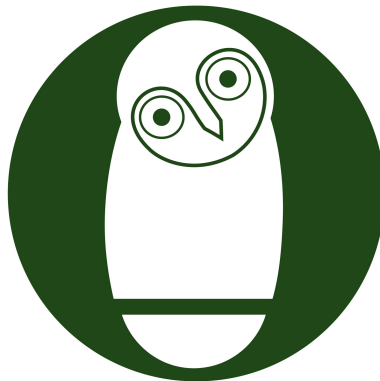
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**

# WHMIS 2015

(Workplace Hazardous Materials Information System)

Participant Workbook



**BRITISH COLUMBIA  
CONSERVATION  
FOUNDATION**

## Table of Contents

---

### **Overview**

WHMIS Development.....	3
Hazardous Materials.....	3
WHMIS Elements.....	3
Key WHMIS Participants.....	3
Overview Exercises.....	4
Products not covered under WHMIS 2015.....	4

### **Classification and Pictograms**

Classification .....	5
Pictograms.....	6
Pictograms Exercises .....	7

### **WHMIS Labels.....8**

### **Safety Data Sheet.....10**

### **Evaluation.....11**

## Overview

### WHMIS Development

The function of WHMIS is to reduce injuries or disease caused by exposure to hazardous materials used in the workplace. Every person working with or near hazardous products has the right to know the hazards and how to safely use the products.

### Hazardous Materials

Hazardous materials are called hazardous products in the Hazardous Products Act. Exposure to hazardous materials can result in health problems such as irritation of the eyes, sensitization of the skin or lungs, heart ailments, kidney and lung damage or cancer. Hazardous materials can cause fires, explosions, or other accidents when improperly stored or handled.

### WHMIS Elements

Four key elements of WHMIS 2015:

- Classification
- Labels
- Safety Data Sheets (SDS)
- Education and Training

### Key WHMIS Participants

Suppliers

- Classify all controlled products
- Supply proper labels and SDS
- Keep information on labels and SDS current

BCCF

- Educate and train workers
- Provide safe work procedures
- Ensure availability of proper up to date labels and SDS

Workers

- Understand content and significance of labels and SDS
- Follow safe work procedures
- Notify BCCF about problems with labels and SDS

## Overview Exercises

1. WHMIS is the W \_\_\_\_\_ H \_\_\_\_\_ M \_\_\_\_\_ I \_\_\_\_\_ S \_\_\_\_\_
2. Hazardous materials are referred to as \_\_\_\_\_ products in the Hazardous Products Act.
3. The four key elements of WHMIS 2015 are \_\_\_\_\_, the \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
4. The three main WHMIS participants are the \_\_\_\_\_, the \_\_\_\_\_, and \_\_\_\_\_

## Products not covered by WHMIS 2015

Some products are already covered by other labelling legislation and do not require WHMIS labels and SDSs. We should still understand the hazards posed by these products. An example at BCCF is Bear Spray which is covered under the Pest Control Act. The exclusions under WHMIS 2015 are:

- Consumer products
- Cosmetics, devices, drugs, or food
- Nuclear substances
- Pest control products
- Wood or products made of wood
- Explosives
- Manufactured articles
- Tobacco and tobacco products
- Hazardous wastes

## Classification and Pictograms


### Classification

In WHMIS 2015 hazardous products are divided into two hazard groups:

- Physical hazards, based on the physical or chemical properties of the product (Flammable liquids, oxidizing liquids).
- Health hazards, based on the ability of the products to cause a health effect (Skin corrosion/irritation, Respiratory or skin sensitization).

The two hazard groups are further divided into hazard classes. Hazard classes are used to group products that have similar properties.











Each hazard class contains at least one category. The categories are assigned a number (1, 2 etc.). Categories may also be called types. Types are assigned an alphabetical letter (A, B etc.). There are also subcategories identified by a number and a letter (1A and 1B). The category tells you the associated severity of the hazard.

Hazard Category	Severity of Hazard	
<b>1</b>		<b>More Hazardous</b>
<b>2A</b>		
<b>2B</b>		<b>Less Hazardous</b>
<b>3</b>		

*\* There are exceptions "Gases under pressure, Reproductive toxicity"*











## Pictograms

Pictograms are graphic images that immediately show you what type of hazard a hazardous products presents. Pictograms are on all supplier labels and SDSs'.

	<p>Products that are unstable, highly reactive, or explosive and can react on their own.</p> <ul style="list-style-type: none"> <li>• Lead acid battery</li> </ul>
	<p>Products causing/contributing to the combustion of other materials.</p> <ul style="list-style-type: none"> <li>• Compressed oxygen, hydrogen peroxide</li> </ul>
	<p>Products such as caustics or acids causing burns to skin or eyes.</p> <ul style="list-style-type: none"> <li>• Lemon Quat, Bleach 1, sodium hydroxide</li> </ul>
	<p>Products capable of causing allergic skin reactions and asthma symptoms.</p> <ul style="list-style-type: none"> <li>• Ready mix concrete</li> </ul>
	<p>Products that damage the aquatic environment.</p> <ul style="list-style-type: none"> <li>• Not adopted by WHMIS 2015</li> </ul>
	<p>Products capable of catching fire or exploding.</p> <ul style="list-style-type: none"> <li>• Acetone, isopropyl alcohol</li> </ul>
	<p>Products that include gases under high pressure that can explode if heated.</p> <ul style="list-style-type: none"> <li>• Carbon dioxide, compressed oxygen, butane</li> </ul>
	<p>Products that are fatal, poisonous, or harmful if they are inhaled, ingested or come in contact with skin.</p> <ul style="list-style-type: none"> <li>• Formaldehyde, arsenic</li> </ul>
	<p>Products that can cause less serious health effects.</p> <ul style="list-style-type: none"> <li>• Bleach 2A, virkon</li> </ul>
	<p>Products that are biohazardous infectious materials.</p> <ul style="list-style-type: none"> <li>• Viruses, bacteria, fungi that cause infection in humans or animals</li> </ul>



**Classification Exercises (Match the Pictogram to the Hazard Phrase)**

Pictogram	Hazard
	1. Caustics or acids which can destroy skin.
	2. Capable of catching fire or exploding in the presence of an ignition source.
	3. Can damage the aquatic environment.
	4. Provide oxygen which can increase the risk of fire.
	5. Can explode if exposed to heat or impact.
	6. Can cause death of a person exposed to small amounts.
	7. Contain harmful microorganisms.
	8. Can react on its own to cause fire or explosion.
	9. Can cause less serious health effects.
	10. Can cause sensitization and asthma symptoms.

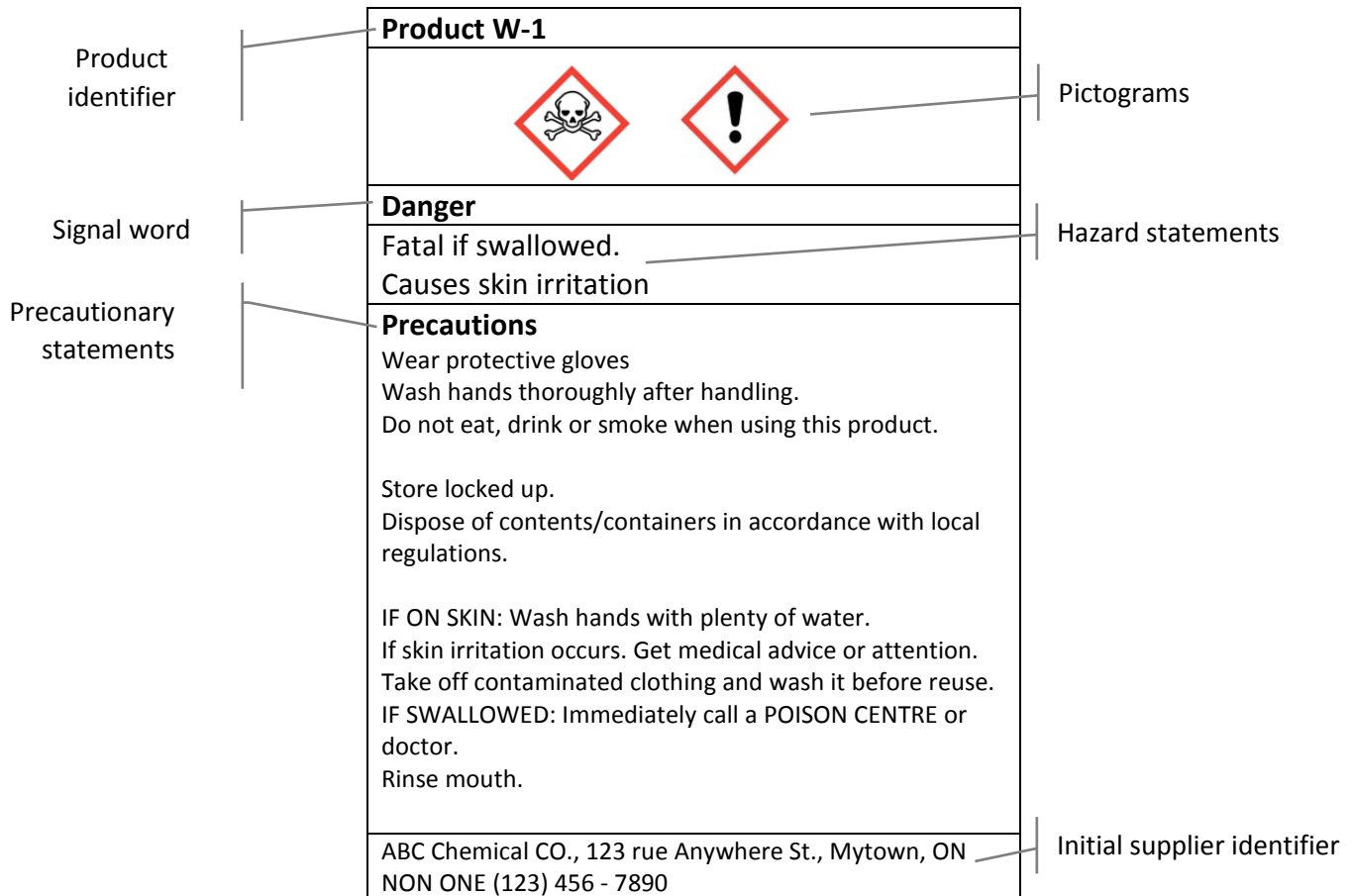
## WHMIS Labels

The purpose of labels is to alert you to the main hazards of hazardous products and provide instructions for safe handling, and to direct you to the SDS for more information.

There are two types of WHMIS labels supplier labels and workplace labels.

A supplier label is provided for each hazardous product by the supplier. Supplier labels will appear on all hazardous products received at a workplace in Canada.

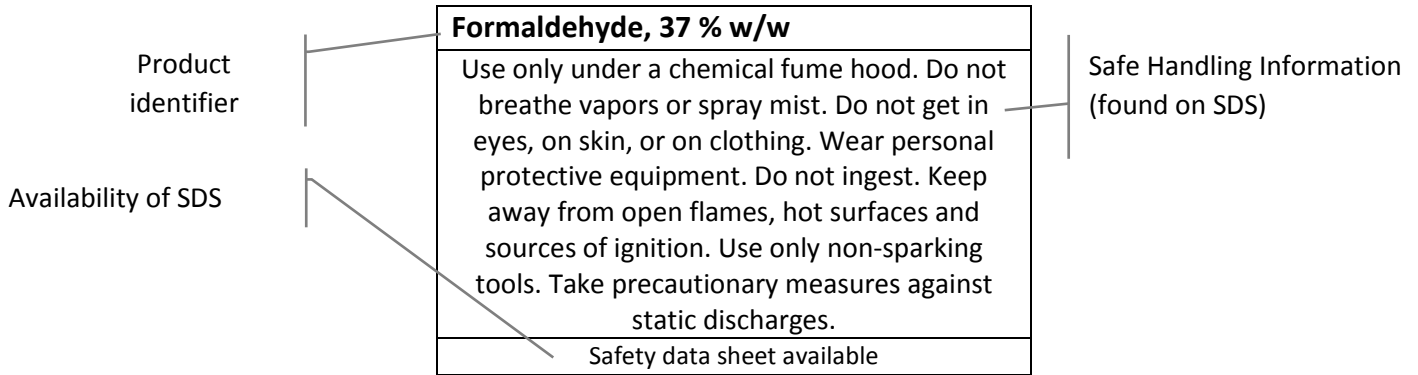
A WHMIS 2015 supplier label must include the following information:



Workplace labels are required for:

- Hazardous products made at the workplace and used in the workplace
- Hazardous products that are transferred or poured into another container
- Hazardous products where the supplier label is unreadable or lost

A workplace label gives the following information:



## Safety Data Sheet (SDS)

The SDS should be no more than three years old. A SDS tells you:

- The hazards of a product
- How to use the product safely
- What to expect if you don't follow the advice
- How to recognize symptoms of exposure
- What to do in case of an emergency

There are 16 required sections in a SDS:

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Chemical product and company identification</li> <li>2. Composition/Information on ingredients</li> <li>3. Hazard Identification</li> <li>4. First aid measures</li> <li>5. Firefighting measures</li> <li>6. Accidental release measures</li> <li>7. Handling and storage</li> <li>8. Exposure control/ Personal Protection</li> </ol> | <ol style="list-style-type: none"> <li>9. Physical and chemical properties</li> <li>10. Stability and reactivity</li> <li>11. Toxicological information</li> <li>12. Ecological information</li> <li>13. Disposal Considerations</li> <li>14. Transport information</li> <li>15. Regulatory information</li> <li>16. Other Information</li> </ol> |
|---|---|

\*See attached SDS handout

<b>Four Fundamental Questions</b>	
What are the hazards of the product?	= Pictograms, supplier labels, SDS
How do I protect myself from those hazards?	= Supplier labels, SDS
What do I do in case of an emergency?	= SDS
Where can I get further information?	= SDS & Safety Coordinator

Name:

Date:

## **WHMIS Education Evaluation**

What products are covered under the Hazardous Products Act?

Where should you find supplier labels in our workplace?

What are the four questions we should be able to answer about any hazardous product we handle?

- 1.
- 2.
- 3.
- 4.

### Using the SDS handout

What are the hazards associated with this product?

What are some precautions we should take when handling?

What are the symptoms of exposure?

What should you do if a large quantity of the product spills?