Handout 1: WHMIS: An Introduction Quiz

Questions

1. What should have been done on the work site to prevent the 19-year old worker from losing his life? (Refer to the case study in the background notes.)

2. a) WHMIS stands for:

   b) What is WHMIS?

   c) What does WHMIS require suppliers, employers and workers to do?

3. Do WHMIS laws differ across Canada?

4. What is a hazardous material?

5. What are the three main parts of WHMIS?

6. Hazards identified in the WHMIS system can come from:
   (Place a mark by those that are correct.)

   _____ a) Fire
   _____ b) Skin contact
   _____ c) Reading
   _____ d) Explosion
   _____ e) Inhalation
   _____ f) Ingestion
   _____ g) Seeing

7. The level of hazard usually depends on one or more of the following:
   (Mark the answers that you think are correct.)

   _____ a) The amount of material
   _____ b) The month of the year
   _____ c) The manufacturer
   _____ d) How toxic the material is
   _____ e) How great the pressure is
   _____ f) How easily the material burns or explodes
   _____ g) How concentrated the material is
   _____ h) Your elevation
   _____ i) How the material enters your body

Handout 2: Responsibilities & Labels Quiz

1. Who are the three main WHMIS participants?

2. Mark the employer's responsibilities with an "E" and the worker's responsibilities with "ME."

   _____ a) Provide training on how to use WHMIS
   _____ b) Learn how to use WHMIS
   _____ c) Provide training on procedures for the safe use, storage and handling of the hazardous materials on site
   _____ d) Learn and follow procedures for the safe use, storage and handling of the hazardous materials on site
   _____ e) Recognize special colour, number or letter codes on pumps, pipes and vessels carrying hazardous materials
   _____ f) Develop emergency procedures and supply training to follow them
   _____ g) Clearly mark or label pumps, pipes and vessels carrying hazardous materials

3. Write the letter of the employer's responsibility in the blank that best matches the way in which employers can meet the requirement.

	Employers' responsibilities		**Ways employers can meet the requirements**
A	Identify all hazardous materials on site		Check materials as they arrive from suppliers
B	Make sure materials are labelled		Keep SDSs handy on site
C	Provide information		Provide step-by-step training on the use, handling, storage or disposal of hazardous materials
D	Develop procedures		Explain how to do things at a safety or staff meeting
E	Train workers		Place WHMIS posters on the job for easy reference
			Show and practice what to do in an emergency
			Post a list of all hazardous materials on the site

Handout 3: WHMIS Pictograms (symbols)

	This pictogram is used for indicating flammable gases, aerosols, liquids and solids; pyrophoric liquids, gases and solids; self-heating substances and mixtures; substances and mixtures that produce flammable gases when in contact with water; organic peroxides; and self-reactive substances and mixtures.
	The pictogram is flame over a circle plus a distinctive red "diamond" shaped border. It is used to indicate oxidizing gases, liquids and solids.
	This pictogram is used to indicate the hazard of gases under pressure such as dissolved gas, liquefied gas, compressed gas and refrigerated liquefied gas.
	The corrosive pictogram indicates a substance that can irritate the skin and eyes, and damage metals. It is used for hazardous products that are corrosive to metals, cause skin irritation (corrosion), and cause serious eye irritation or damage.
	Used to indicate explosion or reactivity hazards, the Exploding Bomb Pictogram is placed on the labels of self-reactive substances and mixtures, and on labels of organic peroxides.
	For hazardous products that can cause death or acute toxicity after exposure to small amounts of the products, this Pictogram is used to warn users of the potential dangers. It is placed on labels of materials with acute oral, dermal and inhalation toxicity. For instance, the pictogram can be used on containers for cleaning chemicals
	This Pictogram is used to indicate a product that causes or is suspected of causing serious health effects. It forms part of labels of products that cause respiratory sensitivity, skin toxicity, germ cell mutagenicity, carcinogenicity, reproductive toxicity, aspiration hazard, specific target organ toxicity after single exposure, and specific target organ toxicity after repeated exposure.
	Used for hazardous products that cause less serious health effects, the Exclamation Mark Pictogram indicates acute toxicity (oral, dermal or inhalation), skin corrosion (irritation), eye irritation, skin sensitivity, respiratory damage, and specific target organ toxicity on single exposure.
	Indicates the presence of organisms or toxins that can cause diseases in humans and animals, The Biohazardous Infectious Materials pictogram has been retained from WHMIS 1988. The pictogram is used on labels of biohazardous infectious materials. For instance, it is used on growths of micro-organisms like E. coli or salmonella bacteria cultures.

Handout 4: Sample Safety Data Sheets

Information on this sample SDS was created by MSDSonline for information and training purposes only. This SDS is NOT for commercial use.

Acetone

SAMPLE SDS ONLY. Created by MSDSonline for informational and training purposes only. NOT FOR COMMERCIAL USE.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 04/22/2013 Supersedes: 01/01/2000 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product Identifier

Product form: Substance

Substance name: Acetone

CAS No.: 67-64-1

Formula: C3H6O

Synonyms: Dimethyl ketone, Propan-2-one, Dimethyl ketone, β-Ketopropane, Propanone, 2-Propanone, Dimethyl formaldehyde, Pyroacetic spirit (archaic)

Intended Use Of The Product

Use of the substance/mixture: Solvent

Name, Address, And Telephone Of The Responsible Party

Glendale Industries, Inc.
1234 Anywhere Way
Anytown, US 12345
1.888.362.2007

Emergency telephone number

Emergency number : 1.888.362.2007
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call GLENTREC– Day or Night

SECTION 2: Hazards identification

Classification of the substance or mixture

GHS-US classification

Flam. Liq. 2 H225
Eye Irrit. 2A H319
STOT SE 3 H336

Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapour
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness

Precautionary statements (GHS-US) : P210 - Keep away from heat, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, lighting, ventilating equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing mist, spray, vapours.
P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear eye protection, protective clothing, protective gloves.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use appropriate media for extinction.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P235 - Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container according to local, regional, national, and international regulations.

Other hazards
No additional information available

Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

Substances

Name	Product Identifier	%	GHS-US classification
Acetone	(CAS No.) 67-64-1	100	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336

Full text of H-phrases: see section 16

SECTION 4: First aid measures

Description of first aid measures
First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation: When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed
Symptoms/injuries: Eye irritation.
Symptoms/injuries after inhalation: May cause drowsiness or dizziness.
Symptoms/injuries after eye contact: Causes serious eye irritation.
Symptoms/injuries after ingestion: Ingestion may cause nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed
If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

Extinguishing media
Suitable extinguishing media: Dry chemical, alcohol foam, carbon dioxide.
Unsuitable extinguishing media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

Special hazards arising from the substance or mixture
Fire hazard: Highly flammable liquid and vapour.
Explosion hazard: May form flammable/explosive vapour-air mixture.
Reactivity: Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard. Ignites on contact with the chloride.

Advice for firefighters
Firefighting instructions: Exercise caution when fighting any chemical fire.
Protection during firefighting: Firefighters should wear full protective gear. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

General measures: Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Avoid breathing (vapor, mist). Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice.

For non-emergency personnel

Protective equipment: Use appropriate personal protection equipment (PPE).
Emergency procedures: Evacuate unnecessary personnel.

For emergency responders

Protective equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).
Emergency procedures: Ventilate area.

Environmental precautions

Prevent entry to sewers and public waters.

Methods and material for containment and cleaning up

For containment: Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material.
Methods for cleaning up: Clear up spills immediately and dispose of waste safely.

Reference to other sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: Handling and storage

Precautions for safe handling

Additional hazards when processed: Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling: Use only non-sparking tools. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Avoid breathing mist, spray, vapours. Use only outdoors or in a well-ventilated area. Wear recommended personal protective equipment.
Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, lighting, ventilating equipment.
Storage conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use.
Incompatible products: Strong acids. Strong bases. Strong oxidizers.
Incompatible materials: Heat sources.
Storage area: Keep in fireproof place.
Special rules on packaging: Attacks many plastics.

Specific end use(s)

Solvent.

SECTION 8: Exposure controls/personal protection

Control parameters

Acetone (67-64-1)		
USA ACGIH	ACGIH TWA (ppm)	500 ppm
USA ACGIH	ACGIH STEL (ppm)	750 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m3)	590 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	250 ppm
USA IDLH	US IDLH (ppm)	2500 ppm (10% LEL)
USA OSHA	OSHA PEL (TWA) (mg/m3)	2400 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Exposure controls

Appropriate engineering controls	: Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases/vapours may be released. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Ensure adequate ventilation, especially in confined areas.
Personal protective equipment	: Fireproof clothing. Insufficient ventilation: wear respiratory protection. Protective goggles. Gloves.

Hand protection	: Wear chemically resistant protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Skin and body protection	: Wear fireproof clothing.
Respiratory protection	: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.
Thermal hazard protection	: Wear suitable protective clothing.
Other information	: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear, volatile liquid.
Colour	: Colorless
Odour	: Characteristic. Sweet. Mint-like.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -94.7 °C (-138.46°F)
Freezing point	: No data available
Boiling point	: 56.05 °C (132.89°F) at 1013.25 hPa
Flash Point	: -20 °C (-4°F)
Auto-ignition temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 233 hPa (at 20 °C)
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 0.7845 g/cm³ (at 25 °C)
Solubility	: Miscible.
Log Pow	: No data available
Log Kow	: -0.24
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.32 cP
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable

Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard. Ignites on contact with the chloride.

Chemical Stability Stable under recommended handling and storage conditions (see section 7). Highly flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

Possibility Of Hazardous Reactions The substance can form explosive peroxides on contact with strong oxidants such as acetic acid, nitric acid, hydrogen peroxide. Acetone may form explosive mixtures with chromic anhydride, chromyl chloride,

hexachloromelamine, hydrogen peroxide, nitric acid and acetic acid, nitric acid and sulfuric acid, nitrosyl chloride, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, potassium tert-butoxide, thiodiglycol and hydrogen peroxide.

Conditions To Avoid Avoid ignition sources. Heat. Sparks. Open flame. Direct sunlight. Extremely high or low temperatures.

Incompatible Materials Attacks many plastics. Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products Carbon oxides (CO, CO2). May release flammable gases.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity : Not classified

Acetone (\f)67-64-1	
LD50 oral rat	5800 mg/kg
LD50 dermal rabbit	15688 mg/kg
LC50 inhalation rat (mg/l)	76000 mg/m³

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure): Not classified

Aspiration hazard: Not classified

Symptoms/injuries after inhalation: May cause drowsiness or dizziness.

Symptoms/injuries after eye contact: Causes serious eye irritation.

Symptoms/injuries after ingestion: Ingestion may cause nausea, vomiting and diarrhea.

SECTION 12: Ecological information

Toxicity

Acetone (67-64-1)	
LC50 fishes 1	4144.846 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	1679.66 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 fish 2	6210 - 8120 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	12600 - 12700 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Persistence and degradability

Acetone (67-64-1)	
Persistence and degradability	Readily biodegradable in water. Not established.

Bioaccumulative potential

Acetone (67-64-1)	
BCF fish 1	0.69
Log Kow	-0.24
Bioaccumulative potential	Not established.

Mobility in soil

No additional information available

Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

Waste treatment methods

Regional legislation (waste): U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII. U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents. U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards. U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics.

Waste disposal recommendations: To be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.
Additional information: Handle empty containers with care because residual vapours are flammable.

SECTION 14: Transport information

In accordance with ICAO/IATA/DOT/TDG

UN number

UN-No.(DOT) : 1090
DOT NA no. UN1090

UN proper shipping name

Department of Transportation (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard Classes ACETONE
Hazard labels (DOT) : 3 - Flammable liquid

Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242

Additional information

Emergency Response Guide (ERG) Number : 127
Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed ''on deck'' or ''under deck'' on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ''On deck only'' on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
MFAG-No. : 127

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

SECTION 15: Regulatory information

US Federal regulations

Acetone (67-64-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

US State regulations

Acetone(67-64-1)	
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : 04/23/2013

Other information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

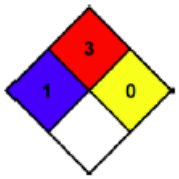
GHS Full Text Phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 2	Flammable liquids Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapour
H319	Causes serious eye irritation
H336	May cause drowsiness or dizziness

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom) - US Only

Handout 5: Safety Data Sheets (SDSs) Quiz

1. How many sections must be provided on an SDS?

3. What is the title of the section of the SDS that tells who to contact if you have questions about the product?

4. Which section of the SDS lists the special protective measures you can take to avoid harmful contact with the product?

5. When must an SDS be updated?

Handout 6: Using Sample Safety Data Sheets

The following pages contain questions about acetone. Refer to the SDS for each product to answer the questions.

Acetone

1. What is the telephone number of the supplier?
   Under what section of the SDS did you find this information?

2. What problems can occur if you get acetone in your eyes?
   In what section did you find this information?

3. What should you do if you get acetone in your eyes?
   What could you have done to prevent it from happening?

4. What if any engineering controls may be needed for this product?

5. Are the ingredients of this product carcinogenic (cancer causing)?

Handout 7: Control of Hazardous Materials

When hazardous materials are on the work site, it is necessary to control them to protect the health and safety of workers.

Toxic substances may take one of four routes to enter your body: inhalation, ingestion, injection and absorption. Hazardous materials that enter the body may have acute or chronic effects, or a combination of both.

- **Acute effects** occur immediately or shortly after exposure; immediate death sometimes results.
- **Chronic effects** may show up years later. By this time, the worker may have had many exposures. The period between the exposure to the hazardous material and the illness of the worker is referred to as the latency period.

Sometimes the body reacts strongly to defend against exposure. This is called sensitization. Examples of sensitization include rashes and asthma-like reactions such as wheezing and coughing. Sensitization is acquired over a period of exposures, but once sensitization occurs, low level exposure to the material will cause a strong reaction. Avoiding exposure to the material is the only solution to sensitization.

A hazard control measure is something used to prevent workers from injury or illness. A control measure may involve how or where something is done. If you want to open a can, you use a can opener, not a hammer. If you do not want to get paint on furniture, you cover the furniture. These are examples of control measures.

On the work site, there are many different ways in which control measures are used. If a control measure is to be of benefit, it must meet the following requirements:

- **It must adequately control the hazard.** If the hazard is lethal, there should be no contact. The level of the hazard must be reduced, so there is no danger for the worker.
- **The control measure must create no new hazards.** For example, the cover protecting the furniture from paint should be arranged so no one can trip on it. Another example could be providing latex gloves to prevent exposure, while increasing the risk of latex sensitivities.
- **You must be able to do your job without unnecessary discomfort or stress.** Protective clothing should fit properly. It should not be too big or too small. Additional protective clothing may increase the risk of heat stress when working under hot conditions in summer or other hot environments.
- **Every worker who comes into contact with the hazard must be protected by the control measure.** If a lab technician uses gloves, shouldn't the nurse (who takes the sample) do so as well?

- **The hazard must be eliminated from the surrounding community as well as the workplace**. If a substance is harmful, why remove it from the work site and release it into the community?

Types of control

There are three basic ways in which hazardous material can be controlled:

- **At the source:** The hazardous material can be eliminated or substituted with a less hazardous substance or material. For example, brake linings that do not contain asbestos can replace those that do.
- **In the pathway:** Barriers can be used to keep hazards away. For example, ventilation can be used to remove fumes or to dilute the concentration of the hazardous substance by mixing it with fresh air. Chemicals that react when mixed can be stored far away from each other.
- **At the worker level:** Personal protective equipment can be used and workers can be removed or rotated from hazard areas to keep exposure to dangerous chemicals below allowable limits.

As a worker involved in health and safety, you should always be aware of the effects of hazardous materials on you, your coworkers and the community. Your practices at work should prevent harm from coming to anyone. This involves knowing what is harmful. WHMIS is one important tool used to recognize hazards present in the workplace and to learn how to deal with them safely.

Questions

1. What are the three ways chemicals can enter your body?

2. What are the two effects that hazardous materials may have on your body? Explain what each type is.

3. What is sensitization?

4. What is a control measure?

5. What are the three methods by which a hazardous material can be controlled?