

## Safety in the Use of Hazardous Chemicals in a Laboratory,

EHS 52 Exam (Page 1 of 4) Initials: \_\_\_\_\_

Important note: Circle the correct answer or answers for each question. One or more answers may be correct. Each question is worth the number of points equal to the number of choices in that question. Initial as requested.

1. The label of a container with hazardous chemicals does not need to include the:
  - A. Identity of the chemical.
  - B. Vendor, manufacturer or the creator of the chemical
  - C. Date
  - D. Appropriate Hazard Warning
  - E. User bar code
  
2. Which of the following may be flushed down the sanitary sewer?
  - A. Slightly flammable liquids.
  - B. Smelly chemicals that are not hazardous if sufficiently diluted.
  - C. Waste waters containing only fats at less than 10 mg/l if they are not subject to solidification in the sewer.
  - D. Copper or Nickel solutions if they are at concentrations below those specified by the City's pollutant limits.
  - E. Acidic waste waters if the pH is no lower than 5.
  
3. Laboratory waste containers for collecting solvent wastes:
  - A. Shall be approved by the EHS department.
  - B. Shall have an attached record of the waste collected in which structural formulas are used to identify the waste.
  - C. May contain both peroxidizable materials and inorganic materials to conserve space.
  - D. Should not contain both aqueous materials and organic solvents if it can be avoided.
  - E. May contain both halogenated and non halogenated solvents.

4. In the management of wastes,
  - A. Acids and bases may never be neutralized and flushed down the drain.
  - B. Heavy metals, in general, should be collected in containers specific for the heavy metal and shall not be flushed down the drain.
  - C. Waste containers may be left open in order to facilitate disposal of chemicals during experimentation as long as no gases or fumes are emitted.
  - D. Containers with unknown chemicals may be placed into waste containers for EHS pick up as long as EHS is notified that the chemicals are unknown.
  - E. Used oils are to be collected separately from other materials.
5. When flammable/combustible materials are used or stored in the lab,
  - A. Ignition sources are to be eliminated.
  - B. There is no limit on the size or type of storage container as long as they are stored in a cabinet designed for such materials.
  - C. It is especially important to segregate them from oxidizers.
  - D. Special attention must be paid to proper bonding and grounding when pouring these materials from large to small containers.
  - E. Safety instructions provided in the relevant MSDS's shall be followed.
6. When working with corrosives,
  - A. As a minimum, safety goggles and rubber gloves shall be used.
  - B. Acid should always be added to water rather than water to acids in order to avoid violent reactions.
  - C. An eye wash station is not necessary if a faucet that is at eye level is available.
  - D. It is important to immediately flush an accidentally exposed area with water but not for more than five minutes.

6. With respect to the use of reactive chemicals in the lab,
- A. Procedures to be used require a review with the laboratory supervisor concerning any special precautions that may need to be observed.
  - B. Reactive chemicals should be kept away from organics, reducing agents and flammables.
  - C. Bottles of reactive chemicals that are observed to contain crystalline materials should be placed into the wastes to be picked up by EHS.
  - D. Pyrophoric materials should be used in an inert atmosphere.
  - E. Dry sand is not a good material to use for dousing violent reactions involving water reactive chemicals.
7. Authorized Users and Authorized Occupants in laboratories with hazardous chemicals need to be informed and acquainted with the:
- A. Contents of the OSHA Laboratory Chemical Hygiene Standard, MSDS's for chemicals in the laboratory, applicable Safety Data Sheets, and the location and availability of Part I and II of the Laboratory Safety Manual.
  - B. Only with contents of the OSHA Laboratory Chemical Hygiene Standard and applicable MSDS's and Safety Data Sheets.
  - C. Part I and III of the Laboratory Safety Manual, OSHA Laboratory Chemical Hygiene Standard, and applicable MSDS's and Safety Data Sheets.
  - D. Only with Part I and II of the LSM that provides all the information needed.
8. Hazardous chemicals in storage:
- A. Should be alphabetically arranged to facilitate retrieval.
  - B. Should be segregated so that incompatible chemicals are not likely to interact if inadvertent breakage should occur and their containers should be kept closed unless in use.
  - C. May include Flammable Liquids, Combustible Liquids, Flammable Solids, Water Reactive Chemicals, Spontaneously Combustible (air) Reactive Chemicals in the same dedicated storage facility.
  - D. Should be readily accessible.
  - E. Should be arranged so that Oxidizers are segregated from Organic Peroxides.

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With the submission of this exam I affirm that I completed the exam without help from any other individual:

Signed: \_\_\_\_\_ ID. \_\_\_\_\_  
employee/student

The initial score for this exam was \_\_\_\_\_ points out of a possible 29 points.

Signed: \_\_\_\_\_ ID \_\_\_\_\_  
supervisor/instructor