Names _____ Period _____ Date _____

Understanding Chemical Hazard Labels and MSDS

OBJECTIVE: To read and interpret chemical hazard labels and MSDS.

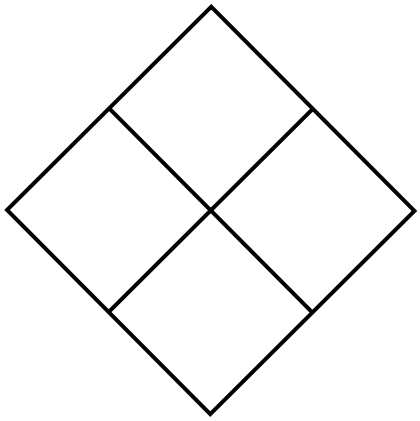
MATERIALS: *How to read a Chemical Label*
MSDS - Acetone

PROCEDURE: Use the documents listed above to answer the following questions.

1. Interpret colors on a chemical hazard label.

   The following colors on a chemical label alert a user regarding what hazards?

   a. red _____
   b. yellow _____
   c. blue _____
   d. white _____



2. Interpret numbers on a chemical hazard label.
   a. A number ____ is the most serious, and a number ____ is the least serious.
   b. What does the number four on a red background indicate to the user?

   c. What does the number zero on a yellow background mean?

3. Complete the following for acetone:
   a. Fill in the appropriate NFPA hazard coding colors and numbers on the label above.
   b. Complete the missing information on the MSDS on the back of this page.

4. What does MSDS stand for? _____

5. What information do the chemical hazard label and MSDS have in common?

6. Why should an individual working with chemicals understand the hazard coding system on a chemical label?

7. What additional information provided on an MSDS might be of use to an individual working with chemicals?

How to read a Chemical Label

Hazardous materials should always be properly labeled. One common type of label is the US National Fire Protection Association (NFPA) system. Although they look rather simplistic, an NFPA label carries a lot of information for those who understand how to interpret it. For example, NFPA labels are color-coded. Each color on the label represents a different type of hazard.

EXAMPLE
Blue = Health hazard
Red = Fire hazard
Yellow = Reactivity hazard
White = Special hazard

What these colors represent must be remembered first.
On top of the color coding, NFPA also uses a numbering system. On every NFPA label, there should be a number from zero to four inside the blue, red and yellow areas. The numbers indicate the degree of a particular hazard.

0 = minimal hazard
1 = slight hazard
2 = moderate hazard
3 = serious hazard
4 = severe hazard

The Blue Section - Health Risks	
4	The substance is a severe health risk if the substance is not handled safely. Substances carrying a four in the blue section could c cause death or irreversible injury.
3	The substance could cause serious temporary or irreversible injury.
2	The substance could cause temporary incapacitation.
1	The substance could cause irritation.
0	There is no health hazard.

The Red Section - Fire Risks	
4	A flammable vapor or gas which burns readily.
3	A flammable liquid or solid which can be readily ignited.
2	The substance must be heated for ignition.
1	The substance must be preheated before ignition can occur.
0	There is no fire hazard.

The Yellow Section - Reactivity Hazards	
4	The substance is readily capable of detonation or explosive reaction.
3	The substance may detonate when exposed to heat or an ignition source.
2	The substance is readily capable of non-explosive reaction.
1	The substance may become unstable at high temperatures.
0	The substance is stable.

The White Section - Special Hazards	
OX	Oxidizer
ACID	Acid
ALK	Alkali
COR	Corrosive
	Use no water
	Radioactive

Regardless of the numbers on the label - even if they carry ones or zeros - be cautious. All chemicals should be treated with the utmost of care.

Users must also have the Material Safety Data Sheets (MSDS) on hand for all chemicals they use. The MSDS contain detail information on:

- Name & trade name of the substance
- Hazardous ingredient(s) it contains
- Physical characteristics of the chemical
- Protective equipment to be used
- What to do in event of a leak or spill
- Any other precautions to be followed

Adapted for print from: http://www.ab.ust.hk/sepo/tips/ls/ls004.htm.

FLINN SCIENTIFIC INC.

"Your Safer Source for Science Supplies"

Material Safety Data Sheet (MSDS)

MSDS #: 7.00
Revision Date: March 7, 2001

Section 1 — Chemical Product and Company Identification

Acetone

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

Section 2 — Composition, Information on Ingredients

Acetone
Synonyms: dimethyl ketone, 2-propanone
CAS#: 67-64-1

Section 3 — Hazards Identification

Colorless liquid with sweet odor.
Class 1B Flammable liquid; serious fire hazard.
Irritating to body tissues. Avoid all body tissue contact. Slightly toxic by ingestion. Vapor causes weakness, fatigue, nausea and headache. Skin contact causes dermatitis.

FLINN AT-A-GLANCE
Health-1
Flammability-3
Reactivity-2
Exposure-1
Storage-3

0 is low hazard, 3 is high hazard

Section 4 — First Aid Measures

Call a physician, seek medical attention for further treatment, observation and support after first aid.
Inhalation: Remove to fresh air at once. If breathing has stopped give artificial respiration immediately.
Eye: Immediately flush with fresh water for 15 minutes.
External: Wash continuously with fresh water and mild liquid soap for 15 minutes.
Internal: Give no more than 1-2 cups of water for dilution. Do not induce vomiting. Call a physician or poison control immediately.

Section 5 — Fire Fighting Measures

Class 1B Flammable liquid.
A dangerous fire hazard from heat, flame or strong oxidizers. Flash point: 0 F (CC)
Flammable limits: lower 2.6%, upper 12.8%. Autoignition temperature: 869 F
Fire Fighting Instructions: Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive pressure mode.

NFPA CODE
H-1
F-3
R-0

Section 6 — Accidental Release Measures

Restrict unprotected personnel from area. Remove all ignition sources and ventilate area. Contain spill with sand, and absorbent material; deposit in sealed bag or container. See Sections 8 and 13 for further information.

Section 7 — Handling and Storage

Flinn Suggested Chemical Storage Pattern: Organic #4. Store with ethers, ketones, halogenated hydrocarbons and ethylene oxide. Store in a dedicated flammables cabinet. If a flammables cabinet is not available, store in Flinn Saf-Stor Can.
Use and dispense in a hood.

Section 8 — Exposure Controls , Personal Protection

Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, chemical-resistant gloves and chemical-resistant apron. Use ventilation to keep airborne concentrations below exposure limits. Always wear a NIOSH-approved respirator with proper cartridges or a positive pressure, air-supplied respirator when handling this material in emergency situations (spill or fire).
Exposure guidelines: TWA 750 ppm, STEL 1000 ppm (OSHA, ACGIH)

Section 9 — Physical and Chemical Properties

Sweet odor. Colorless liquid.
Solubility: Miscible with water, alcohol and ether.
Formula: CH3COCH3
Formula Weight: 58.08

Melting Point: -94.6 C
Boiling Point: 56.5 C
Vapor Pressure: 180mm @ 68 F
Vapor Density: 2.00
Density: 0.79

Section 10 — Stability and Reactivity

Stable. Potentially explosive reaction with strong oxidizing agents and halogenated compounds.
Shelf life: Good, if stored safely.

Section 11 — Toxicological Information

Acute effects: severe eye irritant
Chronic effects: causes dermatitis
Target organs: liver, kidneys

ORL-RAT LD50: 5800 mg/kg
IHL-RAT LC50: 50100 mg/m3/8H
SKN-RBT LD50: 20 g/kg

N.A. = Not available, not all health aspects of this substance have been fully investigated.

Section 12 — Ecological Information

Data not yet available.

Section 13 — Disposal Considerations

Please consult with state and local regulations.
Flinn Suggested Disposal Method 18a is one option.

Section 14 — Transport Information

Shipping Name: Acetone
Hazard Class: 3, Flammable Liquid
UN Number: UN1090

N/A = Not applicable

Section 15 — Regulatory Information

TSCA-listed, EINECS-listed (200-662-2), RCRA code U002

Section 16 — Other Information

Consult your copy of the Flinn Scientific Catalog/Reference Manual for additional information about laboratory chemicals. This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. Flinn Scientific Inc. makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. Flinn Scientific Inc. assumes no legal responsibility for use or reliance upon this data.

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