

HAZCOMM & Lab Safety

College of Dental Medicine



Research Safety Specialist
Environmental Health and Safety

Purpose of Training

- Crucial for a safe work place
- Policy/procedures may vary
- Required by Occupational Safety & Health Administration (OSHA)
- To understand your rights & responsibilities
- Participate in safety programs and take appropriate action

Training Outline



Roles & Responsibilities (Training)



Hazard Identification



Hazard Control Methods & PPE



Emergency Procedures

Roles & Responsibilities

Columbia University & PI

- Identify Hazards
- Provide Personal Protective Equipment (PPE)
- Provide Information
- Provide Training
- Including task specific training

You

- Ensure your own safety
- Report hazards
- Use Personal Protective Equipment (PPE)
- Follow procedures
- Get Trained
- Promote a safe, healthy & environmentally sound workplace

Roles & Responsibilities: EH&S

Consultants

- Technical Guidance
- Institutional Health and Safety Program Development
- Laboratory Inspections and Surveys
- Conduct Research Safely in Compliance with Regulations

Services Provided

- General Safety Training
- Hazardous Waste Disposal
- Emergency Response
- Hazard Assessments
- Laboratory Commissioning and Decommissioning
- Laboratory and Equipment Clearances

Agenda



Roles & Responsibilities (Training)



Hazard Identification



Hazard Control Methods & PPE



Emergency Procedures

Hazard Identification: Regulatory Introduction

Columbia University laboratories and dental clinics must comply with rules set by the following regulatory bodies:

➤ **New York City**

- Fire Department (**FDNY**)
- Department of Environmental Protection (**DEP**)
- Department of Health and Mental Hygiene (**DOHMH**)

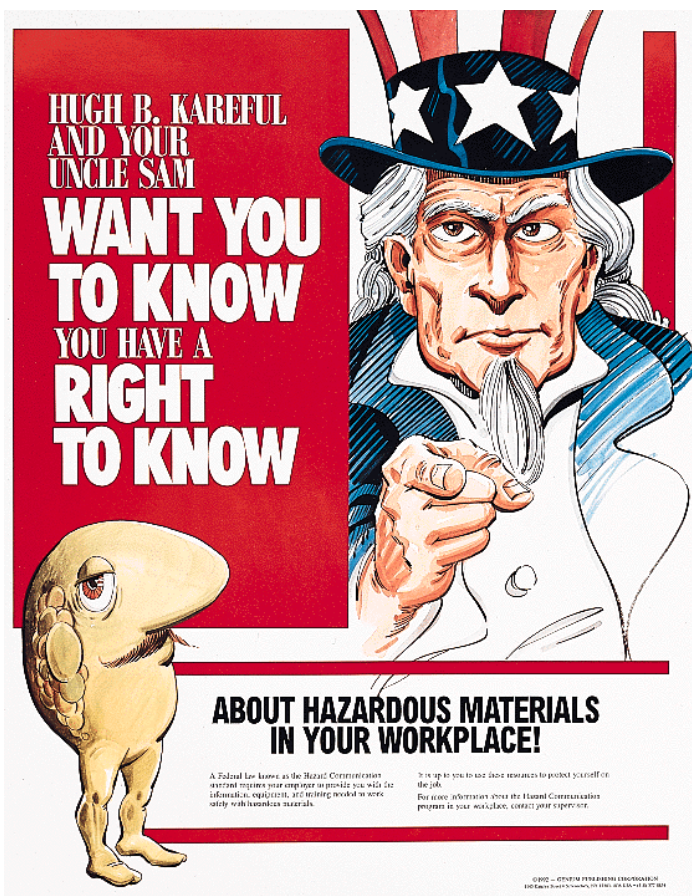
➤ **New York State**

- Department of Environmental Conservation (**NYSDEC**)

➤ **Federal**

- Department of Labor: Occupational Safety and Health Administration (**OSHA**)
- United States Environmental Protection Agency (**USEPA**)

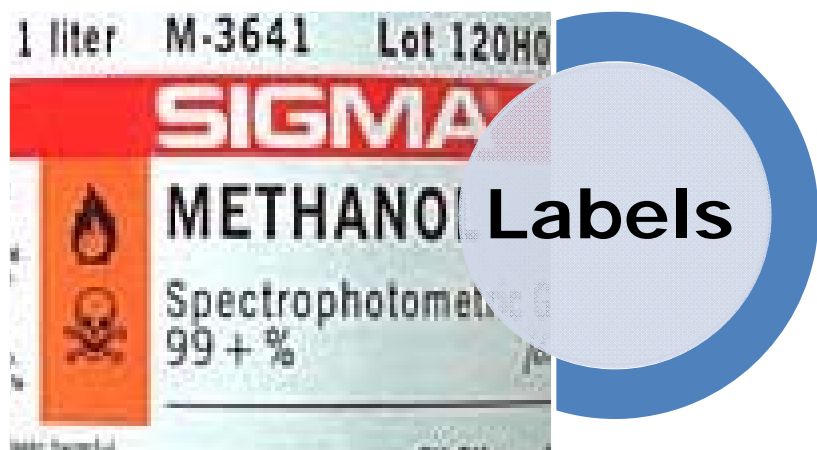
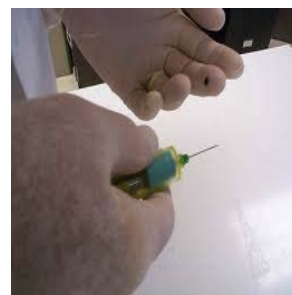
Hazard Identification: OSHA Hazard Communication Standard



- You have a right to know about the hazards you may be exposed to and how to protect against exposures
- The classification of chemical hazards and the dissemination of safety information to personnel working with chemicals

(29 CFR 1910.1200)

Hazard Identification: Recognizing & Evaluating Hazards



Hazard Identification: Pictograms & Hazards

Physical Hazards



Flammable



Compressed Gas



Oxidizing



Corrosive



Explosive

Health Hazards



Health Hazard



Corrosive



Skin Irritant



Toxic

Reference Tools

<http://www.osha.gov/dsg/hazcom/ghs.html>

Environmental Hazards



Environmental Hazard

Hazard Identification: Safety Data Sheets (SDS)

Powered by
Chemwatch

METHANOL
ChemWatch Company

Chemwatch: 1230
Version No: 5.1.1.1
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 01/01/2013
Print Date: 10/18/2014
Initial Date: Not Available
S.GHS.USA.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING


Product Identifier

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS




	Min	Max
Flammability	3	3
Toxicity	3	3
Body Contact	3	3
Reactivity	1	1
Chronic	0	0

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme



GHS Classification Flammable Liquid Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Acute Toxicity (Inhalation) Category 2, STOT - SE Category 1

Label elements

GHS label elements			
---------------------------	---	---	---

1. Identification
2. **Hazard Identification**
3. Composition
4. **First Aid Measures**
5. Fire-fighting measures
6. Accidental release measures
7. **Handling & Storage**
8. **Exposure Controls**
9. **Physical & Chemical Properties**
10. **Stability & Reactivity**
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

Hazard Identification: Using ChemWatch

- Columbia's online source for safety data sheets
- Available from any computer on the CU network

Available:

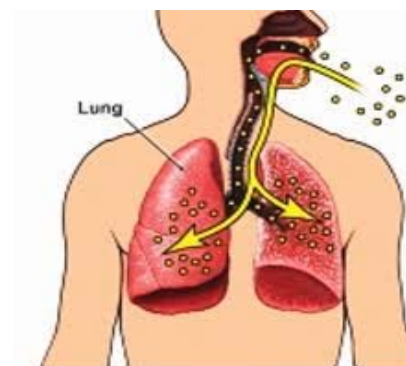
<https://research.columbia.edu/content/safety-data-sheets>



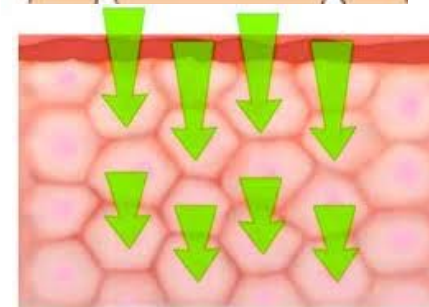
Hazard Identification: Routes of Exposure

How might you be exposed to a chemical hazard?

➤ **Inhalation**



➤ **Absorption**



➤ **Ingestion**



Hazard Identification: Routes of Exposure



Hazard Identification: What's Wrong With This Picture?

15



Hazard Identification: Routes of Exposure

Injection: Puncture/Laceration



- Sharps, Needles, razor blades, and glass, can cause cuts, lacerations, and punctures
- All needles, syringes and blades must be discarded in rigid sharps containers regardless of the status of biological contamination
- Limit use, do not recap needles
- Do not remove needles from syringes
- Do not bend, break, or manipulate syringes

Hazard Identification: Chemical Health Hazards

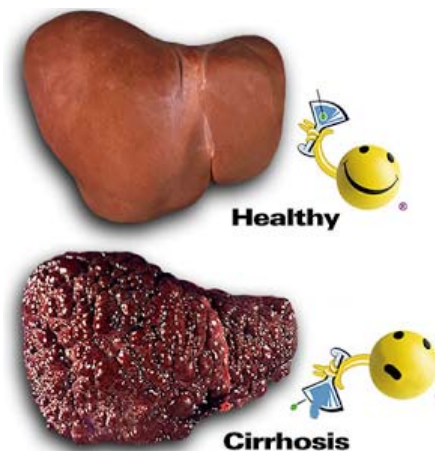
➤ Acute Health Effects:

- An exposure to a hazardous material with immediate symptoms but is often reversible
- Headaches, dizziness, burns from corrosive chemicals and/or rash



➤ Chronic Health Effects:

- Prolonged or repeated exposure to hazardous materials may lead to irreversible damage with symptoms that are not immediately apparent
- Cancer, mutation, and/or reproductive effects



Agenda



Roles & Responsibilities (Training)



Hazard Identification

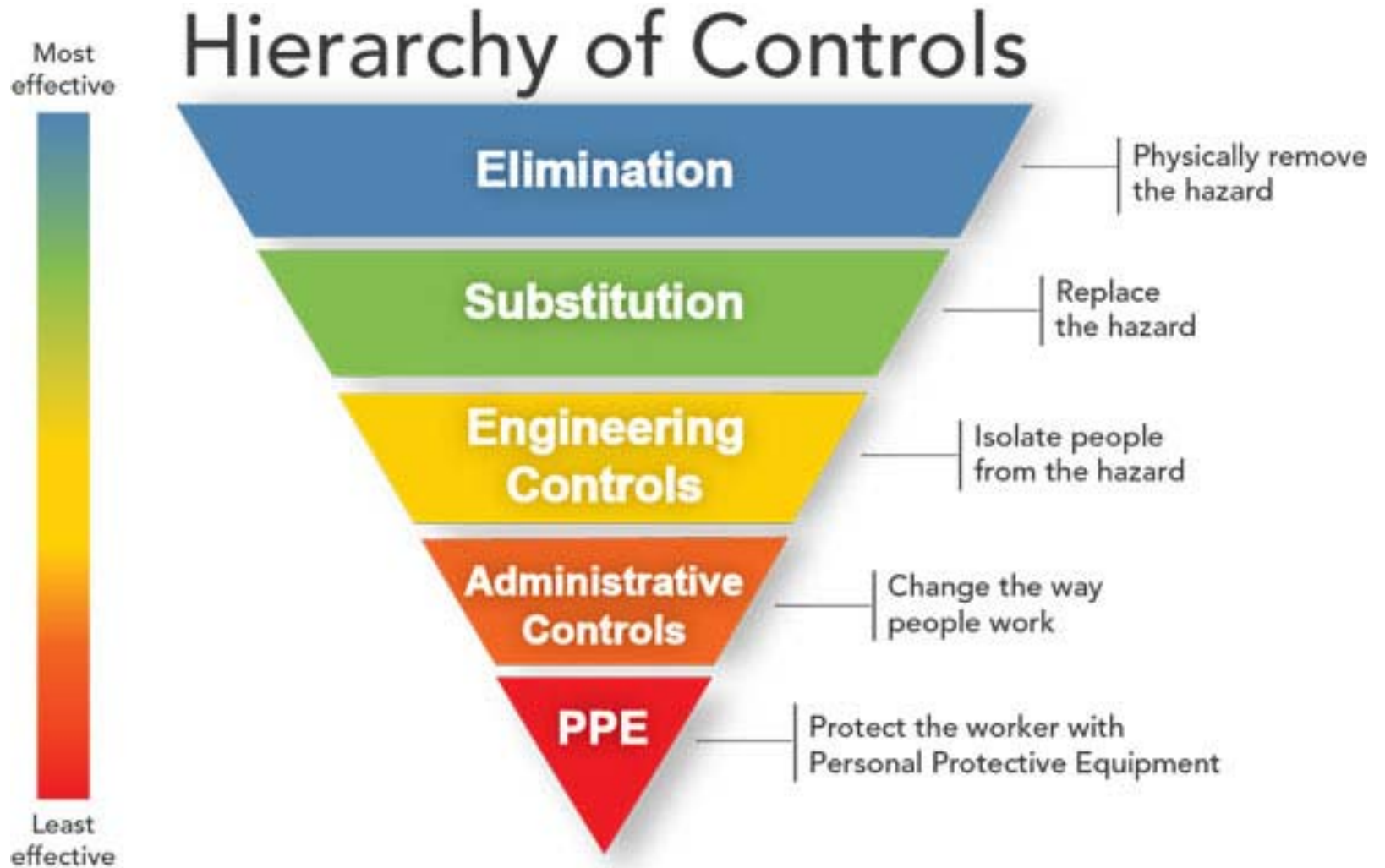


Hazard Control Methods & PPE



Emergency Procedures

Hierarchy of Hazard Control Methods



Hazard Control Methods: Elimination & Substitution

Mercury Dental Filling vs Resin Composite



Hazard Control Methods: Engineering Controls

HVAC system, Fume hoods and Machine guards



Hazard Control Methods: Administrative Controls

- Policies, procedures, effective communication and best work practices designed to ensure the safety of personnel
- Consult an experienced staff or faculty member before modifying a protocol or designing a new experiment



Hazard Control Methods: Administrative Controls - Compressed Gases

- Gases in cylinders are under high pressure and compressed gas cylinders can be destructive to life and property if damaged
- Seek instruction from an experienced person before handling compressed gas cylinders
- **Always secure cylinders to a stable mount**
- Remove regulators and apply cap when the cylinder is not in use
- It is important to segregate incompatible gases
 - Example: Compressed oxygen tanks separated from flammable gases by 20 feet



Hazard Control Methods: Administrative Controls - Housekeeping

- Do not place or store items on top of cabinets, light fixtures & radiators
- Do not block aisles and exits
- Maintain tidy workstations



Hazard Control Methods: Administrative Controls

- Proper storage and segregation of hazardous materials
- Proper chemical container labeling



**Open
Containers**



No Labels

Hazard Control Methods: Personal Protective Equipment (PPE)

MUST BE WORN AT ALL TIMES IN THE CLINIC:

- Proper work attire (long pants/skirt, closed shoes)
- Scrubs
- Lab coats/aprons
- Safety glasses/goggles
- Protective gloves



Hazard Control Methods: Personal Protective Equipment (PPE)

When working in the lab & clinic you must wear PPE & proper attire or you will be asked to leave the immediately



Hazard Control Methods: Personal Protective Equipment (PPE)

General Areas

- Wearing gloves on elevators is **NOT** permitted
- **Never Touch** elevator buttons or door knobs with gloves
- Always remember to remove your gloves when you leave your work station
- Remember to remove disposable gowns before leaving clinical areas
- Never step outside of VC with gowns & gloves



Agenda



Roles & Responsibilities (Training)



Hazard Identification



Hazard Control Methods & PPE



Emergency Procedures

Emergency Procedures: Reporting Laboratory Emergencies

Reporting Fire, Smoke Conditions or Personal Injury			
Campus	Public Safety from a Campus Phone	Public Safety from a Personal Phone	EH&S
Medical Center	(212) 305-7979	(212) 305-8100	(212)305-6780

➤ Provide:

- Name & UNI
- Location (building, room)
- Phone number
- Incident details
- Any Personal injury



Emergency Procedures: Equipment

Eye Wash Station



Fire Extinguisher



Keep Clear of Obstruction!

Emergency Procedures: Using an Eye Wash

Wash a contaminated eye by providing a continuous stream of water.

- Activate the eye wash by providing a continuous stream of water.
- Gently position your head back and open your eyes.
- Flush your eyes for at least 15 minutes.
- **Test it weekly!**



Wash a contaminated eye by providing a continuous stream of water.

Activate the eye wash by providing a continuous stream of water.

Gently position your head back and open your eyes.

Test it weekly!

Emergency Procedures: Spills

Manageable

Call Facilities to mop up spills of non-hazardous materials

Examples:

- Water
- Bleach
- Other disinfectants

Small amounts of low hazard chemicals & biological spills can be managed by you!

Unmanageable

Call EH&S at (212) 305-6780 with:

- Chemical identity if known
- Volume
- Location
- Your name, UNI, and telephone number

Please visit the EH&S Website to review this and other help emergency response videos

<https://research.columbia.edu/content/laboratory-emergency-response>


Emergency Procedures: Spills & Emergency Response

Emergency Procedures: Personal Contamination

- Flush contaminated eyes, face, arms, and body area with copious amounts of water
- Remove contaminated clothing
- If there are no visible burns, wash gently with soap and warm water
- Seek medical attention, if necessary
- If there are no visible burns, wash gently with soap and warm water
- Inform your supervisor

Spills and Emergency Procedure: Where to go for Injuries & Health Emergencies

Campus	Hours	Employees	Public Safety Contact
CUMC	Business-Hours	Workforce Health & Safety Harkness Pavillion	(212) 305-7979
	After-Hours	NYPH Emergency Depart. First Floor of the Vanderbilt Clinic (VC)	
Campus	Hours	Students	Student Health Services
CUMC	Business-Hours	Student Health Services	(212) 305-3400



Student Health Service
at Columbia University Medical Center

**Occupational Exposures
Are a Medical Emergency!**

See instructions on back.

For appointments & emergencies contact
(212) 305-3400 www.cumc.columbia.edu/student/health

**OCCUPATIONAL EXPOSURE –
DO THIS NOW:**

- 1. Immediately** cleanse the injury (soap and water for skin), and
- Promptly notify your attending or preceptor to arrange for prompt counseling and testing of the source patient.
- Come to the Student Health Service **immediately** for assessment, counseling, and any indicated medications.
- If the Student Health Service is closed, **call the physician on call (212) 305-3400 and immediately go to the Emergency Room** for evaluation.
Follow-up with SHS the next day.

Reminder

- Be familiar with the location of emergency equipment
- Address manageable spills as soon as they occur
- If this cannot be done immediately, mark off the area and ALERT those around you
- Take Action! Call Facilities or EH&S immediately

SAFETY FIRST/SAFETY ALWAYS



Thank you!

