Office Employees

May, 2014

Office of Occupational Safety and Health
Right-to-Know/Hazard Communication

Agenda

• Regulations
• Log and Summary of Occupational Safety and Health Injuries & Illnesses (SH 900 forms)
• Toxicology
• Labels and Safety Data Sheets
• Common Workplace Chemicals
• Physical Hazards
Course Objectives

Upon completion of this training, employees should:

| Be knowledgeable of the requirements of the Hazard Communication Standard 2012 and Right-To-Know Law |
| Know which agency enforces the safety and health regulations |
| Understand how to obtain a copy of the written Hazard Communication Plan |

| Be able to understand the label requirements |
| Know what a safety data sheet (formerly MSDS) is, and how to obtain one |
| Understand the basics of how chemicals can impact the body |
| Have an increased awareness of Common Workplace Chemicals |
CLASSIFICATION OF HAZARDS
What is an Occupational Hazard?

An Occupational Hazard can simply be defined as any substance, material, process, or practice that has the ability to cause harm or adverse health effect to a person in the workplace.
Classification of Hazards

**BIOLOGICAL**
- viruses, parasite, bacteria, food, fungi, and mold

**CHEMICAL**
- depends on the physical, chemical and toxic properties of the chemical

**ERGONOMIC**
- poor lighting, poor posture, repetitive movements, improper set up of workstation

**PHYSICAL**
- magnetic fields, pressure extremes (high pressure or vacuum), noise

**PSYCHOSOCIAL**
- stress, violence

**SAFETY**
- slipping/tripping hazards, inappropriate machine guarding, equipment malfunctions or breakdowns

**RADIATION**
- ionizing and Non-ionizing
REGULATIONS
Regulatory Agencies

**OSHA - Occupational Safety and Health Administration - 1970**

- Protects Private Employees
- A Federal Agency
- Goal – to insure worker safety and health in the US by working with employers to create better working environments

**PESH – Public Employee Safety and Health Bureau - 1980**

- Protects Public Employees
- A State Agency - NYS Department of Labor
- Goal – Oversees workplace protection of public employees at NYS and NYC levels. Enforces OSHA standards
Two Laws Apply to DOE Employees

These laws were passed in the mid 1980’s

**NYS RIGHT-TO-KNOW LAW**
12 NYCRR 820
Enforced by NYS Attorney General

**HAZARD COMMUNICATION**
29 CFR 1910.1200
Enforced by NYS Dept. of Labor

**INFORMATION ABOUT CHEMICAL HAZARDS**

Employers are required to make sure that employees:

- understand the potential chemical hazards they may be exposed to on the job
- know how to protect themselves against these hazards.
Coverage of Right-to-Know Law

**General Duty Clause**

Employers must furnish employees a workplace free from recognized hazards and in compliance with the safety and health standards applicable to the employer’s workplaces and other regulations issued by the Commissioner of Labor under the Act.

_EG. Physical and Safety Hazards_

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**RTK Covers:**

- All hazardous substances
- Infectious diseases
- Radiation
- Full time employees
- Part time employees
- Provisional employees

**RTK Does Not Cover:**

- Physical hazards (e.g. noise)
- Safety Hazards (e.g. electrical)
PUBLIC EMPLOYEE RIGHTS
PUBLIC EMPLOYEE RIGHTS

- Be notified about their rights under the law
- Use their rights under the law without retaliation and discrimination
- Receive information and training about workplace hazards and methods to prevent harm
- Get results of any test results done to find hazards in the workplace
- Review records of work-related injuries and illnesses
- Access their own medical records or group results of medical screening conducted by the employer
- Ask PESH to inspect their workplace
- Refuse to work with a chemical if information is not provided within 72 hours of request
Notification Posters

NYS RIGHT TO KNOW POSTER

NYS PUBLIC EMPLOYEE SAFETY AND HEALTH POSTER
Training

Employees must be trained on job related health hazards and methods to protect themselves upon:

- Initial hire
- Annually
- When new hazards are introduced

**TRAINING TO INCLUDE:**

- The chemical substances found in the work place
- The potential for occupational exposure
- The hazards associated with these substances
- The health risks associated with these exposures
- Methods to control over-exposures
Written Hazard Communication Program

Employer must prepare a written program outlining how the requirements of the law will be fulfilled.

The plan can be accessed at: www.schools.nyc.gov/offices/DHR/OSH

Employees can ask to see the plan at any time.
Work Related Injuries & Illnesses

The employer must keep a record of recordable occupational injuries and illnesses.

- SH 900 – Log of Work Related Injuries and Illnesses

- SH 900.1 – Summary of Work-Related Injuries and Illnesses
  - Post from February 1st – April 30th

- SH 900.2 – Injury and Illness Report

**RECORDABLE INJURIES**

- Injuries requiring more than first aid
- Lost of work days
- Job transfer
- Restriction of duty
- Unconsciousness
- Injuries resulting in death
SH900.2 – Injury and Illness Incident Report
# SH 900 - Log of Work Related Injuries and Illnesses

State of New York Department of Labor
Log of Work Related Injuries and Illnesses
Form SH-900

1. This form is required by the Commissioner of Labor's Rules and Regulations Part 801 (12 NYCRR Part 801) and must be kept in the establishment for five years. Failure to maintain this form can result in the issuance of a Notice of Violation and Order to Comply.

2. You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria found in 12 NYCRR 801.7 - 801.12 and instructions.

3. Use more than one line for a single case if necessary.

4. This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes. Refer to the instructions (SH-900-I) for types of illness and injuries defined as 'reportable concern cases'.

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### Table

| A. Case No. | B. Employee Name | C. Job Title | D. Date of Injury or Onset of Illness (Mo. Day) | E. Where the Event Occurred (e.g., Loading dock, north end) | F. Describe Injury or Illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burns on right forearm from scalding water) | G. Remarks | H. Rate of Pay | I. Job Transfer or Reassignment | J. Other Remarks | K. Days Missed Work | L. Did Employee Have Any Injury or Illness in Prior Year | M. Check the Injury Column or Check One Type of Illness |
|-------------|------------------|-------------|-----------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------|-------------|-----------------|-----------------|-----------------|-----------------|-----------------------------------------------|----------------|-----------------|
|             |                  |             |                                               |                                                  |                                                                               |             |                 |                 |                 |                 |                                               |               |                 |

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### ADDITIONAL FORMS AND INFORMATION:
If you require additional forms or information concerning the completion of this form, contact:
New York State Department of Labor, Division of Research and Statistics, P.O. Box 669, New York, NY 10081-0669. Telephone (212) 352-6690.

SH 900 (11-03)
SH900.1 – Summary of Work-Related Injuries and Illnesses

Posted from: February 1st – April 30th
TOXICOLOGY
Definition of Toxicology

Toxicology is the study of the harmful effects of chemicals on biological systems.
Chemicals are part of everyday life
What Makes A Chemical Hazardous?

The presence of hazardous materials does not necessarily mean danger:

- Gather information (SDS)
- Recognize the hazards
- Use the chemical as intended
- Isolate exposure
- Use common sense
PHYSICAL MANIFESTATIONS OF CHEMICALS
<table>
<thead>
<tr>
<th>Manifestation</th>
<th>Description</th>
<th>Routes of Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapors</td>
<td>The gaseous form of substances that are normally solid or liquid room temperature. The vapor can be changed back to the solid or liquid state either by increasing or decreasing the temperature alone.</td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td>Some gases are: easy to detect, some are odorless and colorless, some even deaden your sense of smell.</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Solids</td>
<td>A solid is a material which retains its form, such as a stone.</td>
<td></td>
</tr>
<tr>
<td>Dusts</td>
<td>Dusts are tiny solid particles. Larger particles are trapped in the mucous and hairs of the nose and windpipe. Smaller dust particles can be breathed deeply into the lungs.</td>
<td>Absorption</td>
</tr>
<tr>
<td>Liquids</td>
<td>A liquid is a state of matter which flows and can change its shape and is not easily compressible and maintains a relatively fixed volume.</td>
<td></td>
</tr>
<tr>
<td>Fumes</td>
<td>Fumes are formed when a solid, especially metals, are heated to very high temperatures and become vaporized. Example: welding fumes</td>
<td></td>
</tr>
</tbody>
</table>
### How do Chemicals Enter the Body?

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation</strong></td>
<td>You can breathe toxic dusts, gases, or fumes. These can harm your respiratory system or pass from your lungs into your bloodstream and harm another part of your body.</td>
</tr>
<tr>
<td><strong>Absorption</strong></td>
<td>Toxic liquids can cause damage if they come into contact with your skin or eyes. Some toxic liquids can pass through your skin and enter the bloodstream and cause harm to another part of the body.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Toxic substances can get into your body if you eat or smoke without washing contaminated hands.</td>
</tr>
<tr>
<td><strong>Injection</strong></td>
<td>Toxic substances can get into your body if you are stuck with a contaminated sharp object.</td>
</tr>
</tbody>
</table>
The custodian used a super adhesive to secure a loose floor tile. After use, he left the container in the room without replacing the cover on the can. Later employees complained of headache, nausea, dizziness and burning eyes.

What was the most likely cause of these symptoms?

A. Skin Absorption
B. Work related stress
C. Lack of oxygen
D. Inhalation of solvents
The garbage can was overflowing and to make it fit, Mr. Smart squished it down with his hands.

This is a possible means of which route of entry into the body?

A. Inhalation
B. Ingestion
C. Absorption
D. Injection
After working with a cleaning product, Artie decided to have a quick snack. Without leaving his desk, he peeled his orange and ate it.

He could have exposed himself by which route?

A. Inhalation
B. Ingestion
C. Absorption
D. Skin contact
BASIC DEFENSE MECHANISMS
Basic Defense Mechanisms

Upper Respiratory Tract

- Coughing
- Sneezing
- Nose hairs
- Mucous

Lower Respiratory Tract

- Cilia
- Mucous
- Muco-cilliary escalator

Alveolar Region

- Immune System
  - macrophages
Skin

- Largest body organ
- Waterproof protective layer against:
  - Organisms
  - Chemicals
- Overexposure to solvents denaturizes the skin, leading to:
  - Cuts
  - Breaks
  - Dry skin
Dose-Response Relationship

The greater the amount of a substance that enters the body, the greater is the health effect on the body.
Body Metabolism

- Detoxification
  - Liver

- Elimination
  - Skin, kidneys, lungs

- Accumulation
  - Rate of exposure exceeds the rate of elimination

- Chemical accumulation is unique to the chemical
  - Ammonia does not accumulate
  - Lead stored in bone
  - PCBs stored in fat
  - Asbestos stored in lungs
TYPES OF HEALTH EFFECTS
<table>
<thead>
<tr>
<th>TYPE OF HEALTH EFFECTS</th>
<th>DESCRIPTION</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>Effects occur immediately after exposure</td>
<td>Coughing, sneezing, headache</td>
</tr>
<tr>
<td>Chronic</td>
<td>Effects occur after repeated exposure over time</td>
<td>Hearing loss from ear buds</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Allergic reaction</td>
<td>Rash from laundry detergent</td>
</tr>
<tr>
<td>Synergistic</td>
<td>Two agents combined together create a more toxic one</td>
<td>Bleach + ammonia = chorine gas</td>
</tr>
<tr>
<td>Mutagens</td>
<td>Cause a change in genetic cell make-up</td>
<td>X-rays</td>
</tr>
<tr>
<td>Teratogens</td>
<td>Cause defects in the unborn</td>
<td>Measles, Thalidomide</td>
</tr>
<tr>
<td>Carcinogens</td>
<td>Cause cancer</td>
<td>Benzene, asbestos</td>
</tr>
<tr>
<td>Localized</td>
<td>Health effect at the point of contact</td>
<td>Skin burn</td>
</tr>
<tr>
<td>Systemic</td>
<td>Effects occur elsewhere from where the chemical entered the body</td>
<td>Lead poisoning, fever</td>
</tr>
</tbody>
</table>
Health Effects Case Scenario # 1

Cindy walked into the bathroom immediately after it was cleaned with an ammonia-based cleaner.

Within seconds, her eyes started to tear, she began to cough and had trouble breathing.

Her health effects are considered to be:

A. Acute Health Effect
B. Chronic Health Effect
C. Localized Health Effect
D. Systemic Health Effect
Health Effects Case Scenario # 2

Whenever Pete uses a particular cleaner he breaks out in a rash on the palms of his hands.

What type of health effect is this?

A. Random
B. Sensitization
C. MRSA
D. Teratogenic Health Effect
Health Effects Case Scenario # 3

Sam used Windex to clean his sticky computer screen. He couldn’t get the waxy stains off so he followed with Clorox clean-up.

He began to experience dizziness, weakness, difficulty breathing and burning sensations of the mucus membranes.

What is Sam experiencing?
A. Acute Health Effects  
B. Sensitization  
C. Synergistic  
D. Target Organ Health Effects
In the early 1950’s – 1960’s the drug Thalidomide was administered to pregnant women to combat premature miscarriages and severe nausea. Offspring were frequently born with limb defects.

This type of health effects is called:

A. Carcinogenic Health Effect
B. Mutagenic Health Effect
C. Systemic Health Effect
D. Teratogenic Health Effect
Health Effects Case Scenario # 5

Excessive exposure to x-rays can cause defects in the cell’s genetic make-up.

What is this type of health effect called?

A. Localized Health Effects
B. Mutagenic Health Effects
C. Non-specific Health Effects
D. Medical Health Effects
Health Effects Case Scenario # 6

- The Hepatitis B virus causes liver damage.
- Benzene is causes damage to the blood.
- Toluene is associated with liver and kidney damage.
- Methanol is associated with eye damage.

These are all examples of the what type of health effects?

A. Target Organ Effects  
B. Worksite Health Effects  
C. Localized Health Effects  
D. Systemic Health Effects
Types of Target Organ Effects

- **HEPATOXINS**
  - Liver damage

- **NEPHROTOXINS**
  - Kidney

- **NEUROTOXINS**
  - Nervous system damage

- **PULMONARY**
  - Lung damage

- **HEMATOPOIETIC**
  - Blood

- **REPRODUCTIVE TOXINS**
  - Reproductive damage

- **CUTANEOUS HAZARDS**
  - Skin Damage

- **OPTICAL HAZARDS**
  - Eye damage
EXPOSURE ASSESSMENT & CONTROL
Biological Threshold Level

Some substances have measurable exposure levels below which most people will not likely show any health effects.

**PEL**
- Permissible Exposure Limit
- An exposure limit published and enforced by OSHA as a legal standard

**TVL**
- Threshold Value Limit
- A time-weighted average guideline concentration under which most people can work consistently for 8 hours a day for 40 hours with no harmful effects
DETERMINING EXPOSURE
Practical Clues to Exposure

- Odor
- Settled Dust
- Immediate Symptoms
- Taste
- Particles in Nose

Not reliable as a warning clue
Environmental Monitoring

AIR SAMPLING
Performed by an Industrial Hygienist

Area Sampling
Performed by a laboratory

Direct Reading
Immediate quantification of air pollutant

Personal Air Sampling
Worn by workers to measure individual’s actual exposure
Biological Monitoring

Chemical levels and/or its breakdown products are measured
CONTROLLING EXPOSURE
Methods of Controlling Exposure

1. **Engineering Controls**
   - Remove the hazard at the source

2. **Administrative Controls**
   - Reduce exposure by changing job task or policies

3. **Personal Protective Equipment**
   - Used after Engineering & Administrative Controls have failed
Engineering controls reduce the hazard at the source of the exposure

**SUBSTITUTION**
- Switching to a less hazardous product

**ISOLATION**
- Isolation at the source of exposure (construction dusts)

**LOCAL EXHAUST**
- Fume hood of intake placed over the source

**GENERAL VENTILATION**
- General circulation and replacement of fresh air

**WET METHODS**
- Reducing dust exposure

**LIMITING EXPOSURE**
- Reducing exposure at the source (Noise dampeners)
Administrative controls seek to control employees’ exposure by changing the way a task is performed.
Personal Protective Equipment (PPE)

PPE should be used when engineering controls are not effective.

Employees wear PPE to protect them from the hazard in their environment.
What is GHS?

Globally Harmonized System (GHS)

- This is an international approach to hazard communication,
- It provides agreed criteria for classification of chemical hazards,
- It utilizes a standardized approach to label elements and safety data sheets.

Hazard Communication Standard 2012

The new standard brings the United States into alignment with the GHS system of classification and labeling of chemicals.
## Major Changes to the Hazard Communication Standard

<table>
<thead>
<tr>
<th><strong>Hazard Classification</strong></th>
<th>Chemical manufacturers/importers must determine the hazards of the chemicals they produce or import.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labels</strong></td>
<td>Label must include a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category.</td>
</tr>
<tr>
<td><strong>Safety Data Sheets</strong></td>
<td>The new format 16 specific sections</td>
</tr>
<tr>
<td><strong>Information &amp; Training</strong></td>
<td>By December 1, 2013.</td>
</tr>
</tbody>
</table>
# GHS Completion Dates

<table>
<thead>
<tr>
<th>Effective Completion Date</th>
<th>Requirement(s)</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 1, 2013</td>
<td>Train employees on the new label elements and safety data sheet (SDS) format.</td>
<td>Employers</td>
</tr>
<tr>
<td>June 1, 2015*\nDecember 1, 2015</td>
<td>Compliance with all modified provisions of this final rule, except:</td>
<td>Chemical manufacturers, importers, distributors and employers</td>
</tr>
<tr>
<td></td>
<td>The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label</td>
<td></td>
</tr>
<tr>
<td>June 1, 2016</td>
<td>Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.</td>
<td>Employers</td>
</tr>
<tr>
<td>Transition Period to the effective completion dates noted above</td>
<td>May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both</td>
<td>Chemical manufacturers, importers, distributors, and employers</td>
</tr>
</tbody>
</table>
Why Train Employees Now?

OSHA believes that American workplaces will soon begin to receive labels and SDSs that are consistent with the GHS.

It is important to ensure that when employees begin to see the new labels and SDSs in their workplaces:

- they will be familiar with them
- understand how to use them
- access the information effectively.
CHEMICAL INFORMATION
Container Labeling

All chemical containers in the workplace must be labeled with:

- The name of the ingredient
- The manufacturer
- The most immediate hazard warning
Types of Labels

In-house label

- Identity of the hazardous chemical
- Appropriate hazard warning

Manufacturer’s Label

- Identity of the hazardous chemical
- Appropriate hazard warning
- Name and address of a responsible party
A signal word is used to indicate the relative level of hazard severity.

**More severe hazard**
Harmful or fatal if swallowed. A taste to a teaspoonful taken by mouth could kill an average sized adult.

**Less severe hazard**
Harmful if swallowed. A teaspoonful to an ounce taken by mouth could kill an average sized adult.
HCS/GHS Labeling Components

**PAINT (METHYL FLAMMALINE, LEAD CHROMOMIUM)**

**DANGER**
Causes damage to the liver and kidneys through prolonged or repeated exposure to the skin.
Keep away from food and drink.
Wash hands thoroughly after use and before eating.
Highly flammable liquid and vapour.
Keep away from heat and ignition sources.

**FIRST AID**
Call emergency medical care.
Wash affected area of body thoroughly with soap and fresh water.

Great Lake Paints Inc., Columbus, Ohio, USA.
Telephone 999 999 9999

**Pictograms**
- Conveys specific information about the hazard(s) of a chemical

**Product Identifier**
- Chemical name or number to identify the chemical

**Signal Word**
- Alerts level of severity of hazard

**Hazard Statement**
- Describes the nature of hazard(s) associated with a chemical

**Precautionary Statement**
- Recommended measures to take to prevent adverse effects

**First Aid Statement**
- Emergency care information

**Supplier Information**
- Name, address and telephone number of the chemical manufacturer, importer or other responsible party
### HCS Pictograms and Hazards

**Health Hazard**
- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

**Flame**
- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self Reactives
- Organic Peroxides

**Exclamation Mark**
- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

**Gas Cylinder**
- Gases Under Pressure

**Corrosion**
- Skin Corrosion/Burns
- Eye Damage
- Corrosive to Metals

**Exploding Bomb**
- Explosives
- Self-Reactives
- Organic Peroxides

**Flame Over Circle**
- Oxidizers

**Environment (Non-Mandatory)**
- Aquatic Toxicity

**Skull and Crossbones**
- Acute Toxicity (fatal or toxic)
SAFETY DATA SHEETS (SDS)

A document that describes everything that is known about a chemical
Change in Information Sheets

OLD
• Material Safety Data Sheets (MSDS)
• 10 sections of information

NEW (HazCom 2012)
• Safety Data Sheets (SDS)
• 16 sections of information
Safety Data Sheet Sections

**SECTION 1**
- Identification/Product Name

**SECTION 2**
- Hazard Information

**SECTION 3**
- Ingredient Information

**SECTION 4**
- First Aid Measures

**SECTION 5**
- Fire Fighting Measures

**SECTION 6**
- Accidental Release Measures

**SECTION 7**
- Handling & Storage

**SECTION 8**
- Exposure Controls & Personal Protection

**SECTION 9**
- Physical & Chemical Properties

**SECTION 10**
- Stability & Reactivity

**SECTION 11**
- Toxicological Information

**SECTION 12**
- Ecological Information

**SECTION 13**
- Disposal Considerations

**SECTION 14**
- Transport Information

**SECTION 15**
- Regulatory Information

**SECTION 16**
- Other Information
How to Get A SDS

METHODS TO OBTAIN AN SDS:

- Internet-Company Website
- E Mail
- Phone/Fax
- Mail

Your employer must obtain Safety Data Sheets from the chemical manufacturer.
COMMON WORKPLACE CHEMICALS
Chemical Safety

Chemicals are generally safe when used according to manufacturer’s directions

However, chemicals can be unsafe if:

- Mislabeled
- Misused
- Handled improperly
A Solvent is a chemical which dissolve other materials

Example: Water is a solvent for soap
Inhalation of Solvents

ACUTE HEALTH EFFECTS
- Central nervous system effects
- Dizziness
- Light-headedness
- Depression
- Nausea
- Headache
- Respiratory irritation

- This is also true for odorless substances
- A solvent’s volatility and evaporation rate determines how quickly it will evaporate.
Skin Contact with Solvents

ACUTE HEALTH EFFECTS
• Drying of skin

CHRONIC HEALTH EFFECTS
• Red, inflamed, thick, dry skin
• Allergic skin reactions

Direct contact may cause drying and chapping of skin

Solvents may pass through the skin to the bloodstream

- Broken, chapped or dry skin allow easier passage into the bloodstream
- Chronic exposure may lead to dermatitis
Ingestion of Solvents

Deliberate and direct ingestion of chemicals is unlikely in workplace

ACUTE HEALTH EFFECTS
- Abdominal cramps
- Nausea
- Diarrhea
- Ingestion can cause irritation of the gastrointestinal tract

An indirect means of ingestion is more likely:
- Unwashed hands
- Eating or drinking in the workplace where chemicals are being used
- Mists or droplets can contaminate food
# Common Office Chemicals

<table>
<thead>
<tr>
<th>Type</th>
<th>Health Hazard</th>
<th>Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correction Fluid</td>
<td>Non toxic or solvent based</td>
<td>Acute health effects – <em>examples:</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Headache</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Irritated and tearing eyes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nausea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dizziness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• See SDS for specific information</td>
</tr>
<tr>
<td>Cleaning Chemicals, Carpet Cleaners</td>
<td>Solvents or Corrosives; storage or reactive hazards</td>
<td>Chronic Health Effects - <em>examples</em></td>
</tr>
<tr>
<td>Paints</td>
<td>Solvents</td>
<td>• Upper respiratory tract irritation</td>
</tr>
<tr>
<td>Glues</td>
<td>Solvents</td>
<td>• Dermatitis</td>
</tr>
<tr>
<td>Inks, markers</td>
<td>Non Toxic; solvent based</td>
<td>• Irritated skin</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>Solvents</td>
<td>• See SDS for specific information</td>
</tr>
<tr>
<td>Toners</td>
<td>Dust particles</td>
<td></td>
</tr>
</tbody>
</table>

*Individual SDS must be consulted for specific Health information*
DUST HAZARDS
Dusts in The Workplace:

**Sources of dusts:**

- Outside dusts
- Regular household dust
- Maintenance work resulting from drilling, sanding, or abrasive work
- Construction dusts – lead, asbestos, fiberglass, nuisance dusts
# Dusts in the Workplace

## Nuisance Dusts

- Increase occupant discomfort
  - Eye irritation
  - Coughing
  - Sneezing
  - Wheezing
  - Allergies
  - Chest tightness

## Bacterial & Fungal Infections

- May occur from inhaling active biological organisms
  - Bacterial & viral spores, mold
- May be present in “regular building” dust
- Sources:
  - Persons with infectious disease
  - Persons who spit indoors
  - Sputum - uncovered sneezes and coughs
PHYSICAL HAZARDS
Slips, trips and falls can result in:

- head injuries
- back injuries
- broken bones
- cuts and lacerations
- sprained ankles
- sprained muscles
Slips and Falls

Employees may slip and fall from stepping on:

- wet spots
- food spills
- polished floors
- chairs and other unsecured surfaces
- step ladders without a non-slip base
- loose flooring tiles and mats
- uneven walking surfaces
- floor clutter
- unsecured electrical cords

Most slip, trip and fall incidents are preventable with general precautions and safety measures.
Lifting Hazards

Musculoskeletal injuries may result from:

- lifting
- carrying loads
- pushing
- pulling
- handling materials

Top 5 Causes of Back Sprain or Strain

1. Lifting improperly
2. Making a sudden movement
3. Falling down
4. Carrying excess body weight or a heavy handbag
5. Poor posture
BED BUGS
Spot the Real Thing

- Flea
- Ant
- Spider beetle
- Bedbug
- Roach
Bedbug Facts

- Bedbugs are attracted to humans through heat and CO₂
- They are most active at night when people are sleeping
- They are neither a function of poor personal hygiene nor unsanitary conditions
- They are relatively good walkers/runners
- They can live for several months without food or water
- They often hide in cracks in furniture, floors or walls
- They feed by piercing the skin
- They can feed on pets but do not thrive on them
## Methods of Bedbug Introduction

<table>
<thead>
<tr>
<th>Passive</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ They are introduced from another infested location, but not by its own movement</td>
<td>➢ Bedbugs migrate by walking from an infested area</td>
</tr>
<tr>
<td>• Furniture</td>
<td>• From one room to another</td>
</tr>
<tr>
<td>• Mattress</td>
<td>• From one apartment to another via pipes, telephone or cable wires</td>
</tr>
<tr>
<td>• Guests</td>
<td>• Down a hallway after dropping off an item being discarded</td>
</tr>
<tr>
<td>• Employees</td>
<td>• Travel</td>
</tr>
</tbody>
</table>
Bedbug Infestation

They are found in dwellings with a high resident turnover rate:
- Apartment buildings
- Hotels
- Shelters
- Dormitories
- Nursing homes

Bedbugs are more common:
- in the homes of people who travel (business travelers)
- stay in hotels

They are also found in other areas:
- Schools
- Child care facilities
- Movie theaters
- Airplanes
- Clothing stores
Impact of Having Bedbugs

- Bed bugs do not carry diseases
- Bites on skin can result in allergic reactions and secondary infections
- Infestation can cause:
  - stress
  - anxiety and sleeplessness,
  - discomfort of bites
  - social stigma

ONE LIVE BEDBUG IS NOT AN INFESTATION
Prevention

- Avoid clutter
  - It provides the ideal breeding conditions and makes infestations difficult to control
- Never pick up discarded items on the streets
- Avoid refurbished mattresses and/or used furniture
- Use mattress encasements
- Seal crevices and cracks
- When travelling, inspect mattresses

Contact your building management if you see bedbugs in the workplace
INDOOR AIR QUALITY
## Is Work Making You Sick?

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye, skin, throat &amp; nose irritation</td>
<td>Exhausted in the early afternoon but feel better after getting a breath of outside air</td>
</tr>
<tr>
<td>Headaches</td>
<td>Symptoms peak in the early afternoon</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Lowered concentration causing distraction</td>
</tr>
<tr>
<td>Coughing, sneezing</td>
<td>Reduced productivity</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>Reduced energy levels</td>
</tr>
<tr>
<td>Dizziness and nausea</td>
<td>Increased absences</td>
</tr>
<tr>
<td>Skin dryness and rashes</td>
<td></td>
</tr>
<tr>
<td>May trigger asthma, allergic reactions, allergies</td>
<td></td>
</tr>
</tbody>
</table>
If You Answered YES, and these Symptoms:

- are a common occurrence;
- are a shared experience among building occupants;
- do not occur prior to occupying the building

You may be experiencing symptoms of:

- Poor Indoor Quality (IAQ)
- Tight Building Syndrome (TBS)
- Sick Building Syndrome (SBS)
- Building Related Illness (BRI)
Indoor Air Quality (IAQ)

Reasons for Poor IAQ

- Most buildings are over 50 years old
- Buildings were designed to be air tight
  - Fewer windows
  - Rely on HVAC
- Multiple use of room
  - Copy room
  - Offices
  - Storage

Most IAQ problems result from insufficient outdoor air to ventilate an indoor space
HVAC – Heating Ventilation Air Conditioning

Common IAQ Problems
- Stuffy Air
- Rooms too hot/cold
- Funny smell
- Chemical smell
- Presence of mildew/Moldy smell

All mechanical ventilation systems include three basic components:
- Blowers: To move the air
- Ducts: To transport the air
- Vents: To deliver or remove air from the room
## Causes of Poor IAQ

<table>
<thead>
<tr>
<th>HVAC System</th>
<th>Outside Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>- System may be inadequate for the building’s need</td>
<td>- Outside air</td>
</tr>
<tr>
<td>- System not working properly</td>
<td>- Car emissions</td>
</tr>
<tr>
<td>- Closed outdoor dampers</td>
<td>- Smoking near air intake</td>
</tr>
<tr>
<td>- Failed system controls, such as thermostats</td>
<td>- Dumpsters located near air intake</td>
</tr>
<tr>
<td>- Blocked air vents/fire dampers</td>
<td></td>
</tr>
</tbody>
</table>
## Causes of Poor IAQ

<table>
<thead>
<tr>
<th>Building Design</th>
<th>Building Occupants &amp; Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Old</td>
<td>➢ Too many occupants</td>
</tr>
<tr>
<td>➢ Building being used for purposes other than initially intended</td>
<td>➢ Chemicals</td>
</tr>
<tr>
<td></td>
<td>➢ Smoking</td>
</tr>
<tr>
<td></td>
<td>➢ Machines</td>
</tr>
<tr>
<td></td>
<td>➢ Pesticides</td>
</tr>
</tbody>
</table>
Other Factors Influencing Comfort

Complaints are not always a result of poor indoor air quality

- Temperature & Relative Humidity
- Noise
- Lighting
- Ergonomic stressors (work station & task design)
- Job related psychological stressors can contribute to the complaints
- Cold & Flu complaints
<table>
<thead>
<tr>
<th>FACTORS</th>
<th>SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>People; fuel combustion</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>Automobile exhaust: loading docks, air intakes</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>New furniture &amp; carpets</td>
</tr>
<tr>
<td>Particulates</td>
<td>Paper, air intakes, vent ducts, dust, carpets</td>
</tr>
<tr>
<td>Inadequate ventilation</td>
<td>▪ Energy-saving and maintenance measures</td>
</tr>
<tr>
<td></td>
<td>▪ Improper system design or operation</td>
</tr>
<tr>
<td></td>
<td>▪ Occupant tampering with HVAC system</td>
</tr>
<tr>
<td></td>
<td>▪ Poor office layout</td>
</tr>
<tr>
<td>Volatile Organic</td>
<td>Copying &amp; printing machines; computers; carpets; furnishings; cleaning</td>
</tr>
<tr>
<td>Compounds</td>
<td>materials, solvents, smoke; paints, adhesives, caulking; perfumes,</td>
</tr>
<tr>
<td></td>
<td>hairsprays</td>
</tr>
<tr>
<td>Microbial matter</td>
<td>Stagnant water in HVAC system; Condensate drain pans, &amp; water towers;</td>
</tr>
<tr>
<td></td>
<td>Wet and damp materials; Humidifiers</td>
</tr>
</tbody>
</table>
Handling IAQ Problems

Common Solutions

- Allow adequate desk distance from printer/copy machine exhaust.
- Open windows at pre-determined times.
- Turn the thermostat up/down.
- Removing carpets, rugs.
- Improve housekeeping/storage practices.
- Do not block vents.

- Document the occurrence.
- Identify any recent changes in the immediate environment.
- Inform building maintenance.

Document the occurrence
Identify any recent changes in the immediate environment
Inform building maintenance
SAFE WORK PRACTICES
Hand Washing

The most effective method for reducing the spread of infectious diseases

Until you wash, avoid:

• Eating & drinking
• Handling food
• Touching your face
• Smoking
• Applying cosmetics
• Handling contact lenses
Universal Precautions

A practice of treating all human blood and OPIM as if they are infectious at all times.

ALL EMPLOYEES MUST PRACTICE UNIVERSAL PRECAUTIONS
When visibly soiled
After sneezing or coughing in your hands
After blowing your nose
After using the washroom
After removing gloves
After contact with infectious material
Precautions & Safe Work Practices

- Read labels
- Follow manufacturer’s instructions
- Flush eyes/skin after contact with chemicals
- Recap chemical containers
- Don’t mix chemicals
- Use gloves to protect your hands
- If you are allergic to latex, use an alternative glove
- Cover your sneeze and cough
- Wash your hands!
The End