

Responsibilities of Industrial Hygienists

The responsibilities of industrial hygienists include the

following:

Ensuring the health of employees

•Objectively recognizing, assessing, controlling, and preventing health hazards

Helping employees understand precautions

Making the health of employees a priority

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OSH Act Requirements Relating to Industrial Hygiene

The OSH Act established the following requirements relating

- to industrial hygiene:
- Use of warning labels
- Use of personal protective equipment
- Medical testing
- Records management
- Accessibility of information about monitoring activities open to
- employees Available of such records to employees
- Notification of exposure to environmental stressors

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Prominent Workplace Hazards

The most prominent hazards in the workplace are:

- Chemical
- Physical
- Biological
- Ergonomic

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Routes of Entry for Toxic Agents The main routes of entry for toxic agents are: Inhalation Absorption Ingestion

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Airborne Contaminants
The most common types of airborne contaminants are:
Dusts
Fumes
-Smoke
Aerosols
Mists
Gases
Vapors
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Asbestos Hazards

Asbestos, once thought to be a miracle material, is now known to be an extremely hazardous substance. It has been tied to:

Respiratory cancer

Scarring of the lungs

Cancer of the chest

Cancer of the abdominal lining

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Proper Handling of Asbestos

When identified in the workplace, asbestos should be handled by: •Removal

Enclosure

Encapsulation

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Understanding Exposure Thresholds

The three most important concepts to understand concerning exposure thresholds are:

Timed weight average (TWA)

Short-term exposure limit

Exposure Ceiling

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Indoor Air Quality Standard (ANSI Z9.8)

The American National Standards Institute (ANSI) developed its own indoor air quality standard [ANSI Z9.8].

Key concepts in the standard are:

Application flexibility

Acceptable air quality

Tobacco smoke

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Hazard Recognition Procedures

Hazard recognition procedures include the following:

Determine the exposure threshold for each hazardous substance in the workplace.

Determine the level of exposure to each

Determine which employees are exposed and for how long

Calculate the TWAs

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General Prevention and Control Strategies

General prevention and control strategies include the

- following:
- Substitution
- Process changesIsolation
- Moisture to reduce dust
- Exhaust methods
- Control methods
- Medical programs

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Education and training

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NIOSH Broad Functions

The National Institute for Occupational Safety and Health (NIOSH) is part of the Department of Health and Human Services (DHHS). Its two broad functions research and education in the areas of: •Toxic materials

Human tolerance levels

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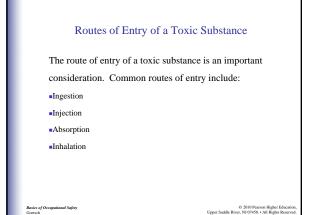
Toxic Substances

A toxic substance is one that has a negative effect on the health of a person or animal. The effect produced by a toxic substance depends on:

- Its properties
- The amount of the dose
- The level of exposure
- The individual's resistance

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Dosage Terms

- The *dose threshold* is the minimum dose of a toxic substance required to produce a measureable effect.
- A *lethal dose* is one that is highly likely to cause death.
- A *lethal concentration* of an inhaled substance is the concentration that is likely to cause death.

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Types of Exposure

Exposures to toxic substances are either *acute* or *chronic*.

•Acute exposure involves sudden exposure to high concentrations of the substance in question.

Chronic exposure involves limited but continual exposure to the substance in question.

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Airborne contaminants are classified according to the type of effect that they have on the body There are: •Irritants

Asphyxiants

Narcotics

Anesthetics

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Carcinogen Defined

A *carcinogen* is any substance that can cause a malignant tumor or a neoplastic growth. Other terms used synonymously for carcinogen are: •Tumorigen •Oncogen •Blastomogen

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Toxic Substance Standards

Pertinent standards relating to toxic substances include:

The OSHA Chemical Process Standard

The EPA Clean Air Act

The Superfund Amendments and Reauthorization Act

The Hazardous Materials Transportation and Uniform Safety Act

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OSHA's Confined Space Standard

OSHA's Confined Space Standard defines a hazardous atmosphere as one "that may expose employees to the risk of: •Death

Incapacitation

Impairment of ability to self-rescue

Injury

Acute illness"

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Elements of a Confined Space Management Policy

A confined space management policy should have the

following elements:

AdministrationControls

Training

PermittingWork-team requirements

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Threshold Limit Value

Threshold limit value (TLV) refers to airborne

concentrations of substances and represents conditions under which it is believed that nearly all works may be repeatedly exposed day after day, without adverse effect. TLV's are expressed as:

Time-weighted average

Short-term exposure limit

Ceiling

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Material Safety Data Sheets (MSDS)

Material safety data sheets are an excellent source of help for safety and health professionals concerned about the potential hazards of a given toxic substance. Information in an MSDS is presented in eight sections:

General information

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Reactivity data Health hazards

· Control measures

- Hazardous ingredientsHealth hazardsPhysical and chemical characteristicsSafe handling and use
- Fire and explosive hazard data

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Concepts Relating to Explosive Materials

Important concepts relating to explosive materials include:

- Flammable substance
- Combustible substance

Flash point

Auto-ignition temperature

Oxygen limitsVolatility

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OSHA's Hazard Communication Standard (29 CFR 1910.1200)

OSHA's Hazard Communication Standard (29 CFR 1910.1200) requires organizations to fully inform employees and on-site contractors of the presence of hazardous substances in the workplace and to provide safe-use training.

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