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Hazmat and Hazardous Waste

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What is Hazmat and Hazardous Waste?

- Hazmat is the term for any aspect of hazardous materials production, transport, use, disposal, cleanup or emergency response

- Hazardous Waste is a contaminated chemical biproduct or material that no longer serves its purpose and needs to be disposed of properly

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MSDS or SDS

- Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) are documents provided by the manufacturer that are specific to the chemical or substance they produced

- They are widely used and document chemicals, chemical compounds, and chemical mixtures as well as any known hazards presented

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A Few Things to Remember About Hazardous Material

- Manufacturers must provide a safety data sheet (MSDS)
- They must be developed for chemicals used in the workplace that have a hazardous content of 1% or greater (0.1% if that chemical is a known carcinogen)
- The MSDS does not have to list the amount of hazardous chemical in the product (it is by percentage)
- Employers are required to have all SDS available to employees for all hazardous chemicals in the workplace
- Employers are required to provide training for employees exposed to these chemicals for proper handling and disposal

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MSDS or SDS

Generally, SDS are laid out as such

1. Identification of substance/mixture and uses advised against
2. Hazards identification
3. Composition/ information on ingredients
4. First aid measures
5. Firefighting measures
6. Accidental release measure
7. Handling and storage
8. Exposure controls and PPE
9. Physical and Chemical Properties
10. Stability and reactivity
11. Toxicology information
12. Ecological Information
13. Disposal considerations
14. Transport Information
15. Regulatory Information
16. Other Information

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1. Identification

- Product identifier
- Relevant identified uses of the substance or mixture and uses advised against
- Details of the supplier including a emergency telephone number

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2.Hazards Identification

Describes the ways that you might be exposed to the material and the harmful health effects

- Route of entry into the body
- Effects of exposure (acute and chronic)
- Classification of the substance or mixture
  - Hazardous or non hazardous
- Label elements
- Other Hazards
  - Bioaccumulation, mutagenic, carcinogen

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3. Composition

- Describes the hazardous chemical components
- Also includes any bi-products that may be produced and the percentage of each

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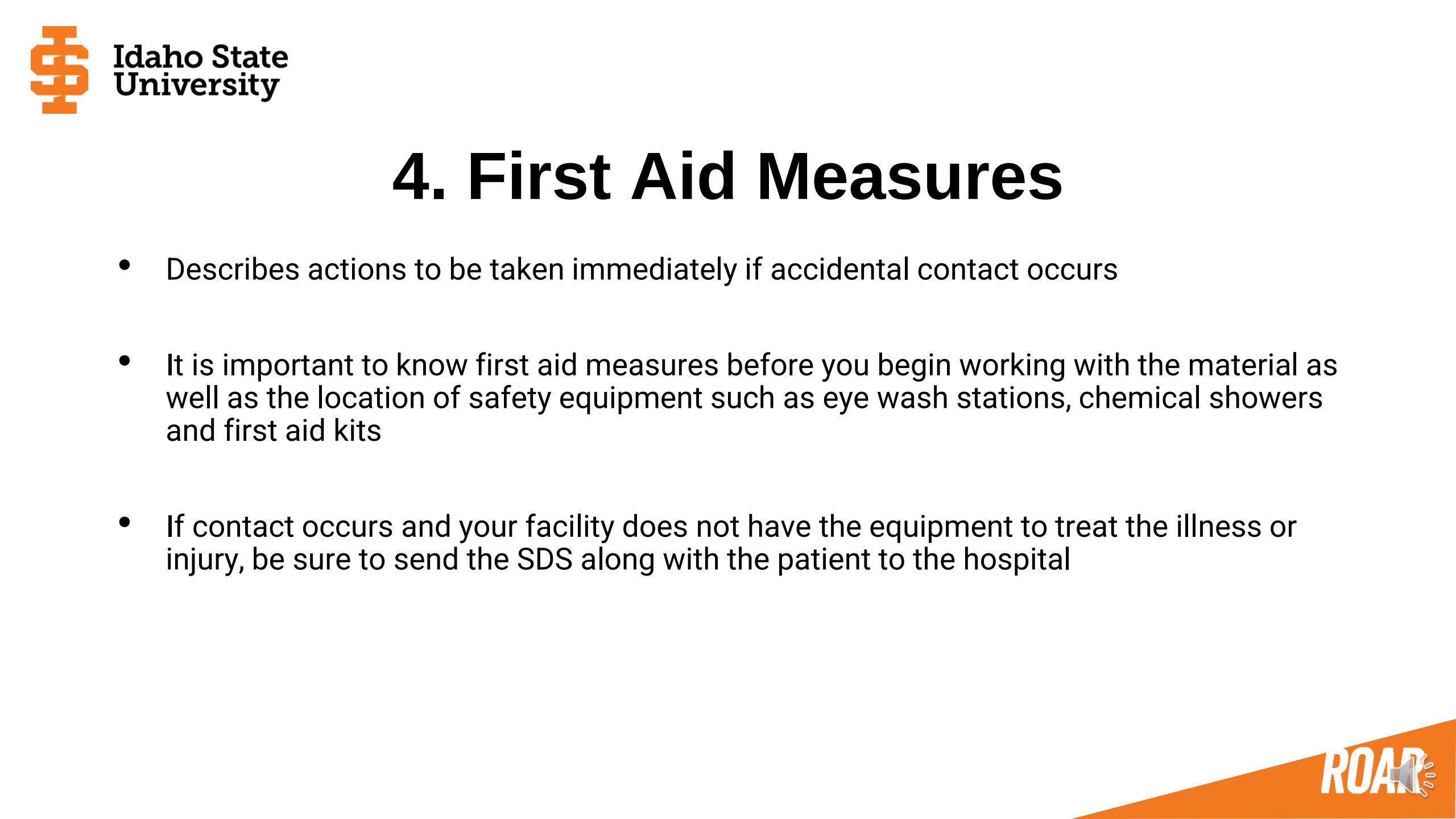
4. First Aid Measures

- Describes actions to be taken immediately if accidental contact occurs
- It is important to know first aid measures before you begin working with the material as well as the location of safety equipment such as eye wash stations, chemical showers and first aid kits
- If contact occurs and your facility does not have the equipment to treat the illness or injury, be sure to send the SDS along with the patient to the hospital



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5. Fire Fighting Measures

- Describes the best way to extinguish flames should a fire occur. Some chemicals are volatile with water so it is best to use a dry chemical extinguisher for example

- It is also important to properly store these chemicals

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6. Accidental Release Measures

- Instructions for responding to the accidental release of the material (cleaning up a spill for example)

- This information is primarily used by emergency responders and by environmental professionals but can be useful if there is a small spill that can be cleaned by employees

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7. Handling and Storage

- Precautions for handling and storage of the material including equipment that is required (special containers)
- It is important to consider the health, flammability and reactivity of these materials when creating handling and storage solutions
- This section might also include ideal storage temperature

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8. Exposure Controls and PPE

- Exposure guidelines limit the amount of exposure that one person should be allowed called Threshold Limit Values (TLV's).
- This section will also recommend engineering control and PPE to be used when working with this material
  - Eye Protection
  - Skin Protection
  - Respiratory Protection
  - General Hygiene Considerations

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9. Physical and Chemical Properties

- This section describes the physical characteristics of the material to ensure that it is the same material you have

- It also helps describe if the material is expired or decomposed to a non useable point

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10. Stability and Reactivity

- This section of the MSDS describes conditions which the material is unstable or will react dangerously
- Gives conditions to avoid so it doesn’t catch fire or explode
- It will also outline materials that are incompatible with the material that might cause adverse reactions

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11. Toxicology Information

- This section will often contain the results from testing on animals if any was done and the results. It also should outline the likely routes of exposure
- Also any affects (immediate or chronic) that would occur from exposure and symptoms in laboratory animals
- It is important to note that the results gained from this testing is not indicative of what could occur in humans if exposed
- LD50 and LC50 are the methods used to explain how lethal the dosing is
  - LD50 (Lethal Dose 50) is the amount of the substance if given all through any method at once causes death in 50% of the lab animals
  - LC50 (Lethal airborne Concentration) is specifically used if that method is through inhalation

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12. Ecological Information

- This is not specifically required but encouraged

- Outlines the ecological impact if the material were to be released into the environment
  - Toxicity to fish and other marine wildlife
  - Toxicity to animals
  - Toxicity to microorganisms

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13. Disposal Considerations

- This section is usually used by environmental professionals
- Gives general information about waste disposal but does not include information from state and local organizations
- Usually does not contain all the necessary steps to dispose of the material
- Contact the manufacturer or local environmental office for further information

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14. Transport Information

- This section outlines the precautions needed for transport of the material

- The Transport of Dangerous Goods (TDG) pin will be provided by the manufacturer if required

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15. Regulatory Information

- Outlines the generic regulatory information regarding the material and is usually used by safety industry professionals

- Also includes references regarding safety and health of the product

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16. Other Information

- Includes any other relevant information regarding the material
  - Label text
  - Hazard ratings

Will include the date of publication of the MSDS, it is important to check that this is the most up to date copy (< 3 years old)

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Knowledge Check 1

- Which section of the SDS contains information on what type of hazards are presented from contact with the substance?

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Knowledge Check 1

- 2. Hazards Identification
- This section contains the classification of the chemical (hazardous or non hazardous) as well as adverse health effects of the substance

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Knowledge Check 2

- Which section of the SDS contains information on adverse chemical reactions with incompatible materials?

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Knowledge Check 2

- Which section of the SDS contains information on adverse chemical reactions with incompatible materials?

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Knowledge Check 2

- 10. Stability and Reactivity contains information regarding incompatible materials

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Hazardous Material Storage

- It is important to understand the storage requirements for hazardous waste (don’t put gasoline in a plastic bag)

- There are specialized storage lockers for flammable material called flame lockers

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General Storage Considerations

- Properly Inspect, label and seal containers
- Separate incompatible materials or materials that pose risk if mixed
- Store all materials in an area that is clean and dry and is not prone to flooding
- Provide adequate ventilation if required
- Provide designated areas to store or transfer hazardous material
- Provide emergency spill equipment near the storage or transfer locations
- Train employees on proper storage and disposal techniques for the hazardous material in the workplace
- **No more than 25 gallons of flammable or combustible liquid may be stored in a room outside of an approved storage cabinet (flame locker)**

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Flame Lockers

- Designed to protect flammable (flashpoint below 140 °F) or combustible (flashpoint at or above 140 °F) materials from exposure to fire
- No more than 60 gallons of flammable or 120 gallons combustible may be stored in any one storage cabinet
- Not more than 3 storage cabinets may be present in a single storage area
- Separate incompatible materials within the locker
- Make sure all labels are legible and face front when placed in the locker
- The cabinet must be labeled “Flammable-Keep away from Open Flames”
- OSHA 1926.152

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Storage Room Requirements

Fire protection provided	Fire resistance	Maximum size	Total allowable quantities gals./sq. ft./floor area
Yes	2 hrs	500 sq. ft	10
No	2 hrs	500 sq. ft	4
Yes	1 hr	150 sq. ft	5
No	1 hr	150 sq. ft	2

- Storage rooms for flammable material must have a venting system to extract any fumes that may accumulate
- An isle of 3 feet minimum must be maintained between storage containers
- Anything over 30 gallons must not be stacked on top of each other

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End of Show

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