

SAFETY DATA SHEETS IN HAZWOPER ENVIRONMENTS

COURSE OUTLINE

- **There are many types of potentially hazardous chemicals... flammables, corrosives, irritants, sensitizers, poisons... even carcinogens (which can cause cancer).**
 - Each individual chemical product has its own set of hazards, required safety precautions and recommended emergency procedures.
- **So, how can we work with hazardous chemicals safely?**
 - How should we handle and store them?
 - What personal protective equipment should we use?
 - What should we do in an emergency?
- **Fortunately, the answers to these questions can be found on a hazardous chemical's "SDS"...its "Safety Data Sheet."**
- **The SDS is the most valuable tool we have for identifying and dealing with the hazards presented by a chemical.**
 - But like any other tool, we need to understand what it's designed to accomplish... and know how to use it properly.
- **In 1983, OSHA instituted the Hazard Communication Standard.**
 - Its purpose is to ensure that workers have access to the information and equipment they need to work safely with hazardous chemicals.
- **The Standard requires chemical manufacturers and importers to give their customers Safety Data Sheets for any potentially hazardous products that they supply.**
 - In turn, employers are required to give their employees' access to SDS's for the hazardous materials that are present in their workplace.
- **Originally, OSHA allowed manufacturers to provide hazard information in any format they wanted.**
 - But with the adoption of the "Globally Harmonized System" ("GHS" for short), the information in an SDS must now appear in a specified order.
 - This makes it easier for people to find what they are looking for, which is especially valuable in an emergency situation.

- **Another goal of the Globally Harmonized System is to make Safety Data Sheets as easy to read as possible. The new format does this by presenting information in an "as needed" order:**
 - The chemical's identity, its hazards and some emergency instructions are provided up front for quick and easy access.
 - Basic safety information is presented next, in "easy-to-understand" language.
 - Supporting technical data for health and safety professionals is provided later in the SDS.
- **Safety Data Sheets are designed to answer four basic questions that anyone who encounters a chemical might have:**
 - "What is the material and what are its hazards?"
 - "What should I do if a problem occurs when I'm working with this material?"
 - "What precautions should I take to prevent problems from occurring when I work with this material?"
 - "Is there anything else I should know about this material?"
- **Each of the questions you will have when you are working with a chemical is "answered" by one or more sections of the Safety Data Sheet. For example, Sections 1, 2, and 3 provide answers to the first question:**
 - "What is the material and what are its hazards?"
- **"Section 1" of the SDS identifies the material, using the standard GHS "Product Identifier".**
 - You'll find this Product Identifier on the chemical's container label as well.
- **"Section 1" also lists the name, address, and telephone number of the chemical's manufacturer, importer or distributor.**
 - This is provided in case you have questions about the SDS or the material itself.
 - An emergency telephone number may also be listed for quick access to needed information.

- **"Section 2" of the SDS describes the hazards that are associated with the chemical, including the information that's provided on the chemical's label, such as:**
 - The Signal Word.
 - "Hazard Statements".
 - "Precautionary Statements".
 - It may also contain copies of the GHS pictograms that appear on the label.
- **"Section 3" discusses the ingredients in the chemical and its composition. It also provides additional "identifying" information such as the material's:**
 - Chemical identity.
 - Its "common name".
 - CAS and EC numbers.
- **So as you can see, once you've reviewed Sections 1, 2, and 3 of an SDS you've answered the first of our basic questions:**
 - "What is the material and what are its hazards?"
- **The next important question that a Safety Data Sheet answers is... "What should I do if a problem occurs when I'm working with this material?"**
 - Sections 4, 5 and 6 provide this information.
- **"Section 4" of the SDS outlines the basic First Aid Measures that an untrained individual should use before professional medical assistance is available.**
- **Simple instructions are provided according to the route of exposure. For example:**
 - First aid instructions for skin contact might be... Remove contaminated clothing. Wash skin with soap and water. Get medical attention."
 - If the material gets into your eyes, you might be instructed to... "Flush eyes with a steady stream of water for at least 15 minutes. Get immediate medical attention."
- **You can see that it's important to know the appropriate first aid measures before you work with a hazardous material.**
 - So be sure to read Section 4 of the SDS for any chemical that you're going to use.
 - You should also know the location of first aid kits, safety showers and eye washes in your work area.

- **"Section 5" of the SDS provides information, precautions and instructions for fighting fires that involve the material.**
 - This section includes information on any hazards that the material could present if it burns.
 - For instance, a fire could release poisonous fumes that are more dangerous than the material itself.
- **When putting out a fire, it's important to use the correct "extinguishing media."**
 - These can include water, water fog, foam, carbon dioxide and dry chemicals.
 - Using the wrong type could make a bad situation even worse.
 - This part of the SDS tells you what media are appropriate for the material.
- **"Fire-Fighting Instructions" describing basic fire-fighting strategies that minimize the hazards the material may present in a fire are also provided here.**
- **The personal protective equipment necessary for fire-fighting will be listed in this section as well.**
 - This usually includes full fire-fighting gear and an SCBA (Self-Contained Breathing Apparatus).
 - Even more protection may be necessary for particularly hazardous chemicals.
- **"Section 6" tells you what to do in case of spills, leaks and other accidental releases of the material. Included in this section are general procedures for:**
 - Containing a spill or other accidental release.
 - Cleaning up the hazardous material.
 - Decontaminating clothing and equipment that comes into contact with the material.
- **Other useful information may also be given, such as any requirements to report a spill of the material to federal or state agencies.**
- **To review, Sections 4, 5 and 6 of the SDS provide information on what to do if a hazardous situation occurs.**
- **The next question the SDS addresses is... "What precautions can I take to prevent problems when I work with this material?"**
 - For answers we turn to Sections 7, 8, 9 and 10.

- **"Section 7" covers Handling and Storage practices that will minimize the physical and health hazards of the material, as well as preserve its quality.**
- **As you would expect, the handling instructions on an SDS are often the same as those that are listed on the chemical's container label.**
 - For example, in this section you might see the caution..."Avoid contact with eyes, skin, and clothing. Ensure that containers are properly secured before moving."
- **This section also provides information on the appropriate storage conditions for the material and its container, including:**
 - Temperature
 - Humidity
 - Atmospheric pressure
 - Ventilation
 - Vibration in the area
 - Exposure to light.
 - Depending on the material, these may all be factors for safe storage and maintaining the chemical's product quality.
- **Engineering Controls, Personal Protective Equipment and Exposure Guidelines are addressed in "Section 8" of the SDS.**
- **"Engineering Controls" might include things such as the use of local exhaust ventilation systems when working with a material.**
- **Recommendations regarding Personal Protective Equipment focus on minimizing the risk of exposure to the material.**
 - For example, to provide respiratory protection an SDS may instruct you to..."Wear a NIOSH approved air-purifying respirator equipped with organic vapor cartridges or canisters."
 - For eye protection, you may be directed to..."Wear either safety glasses with side-shields, or safety goggles."
 - To defend against skin contact, rubber gloves and other protective clothing might be specified.

- **"Section 8" of the Safety Data Sheet will also list any:**
 - TLVs (Threshold Limit Values)
 - PELs (Permissible Exposure Limits)
 - Other established exposure guidelines for the material or its hazardous ingredients.
 - This information is used by your employer to determine the engineering controls and personal protection that is appropriate for the work you are doing.

- **"Section 9" of the SDS describes the physical and chemical properties of the material.**
 - This information is important for evaluating the use of a material for a specific purpose, and can help to determine what precautions should be taken when working with the chemical.

- **Your employer will also use the chemical and physical characteristics listed in this section to help determine the safest work practices for your facility.**
 - This information can be helpful in identifying a chemical when its container label has been damaged or destroyed as well.

- **Information about a material's "Stability and Reactivity" is needed to determine safe handling, storage, transportation and disposal procedures.**
 - For this data we turn to Section 10 of the Safety Data Sheet.

- **This section will indicate whether the material is chemically stable... or dangerously unstable... under normal conditions.**
 - It will also describe conditions to avoid when working with the material, such as heat, pressure, shock or other physical stresses that might result in a hazardous situation.
 - If a hazardous situation could occur by the material reacting with another substance... such as a fire, explosion or the generation of poisonous vapors... this incompatibility will be listed as well.

- **This section of the SDS also addresses any hazards that could be produced as a result of:**
 - Oxidation
 - Heating
 - Decomposition
 - Polymerization
 - Other chemical reactions.

- **Remember, Sections 7, 8, 9, and 10 of the SDS provide the information necessary to prevent hazardous situations from occurring.**
- **This brings us to the fourth question a Safety Data Sheet is designed to answer..."Is there anything else I should know about this material?"**
 - This information can be found in Section 11 through Section 16.
- **Most workers use this information under the guidance of health and safety professionals, such as industrial hygienists, environmental managers and safety directors.**
 - However, your employer may also use these sections as a reference when setting up your company's Standard Operating Procedures:
 - So you might want to take a quick look at this information.
- **Section 11: "Toxicological Information", provides background toxicity information on the health hazards of the material. This includes:**
 - Likely routes of exposure.
 - Symptoms related to the chemical's toxicological characteristics.
 - Immediate and delayed effects of exposure.
- **Section 12: "Ecological Information", addresses the effects that the material may have on plants, wildlife and other parts of the environment.**
- **Section 13: "Disposal Considerations", provides information on safe and appropriate waste management options.**
- **Section 14: "Transport Information", includes the chemical's...**
 - UN number.
 - Proper Shipping Name.
 - Transport Hazard Classes.
 - Packing Group.
 - Any special precautions that should be taken when transporting the chemical.
- **Section 15: "Regulatory Information", addresses other Federal, State, and International regulations that may apply to the material.**
- **"Section 16" contains relevant information that doesn't belong in any of the previous sections, as well as information on preparing and revising an SDS.**

*** * * SUMMARY * * ***

- **These 16 sections make up the standard format for the GHS Safety Data Sheet.**
 - As you can see, the SDS contains a lot of information that you need to know before you work with a chemical.
- **Keep in mind that the SDS isn't the only source of information about a hazardous material.**
 - Always read the container label and warning stickers before using a chemical.
 - Observe all posted warning signs.
- **For specific information on the work that your company does with hazardous chemicals, consult your Hazard Communication Program, Standard Operating Procedures and Emergency Plans.**
- **If you can't find the information you're looking for in a Safety Data Sheet or these other sources... or if you have any questions about working with the hazardous materials you're using...talk to your supervisor or your company's safety professional.**
- **GHS Safety Data Sheets are a valuable tool for working with hazardous chemicals.**
 - So make sure you know where the SDS's are kept in your workplace.
- **Take the time to become familiar with the SDS's for the materials that you may encounter...**
 - Read them before you work with any of the substances.
 - Consult them from time to time while you work.
 - Always know where you can find them in case of an emergency.
- **Understanding GHS Safety Data Sheets will help you to do your job safely.**
 - So make sure you're up-to-date on the SDS's that affect you!