

DEALING WITH HAZARDOUS SPILLS

COURSE OUTLINE

- **These days hazardous materials (HAZMATs) are all around us.**
 - The gas that powers your car is a HAZMAT.
 - So are some of the cleaning products you use around the house.
 - If you paint your home with oil-based paint, that's a hazardous material too.
- **HAZMATs usually aren't a problem when they're handled carefully, but accidents can happen.**
- **A spill might look like just a harmless puddle... but don't be fooled.**
 - Hazardous material spills can do serious damage.
 - When they occur in the wrong place, at the wrong time, the result can be disastrous.
- **Worst-case scenarios can be prevented when you understand how to respond correctly to a HAZMAT spill.**
- **The best way for you to get the information you need about the hazardous materials in your workplace is through your company's Hazard Communication Program.**
 - OSHA requires all employers that have hazardous materials in their workplaces to prepare and follow a written HAZCOM Program.
 - The program helps to reduce accidents and injuries by training everyone on how to recognize hazardous materials, understand their hazards and stay safe around them.
- **You will be taught how to read the labels that appear on hazardous materials containers.**
 - You will also learn where to find the Safety Data Sheets (SDSs) for the chemicals in your workplace.

- **A Safety Data Sheet describes the primary characteristics and hazards of a substance, as well as:**
 - How to handle and store the material safely.
 - What personal protective equipment (PPE) to use when you're working with it.
 - What steps to follow when you're dealing with a spill.
- **Your facility's Emergency Action Plan is another important resource for information about recognizing, reporting and handling HAZMAT accidents.**
 - OSHA requires employers to develop an Emergency Action Plan that is tailored specifically to their operations and the hazards that exist in their facility.
- **The plan explains in detail what you should do in case of a HAZMAT spill, and covers:**
 - Emergency communications.
 - The use of personal protective equipment (PPE).
 - Evacuation guidelines.
 - Decontamination procedures.
- **Ask your supervisor where you can find a copy of your company's plan.**
 - It's meant to be read by everyone who works at your facility.
- **Your specific responsibilities during a hazardous materials incident will be determined by where you fit within a worker-classification system devised by OSHA.**
- **OSHA has defined five levels of employees who deal with HAZMAT incidents.**
 - These levels are based on the involvement the employee has in working with HAZMAT spills, and the type of OSHA-approved training that they receive.
- **This "spill response team" includes:**
 - An Incident Commander.
 - First Responders "Awareness" level.
 - First Responders "Operations" level.
 - Hazardous Materials Technicians.
 - Hazardous Materials Specialists.

- **Remember that these levels of training are not the same as job positions.**
 - Two workers may have different job titles and duties, yet still be responsible for performing the same tasks during a HAZMAT incident.
- **The person in charge of all of the cleanup operations during a HAZMAT emergency is the Incident Commander.**
 - They are the "captain" of the response team, and are responsible for all of the actions that are taken to clean up a spill, as well as the safety of every person in the area.
- **An Incident Commander must also have a detailed knowledge of:**
 - The company's Emergency Action Plan.
 - State and local emergency regulations.
 - Decontamination procedures.
- **They must also understand the medical risks (such as heat stroke) that are faced by employees who work in chemical protective clothing.**
- **First Responder Awareness-level employees are workers who might witness a HAZMAT spill.**
 - This could include anyone at your location, even employees such as office personnel who don't usually deal directly with chemicals.
- **Operations-level First Responders are workers who:**
 - Limit the spread of HAZMAT spills.
 - Make sure that unauthorized people stay away from the incident area.
- **Hazardous Materials Technicians and Hazardous Materials Specialists bring specialized knowledge and technical skills to dealing with a HAZMAT spill.**
- **A Hazardous Materials Technician is responsible for:**
 - Stopping the leak or spill, if necessary.
 - Soaking up the spilled material with appropriate sorbents.
 - Removing the contaminated sorbents and sealing them in an appropriate container for disposal.

- **A Hazardous Materials Technician will be assisted on a spill site by the team member with the next level of training, a Hazardous Materials Specialist.**
 - HAZMAT Specialists are experts who know the technical details of all of the hazardous substances that are present at a location.
 - They can determine what type of decontamination procedures should be used in situations where multiple chemicals are present.
 - They also act as liaisons with federal, state and local authorities during HAZMAT emergencies.
- **As you can see, while the Incident Commander has the highest level of authority on a spill cleanup team, every team member brings important knowledge and skills to the process.**
 - For the system to function successfully, the members of the spill response team have to work together.
- **No two HAZMAT spills are alike, but the cleanup process is similar for all of them.**
 - The spill will usually be reported by an Awareness-level First Responder.
 - The Incident Commander is immediately called in to take charge of the operation.
- **An Operations-level First Responder will evacuate the incident site as soon as possible, then cordon it off with warning signs or caution tape to keep unauthorized persons out.**
 - If the spill has occurred indoors, the Operations-level First Responder will also seal off any air ducts leading from the contaminated area to other parts of the building, and open windows and doors to the outside to help disperse any fumes or vapors.
- **Next they will place barriers or absorbents around the spill itself to prevent it from spreading.**
 - This technique is called "diking".
- **Common diking materials include absorbent socks made of polypropylene and flexible barriers of urethane or PVC.**
- **Absorbent socks contain a spill by both blocking and absorbing it.**
 - Socks cannot be decontaminated, however, and they are considered hazardous waste after one use.
 - Federal law requires contaminated spill socks to be disposed of according to OSHA guidelines.

- **Flexible plastic barriers only block spills from spreading.**
 - They do not absorb any of the spilled materials, so they can be decontaminated and reused.
- **Regardless of whether socks or barriers are used, one of the major objectives of diking is to prevent spilled hazardous materials from running into storm drains or sewers.**
 - If this happens the HAZMATs can spread rapidly into the environment and throughout the watershed.
 - This type of dispersion is a worst-case scenario.
- **If you ever spot chemicals leaking into any type of drain, you must contact your supervisor immediately.**
- **Once the diking has been completed, the Operations-level First Responder can leave the scene of the spill and proceed to the decontamination area.**
- **At this point in the incident response:**
 - The Awareness-level First Responder has reported the incident.
 - The Incident Commander is on the scene, overseeing operations.
 - The Operations-level First Responder has done their job.
- **Now the Hazardous Materials Technician arrives to take over the next set of activities.**
- **Their first objective is to identify the chemicals that are involved in the spill and determine the hazards that the materials present.**
 - This process is called "characterizing" the spill site.
 - The Technician will use direct-reading instruments that provide instant information about the chemicals that are present at the site.
- **Types of direct-reading instruments include:**
 - "Combustible gas" monitors, which detect airborne contaminants that could be a fire hazard.
 - Disposable "detector tubes", that contain materials which will change color in the presence of certain chemicals.
 - Field survey meters, that are used to detect atomic radiation.
- **The Hazardous Materials Technician will also identify any features of the spill site that could be hazardous, such as unstable structures or open pits.**

- **After "characterizing" the site, the Hazardous Materials Technician provides this information to the Incident Commander.**
 - The Commander will then consult with the Hazardous Materials Specialist to determine if the situation will require any special handling.
- **In most cases, the next step will be for the HAZMAT Technician to cover the spill with an absorbent compound that soaks up the hazardous material.**
 - These compounds are called "sorbents".
 - Sorbents are frequently in a granular form, and look a lot like cat litter.
 - They are "chemically inert", so they won't react with the substances that they absorb.
- **After a layer of sorbents has been spread over the spill, spill blankets are placed on top of it.**
 - Spill blankets soak up any materials that the sorbents haven't picked up.
- **Spill blankets are also chemically inert, disposable and can be cut to fit specific spills.**
 - They are available in rolls or individual pre-cut sheets that come in various sizes.
- **When you're dealing with a HAZMAT spill, the steps you take to finish the job, including decontamination and waste disposal, are just as important as those you take at the beginning.**
 - But before we get to that, let's cover two types of cleanup situations that can expose spill response personnel to special hazards.
- **The first of these is the risk of fire.**
 - If you're cleaning up a spilled chemical that is flammable, you must use non-sparking tools, such as plastic shovels, to transfer the materials to the disposal container.
 - These tools reduce the hazards of starting a fire.
- **You also need to be especially cautious around electrical equipment.**
 - Most liquids conduct electricity, and you could receive a serious shock if the spilled material comes into contact with a power source.
 - Sparks from electrical equipment can also ignite flammable or combustible chemicals.

- **To avoid these hazards, the power to all nearby equipment should be switched off at the main breaker before cleanup begins.**
 - The breaker box should be locked out and tagged so nobody can turn on the power by mistake.
- **Cleaning hazardous residues off of the equipment and PPE that were used by the people who perform a spill cleanup is called "decontamination".**
 - This process usually takes place in an arrangement of two to four cleaning stations.
 - This is called a Contamination Reduction Corridor, or CRC.
- **Workers passing through the CRC are thoroughly washed with decontamination solution, which normally consists of detergent and water.**
 - Their tools and PPE are washed down as well.
- **The only exception to using the detergent solution occurs when the contaminants you are dealing with could react chemically with water.**
 - In these cases, a specialized decontamination mixture must be used.
- **The decontamination solution is then rinsed off, typically in a low tub such as a child's wading pool.**
 - Following the rinse-off, CRC technicians take the PPE and tools from the decontaminated workers.
 - The workers then report directly to an area where they can get out of their HAZMAT clothing and shower.
- **Spill response personnel and their equipment aren't the only things that need to be cleaned up after a spill.**
 - A HAZMAT spill also produces contaminated waste.
 - This must be disposed of according to OSHA guidelines.
- **Sorbents, spill blankets and the liquids produced by the decontamination process must be placed in OSHA-approved containers.**
 - The containers must then be removed to an EPA-approved HAZMAT treatment facility, where the material will be recycled into useful substances, or converted into a non-hazardous form and sent to a landfill.

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- **Your company's Hazard Communication Program will tell you about the HAZMATs that are in your workplace.**
- **Familiarize yourself with your company's Emergency Action Plan, so you know what to do if an accident occurs.**
- **Know who in your organization to call if you discover a hazardous materials spill.**
- **Understand the role you should play if a HAZMAT spill occurs in your location.**
- **If you are part of your company's HAZMAT response team be sure to wear the appropriate PPE when dealing with a spill.**
- **Understand what decontamination and waste disposal procedures should be used when you're cleaning up after a spill.**
- **Now that you recognize the hazards that are involved with HAZMAT spills and what should be done to clean them up safely, you can do your part to safeguard your coworkers, your company and yourself from hazardous materials spills if they ever do occur!**