

## **MAJOR PROGRAM POINTS**

# **"HANDLING MATERIALS SAFELY"**

**Part of the "GENERAL SAFETY SERIES"**

**Quality Safety and Health Products, for Today...and Tomorrow**

# Outline of Major Points Covered in the "Materials Handling Safety" Course

The following outline summarizes the major points of information presented in the Course on Materials Handling Safety. The outline can be used to survey the Course before taking it on a computer, as well as to review the Course when a computer is not available.

- **Materials are always "on the move".**
  - Being transported.
  - In manufacturing processes.
  - Being warehoused.
  - In distribution.
  
- **In most facilities, materials are handled in many forms, including:**
  - Product components.
  - Finished products.
  - Even being used as tools and equipment.
  
- **Warehousing and trucking are often classified together as the second most dangerous industry in the United States.**
  - During these activities accidents occur twice as often as in general industry.
  
- **One-third of all disabling work-related injuries occur while someone is working with materials by hand.**
  - The most common, back injuries, cause more lost work days than any other injury.
  - Four out of every five Americans will eventually have back problems.
  
- **We must work safely when we handle materials whether it is:**
  - By hand.
  - Using a hand-truck or cart.
  - Operating mechanized equipment.

- **The right work clothing and personal protective equipment can help prevent materials handling injuries.**
  - Long sleeves protect arms from cuts and scratches.
  - Loose work clothing allows for easy movement.
  - Tuck in shirt-tails so they won't be caught in machinery.
  
- **Foot protection is also very important.**
  - Work boots or safety shoes should be worn routinely.
  - Steel toes provide extra protection.
  - Rubber soles with deep treads provide good traction on most surfaces.
  
- **Gloves can protect hands from:**
  - Cuts.
  - Splinters.
  - Pinches.
  - General "wear and tear".
  
- **Gloves can be made from many types of materials.**
  - Use the right kind for the work that you do.
  - Choose gloves that provide a good grip.
  
- **Other Personal Protective Equipment may also be needed, such as:**
  - Hard hats.
  - Eye protection.
  - Hearing protection.
  - Respirators.
  
- **Check with your supervisor to see what you'll need for your job.**
  
- **"Ergonomic" injuries can also be a problem when handling materials.**
  - Some body motions can be very "unhealthy".
  - Things can be done to avoid them.
  
- **Twisting and bending at the waist can lead to painful back injuries.**
  - Reduce back strain by pivoting on your feet.
  - Turn your whole body, not your back.

- **Reaching too far or too often can injure the arms, shoulders or neck.**
  - Rearrange materials so that everything is close at hand.
- **"Overhead Lifts" can also cause arm, shoulder or neck injuries.**
  - Use a step-stool or ladder whenever it is needed.
  - Lessen the load by dividing it into smaller parts.
  - There is also a danger of dropping the object.
- **Repetitive motion can cause muscle fatigue and injuries such as "Carpal Tunnel Syndrome". To avoid this:**
  - Vary your activities periodically.
  - Take regular breaks to stretch out tight muscles.
- **Endurance is also a factor when handling materials.**
  - Hard work heats up the body.
  - You can be subject to "Heat Stress" or "Heat Exhaustion."
  - Take breaks to "cool down".
  - Drink plenty of fluids.
- **Working "in a hurry" can cause careless mistakes and accidents.**
  - Don't rush.
  - Pace yourself.
- **Careful planning can also prevent materials handling accidents.**
  - Think the job through.
  - Know where you need to take the load.
  - Figure out the best path.
  - Remove any obstacles.
- **Inspect all objects before you pick them up. Look for special instructions such as:**
  - "This End Up".
  - "Fragile, Handle with Care".
  - "Caution, Top-Heavy".

- **Pay particular attention to "Hazard Warning Labels."**
  - They often specify special safety precautions.
  - They may also indicate the use of PPE.
  
- **Determine the best way to hold the object.**
  - Look for handles or hand-holds.
  - Watch out for sharp edges, staples or splinters.
  
- **Once you have a good grip, test the "heft" of the load.**
  - Can you manage it by yourself?
  
- **If you feel you can handle the load, prepare to pick it up.**
  - Reduce strain and prevent injuries by using good lifting techniques.
  - It helps to know how the body works ("Body Mechanics").
  
- **The "Spinal Column" (backbone) is a fragile system. It is:**
  - Made up of small, interlocking bones called vertebrae.
  - Held together by a delicate network of tendons, ligaments and cartilage.
  
- **In contrast, the legs can take a lot of strain. They:**
  - Have large, sturdy bones.
  - Contain some of the strongest muscles in the body.
  
- **When you are lifting, minimize the strain on your back by using the strength of your legs.**
  
- **Use the following lifting techniques.**
  - Stand close to the object.
  - Place your feet about a "shoulder's-width" apart.
  - Bend at the knees (keeping the back straight).
  - Get a good grip on the object.
  - Bring the object close to your body.
  - Lift the load with your legs (keeping the back straight).

- **Some people use backbelts to provide extra support while they are lifting.**
  - Belts can often help keep your back straight.
  - But a backbelt is no substitute for good lifting techniques.
- **Body mechanics and ergonomics are also important in carrying a load.**
  - Keep your back straight (let your legs support the weight).
  - Bend your elbows slightly.
  - Keep the load close to your body.
- **When walking with an object:**
  - Watch where you're going.
  - Be aware of obstacles.
  - Don't let the load block your view.
- **Good lifting techniques are also important when you unload.**
  - Keep your back straight.
  - Hold the load close to your body.
  - Bend at the knees.
  - Don't catch your fingers under the load.
- **Be careful when placing the load in its final position.**
  - Don't stretch too far to put it in place.
  - Put the object down first.
  - Then slide it into position.
- **Some materials come in awkward shapes or sizes.**
  - This makes them hard to handle.
  - Getting a good grip is especially important.
- **To get the best grip:**
  - Grab high on the side away from you.
  - Grab low on the side close to you.
  - This helps balance the load.
- **Sacks and bags should be carried in one of two ways.**
  - Over the shoulder.
  - On your hip.

- **Don't try to pick up too much at one time.**
  - The strain could cause serious injury.
  - Lighten the load, if possible.
  - Some objects may be more than you can handle alone.
  - In these cases, ask for help.
  
- **Communication is key in "Team Lifts".**
  - One person should direct the moves.
  - Instructions should be given on when to lift, carry and unload.
  - Synchronization is key.
  
- **If a load is too large or heavy to move by hand, a "Handling Aid" should be used. These include:**
  - Hand trucks.
  - Carts.
  - Other special equipment (such as "Scissor Lifts").
  
- **Inspect materials handling equipment before you use it.**
  - If it is damaged or not functioning properly, don't use it.
  - Faulty equipment can lead to accidents.
  
- **Report any equipment problems to your supervisor.**
  - Don't try to fix them yourself (unless you're qualified).
  - Avoid make-shift solutions that can be dangerous.
  
- **Hand trucks and other two-wheeled handling aids work on the "lever and fulcrum" principle.**
  - Pushing down on one end raises the other.
  - This provides "leverage" and lifting power.
  
- **Positioning the load is very important if you use these devices.**
  - The lifting power that is generated will force mis-positioned loads forward.
  - The objects can then easily fall, especially if they are in a stack.

- **To load a hand-truck properly:**
  - Position the load flush with the back of the truck.
  - Stack objects no higher than the "hand-hold".
  
- **To move the truck:**
  - Support the top of the load with one hand.
  - Place one foot on the axle.
  - Carefully tilt the truck back until the weight is balanced over the wheels.
  
- **When moving a hand-truck:**
  - Push rather than pull.
  - Pulling puts a strain on your arms and shoulders.
  - Pushing provides more power and control.
  
- **When lowering a hand-truck, be careful.**
  - Don't let it drop.
  - Support the load to keep it steady.
  - Ease the truck slowly to the ground.
  - Make sure the load is stable before letting go.
  
- **Special hand-trucks are used to transport compressed gas cylinders.**
  - They have a curved back that "cradles" the cylinder.
  - They also have a safety chain that secures the cylinder in place.
  
- **Four-wheeled handling aids offer increased stability and carrying capacity.**
  - They distribute weight over four points instead of two.
  - Carts, platform trucks and other equipment are included in this category.
  
- **When loading this equipment:**
  - Put heavier items on the bottom.
  - Distribute the weight evenly.
  - Don't stack the load too high.

- **When operating carts or similar equipment:**
  - Push rather than pull.
  - Stay alert.
  - Watch out for other people.
  - Know your "stopping distance"; heavier loads require more stopping room.
  
- **When unloading a cart:**
  - Secure the cart so that it won't roll away.
  - Don't leave it unattended once you're done.
  
- **A "Scissor-Lift" Table is another useful handling aid.**
  - It raises or lowers materials to comfortable working heights.
  - Keep away from "pinch points" when adjusting the tables height.
  
- **Sometimes custom equipment is needed to handle certain materials.**
  - Use these devices only for their intended purposes.
  - Mis-using these machines can damage materials and equipment, and cause serious injury.
  
- **Pallets are used in many warehouses and storage areas.**
  - They make it easy to stack, move and store materials.
  
- **When loading a pallet:**
  - Distribute the load evenly.
  - Stack heavier, sturdier items on the bottom.
  - Stack lighter, fragile items on the top.
  
- **Before moving a loaded pallet:**
  - Make sure the total weight of the load (including the pallet) can be handled by the equipment you are using.
  - Check the height of the load so that it doesn't obstruct the equipment operator's view.
  - Make sure the load is stable.
  - If needed, secure the load with rope, bands or stretch-wrap.

- **The simplest piece of pallet-moving equipment is the "Pallet Truck" (or "Pallet Jack").**
- **First, insert the forks under the pallet.**
  - Make sure the front wheels are on the floor and clear of pallet slats.
  - Most pallet trucks are equipped with a manual pump.
  - Carefully elevate the forks by pumping the handle.
  - Lift the load until all four corners of the pallet are off the ground.
- **When moving a pallet truck:**
  - Push rather than pull.
  - Allow enough stopping distance.
- **When you arrive at the "drop-off point":**
  - Carefully maneuver the pallet into position.
  - Make sure you're not blocking trafficways or emergency exits.
- **Check that the area under the pallet is free of obstacles.**
  - Then lower the forks.
- **Powered pallet trucks ("Walkies") operate much the same way.**
  - The motor takes the strain off the operator.
  - However, the additional power can also be dangerous.
- **The "work horse" of many storage operations is a "Forklift."**
  - You should be trained and certified before operating this machine.
  - Always know your forklift's weight limit.
- **Before using a forklift, check the load to see that:**
  - The weight is evenly distributed.
  - The load is stable and secure.
  - You can see over the load when operating the forklift.

- **Once you are ready to lift the load:**
  - Space the forks to provide the best support for the pallet.
  - Level the forks out a few inches off the floor.
  - Slowly insert the forks into the pallet.
  
- **Once the forks are all the way into the pallet:**
  - Lift the load off the ground.
  - Tilt the load back against the carriage.
  
- **When driving a loaded forklift:**
  - Keep the load low to the ground.
  - Obey all speed limits and traffic signs.
  - Remember to go down slopes in reverse.
  
- **When you arrive at the "drop-off point":**
  - Carefully maneuver the load into place.
  - Don't stack materials unless you know they can be stacked.
  - Look for "stacking limits" printed on the sides of the containers.
  
- **There are a variety of custom devices that can be used for materials that need special handling.**
  - "Drum Movers" for use with forklifts.
  - Other equipment for different materials.
  - Consult your supervisor regarding equipment you should be using.
  
- **Review of important points in the program.**
  - Materials are always on the move.
  - Materials handling does have elements of danger.
  - It's important to take steps to prevent accidents and avoid injuries.
  - Wear personal protective equipment.
  - Use good lifting techniques.
  - Avoid movements that put unnecessary strain on the body.
  - Know your limits (ask for help if necessary).
  - Use handling aids and equipment to make your job easier.