Hazardous Materials Training
Module 7 – Handling & Transport Operations

◆ Safety Data Sheets (SDS) are important documents that identify the physical and health hazards associated with hazardous materials and other chemicals for which there is a reasonable risk of exposure to you or a co-worker when handling, using, or disposing of the substance or article. Safety Data Sheets are generally available from the manufacturer, distributor, or importer and are required to be maintained on file either as paper copies or electronically. They are required by (29 CFR 1910.1200(g)) to include the following information, at a minimum:

- Product Identity
- Chemical Ingredients
- Physical & Chemical Properties and Health Hazards
- Primary Routes of Entry
- Threshold Limit & Permissible Exposure Limits
- Carcinogenicity
- General Precautions for Safe Handling
- Generally Applicable Control Measures
- Emergency & First Aid Procedures
- SDS Preparation Date & Name of Person Preparing MSDS

◆ Several chemical manufacturers, importers, and distributors have elected to subscribe to a more stringent standard for Safety Data Sheets. The American National Standard's Institute (ANSI) Z400.1-2010 standard and the Globally Harmonized System for the Classification and Labeling of Chemicals (GHS) standard requires the following information on SDS’s:

- Identification
- Hazards identification
- Composition/information on ingredients
- First-aid measures
- Fire-fighting measures
- Accidental release measures
- Handling & storage
- Exposure controls/personal protection
- Physical & chemical properties
- Stability & reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information
SDS’s should be maintained in a readily accessible location, such as the chemical storage location, near an employee safety bulletin board or through a computer system to which every affected employee can access the information directly or through a supervisor or manager.

The SDS may be used to satisfy the U.S. DOT requirements for emergency response information when attached to a hazardous materials shipping paper. SDS’s are also required to be offered on the first shipment of a hazardous chemical to a commercial account (e.g., parts wholesaler, body shop). SDS’s should be thoroughly read and reviewed upon receipt to:

- Identify the physical and health hazards
- Determine what personal protective equipment might be required
- Determine what safe handling procedures must be followed for the substance or article

Most hazardous materials and chemicals require some personal protective equipment when handled, used, installed, or disposed of. At a minimum, protective eyewear that complies with ANSI Z88.1 should be used. Additional personal protective equipment that may be prescribed in the Safety Data Sheet will include:

- Eye protection (e.g., glasses, goggles, faceshield)
- Hand protection (e.g., gloves)
- Body protection (e.g., acid-resistant aprons)
- Foot protection (e.g., steel toed safety shoes)
- Hearing protection
- Protective headgear (e.g., bump caps)

All hazardous materials should be handled and stored appropriately. Safe handling practices that should be taken into consideration include, but are not limited to:

- Storage of liquids no higher than waist level
- Maintaining hazard warning marks & labels on packages
- Storage away from direct sunlight, sources of ignition, welding equipment
- Storage away from incompatible substances (e.g., other chemicals)
- Storage of flammable liquids in approved containers & storage cabinets
- Providing adequate ventilation when using or opening chemicals
- Storage in vehicle cargo compartments only (e.g., pick-up bed)
- Using appropriate lifting techniques when handling heavy or awkward parts (e.g., batteries, brake boosters)
All hazardous materials must be secured in vehicles to prevent movement. There are many load securement techniques and equipment that may be used to secure hazardous materials freight including, but not limited to:

- Unit loads & overpacks
- Load bars
- Strapping & cargo nets
- Parts cages
- Wood blocking & bracing
- Ty-Gard™, Logistick™ or E-Track™

Unit loads and overpacks are excellent ways to secure hazardous materials in transportation. Overpacks or unitized (e.g., palletized) hazardous materials can be easily secured within a vehicle when the unit loads are secured using strapping, load bars, or the unit loads are nested to prevent shifting while in the vehicle cargo compartment. It is important to communicate the risks associated with hazardous materials within the unit loads or overpacks by ensuring that overpacks are properly marked and labeled or the hazardous warning and cargo handling marks and labels are visible in transit.

Load bars, straps, and cargo nets, when properly applied, will secure hazardous materials in parts delivery vehicles or will-call pick-up vehicles. Care must be exercised to prevent the hazardous materials from being damaged or crushed when the straps, netting, or load bars are clamped or cinched.

Parts cages are an excellent way to prevent hazardous materials from movement while in transit, provided they are packed properly and the parts cage is secured within the parts delivery vehicle. Heavy hazardous materials (e.g., batteries) should be loaded on the parts cage floor; however, no heavy or metal parts should be placed directly on the battery posts in order to prevent damage to the battery or short-circuiting. Hazardous materials should be gently placed in parts cages so that the package marks and labels are visible and so that they will not be damaged by any superimposed weight. In most cases, hazardous materials will be placed in the parts cages last so that they are on top of all other cargo within the part cages.

Most often, wood blocking and bracing will be used for large, containerized shipments of freight. Wood blocking and bracing may also be used to secure freight within parts delivery vehicles; however, this technique can be very expensive unless the material is reused. Pre-cut materials may be reused in dedicated delivery service vehicles and will secure the hazardous materials and other freight within the vehicle if applied properly.
Ty-Gard™ is an excellent method to secure large shipments of hazardous materials and other freight within freight containers or trailers. Ty-Gard™ is a wide plastic banding material that is affixed to the inside walls of the trailer or container, tensioned using a special tool, and secured with an adhesive strip.

Logistik™ is also an easy way to secure large shipments of freight within trailers and containers. In one application, plastic blocks are adhered to the walls of the vehicle and wood bracing materials are inserted into the blocks to secure the freight. In another application, adhesive pads are secured to the walls of the trailer or vehicle and plastic straps are secured around the freight using clips or crimped bands.

E-Track™ is one of the more common freight-securement methods used by many carriers or long-haul trucking companies. Specially equipped trailers have fittings into which straps, bars, or blocks are inserted at different levels in the trailer. When used properly, E-Track™ is an excellent way to secure large freight shipments within a trailer.