

Glossary of Safety Key Phrases

NOTE: When excerpting an Examination Procedure Outline for duplication, the "Safety Considerations" section at the beginning of this publication and this "Glossary" should also be duplicated and included with the outline.

Prior to using the safety information contained in the EPO's and in this glossary, the reader should review the "Safety Considerations" section at the beginning of this publication.

Before proceeding with the inspection and testing of a weighing or measuring device, the inspector or serviceperson should be completely familiar with all safety regulations and policies in effect at the inspection location. Such regulations and policies include federal, state, or local Occupational Safety and Health Administration (OSHA) regulations, safety policies established by the firm in which the inspection is taking place, and safety policies established by the inspector's or serviceperson's employer.

The safety reminders included in this publication are not intended to include all possible safety precautions which should be taken before proceeding with the inspection of a weighing or measuring device, nor are the listings of safety information and contacts a comprehensive source of safety information and guidance. Additional information is available on various safety topics from sources such as OSHA.

Safety policies and regulations vary among jurisdictions. It is essential that inspectors or servicepersons be aware of all safety regulations and policies in place at the inspection site and to practice their employer's safety policies. The safety reminders included in this EPO contain general guidelines useful in alerting inspectors and servicepersons to the importance of taking adequate precautions to avoid personal injury. These guidelines can only be effective in improving safety when coupled with training in hazard recognition and control.

The following key phrases are used throughout this publication to serve as reminders to the inspector or serviceperson to practice safety as a routine part of their work.

Chemicals, Petroleum Products, and Hazardous Materials:

Be familiar with the nature of the products at an inspection site that is located in a plant or other facility which handles, uses, or packages chemicals, petroleum products, or hazardous materials; it is essential that the inspector or serviceperson be familiar with the nature of the product and any protective measures which should be taken prior to working around the product. For example, some products may cause injury through exposure to the skin or through inhalation of the fumes or airborne particulates. Similarly, caustic products may also damage field standard weights or measures or equipment used in the test process.

Determine whether or not protective clothing or equipment is needed prior to working with the product.

Material Safety Data Sheets (MSDS's) can provide much of the basic information about the hazards involved with a product. The manufacturer of the product should be able to provide further information about the product. Several sources of information concerning chemicals, petroleum products, and hazardous materials are listed below.

American Chemical Society
1155 16th Street, N.W.
Washington, DC 20036
Tel: 800-227-5558 (U.S. only)
Tel: 202-872-4600 (outside the U.S.)
Fax: 202-872-4615
E-mail: help@acs.org

American Chemistry Council
1300 Wilson Blvd.
Arlington, VA 22209
Tel: 703-741-5000
Fax: 703-741-6000
E-mail: webmaster@americanchemistry.com

American Petroleum Institute
1220 L. Street, NW
Washington, DC 20005-4070
Tel: 202-682-8000
Fax: 202-682-8232

Look for leakage or spillage of chemicals, petroleum products, or hazardous materials at or near the inspections site. Leakage or spillage of these products can be potentially hazardous if the inspector/serviceperson or facility employee is exposed to the product and is not wearing personal protection equipment. Additionally, any product collecting on the ground surface can result in slippery, unsafe conditions for an individual moving about the inspection area. If leaking or spilled product results in unsafe conditions at the inspection site, it is recommended that the testing procedure be discontinued until the unsafe conditions are corrected.

Clothing:

Synthetic clothing should not be worn when working around flammable products. Synthetic clothing melts at high temperatures; if the person wearing the synthetic clothing is exposed to flames, the clothing may melt and stick to the persons skin to result in severe burns.

Combustion can result when an ignition source is present and fuel and oxygen are also available. Many types of synthetic clothing also tend to build up a static charge; this can be dangerous as a potential ignition source around flammable products.

Use caution when wearing **loose** clothing (or hanging jewelry) around machinery such as conveyor belts, weight movers, meat hooks, gears, etc. The clothing (or jewelry) may become entangled in the machinery and result in personal injury.

Electrical Hazards:

Be particularly aware of potential electrical hazards in or near the inspection site when testing electronic devices or working in the vicinity of electrical equipment. Loose or exposed wiring and a frayed or worn electrical cord should be brought to the attention of management at the inspection site. Avoid standing on wet surfaces unless the electrical equipment is properly insulated and grounded.

Combustion can result when an ignition source is present and fuel and oxygen are also available. Electrical hazards may also be potential ignition sources when testing devices which dispense flammable products or working near flammable products. Be sure that provers and other test equipment are equipped with explosion-proof motors. Always check the electrical supply lines for testing equipment carefully for signs of wear or damage, and correct any potentially hazardous conditions. Take steps to protect these supply lines from

damage during use.

Emergency Procedures:

Always be familiar with emergency procedures BEFORE beginning an inspection. After an emergency has developed, crucial time can be lost if emergency procedures are not known. Be familiar with the procedures to follow in the event of an equipment malfunction or the development of a dangerous situation with the equipment or in the vicinity of the inspection site when operating specialized testing equipment.

Be familiar with the nature of any product being dispensed by a device or being used in or near the inspection area. Know the emergency procedures to be followed when a spill has occurred or a person has been exposed to the product. Knowledge of emergency procedures and related information should include the correct selection and use of fire extinguishers, the location of emergency shut-offs, and evacuation procedures.

Keep a list of emergency phone numbers handy at all times in a notebook or on a card. Examples of numbers to keep are the local fire department, emergency medical facility, and other appropriate public safety agencies.

Eye Protection:

Appropriate eye protection is recommended when working around hazardous products that may inadvertently splash into the eyes, and eye-wash facilities should be considered. Contact lens wearers should be particularly careful to follow the instructions of their eye-care practitioner and local OSHA representative when working around hazardous products.

Appropriate eye protection should also be worn when working in an area with overhead projections such as meat hooks or other sharp objects or where there is a potential of flying projectiles (e.g., when working near tools that grind, chip, etc.).

Fire Extinguisher:

Know the proper use and selection of fire extinguishers for a given application. Contact your local fire department for current information and training.

First Aid Kit:

An appropriate first aid kit or kits should be provided for every vehicle and in every laboratory. Consideration should be given to the type of work that the inspector, metrologist, or serviceperson typically performs and the types of hazards typically encountered in these types of activities. Items in addition to those contained in a basic first aid kit may need to be added to address the potential hazards which may be encountered by the person who will be most likely to use the first aid kit. Check with your local OSHA office or with your departmental safety officer for input on the items to be included in each kit.

Grounding:

It is essential to properly ground the prover being used when inspecting meters that dispense flammable products. Be sure to connect the grounding wire or jumper cable to bare metal surfaces, not to painted or plastic surfaces.

Retail Motor Fuel Dispensers:

When testing retail motor fuel dispensers, be sure to:

- Ground the nozzle against the prover neck when dispensing product.
- Ground the neck of the prover against the metal funnel when returning product to the storage tank.
- If a test measure is left on a cart when dispensing product or returning product to the storage tank, be sure the card is properly grounded.

Vehicle Mounted Tank, Loading Rack, or Wholesale Meters:

- Use a grounding wire, jumper cable, or terminal ground to ground the prover to the vehicle from which the product is obtained.
- Use a grounding wire, jumper cable, or terminal ground to ground the prover to the vehicle or tank when returning product to storage.
- These guidelines also apply when testing liquefied petroleum gas liquid-measuring devices. Although these devices are tested as a "closed system", the possibility of leaks is always present and can present a potential hazard.
- Always ground yourself to an above ground storage tank before climbing onto the tank by touching the tank or the handrails.

Ignition Sources:

Combustion can result when an ignition source is present and fuel and oxygen are also available. It is necessary to avoid possible sources of ignition when testing meters that dispense petroleum products or other flammable materials. Possible sources of ignition include, but are not limited to: open flames or smoking, metal to metal contact which causes sparking (e.g., metal wrench or hammer on a pipe fitting), a running motor, static discharge, worn or faulty electrical wiring, improper grounding, and the wearing of synthetic clothing. Also be sure that provers and other test equipment are equipped with explosion-proof motors. If ignition sources cannot be eliminated at the time of the inspection, it is recommended that the testing procedure be discontinued until the hazardous conditions are corrected.

Because disposable lighters can spark upon impact, the inspector should avoid carrying a lighter in his or her front shirt pocket.

ALWAYS USE A METAL FUNNEL TO RETURN PRODUCT TO PRODUCT STORAGE TANKS. NEVER USE A PLASTIC SAFETY CONE AS A FUNNEL!! Pouring product into the return fill can build up static electricity; a proper ground must be made by placing the metal neck of the prover against the metal lip of the funnel.

Lifting:

Be familiar with and use proper lifting techniques when lifting test weights or heavy equipment to prevent personal injury. To reduce the possibility of back injury, use equipment which would decrease the amount of lifting required whenever possible (For example: an extended height funnel, carts for transporting weights, platforms suspended from monorail scales instead of overhead meat hooks, etc.).

Periodic training in proper lifting techniques is encouraged.

Location:

Carefully examine the inspection site prior to beginning an inspection and testing procedure. Look for potentially dangerous situations such as wet areas which may be slippery (see also **Wet/Slick Conditions**), the use or presence of hazardous and/or flammable materials and any spillage or leakage of these products (see also **Chemicals, Petroleum Products, and Hazardous Materials**), adjacent activities which may contribute a potential hazard to the inspection (e.g., welding near the inspection area would provide a potential ignition source when testing devices which dispense flammable liquids), obstructions in the area which may prove to be safety hazards (e.g., objects on the ground which the inspector might trip over, objects in the path of the inspector to and from the device being tested, exits blocked by test equipment or vehicles, etc. -- see also **Obstructions**), pedestrian or vehicle traffic (see also **Traffic**), steep or narrow stairways, overhead hazards (e.g., feed bins, loading rack equipment, low-hanging beams in feed mills and warehouses, overhead activities, low doorways, etc. -- see also **Overhead Hazards**), lack of or defective handrails, and loose or exposed wiring (see also **Electrical Hazards**). Use great care when moving around and working in areas in which these potential hazards are present. When using flammable products (e.g., testing metering devices), note the location of the fire extinguisher, emergency shut-offs, etc. prior to beginning the inspection.

Material Safety Data Sheets (MSDS):

MSDS's are provided by the manufacturer of a product to identify the product's basic characteristics and hazardous information. MSDS's typically provide information pertaining to the characteristics of a product such as hazardous ingredients, physical data, fire and explosion hazard information, health hazard information, reactivity data, spill or leak procedures, special protection information, special precautions, toxicological information, and other relevant information. MSDS's can be obtained from the manufacturer of the product. As new information is discovered concerning the properties of a product and the effects of various levels of exposure to it, MSDS's can change. It is recommended that updated versions of the MSDS's be obtained on at least an annual basis. For further information on MSDS's, contact your local OSHA office.

Nature of Product:

Be knowledgeable about the nature of the product being dispensed by a device prior to beginning a test on the device. For all hazardous materials it is recommended that a copy of the Material Safety Data Sheet (MSDS) be obtained for that product and reviewed prior to testing the device. Carefully read and follow the instructions on any warning labels posted on the device or affixed to a packaged product for precautions that should be taken when working around the product.

Obstructions:

Care should be taken to avoid injury from obstructions in the work area during the course of an inspection. Obstructions which might prove to be safety hazards include objects on the ground which the inspector might trip over, objects in the path of the inspector to and from the device being tested, steep or narrow stairways, exits blocked by test equipment or vehicles, etc.

Overhead Hazards:

Note any overhead hazards such as feed bins, loading rack equipment, low-hanging beams in feed mills and warehouses, activities overhead, and low doorways prior to the inspection. Take precautions (such as wearing a hardhat) to avoid potential injuries as the situation dictates.

Personal Protection Equipment:

Included among the many types of personal protection equipment that is available are items such as non-synthetic clothing, coveralls, gloves, barrier cream, non-permeable safety aprons, safety sleeves, safety shoes, respirators, goggles or safety glasses, hearing protection, and hardhats. OSHA and safety-clothing and safety-equipment manufacturers can provide additional information concerning the selection of personal protection equipment for a given type of inspection activity.

Before providing personal protection equipment (PPE), management should determine whether or not PPE is actually required for a particular inspection activity. If it is determined that an employee is exposed to a hazard, the management should first try to minimize the hazard by examining and modifying work methods and conditions. If it is determined that the employee is still exposed to the hazard after modifying work methods and conditions, consideration should be given to purchasing PPE. It should be realized that certain types of PPE such as respirators can require employee physicals and extensive ongoing training and maintenance; failure to follow these requirements may render the PPE ineffective or even dangerous.

Safety Shoes:

Safety shoes are recommended to be worn when performing certain weights and measures activities to prevent personal injury. Safety shoes are available to prevent possible injury to the foot from falling weights or equipment and also to provide protection from slippage and static discharge. Many styles and types of safety shoes are available. The American National Standards Institute and safety-shoe manufacturers can provide additional information concerning the selection of safety shoes for different types of inspection activities.

Safety Cones/Warning Signs:

Safety warning signs or safety cones should be positioned to block off the work area when the inspection site is exposed to vehicular or pedestrian traffic. These precautions should also be taken when working around flammable liquids to warn people of a potential hazard; in this instance, it is also recommended that "No Smoking" and "No Open Flame" signs be posted.

Static Discharge:

Combustion can result when an ignition source is present and fuel and oxygen are also available. Sources of static discharge introduce the potential of an ignition source into the testing area. Avoid all sources of static discharge when testing flammable products.

Support:

Scales: Be certain that the installation is adequate to support the scale, test weights equal to the capacity of the scale, and any weight carts, test platforms, platters, chains, hooks, or other accessories used to suspend or support the test weights prior to proceeding with a testing procedure. Any test platforms, platters, chains, hooks, or other accessories must be capable of supporting the test weights necessary for the inspection.

Meters: Be sure the inspection site surface is rigid enough to support the weight of a large volume prover when the prover is filled with the test liquid. **Chocks** should be used to secure the wheels of the prover during the testing procedure.

Switch Loading:

Do not use a test measure that has been used for drafts of gasoline to measure diesel fuel until you are certain that all gasoline vapors have dissipated. This practice, called "switch-loading" is extremely hazardous because diesel fuel is likely to produce a static charge while being dispensed. Sparks from this charge could easily ignite gasoline vapors inside the measure.

Traffic:

Be aware of vehicular and pedestrian traffic patterns in and around the inspection site. Mark the test spot appropriately by using safety cones, flags, etc.

Transportation of Equipment:

Consideration must be given to isolating the inspector/serviceperson from weighing and measuring equipment during the transportation of the equipment to and from the work site. The inspector/serviceperson must be isolated from hazardous fumes; means of such isolation include, but are not limited to, vehicles outfitted with protective barriers; equipment carriers located outside of the vehicle; vehicles with separate driver/equipment compartments, etc.

All equipment must be properly secured to avoid exposing the inspector/serviceperson to the potential of flying projectiles.

Wet/Slick Conditions:

Caution should be exercised when working in wet, slippery, or icy conditions to avoid slipping or possible injury from electrical sources. Shoes with non-skid soles should be worn to provide adequate traction to prevent slipping.

Absorbent material should be used on any product spills to prevent possible injury due to slipping on a slick surface.