

# Procedures for Shutting Down Power To Dangerous Equipment and Machinery

Improperly locked power switches can cause serious injury. An in-depth analysis of employee injuries, accidents and close calls, reveals that the failure to lock equipment is one of the primary causes of accidents. At first glance, this does not seem true, because the injured employees are not the maintenance personnel, but the equipment operators. Often, the injured individual was not repairing the machinery, but was operating, cleaning, or adjusting it. One must recognize and accept that exposure to machinery without protective mechanisms is what causes injury, rather than what the employee was actually doing. Therefore, every employee has to be protected from these risks. Both operators and maintenance personnel should be protected, and that is accomplished by taking locking and marking measures.

Ask yourself what would happen if for any reason a machine started up or was powered while an employee was fixing, cleaning or adjusting it. If there is any possibility that the individual could be injured if the machinery were activated, then locking and marking measures are needed.

The locking program should consist of a procedure that involves locking, marking, and trying to start the equipment. Some of the most important points that should be included in this program are:

## Measures:

- The measures, and any necessary instructions, should be in writing to ensure that the employees are aware of and understand the “lock and mark” process.

## Facilities:

- Effective facilities should be provided for locking and marking power sources, thereby protecting employees exposed to possible injury.

## Padlock and Tag:

- Locking equipment should be provided for the use and protection of the employees. This equipment should consist of a key-operated padlock, a device with several locking handles (hasp), and a “DANGER, DO NOT REMOVE THIS TAG” tag. Each employee should be given just one key per padlock. The supervisor should keep a master list of the key numbers and an extra key for each padlock in his or her department.
- Before starting work on any machinery, let the operator know your intentions.

## Power Sources:

- For the employee’s protection, all sources of power and possible exposure to hazardous materials need to be locked. Some of the power sources that should be locked are:

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- Electrical circuits, hydraulic systems, pneumatic systems, and gravity systems.

**Insulation:**

- Pipe systems containing hazardous material such as acids, caustic, toxic, flammable and vaporous materials, should be insulated by locking them and marking the control valves. In some cases, even ordinary substances, like water and air, can be hazardous to employees who are working in tanks or enclosed spaces.

**Tests:**

- For effective locking, the control measures have to be tested to ensure that they are properly locked. This eliminates the possibility of locking/turning off the wrong switch or valve. It is also important that after activating the “start” switches, the “reset” and “stop” switches be reactivated to prevent premature starting of the machinery when the main switches are turned on, after having finished the work.

**When Removing the Padlock and Tags:**

- It is very important that all safety devices be replaced, that exposed electrical wiring be covered and that any open pipe systems be properly connected and closed, before removing the padlocks and tags.

An effective locking program is the responsibility of both management and the employees.

**Management is responsible for:**

1. Providing convenient facilities for locking and marking power sources.
2. Providing employees with padlocks, hasps and tags.
3. Instructing employees on how to use the padlocks, hasps and tags.
4. Enforcing all of these safety rules and procedures.

**Employees are responsible for:**

1. Being aware of, understanding and following the safety rules and procedures established by the company for locking and marking power sources.
2. Taking care to not expose their colleagues to the dangers of moving machinery and other system processes because of a failure to lock and tag the system.

No safety rules are more important than the locking and marking rules. It is a well-known fact that many serious injuries and accidents can be prevented by using effective power shut-off and locking procedures. When all employees, including administrative personnel, realize that these rules concern everyone, the loss control program will have made a giant step forward.

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301 E. Fourth Street, Cincinnati, OH 45202 F13315-LP (01/13)

