

Electrical Safety Overview 1-Hour Module

Overview

Workers performing service or maintenance on machinery and equipment may be exposed to injuries from shock and arc blast and/or flash during the use, maintenance, and servicing of electrical equipment throughout the processing facilities.

The electrical safety standard requires the adoption and implementation of safe installation and work practices to prevent electrical shock, electrocution, and arc flash/blast.

It contains minimum safety installation requirements, and definitive criteria for establishing an effective program for the control of electrical hazards. Like other standards, such as lockout and tag out, it requires circuits and equipment to be put into a safe electrical work condition.

This presentation discusses some of the key issues related to safety for the poultry processing industry and addresses the following topics: General requirements, wiring protection and design, general use, and safe work practices.

Objectives

After the completion of this session, the participant should be able to: Recognize key electrical safety components, Identify select hazards as related to the poultry industry, List potential methods that can be used to eliminate electrical hazards, and Discuss safe electrical work practices.

Resources

One hour power point presentation

Hour 1

I. Standards

- a. Overview
- b. How standards affect installation and use of equipment

II. Definitions

- a. Discuss typical terms that apply to electrical safety

III. Introduction

- a. Hazards
- b. Effects on the Human Body

IV. Premises Wiring

- a. Installation and Use
- b. Equipment Requirements
- c. Markings
- d. Disconnects
- e. Work Space
- f. Guarding of Live Parts
- g. Grounding-Requirements for circuits and equipment

V. Wiring Methods

- a. Discuss the requirements for temporary wiring
- b. Requirements for GFCI
- c. Flex cord
- d. Wet and damp locations

VI. Safe Electrical Work Practices

- a. Discuss the requirements for lockout and tagging out of circuits
- b. Procedures
- c. Equipment

Slide Comments

8: Current flow causes the injury and severity is determined by the amount of current. It's current that causes damage to the body, not the voltage

9: UL test and approves electrical equipment, but there are other testing laboratories.

10: Wafer plug cover do not adequately provide for protection from live components.

14: The picture illustrates an outlet box that is not used properly. The box has been damaged and has mounting holes.

15: Many cleaning solutions and water submit the electrical wiring to adverse conditions. The caustic detergents can damage the insulation on the conductors.

16: There is an ANSI standard for mechanical execution of work. If the work looks sloppy, chances are it was not installed properly.

20: Equipment must have adequate information so that personnel can service and install the equipment.

26: Picture depicts electrical equipment that does not have adequate work space. In all cases, the door must open at least 90 degrees.

32: Picture shows the neutral (grounded) and the grounding conductor. The conductors must be identifiable in accordance with the NEC.

33: Typically color coding and a sign at the point of access are used, for example 480/277 volt Y system indicates voltages and system.

35: GFCI required on temporary receptacles, construction like activities (remodeling and servicing equipment), and certain areas (roof top and bathroom). You may only use AECP, if the technology is not available. Otherwise, a GFCI would have to be used.

37: AECP is not an engineering control and should be used only as a last alternative. AECP does not provide for full protection of the employee, it is merely an administrative control program and should not be used in place of a GFCI.

38: Overloading of branch circuits can potentially be dangerous and cause fires.

45: Other types of lighting are controlled with HID switches. The NEC provides better direction on the disconnect to be used with lighting systems.

56: Temporary lamps must be guarded regardless of height.

58: The faceplate is grounded by the screws attached to the “yoke” of the receptacle.

61: There is a difference between attended and unattended areas. The picture represents a cover installed in an attended area. Covers in unattended areas must cover not only the receptacle, but the attachment cap as well when it is plugged into the receptacle.

62: The picture above represent a worker performing sanitation around electrical equipment. Some companies will instruct employees to put cords in covered bins to keep them off the floor temporarily during sanitation.

63: Employee is protecting the electronics during sanitation by bagging the equipment.

74: The electronics are bagged in the sanitation process to protect the equipment, but employees did not LOTO equipment in many cases.

75: Employees are in the machine without LOTO. Employees run the risk of contact with electrical circuits while bagging the machine.

Evaluation and Assessment

Interactive conversations

This training course was produced under grant number SH-29660-SH6 (Poultry/Meatpacking Ergo & Safety) from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.