# Employee Safety Training ADVISOR

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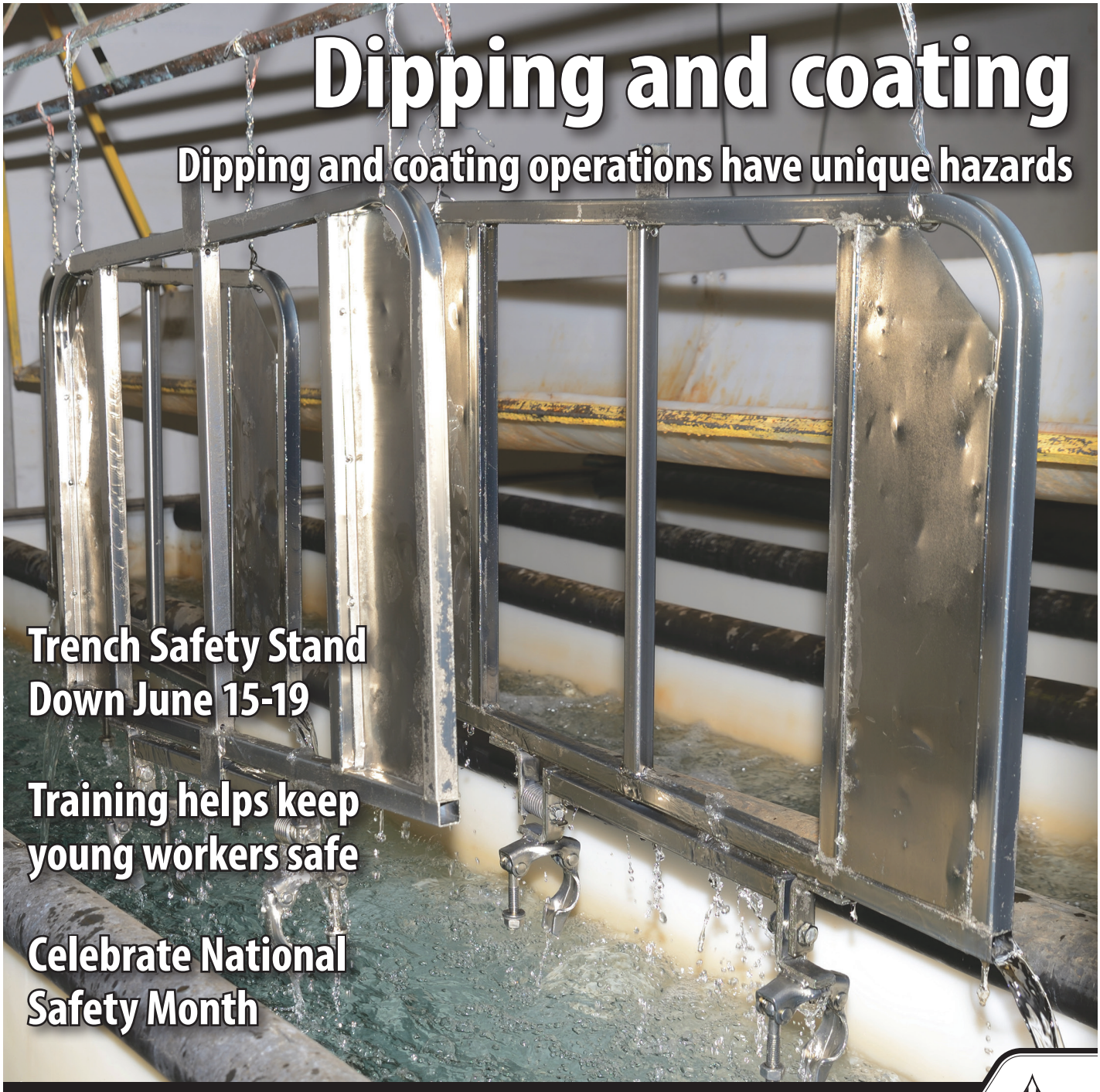
June 2020



# Dipping and coating

## Dipping and coating operations have unique hazards

## Trench Safety Stand Down June 15-19

## Training helps keep young workers safe

## Celebrate National Safety Month

Information and resources to help your employees work safely

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## In This Issue



# MESSAGE FROM THE EDITOR

## Protect workers from dipping and coating hazards

Dipping and coating operations are common in many industries, particularly in terms of cleaning and coating. The process can pose hazards to workers — ranging from health hazards to flammability — largely because of the chemicals used in the process.

To protect employees from toxic exposures, fires, and explosions, OSHA has a standard on dipping and coating operations, found at 29 CFR 1910.122 – .126. The standard applies when a dip tank containing a liquid other than water is used. It applies when the liquid in the tank or its vapor is used to:

- Clean an object,
- Coat an object,
- Alter the surface of an object, or
- Change the character of an object.

The rule also applies to draining or drying operations.

This month's Training Blueprint provides an outline you can use to provide employees information on the hazards of dipping and coating operations and measures they can take to protect themselves. The Employee Handout and Quiz can be used to reinforce learning. ♦


**Rachel Krubsack**

Rachel Krubsack is an Associate Editor for Workplace Safety at J. J. Keller & Associates, Inc. She writes a monthly newsletter on OSHA safety training, answers questions from subscribers, and contributes content for other publications, including KellerOnline. Rachel's topics of expertise include hearing conservation, training requirements, bloodborne pathogens, emergency action plans, and hazard communication.

# TRAINING BLUEPRINT — DIPPING AND COATING

## Dipping and coating operations have unique hazards

Painting, plating, stripping, and cleaning are essential operations in many workplaces. Make sure your workers are prepared for these jobs.

### Overview

OSHA addresses the hazards of dipping and coating operations in §§1910.122 – .126. The standards are designed to protect employees from toxic exposures, fire, and other hazards. Training can help you meet these requirements.

### Specific training elements

#### 1. Introduce OSHA's rule on dipping and coating operations.

Dipping and coating operations involve the use of chemicals. To protect employees from toxic exposures, fires, and explosions, OSHA has a standard on dipping and coating operations. The standard applies when a dip tank containing a liquid other than water is used. It applies when the liquid in the tank or its vapor is used to:

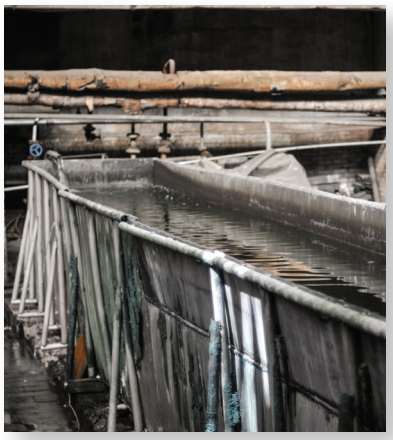
- Clean an object,
- Coat an object,
- Alter the surface of an object, or
- Change the character of an object.

The rule also applies to draining or drying operations. It does not apply when the operation uses a molten material.

#### 2. Provide examples of dipping and coating operations.

Some examples of operations that use dip tanks include

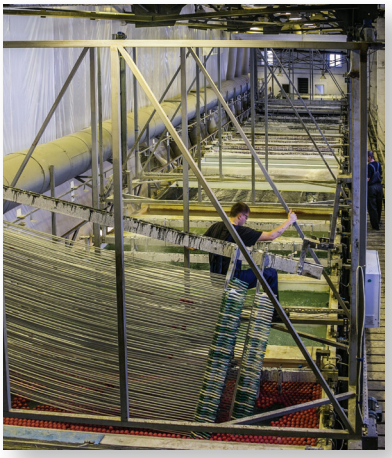
- Paint dipping,
- Electroplating,
- Pickling,
- Quenching,
- Tanning,
- Degreasing,
- Stripping,
- Cleaning, and
- Roll coating, flow coating, and curtain coating.



**TRAINER'S NOTE:** Use examples from the operations in your workplace.

#### 3. Discuss the hazards of dipping and coating operations.

During dipping and coating operations, parts or other items are typically put into a tank for treatment. As items enter and leave the liquids in the tanks, there is a potential for splashing, dripping, or spattering.



The liquids may present health hazards. Workers can learn about the hazards by reading the chemical's safety data sheet (SDS). They should take precautions to protect themselves from direct contact and from the inhalation of harmful vapors. Ventilation equipment, covers, and personal protective equipment (PPE) can help workers avoid these hazards.

Another hazard is the slipping/falling hazard that comes from working in an area with the potential for wet floors. Mats, grating, and slip-resistant footwear help reduce the risk of injury.

When flammable liquids are used, there's the potential for fires. Fire extinguishing systems and other specialized equipment must be installed for fire protection. Portable fire extinguishers must be available.

#### 4. Provide an example of an accident involving a dipping and coating operation.

A maintenance worker at a company in Nebraska jumped into a tank containing 18,000 gallons of potassium hydroxide. The tank was part of a 13-part dip tank system used in the manufacture of heavy farm machinery. An unguarded, elevated catwalk ran between two of the 18,000-gallon tanks. The tanks were serviced by an overhead crane that moved parts in and out of the tanks. As the crane traversed the catwalk in its lowered position, there were only a few inches of clearance between the crane mechanism and the catwalk.

The worker had to make an adjustment to a spray nozzle on one of the tanks. He thought he had enough time to run out on the catwalk and make the repair before the crane traversed the catwalk again. While making the repair, he

turned around and saw that the crane was upon him. He had only a split second to decide what to do. He later said that he felt his only recourse was to jump into the tank in order to avoid being struck and pinned by the crane. He was hospitalized with chemical burns.

**TRAINER'S NOTE:** This example is from an OSHA accident report. Discuss how the accident could have been avoided (shutting down the equipment and following lockout procedures before making any adjustments would be one suggestion).

### 5. Review your requirements for PPE.

Eye and face protection are needed when workers are exposed to chemical splash hazards. Goggles fit close to the eyes and provide the best protection from splashes. A face shield worn over eye protection provides additional protection for the face.

Gloves of appropriate material protect the hands from hazardous liquids and vapors, and are selected for their chemical resistance to the liquid used in the process. If workers need to reach into the liquid, make sure the gloves are long enough to keep the liquid from getting into the glove.

Foot protection, including the use of rubber boots, may be required. Workers might also need to wear aprons, coveralls, or other types of chemical-resistant clothing.

Ventilation systems help remove harmful vapors from the work area. However, back-up procedures, including the use of respirators, must be in place in case the ventilation system fails. Atmosphere-supplying respirators are required if there is an oxygen-deficient atmosphere (oxygen levels are below 19.5 percent).

All types of PPE have some limitations that workers should be aware of. They should use the right PPE for the job and make sure it's in good condition. Damaged PPE doesn't give the same amount of protection.

**TRAINER'S NOTE:** Remember to provide PPE training to meet the requirements at 1910.132(f).

Employees must be trained to know:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust, and wear PPE;
- The limitations of the PPE; and
- The proper care, maintenance, useful life, and disposal of the PPE.

Each affected employee must demonstrate an understanding of the training and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

### 6. Discuss emergency procedures.

Employees must know the first aid procedures appropriate for the hazards to which they are exposed. If they're expected to respond to emergencies such as spills or fires, they'll need specialized equipment and training. Everyone should know how to evacuate the area and call for emergency responders in case of an emergency.


To help prevent fires, keep the area clean. Contaminated rags and other materials must be placed in approved waste cans immediately after use, and the contents of the waste cans are to be properly disposed of at the end of each shift. Don't smoke in the tank's vapor area.

### 7. Discuss situations involving entry into the tank.

Employees may need to enter the dip tank for cleaning, inspection, or repair jobs. Even when the liquid is drained from the tank, the entry operations can still be hazardous. When a dip tank meets the definition of a permit-required confined space (see 1910.146), all of the provisions of an entry permit must be in place before anyone can go into the tank. Employees on the entry team must have the proper training. ♦

**Key to remember:** While dipping and coating operations have unique hazards, they can be mitigated through employee training and awareness.

# Control the hazards of dipping and coating operations

During dipping and coating operations, you need protection in addition to good ventilation systems.

## What is dipping and coating?

It's a dipping and coating operation when you use a dip tank containing a liquid other than water to:

- Clean an object,
- Coat an object,
- Change the surface or character of an object, or
- Drain or dry an object that you've dipped or coated.

Examples of dipping and coating operations include:

- Electroplating,
- Dyeing,
- Bleaching,
- Degreasing,
- Cleaning, or
- Roll coating, flow coating, and curtain coating.

## Know where to look for hazards

The risk for slips and falls is a hazard because areas around dip tanks may have wet floors. The chemicals used in the operation may give off hazardous vapors or mists.

The chemicals may be hazardous if you come into direct contact with them. Sometimes liquids in a tank are heated to high temperatures. Handling items during the job may cause splashes. You may be at risk for chemical or thermal burns.

If a flammable liquid is used, there is the risk for fires. Don't smoke in the area. Keep the area clean. Properly dispose of wet rags so they don't become a fire hazard.

## Wear personal protective equipment (PPE)

Always make sure there is good ventilation during dipping and coating operations, and make sure any covers, guards, or other protections are in place. In addition, you might need to wear the following types of PPE:

- Foot protection using rubber boots.
- Gloves that are selected for the type of liquid used in the process. The length of the glove should be long enough to prevent liquid from entering the glove.
- Chemical goggles whenever chemicals may splash. Add a face shield for extra protection.
- A respirator to reduce your exposure to airborne contaminants and/or to provide clean air to breathe. Your use of a respirator must meet the requirements of OSHA's standard on respiratory protection at 1910.134.
- Other types of chemical-resistant PPE such as: aprons, coveralls, coats, jackets, sleeves, or other garments. ♦

## Quiz — Control the hazards of dipping and coating operations

For each question, show if the statement is **True or False**.

1. Dipping and coating rules don't apply when you dry an object.
   True False
2. Make sure gloves are long enough so the liquid can't get in.
   True False
3. Dipping and coating operations always use flammable liquids.
   True False
4. You should only wear goggles when you take an item out of the tank.
   True False
5. You could get a burn from a chemical in a dip tank.
   True False

**NAME:** _____ **DATE:** _____

# NEWS

## Trench Safety Stand Down set for June 15-19

To help promote safe practices in trenching and excavating, employers can take part in the annual Trench Safety Stand Down June 15-19. Sponsored by the National Utility Contractors Association (NUCA) and its Safety Ambassadors Club, the Stand Down will focus on trench and excavation hazards and reinforce the importance of using trench protective systems and protecting workers from trenching hazards.

Companies can participate by taking a break to have a toolbox talk or another safety activity to draw attention to the specific hazards related to working in and around trenches and excavations. If you choose to participate, NUCA asks that you provide feedback such as when your event was held, how many workers participated, and how you shared information with workers.

**Note:** Information was current when this issue went to press; however, NUCA is monitoring the situation with regard to COVID-19 and will communicate a date change for the stand down if necessary. ♦

## Training helps keep young workers safe on the job

Workers age 15 to 24 have high rates of job-related injury, due in part to the hazards present in the places they typically work, such as sharp knives or slippery floors in restaurants. Limited or no prior work experience and a lack of safety training also contribute to high injury rates.

If you're hiring teen or young adult workers this summer, it's important to ensure they're properly trained and understand any hazards they may encounter in the workplace.

Here are some tips to consider:

- Conduct training in a language and vocabulary that workers can understand and include prevention of fires, accidents, and violent situations, and what to do if injured.
- Implement a mentoring or buddy system for new young workers. Have an adult or experienced young worker answer questions and help the new employee learn the duties of the job.
- Encourage young workers to ask questions about procedures or tasks that are unclear or not understood.
- Ensure equipment used by young workers is both legal and safe for them to use. Label equipment that they're not allowed to operate. ♦

## Celebrate National Safety Month

June marks National Safety Month, where the National Safety Council (NSC) and thousands of other organizations across the country participate in a variety of safety awareness campaigns. The campaign focuses on reducing leading causes of injury and death at work, as well as on the road, at home, and in the community.

The NSC encourages employers to help spread the word and engage workers in keeping themselves, their families, and communities safe by holding a safety fair or toolbox talk, providing safety training, sharing safety tips on social media, or coming up with other creative ways to share the safety message.

Topics for 2020 include **emergency preparedness, driving, ergonomics, and employee engagement**. ♦

# Summer is here: Remind workers about heat stress

Bureau of Labor Statistics (BLS) data show that over 2,000 workers became seriously ill from working in a hot environment in 2015, and 40 workers died because of temperature extremes.

Set up a heat-related illness prevention plan and train both supervisors and workers to take precautions.

Your program should include provisions for:

- A heat acclimatization program for newly exposed workers (over a few days, gradually increase the time the worker is in the heat);
- Scheduling work during cooler periods of the day;
- Drinking water supplies and encouragement to stay hydrated (drink one cup of water every 15 to 20 minutes);
- Modifying procedures to reduce exertion;
- Appropriate work/rest schedules;
- Shady, cool break areas;
- Employee monitoring (dizziness, excessive sweating, and increasing body temperature);
- Encouraging workers to wear wide-brimmed hats and light-colored, loose-fitting, breathable clothing to minimize the amount of skin exposed to sunlight; and
- Reporting suspected heat stress and providing first aid and medical attention.

**Note:** If you're in an OSHA-approved state-plan state, make sure you're meeting any heat-related standards they may have. ♦

Answers to quiz on page 5:
1. False; 2. True; 3. False; 4. False; 5. True

## Next Month's Topic: Electrical Lockout/Tagout

OSHA's lockout/tagout (LOTO) provisions in the electrical safety standards at 29 CFR 1910.333(b) apply when there are electrical hazards from exposed electrical parts during general industry operations.

## Expert Help: Questions of the Month

***Question:*** **Does OSHA specify exhaust air flow requirements for dip tanks, such as in feet/minute (fpm)?**

***Answer:*** OSHA doesn't specify fpm, but it says your ventilation must be sufficient to keep the airborne concentration of any substance below 25% of its lower flammable limit (LFL), per 1910.124(b)(1). Also see OSHA's requirements in paragraphs (b)(2) through (b)(4).

***Question:*** **Do we have to provide an eyewash station nearby when performing dipping or coating operations?**

***Answer:*** OSHA 1910.124(g)(2) says an emergency shower and eyewash station are required close to the dipping or coating operation. In place of this equipment, you may use a water hose that is at least 4 feet (1.22 m) long and at least 3/4 of an inch (18 mm) thick with a quick-opening valve and carrying a pressure of 25 pounds per square inch (1.62 k/cm²) or less; and per 1910.124(g)(3), have at least one basin with a hot-water faucet for every 10 employees who work with such liquids.

***Question:*** **Does California have regulations specific to dip tanks?**

***Answer:*** Cal/OSHA regulates dip tanks under Title 8, Subchapter 7, Group 20 (Flammable Liquids, Gases and Vapors). ♦

### Got a question?

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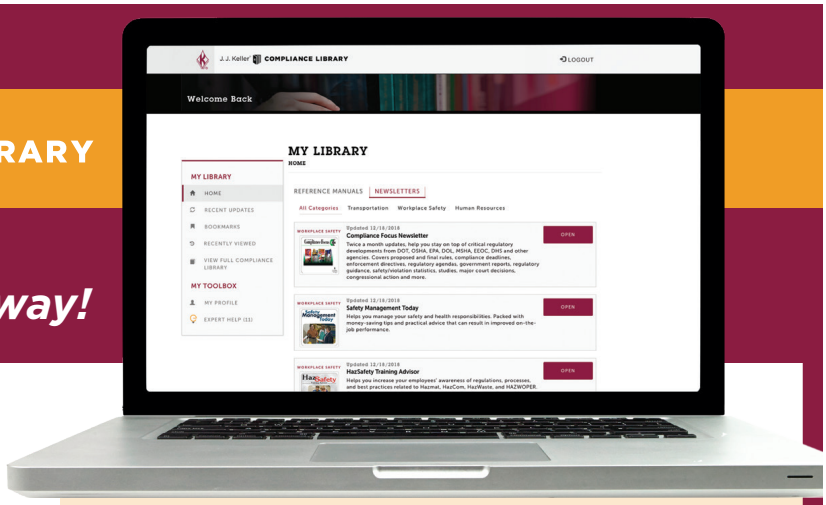


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