

## Script for Module Four

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### Slide 1

Welcome to Module 4 of our hazard communication training sessions. This training will cover the disinfection chemical Peracetic Acid.

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What exactly is peracetic acid? Peracetic acid is a disinfectant used in the food and healthcare industries. Peracetic acid solutions typically consist of a mixture of peracetic acid, acetic acid, and hydrogen peroxide in various concentrations. Even though the concentrations vary by product manufacturers, the concentrated form of PAA must never exceed 40% of the solution due to stability issues.

Peracetic acid is an unstable oxidizing agent. What does that mean? When a chemical is classified as an oxidizing agent it is able to penetrate the surface of bacteria and viruses, making them non-viable. It is a strong oxidizing agent – stronger than chlorine or chlorine dioxide. PPA is an attractive disinfectant because it eventually decomposes back to water, oxygen, and carbon dioxide, leaving no trace of a chemical on the food.

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Peracetic acid is used in many different applications, depending on the industry in which it is used. In hospitals, peracetic acid is used to chemically disinfect equipment and surfaces, such as rubber tubing and catheters, endoscopes, kidney dialysis machines, and surgical instruments. In breweries, peracetic acid is used for disinfection in the bottling area and in clean-in-place (CIP) techniques. Here is an example of a container of PAA used in that disinfection process. The chemical is then pumped throughout the plant to the location of use from this central storage location.

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In food processing, peracetic acid is applied to food products in a variety of methods: spray bars that spray a diluted solution of PAA onto the surface of the food either along the conveyor belt or inside of an on-line reprocessing (OLR) cabinet, dip tanks along the path of a conveyor belt that allow the food product to be fully immersed in a solution of PAA, or chiller tanks where the food product soaks in a solution of PAA for an extended period of time. This image shows an example of a dip tank for chicken as it travels along the conveyor belts. Here it is fully immersed in a diluted solution of PAA, covering the surface area of the protein.

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In this image, a diluted solution of peracetic acid is being sprayed onto the chicken by spray bars placed above the conveyor belts.

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Also used as a microbiocide in the dairy, wine and brewery industries for cleaning of tanks, pumps, lines and filters, in diluted concentrations. PAA mixtures are non-corrosive to stainless steel.

Your employer should let you know the locations that PAA is being used and the concentration of PAA being applied in each location. Pipes pumping the PAA to the location of use should be labeled with the identity of the product being pumped in the lines.

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What are the potential health hazards associated with exposure to PAA? Although PAA is not corrosive to stainless steel, it is highly corrosive and an irritant to our skin and eyes. Depending on the concentration of PAA in the air, breathing in PAA may be associated with irritation to the nose and throat, irritation to the lungs causing coughing and or shortness of breath, and in some cases at very high exposures, there is the potential for pulmonary edema to develop. Pulmonary edema is a condition involving fluid buildup in the lungs. Sudden onset (acute) pulmonary edema is a medical emergency. Symptoms include shortness of breath, cough, decreased exercise tolerance or chest pain.

If you are experiencing any of these symptoms, or have questions about your exposure to this chemical, please make sure to speak up and talk to your supervisor.

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Where should you look for more information about PAA? You can start by reading the label on the container used to store the undiluted form of the chemical. For PAA, this may be a tote, a tank, or even a small plastic container. This slide shows two different ways the concentrated form of PAA is brought into a facility and then pumped throughout the plant in pipes or hoses, usually diluted with water.

You can also ask to read the safety data sheet for the chemical being used. You may see large images on either the container labels or in the safety data sheets. These diamond shaped red outlines with images inside are called pictograms.

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Pictograms represent the main hazards posed by any chemical. For PAA, there are four main pictograms you should be familiar with. The first pictogram of the test tubes being poured on a hand and surface represent corrosion. These signify that the chemical may cause eye damage, break down the skin or cause burns, and it may be damaging to certain metals. The next pictogram is the flame with the solid line under it. This represents that the chemical is flammable and may be reactive in certain conditions. The third pictogram is called the flame over circle. This represents that PAA works as an oxidizer. This means that when oxygen is present, the chemical will be reactive. The final pictogram is the skull and

crossbones. This pictogram lets you know that the chemical may be hazardous to your health and acutely toxic if ingested or inhaled in large quantities. If you feel like you need more information about the use of peracetic acid in your plant, make sure to ask your supervisor or the safety and health representative.

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There are several really important things you should know about peracetic acid. To begin, most PAA is brought into a plant or facility in a concentrated or undiluted form in either a tanker, tote, barrel, or other type of container. Once inside the facility, water is added to the mixture and the concentration of PAA is reduced. Your supervisor should explain to you how the chemical is brought into the plant and distributed for use and how this relates to your exposures.

For example, in its concentrated form, peracetic acid reacts aggressively with soft metals, such as iron, copper, zinc and brass. This is important to know if you happen to be moving or transporting totes or containers of the chemical in the concentrated form. Don't know if you are handling PAA in the concentrated form? You should ask your supervisor what concentration of PAA you will be asked to handle, come in contact with, or work around. Make sure that the only metal that comes in contact with undiluted PAA is stainless steel.

Next, if you have potential exposure to peracetic acid or you are working in a location where you experience irritation from the use of the chemical, ask your supervisor or safety and health manager for personal protective equipment or PPE to prevent skin or mucous membrane contact (like your eyes). This might include being provided with gloves, goggles, a face shield, and/ or a respirator. How do you know what PPE to select? Selection of PPE is determined during a personal protective equipment hazard assessment, which is conducted for each job at a facility by the employer. Information on what type of PPE is appropriate can also be determined by reading the product safety data sheet. We recommend using rubber or neoprene gloves for protection against peracetic acid.

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Especially when working with the undiluted form of PAA, make sure you know where the eye wash and emergency shower is located in the plant. This may be critical in the event of a splash or spill.

When handling PAA, make sure to always store the undiluted form of PAA in its original container in a cool, dry, well-ventilated place away from direct sunlight. Containers storing concentrated forms of PAA should always be equipped with a pressure relief device. If you notice any degradation to the container being used to store PAA, please alert your supervisor immediately.

Finally, if you should experience symptoms of discomfort while working with or around PAA, notify your supervisor or employee representative immediately. It is your right to work in an environment free of recognized hazards and you are protected by OSHA for reporting concerns related to health and safety.

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