

## Keeping Chemical Washdowns Safe

Martin Carter, Graphic Products, Inc.



We all know that compliance with regulations from the Food and Drug Administration (FDA) and other food sector governing bodies drive the need for signs and labels at chemical washdown sites. But there are more to signs and labels than meets the eye.

Washdown areas in the food industry are among the most difficult areas to maintain OSHA compliance for food handling (1910.141(h)) because bacteria can be found in almost any food handling scenario. The standard specifies that, "In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled and stored in such a manner as to be protected against contamination." The food industry — from production to processing — relies on chemical washdown processes to eliminate bacteria. Signs and labels communicate safe plant procedures for these requirements. Because of the harsh environment, standard signs have a tendency to bleed or simply peel right off.

"Anywhere chemicals are used, they should be labeled with potential hazards identified along with what to do if skin or direct contact is made," said Carolyn Ruck, Ruck-Shockey Associates, Inc.

"We use bucket tags on jerry cans to transport chemicals around plants. The bucket tag identifies the product name and includes the respective hazardous material symbol: irritant, acid, caustic, chlorine," said Dana Johnson of Birko, a company that provides food safety solutions to the protein processing, produce and beverage industries.

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So what exactly takes place during the washdown process?

A worker uses a pressure washer to spray down equipment with a variety of chemicals at about 1,000 gallons per minute. As the equipment is sprayed with tremendous pressure at close-range — typically at a distance of about 6 to 8 inches — the chemicals are disbursed into the air.

Exposure to these chemicals is dangerous. Signs and labels become essential tools to communicate critical info, such as how hot the solution must be, or which part or parts of the machine require which chemical. You don't want the printed image on the sign or label to run.

Matching the proper labeling supply to the application takes skill and an understanding of the hundreds of chemicals used at chemical washdown sites.

Look for supplies that comply with FDA standards for indirect food contact and are resistant to strong solvents, chemicals and acetone.

“Self-foaming, general-purpose cleaners; foaming acids; and self-foaming chlorinated caustic cleaners and sanitizers such as chlorine are the most common chemicals used in washdowns,” said Johnson.

Caustic soda and lye are both common names for the chemical sodium hydroxide. Sodium hydroxide is a strong caustic agent available in pure form as pellets or granules and is commonly used in food processing. Precautions should be taken when working around sodium hydroxide:

- If using the dry form, keep it dry (and state this on a label). When combined with water, the reaction is exothermic, meaning it gives off a great deal of heat which could burst the container or cause burns.
- Always wear safety glasses and neoprene, nitrile or natural rubber gloves when working with it.

**Stainless Steel: A Practical Surface for Food Processing Equipment**

In many cases, stainless steel containers, vessels, pumps and scales are the preferred equipment in the food industry.

“Stainless steels have a proven record of being inert (they leach very, very little or no metal components into the food product) and are easily cleaned and sanitized. These properties combined with the ease of fabrication make the stainless steels well suited for food processing applications. Typically other materials such as aluminum, copper alloys and coated carbon steels do not have the same resistance for food processing and cleaning environments,” said Dr. James D. Fritz, TMR Stainless.

“At temperatures below 95° C (203° F), types 304 and 316 stainless steel are resistant to highly concentrated sodium hydroxide — a chemical commonly used in

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food processing chemical washdowns,” said Jim Coady, P. Eng., Atlantic Systems Manufacturing Ltd., a food production equipment manufacturer.

### Preparing Stainless Steel for Labeling

Avoid using cleaners with halogen content when prepping the surface. Also, avoid using abrasive cloths as they could damage the stainless steel surface.

“When labels are used, the adhesive must be free of chlorides. When chloride-containing adhesives are used, the stainless steel surface under the label can suffer crevice corrosion which pock-marks the stainless steel,” Fritz said.

### Ideal Supplies for Stainless Steel

Low-halogen tape supplies are ideal for labeling stainless steel pipes in facilities where long-lasting adhesion is critical.

Halide ions can penetrate and break down the protective layer of stainless steel, making it prone to corrosion. With low-halogen tape, the likelihood of corrosion is minimized. Intended for use on smooth surfaces, this tape has a service temperature range of -40°F to 300°F.

### Testing Supplies

Every application requires supplies suited to its unique conditions. To ensure supplies will perform within their expected environs, look for label suppliers who:

- Test to determine suitability for use on specific warehouse surfaces and, when appropriate, simulation of outdoor weathering, to assure the supply can withstand outdoor conditions.
- Utilize ASTM G155, an industry-wide standard for weather testing which uses UV exposure (an important predictor as to how colors fade and labels age), visible light exposure, water spray and controlled heat.
- Conduct chemical rub tests to give an expectation of the ink and tape’s chemical resistance.
- Immerse supply in typical agents such as alcohol, acetone, Windex, mineral spirits and trisodium phosphate.
- Conduct abrasion tests to verify the abrasion resistance of inks and overlaminates.

Keeping chemical washdown areas safe is a major responsibility for employers and workers who risk exposure to chemicals and unsafe food. Generating awareness about chemical washdown safety is also important to share with the millions of food consumers who may not be aware of these behind-the-scenes processes at the thousands of vegetable, meat and frozen food processing plants around the world.

*Martin Carter is responsible for food industry safety communications programs at Graphic Products. Graphic Products customers include Ocean Spray, Safeway, Tyson*

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*Foods, Kellogg's, Pepsi, Coca Cola, General Mills, JR Simplot and Hershey. For more information, contact [mcarter@graphicproducts.com](mailto:mcarter@graphicproducts.com) [1], call 1-800-788-5572 Ext. 5683 or visit [www.DuraLabel.com](http://www.DuraLabel.com) [2].*

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