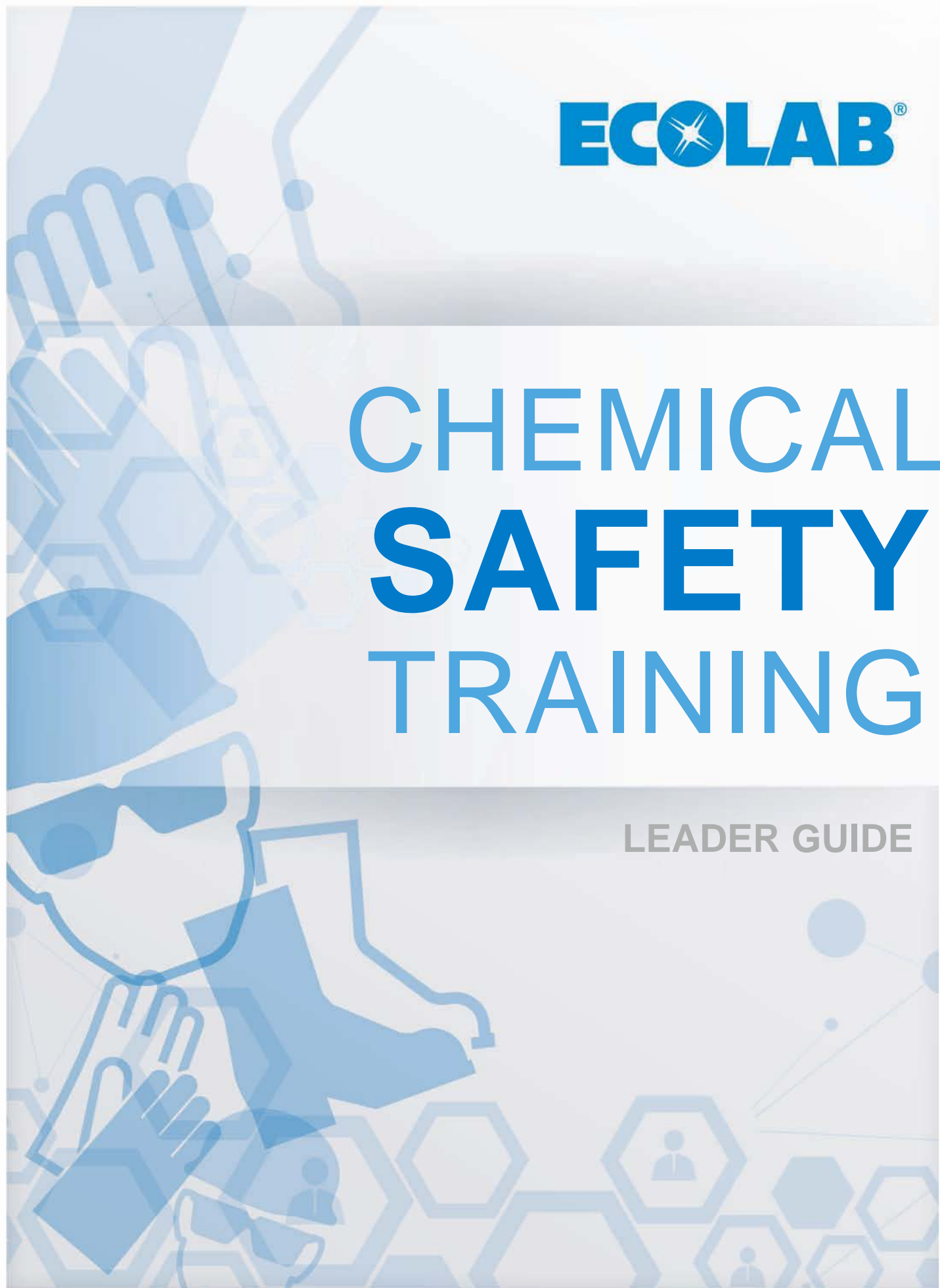




# CHEMICAL **SAFETY** TRAINING

LEADER GUIDE



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## CHEMICAL SAFETY TRAINING

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## PART 1: PROGRAM INTRODUCTION

Welcome to the Ecolab Chemical Safety Training Program. Its purpose is to make certain our customers know how to use our products safely. The program focuses on the Globally Harmonized System for of Classification and Labeling of Chemicals (GHS) and practices that will help workers safely handle chemicals on the job.

This program provides chemical safety training to ensure that workers who use Ecolab products have an understanding of hazardous chemicals and know how to protect themselves from their dangers as required by the Hazard Communication Standard (29 CFR 1910.1200).

This training program is made up of these modules:

- Introduction
- 1. Introduction to Chemical Safety Training
- 2. Safety Data Sheets
- 3. Labeling
- 4. Chemical Handling Best Practices
- Conclusion
- Quiz

In each module, there will be time for discussion and for asking questions.

## PROGRAM OBJECTIVES

After completing this training program participants should be able to achieve the objectives listed below for Modules 1 through 4.

- Module 1:
  - Briefly explain what the GHS is and how it protects workers
  - Describe what a written program is and where to find it in their facility
  - Describe what a chemical inventory is and where to find it in their facility
- Module 2:
  - Describe an SDS
  - Be able to find information on an SDS
  - Locate SDSs at their facility
- Module 3:
  - List the requirements that all labels must meet
  - Identify the types of information shown on Ecolab labels
  - Use the label and the Ecolab Emergency Chart to learn about an Ecolab product
- Module 4:
  - Describe safe work practices when using hazardous chemicals
  - Describe how to respond to hazardous chemical leaks, spills, and emergencies.

## PROGRAM COMPONENTS

The following components are included in this training program:

PROGRAM COMPONENT	DESCRIPTION
This Leader's Guide	A booklet that describes your role as the program facilitator, outlines the content for each module of the training program, and suggests ways to customize the presentation to meet your workers' needs. This booklet mirrors the Student Workbook, but provides instructor notes in the form of Discussion Points on each page.
Student Workbook	A booklet that reviews the content presented in each module and includes both a final quiz and a certificate of completion.
Video	A 20-minute video divided into four segments that cover aspects of Chemical Safety Training.

Along with these components, you will need the following to present this program:

- A computer with a projection screen for the video
- Examples of information and training from the participants' facility (Module 1)
- The facility's written program (Module 1)
- Samples from the facility's chemical inventory (Module 1)
- Enough copies of an Ecolab SDS for yourself and each participant. The SDS should be for a chemical that most or all of the participants use on the job. (Module 2)
- Examples of Ecolab labels or products with labels (Module 3); consult your Ecolab representatives for examples
- An Ecolab Emergency Chart posted on the wall (Module 3); consult your Ecolab representatives for examples
- Samples of PPE routinely used (Module 4)

## BEFORE THE PROGRAM

Completing the following steps will help you prepare for the program and present it successfully.

1. **Preview.** Be sure to preview the video and read *all* program materials before you present this training program. Become familiar with the objectives for Modules 1 through 4.
2. **Practice.** Rehearse your presentation before you give it. Plan how you will introduce topics, make the transitions from one topic to the next, and how you will conclude the topics. Also time your presentation.
3. **Plan.** Make arrangements ahead of time for a training room and equipment. Also, check to see that you have all of the program components and materials needed to present the program.
4. **Prepare.** Before the start of the program, make sure the room is available and that the equipment is operating properly and set up the way you want it.

## PROGRAM FLOW

This training program is designed to give you the flexibility to customize it to meet the training needs and time constraints of your audience. You may either present the entire program at one time or present selected modules. If audience members require only a refresher course on Safety Data Sheets, for example, you can present just that module.

This table outlines the training program with the suggested timings for a one-hour presentation.

MODULE	CONTENT	MODE OF INSTRUCTION	LENGTH (Minutes)
1: Introduction	▪ Greeting	Facilitator presentation	3
	▪ Chemical safety ▪ Program overview	Video segment 1	5
	▪ Video review ▪ Information and training ▪ Written program ▪ Chemical inventory	Facilitator presentation	7
2: Safety Data Sheets	▪ What an SDS contains	Video segment 2	5
	▪ Video review ▪ How to read an Ecolab SDS	Facilitator presentation	5
	▪ Purpose of labels ▪ Your employer's responsibilities ▪ Your responsibilities	Video segment 3	5
3: Labeling	▪ Video review ▪ Reading an Ecolab hazard warning label	Facilitator presentation	5
	▪ Avoiding hazards ▪ Responding to emergencies	Video segment 4	5
	▪ Video review ▪ PPE required at your facility ▪ Emergency procedures at your facility	Facilitator presentation	7
4: Safe Work Practices	▪ Final quiz ▪ Discussion of quiz answers	Facilitator presentation	13
Total Time			60

## FACILITATING THE SESSION

As you conduct this training session, remember to focus on the needs of the participants. Get them actively involved by encouraging questions and comments. However, remember to keep discussions on track and within the time limits of the program. If you are unable to answer questions that workers raise, direct them to ask their supervisor, other appropriate personnel at their facility, or your Ecolab representative.

## MODULE OUTLINES

The remainder of the Leader's Guide mirrors the Student Handbook in content and page numbering. Look for instructor notes on each page for additional questions, answers, and presentation notes. Instructor notes will be in the form of Discussion Points and will be surrounded by a black bordered box as below.



### DISCUSSION POINTS

**GREETING**    **Welcome** participants to the class.

**Introduce** the Chemical Safety Training program:

- Purpose
- Components
  - Video
  - Discussion
  - Student Workbook

**VIDEO**

**Direct** participants to read the module introduction and objectives on page 3 in their workbook.



**Show** Segment 1 of the video.



# MODULES

**ECOLAB®**

## PROGRAM OVERVIEW

Welcome to the Ecolab Chemical Safety Training Program. Its purpose is to make certain you know how to use Ecolab products safely. During the course of this program you'll find out about the Globally Harmonized System for Hazard Communication (GHS) and practices that will help you safely handle chemicals in the course of your job.

### Program Contents

This training program is made up of these modules:

- Introduction
- 1. Introduction to Chemical Safety Training
- 2. Safety Data Sheets
- 3. Labeling
- 4. Chemical Handling Best Practices
- Conclusion
- Quiz

Some of the information in the program is presented in the video and some is presented by the facilitator. In each module, there will be time for discussion and for asking questions.

### The Student Workbook

The purpose of this workbook is to help you remember important information about chemical safety. Starting on the next page is a review of the information presented in this training program. You'll find outlines to help you remember what you saw in the video. There are also discussion notes, with places for you to fill in points made during discussions.

At the front of the workbook is a certificate that shows you have taken part in this program. At the back is a quiz to test your understanding of the material covered.

We hope that by the end of this program you'll feel that you're able to make the right choices about chemical safety. Good luck!



# MODULE 1

## INTRODUCTION TO CHEMICAL SAFETY TRAINING

**ECOLAB<sup>®</sup>**

## INTRODUCTION TO CHEMICAL SAFETY TRAINING

### VIDEO OVERVIEW



Each day your job requires you to clean and sanitize equipment and environmental surfaces. Using cleaning chemicals is a necessary part of the job.

This video introduces you to the hazards that chemicals can present on the job. It also looks at things your employer must do, by law, to help keep you safe when working with chemicals.



## DISCUSSION POINTS

**Explain** that the purpose of this activity is to help them remember points covered during the discussion and to give them information that they can refer back to in the future.

In this section, we will cover these topics:

- **Information and Training**  
Cite and show examples of information and training that employees receive at their facility
- **Written Hazard Communication Plan**  
Show a copy of the facility's written Hazard Communication Plan Tell participants where they can find it
- **Chemical Inventory List**  
Show sample pages from the facility's chemical inventory list Tell participants where they can find it

**Answer** any questions participants may have before ending the training program or direct participants to ask their supervisor if you are unable to answer the questions.

## MODULE 1 – INTRODUCTION TO CHEMICAL SAFETY TRAINING

### VIDEO OVERVIEW



These topics were covered in Segment 1 of the Chemical Safety Training video:

- **Chemicals**  
Make food products safe to eat and drink when used properly  
Can harm people or the environment without proper handling
- **Exposure to chemicals can result in**  
Physical hazards like fire or hazardous vapors Health hazards, such as:
  - **Skin irritation**
  - **Burns**
  - **Blindness**
- **United Nation's Globally Harmonized System**  
A system for standardizing and harmonizing the classification and labeling of chemicals  
Mandates a standard format for information on every hazardous chemical
- **All regulatory agencies that govern the processing of food in some way must address the need for safe and proper use of chemicals**
  - 1. Employee information and training**
    - About the hazardous chemicals used in your workplace
    - About how to work safely with chemicals
  - 2. A written program**
    - That explains your employer's hazard communication plan
    - That is available to all employees

## MODULE 1 – INTRODUCTION TO CHEMICAL SAFETY TRAINING

### VIDEO OVERVIEW



#### 3. A chemical inventory

- Includes all hazardous chemicals used or stored in your workplace
- Can be written on paper or stored on a computer
- Must be available to all employees
- Should be kept up to date

#### 4. Safety Data Sheets, or SDSs

- Required for each hazardous chemical used in your workplace
- Includes this information
  - Chemical description
  - Hazards
  - Safe use and handling
  - Safe storage
- Must be available to all employees on all shifts
- Must be kept up to date

#### 5. Labeling

- Required for all chemical containers
- Must clearly identify the chemical
- Must provide information similar to the SDS, but not as detailed



## DISCUSSION POINTS

If students are not able to provide this information, ask them to fill in the information when they return to their work station so they have it on hand if they need it.

### MODULE 1 – INTRODUCTION TO CHEMICAL SAFETY TRAINING

Fill in the blanks below based on the information you gain from the group discussion of Module 1 – Introduction to GHS.

1. Some examples of information and training about hazardous chemicals in my facility are:

---

---

2. The person in charge of the written hazard communication program in my facility is:

---

3. The written hazard communication program in my facility is located:

---

4. The person in charge of the chemical inventory in my facility is:

---

5. The chemical inventory list in my facility is located:

---

6. In the space below note other important information you gain from the group discussion of Module 1.

---

---



# MODULE 2

## SAFETY DATA SHEETS

**ECOLAB®**

## MODULE 2 – SAFETY DATA SHEETS

### MODULE OVERVIEW

### MODULE OBJECTIVES



This module introduces you to Safety Data Sheets, called SDSs, and the information they contain.

After completing this module you should be able to:

- Describe an SDS
- Be able to find information on an SDS
- Locate SDSs in your facility



## DISCUSSION POINTS

**Direct** participants to read the Safety Data Sheet introduction and objectives in their workbook. **Show** Segment 2 of the video.

Ask the group these questions to review the video:

▪ **What is the purpose of an SDS?**

*It provides you with answers to many questions about the chemicals you use on the job.*

▪ **What SDS requirements must your employer meet?**

*Your employer must provide an SDS for each hazardous chemical used in your workplace, and they must be available to all employees on all shifts.*

▪ **What types of information can you find on an SDS?**

*Answers should include: Manufacturer's name; Chemical name and use; Hazards identification; Chemical composition; First Aid measures; Fire hazards and fire-fighting; Accidental release measures; Handling and storage; Exposure controls; PPE; Physical and chemical properties; Stability and security; Toxicological information; Transport information*

**Direct** participants to Discussion Notes covering SDSs on page 15 in their workbook.

**Ask** them to fill in the discussion notes for Module 2 during the course of the discussion.

**Pass out** a copy of an Ecolab SDS to each participant.

**Ask** questions about the chemical and **direct** participants to find the answers on the SDS. Questions could include:

- What is the name of this chemical?
- What is it used for?
- What PPE do you need when using this chemical?
- What first aid procedures should you follow in case of an accident with this chemical?
- What number would you call in case of emergency?

## MODULE 2 – SAFETY DATA SHEETS

### VIDEO OVERVIEW



These topics were covered in Segment 2 of the Chemical Safety Training video:

- **A Safety Data Sheet (or SDS)**
  - Provides you with answers to many questions about the chemicals you use on the job
  - Must be available to all workers on all shifts for each hazardous chemical used in your workplace
  - Because of GHS, all SDSs will all be broken down into the same sections, no matter what the chemical is
- **The information on an SDS**
  - Comes from the chemical's manufacturer or importer
  - Can look different from one another
  - All list the same kind of information



There are 16 sections on an SDS. Following is an example of the types of information you can find on an Ecolab SDS for the product Advantis™ FC, broken down by section.

**SECTION 1** is Chemical product and company identification.

<b>SAFETY DATA SHEET</b>		<b>ECOLAB</b>
ADVANTIS FC		
<b>Section 1. Chemical product and company identification</b>		
<b>Product name</b>	: ADVANTIS FC	
<b>Recommended use and restrictions</b>	: Cleaning product	
Use only for the purpose on the product label.		
<b>Product dilution information</b>	: Up to 7.68 oz/gal or 60 mL/L in water	
<b>Supplier's information</b>	: Ecolab Inc. Food & Beverage Division 370 N. Wabasha Street St. Paul, MN 55102 1-800-392-3392	
<b>Code</b>	: 915006	
<b>Date of issue</b>	: 20 Aug 2013	
EMERGENCY HEALTH INFORMATION: 1-800-328-0026 Outside United States and Canada CALL 1-651-222-5352 (in USA)		

SECTION 2 is Hazards identification.

### Section 2. Hazards identification

Product AS SOLD		Product AT USE DILUTION	
<b>GHS Classification</b>	: SKIN CORROSION/IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	<b>GHS Classification</b>	: SKIN CORROSION/IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
<b>GHS label elements</b>			
<b>Signal word</b>	: Danger	<b>Signal word</b>	: Danger
<b>Symbol</b>	: 	<b>Symbol</b>	: 
<b>Hazard statements</b>	: Causes severe skin burns and eye damage.	<b>Hazard statements</b>	: Causes severe skin burns and eye damage.
<b>Precautionary statements</b>			
<b>Prevention</b>	: Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wash hands thoroughly after handling. Mixing this product with acid or ammonia releases chlorine gas.	<b>Prevention</b>	: Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wash hands thoroughly after handling.
<b>Response</b>	: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.	<b>Response</b>	: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
<b>Storage</b>	: No other specific measures identified.	<b>Storage</b>	: No other specific measures identified.
<b>Disposal</b>	: See section 13 for waste disposal information.	<b>Disposal</b>	: See section 13 for waste disposal information.
<b>Other hazards</b>	: None known.	<b>Other hazards</b>	: None known.

SECTION 3 describes the composition of the chemical.

### Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

#### Product AS SOLD

Hazardous ingredients	Concentration Range (%)	CAS number
SODIUM HYDROXIDE	4	1310-73-2
sodium hypochlorite	4	7681-52-9
COCAMINE OXIDE	1 - 5	61788-90-7
PALMITAMINE OXIDE	1 - 5	7128-91-8
MYRISTAMINE OXIDE	1 - 5	3332-27-2
LAURAMINE OXIDE	1 - 5	1643-20-5

#### Product AT USE DILUTION

Within the present knowledge of the supplier, this product does not contain any hazardous ingredients in quantities requiring reporting, in accordance with local regulations.

SECTION 4 describes first aid measures, including important symptoms and effects of exposure.

#### Section 4. First aid measures

	Product AS SOLD	Product AT USE DILUTION
<b>Eye contact</b>	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>Skin contact</b>	: Take off immediately all contaminated clothing. Rinse skin with water or shower. Get medical attention immediately. Wash clothing before reuse. Clean shoes thoroughly before reuse.	Take off immediately all contaminated clothing. Rinse skin with water or shower. Get medical attention immediately. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Inhalation</b>	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.
<b>Ingestion</b>	: Get medical attention immediately. Rinse mouth. Do not induce vomiting.	Get medical attention immediately. Rinse mouth. Do not induce vomiting.
<b>Protection of first-aiders</b>	: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.	
<b>Notes to physician</b>	: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.	
<b>See toxicological information (section 11)</b>		

SECTION 5 describes firefighting measures.

#### Section 5. Fire-fighting measures

<b>Product AS SOLD</b>	
<b>Suitable fire extinguishing media</b>	: Use water spray, fog or foam.
<b>Specific hazards arising from the chemical</b>	: In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
<b>Specific fire-fighting methods</b>	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6 describes any special clean-up procedures in the event of a spill.

#### Section 6. Accidental release measures

	Product AS SOLD	Product AT USE DILUTION
<b>Personal precautions</b>	: Initiate company's spill response procedures immediately. Keep people out of area. Put on appropriate personal protective equipment (see section 8). Do not touch or walk through spilled material.	Initiate company's spill response procedures immediately. Keep people out of area. Put on appropriate personal protective equipment (see section 8). Do not touch or walk through spilled material.
<b>Environmental precautions</b>	: Avoid contact of spilled material and runoff with soil and surface waterways.	Avoid contact of spilled material and runoff with soil and surface waterways.
<b>Methods for cleaning up</b>	: Follow company's spill procedures. Keep people away from spill. Put on appropriate personal protective equipment (see section 8). Absorb/neutralize liquid material. Use a tool to scoop up solid or absorbed material and put into appropriate labeled container. Use a tool to scoop up solid or absorbed material and place into appropriate labeled waste container. Use a water rinse for final clean-up.	Follow company's spill procedures. Keep people away from spill. Put on appropriate personal protective equipment (see section 8). Absorb/neutralize liquid material. Use a tool to scoop up solid or absorbed material and put into appropriate labeled container. Use a tool to scoop up solid or absorbed material and place into appropriate labeled waste container. Use a water rinse for final clean-up.

SECTION 7 outlines the safe ways to work with and store the chemical.

Section 7. Handling and storage		
	<b>Product AS SOLD</b>	<b>Product AT USE DILUTION</b>
<b>Handling</b>	: Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Use only with adequate ventilation. Wash thoroughly after handling. Mixing this product with acid or ammonia releases chlorine gas.	Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Storage</b>	: Keep out of reach of children. Keep container tightly closed.  Do not store above the following temperature: 50°C	Keep out of reach of children. Keep container tightly closed.

SECTION 8 outlines exposure limits and personal protection.

Section 8. Exposure controls/personal protection		
<b>Control parameters</b>		
<b>Ingredient name</b>	<b>Exposure limits</b>	
SODIUM HYDROXIDE	<b>ACGIH TLV (United States, 3/2012).</b> C: 2 mg/m <sup>3</sup> <b>OSHA PEL (United States, 6/2010).</b> TWA: 2 mg/m <sup>3</sup> 8 hours. <b>NIOSH REL (United States, 6/2009).</b> CEIL: 2 mg/m <sup>3</sup>	
sodium hypochlorite	<b>AIHA WEEL (United States, 10/2011).</b> STEL: 2 mg/m <sup>3</sup> 15 minutes. <b>ACGIH TLV (United States, 3/2012).</b> STEL: 2.9 mg/m <sup>3</sup> 15 minutes. STEL: 1 ppm 15 minutes. TWA: 1.5 mg/m <sup>3</sup> 8 hours. TWA: 0.5 ppm 8 hours. <b>OSHA PEL (United States, 6/2010).</b> CEIL: 3 mg/m <sup>3</sup> CEIL: 1 ppm	
chlorine	<b>NIOSH REL (United States, 6/2009).</b> CEIL: 0.5 ppm 15 minutes. CEIL: 1.45 mg/m <sup>3</sup> 15 minutes.	
	<b>Product AS SOLD</b>	<b>Product AT USE DILUTION</b>
<b>Appropriate engineering controls</b>	: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.
<b>Personal protection</b>		
<b>Eye protection</b>	: Use chemical splash goggles. For continued or severe exposure wear a face shield over the goggles.	Use chemical splash goggles. For continued or severe exposure wear a face shield over the goggles.
<b>Hand protection</b>	: Use chemical-resistant, impervious gloves.	Use chemical-resistant, impervious gloves.
<b>Skin protection</b>	: Use synthetic apron, other protective equipment as necessary to prevent skin contact.	Use synthetic apron, other protective equipment as necessary to prevent skin contact.
<b>Respiratory protection</b>	: A respirator is not needed under normal and intended conditions of product use.	A respirator is not needed under normal and intended conditions of product use.
<b>Hygiene measures</b>	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.	

**SECTION 9** describes the physical and chemical properties of the chemical such as its appearance, odor, flammability, and explosive limits.

Section 9. Physical and chemical properties		
	Product AS SOLD	Product AT USE DILUTION
Physical state	: Liquid.	Liquid.
Color	: Yellow [Light]	Colorless
Odor	: chlorine	chlorine
pH	: 13.5 to 14 (100%)	12 to 13
Flash point	: > 100°C	> 100°C
Explosion limits	: Not available.	
Flammability (solid, gas)	: Not available.	
Melting point	: Not available.	
Boiling point	: >100°C (>212°F)	
Evaporation rate (butyl acetate = 1)	: Not available.	
Vapor pressure	: Not available.	
Vapor density	: Not available.	
Relative density	: 1.11 to 1.12 (Water = 1)	
Solubility	: Easily soluble in the following materials: cold water and hot water.	
Partition coefficient: n-octanol/water	: Not available.	
Auto-ignition temperature	: Not available.	
Decomposition temperature	: Not available.	
Odor threshold	: Not available.	
Viscosity	: Not available.	

**SECTION 10** describes how stable the chemical is and what conditions can cause reactivity.

Section 10. Stability and reactivity	
<b>Product AS SOLD</b>	
Stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Materials to avoid	: Highly reactive or incompatible with the following materials: acids. Slightly reactive or incompatible with the following materials: organic materials and metals. Mixing this product with acid or ammonia releases chlorine gas.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11** identifies the degree to which the chemical is poisonous as well as other potential health hazards.

### Section 11. Toxicological information

**Route of exposure** : Skin contact, Eye contact, Inhalation, Ingestion

#### Product AS SOLD

#### Symptoms

##### Eye contact

: Adverse symptoms may include the following:  
pain  
watering  
redness

##### Skin contact

: Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

##### Inhalation

: Adverse symptoms may include the following:  
coughing  
Respiratory tract irritation

##### Ingestion

: Adverse symptoms may include the following:  
stomach pains

#### Acute toxicity

##### Eye contact

: Causes serious eye damage.

##### Skin contact

: Causes severe burns.

##### Inhalation

: May cause respiratory irritation.

##### Ingestion

: May cause burns to mouth, throat and stomach.

#### Product AT USE DILUTION

Adverse symptoms may include the following:  
pain  
watering  
redness

Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

Adverse symptoms may include the following:  
coughing  
Respiratory tract irritation

Adverse symptoms may include the following:  
stomach pains

Causes serious eye damage.

Causes severe burns.

May cause respiratory irritation.

May cause burns to mouth, throat and stomach.

#### Toxicity data

##### Product/ingredient name

sodium hypochlorite	LD50 Dermal	Rabbit	>10000 mg/kg
	LD50 Oral	Rat	5230 mg/kg
amines, coco alkylidimethyl, n-oxides	LD50 Dermal	Rat	>2174 mg/kg
	LD50 Oral	Rat	846 mg/kg
1-hexadecanamine, n,n-dimethyl-, n-oxide	LD50 Dermal	Rat	>2000 mg/kg
	LD50 Oral	Rat	>20000 mg/kg
1-tetradecanamine, n,n-dimethyl-, n-oxide	LD50 Dermal	Rat	>2000 mg/kg
	LD50 Oral	Rat	>1495 mg/kg
lauryldimethylamine oxide	LD50 Oral	Rat	1303 mg/kg

#### Chronic toxicity

##### Carcinogenicity

: No known significant effects or critical hazards.

##### Mutagenicity

: No known significant effects or critical hazards.

##### Teratogenicity

: No known significant effects or critical hazards.

##### Developmental effects

: No known significant effects or critical hazards.

##### Fertility effects

: No known significant effects or critical hazards.

**SECTIONS 12-15** provide additional information about the chemical's environmental impact, proper disposal practices, how to safely transport the chemical, and specific regulations that apply.

### Section 12. Ecological information

#### Product AS SOLD

**Ecotoxicity** : This material is toxic to aquatic life. This material is harmful to aquatic life with long lasting effects.

#### Aquatic and terrestrial toxicity

Product/ingredient name	Result	Species	Exposure
sodium hydroxide	Acute EC50 40 mg/l	Daphnia	48 hours
sodium hypochlorite	Acute EC50 0.071 mg/l	Daphnia	48 hours
amines, coco alkyl(dimethyl, n-oxides	Acute LC50 <1 mg/l	Fish	96 hours
1-hexadecanamine, n,n-dimethyl-, n-oxide	Acute LC50 0.138 mg/l	Fish	96 hours
1-tetradecanamine, n,n-dimethyl-, n-oxide	Acute EC50 0.19 mg/l	Aquatic plants	72 hours
lauryldimethylamine oxide	Acute LC50 1.1 mg/l	Daphnia	48 hours

**Other adverse effects** : No known significant effects or critical hazards.

### Section 13. Disposal considerations

**Disposal methods** : **Product AS SOLD**  
: Avoid disposal. Attempt to use product completely in accordance with intended use. Disposal should be in accordance with applicable regional, national and local laws and regulations.

**RCRA classification** : Unused product is D002 (Corrosive)

#### **Product AT USE DILUTION**

Avoid disposal. Attempt to use product completely in accordance with intended use. Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Section 14. Transport information

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

#### DOT

**DOT Classification** : UN1824  
**DOT Proper shipping name** : Sodium hydroxide solution  
**Class** : 8  
**Packing group** : II

#### IMO/IMDG

**IMO/IMDG Classification** : UN1824  
**IMO/IMDG Proper shipping name** : SODIUM HYDROXIDE SOLUTION  
**Class** : 8  
**Packing group** : II

For transport in bulk, see shipping documents for specific transportation information.

#### **Product AT USE DILUTION**

Not intended for transport.

### Section 15. Regulatory information

#### Product AS SOLD

#### U.S. Federal regulations

**TSCA 8(b) inventory** : All components are listed or exempted.  
**SARA 302/304/311/312 extremely hazardous substances** : No listed substance  
**SARA 302/304 emergency planning and notification** : No listed substance

<u>SARA 313</u>	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: No listed substance		

**California Prop. 65** : No listed substance

**SECTION 16** provides additional information about the chemical, including the date when the SDS was prepared or last revised.

### Section 16. Other information

Product AS SOLD

Hazardous Material  
Information System (U.S.A.) :

Health	*	3
Flammability		0
Physical hazards		0

National Fire Protection  
Association (U.S.A.) :

Health	0	Flammability
3	0	Instability/Reactivity
		Special

Date of issue : 20 Aug 2013  
Prepared by : Regulatory Affairs  
1-800-352-5326

#### Notice to reader

The above information is believed to be correct with respect to the formula used to manufacture the product in the country of origin. As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.

Product AT USE DILUTION

Health		3
Flammability		0
Physical hazards		0

Health	0	Flammability
3	0	Instability/Reactivity
		Special



## DISCUSSION POINTS

If students are not able to provide this information, ask them to fill in the information when they return to their work station so they have it on hand if they need it.

### MODULE 2 – SAFETY DATA SHEETS

Fill in the blanks below based on the information you gain from the group discussion of Module 2.

1. In my facility, SDSs are located

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2. If I have questions about the information on an SDS, the person to contact is:

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3. In the spaces below note other important information you gain from the group discussion of Module 2.

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# MODULE 3

## LABELING

**ECOLAB®**

## MODULE 3 – LABELING

### MODULE OVERVIEW

This module looks at the GHS requirements for labels and describes what you can learn about a chemical from an Ecolab label.

### MODULE OBJECTIVES



After completing this module you should be able to:

- List the requirements that all labels must meet
- Identify the types of information shown on Ecolab labels
- Use the label and the Ecolab Emergency Chart to learn about an Ecolab product



## DISCUSSION POINTS

**Direct** participants to read the Labeling introduction and objectives in their workbook.

**Show** Segment 3 of the video.

**Ask** the group these questions to review the video:

- **What's the fastest and easiest way to get information about the chemicals you use on the job?**  
*Read the label.*
- **What does GHS require for all labels?**  
*Answers should include:*
  - *They must list the manufacturer's name and address.*
  - *They must identify the name of the chemical and its hazards.*
- **Does the law require all labels to look the same?**
  - *No. Labels may look different from one another as long as they include the information required by law.*
- **What other kind of information can you find on an Ecolab label?**
  - *The same kind of information you find on an SDS, but less detailed.*

**Direct** participants to Discussion Notes covering SDSs on page 18 in their workbook.

## MODULE 3 - LABELING

### VIDEO OVERVIEW



These topics were covered in Segment 3 of the Chemical Safety Training video:

#### Read labels

- Before you begin work with any chemical
- To find out important information about the chemicals you use on the job

#### Labels

- May look different from one another
- Contain the same kind of information you find on an SDS, but less detailed
- Color can also convey information. On U.S. and Canadian Ecolab labels, alkaline cleaners have green color coding on the labels, and acid products have dark pink or red
- Must meet these requirements. Include the following six elements:
  - Product identifier
  - Signal word
  - Hazard statement
  - Pictogram(s)
  - Precautionary statement
  - Supplier identification

#### Labeling

- Is supplied by the chemical manufacturer or importer on the containers of chemicals that enter your workplace
- Must be applied by you to any small containers of chemicals that you fill from larger containers

#### Ecolab bulk product storage and labeling

- Have additional requirements and training
- Can be explained by your supervisor

#### Responsibilities

- Your employer must have the chemical containers in your workplace labeled.
- You must immediately notify your supervisor if you find labels that are unreadable or missing.

# MODULE 3 – LABELING

## VIDEO OVERVIEW



Below is an example of the type of information you can find on an Ecolab label.

**Product identifier**

**Advantis™ FC**

**Chlorinated Alkaline Cleaner**  
Nettoyant alcalin chloré  
Limpiador alcalino con cloro

**Pictogram**

**Signal word**

**Hazard statement**

**Precautionary statement**

**Supplier identification**

**ECOLAB®**

**Advantis FC**

**Chlorinated Alkaline Cleaner**  
Nettoyant alcalin chloré  
Limpiador alcalino con cloro

**Advantis FC**  
KEEP OUT OF REACH OF CHILDREN  
Danger  
Causes severe skin burns and eye damage.

**Advantis FC**  
GARDER HORS DE LA PORTÉE DES ENFANTS  
Danger  
Provoque des brûlures de la peau et des lésions oculaires graves.

**Advantis FC**  
MANTÉNGASE FUERA DEL ALCANCE DE LOS NIÑOS  
Peligro  
Provoca graves quemaduras en la piel y lesiones oculares.

**Supplier identification**

**ECOLAB®**

## MODULE 3 – LABELING



## DISCUSSION POINTS

If students are not able to provide this information, ask them to fill in the information when they return to their work station so they have it on hand if they need it.

**DISCUSSION  
NOTES**

Ecolab labels come in a variety of colors. In the U.S. and Canada, these colors correspond to the Ecolab Emergency Chart, a tool that provides first aid, PPE (Personal Protective Equipment), and other necessary product information. Fill in the chart below for Ecolab chemicals you use on the job.

PRODUCT NAME	COLOR OF LABEL	TYPE OF CHEMICAL

In the spaces below note other important information you gain from the group discussion of Module 3.

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# MODULE 4

## CHEMICAL HANDLING BEST PRACTICES

**ECOLAB<sup>®</sup>**

## MODULE 4 – CHEMICAL HANDLING BEST PRACTICES

### MODULE OVERVIEW

This module covers what employees must do to keep themselves and others safe when working with hazardous chemicals.

### MODULE OBJECTIVES



After completing this module you should be able to:

- Describe safe work practices when using hazardous chemicals
- Describe how to respond to hazardous chemical leaks, spills, and emergencies at your facility



## DISCUSSION POINTS

**Direct** participants to read the Chemical Handling Best Practices introduction and objectives in their workbook.

**Show** Segment 4 of the video.

**Ask** the group these questions to review the video:

- **What are some things you should always do when working with hazardous chemicals?** *Answers should include:*
  - Remove all jewelry.
  - Wear the proper PPE.
  - Cuff gloves.
  - Wear sleeves outside of gloves.
  - Wear pant legs outside of boots.
  - Wash and sanitize your hands thoroughly before starting work and after breaks
- **What are some things that you should never do when working with hazardous chemicals?** *Answers should include:*
  - Never eat, drink, smoke, or apply cosmetics near hazardous chemicals.
  - Never use a drinking glass or cup to measure or carry chemicals.
  - Never pour chemicals above your head.
  - Never add water to caustics or strong corrosives; always add the chemical to cool water.
  - Never mix chemicals unless directed to do so.
  - Never point a high-pressure rinse hose at anyone.
  - Never carry chemical products in an open pail.

## MODULE 4 – CHEMICAL HANDLING BEST PRACTICES

### VIDEO OVERVIEW



These topics were covered in Module 4 of the Chemical Safety Training video:

- **What you can do to keep safe when working with hazardous chemicals**
  - Remove all jewelry.
  - Wear the proper PPE (Personal Protective Equipment).
  - Cuff gloves.
  - Wear sleeves outside of gloves.
  - Wear pant legs outside of boots.
  - Wash and sanitize your hands thoroughly before starting work and after breaks.
- **Steps you can take to avoid hazards**
  - Never eat, drink, smoke, or apply cosmetics near hazardous chemicals.
  - Never use a drinking glass or cup to measure or carry chemicals.
  - Never pour chemicals above your head.
  - Never add water to caustic or strong corrosives; always add the chemical to cool water.
  - Never mix chemicals *unless* directed to do so.
  - Never point a high-pressure wash or rinse hose at anyone.
  - Never carry chemical products in an open pail.
- **Safety tips to follow if you are instructed to mix chemicals**
  - Use the proper PPE.
  - Always add chemicals to a clean, closed container.
  - Dissolve caustics and alkalis in cool water, never hot water.
  - Stand back and pour chemicals in water slowly to avoid burns.
  - Keep acids and chlorinated products apart. (They should never mix in a common drain.)

## MODULE 4 – CHEMICAL HANDLING BEST PRACTICES

### VIDEO OVERVIEW



In case an accident happens when you're working with hazardous chemicals

- **Be prepared by knowing:**
  - Basic first aid
  - The location of wash stations and emergency showers
  - Company procedures for handling spills or leaks and for responding to injuries
- **Act quickly and do these things:**
  - Ask a co-worker to call for help immediately.
  - Stop an injured person who's running, even if you must physically restrain the person.
  - Evaluate the situation and, if necessary, do the following:
    - Remove contaminated clothing.
    - Flush eyes or skin with cool water.
  - Give the product label or SDS to medical personnel if the injured person needs treatment.



## DISCUSSION POINTS

**Direct** participants to Discussion Notes on page 28 of their workbook.

**Ask** them to fill in the discussion notes for Module 4 during the course of the discussion.

**Explain** that the purpose of the discussion is to focus on information specific to the participants' facility.

**Cover** these topics during the course of the discussion:

- The PPE commonly required when working with chemicals
- The location of emergency showers and eye wash stations
- Special safety and emergency procedures that all employees should know. Be sure to include the following points:
  - There may be special procedures concerning the handling of chemical spills.
  - Employees will learn about any special procedures from their supervisors.
  - Employees responsible for cleaning up chemical spills must receive additional training.

## MODULE 4 – CHEMICAL HANDLING BEST PRACTICES



### DISCUSSION POINTS

If students are not able to provide this information, ask them to fill in the information when they return to their work station so they have it on hand if they need it.

Fill in the blanks below based on the information you gain from the group discussion of Module 4.

1. The following PPE is required in my facility when handling hazardous chemicals:

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2. Emergency showers and eyewash stations are located:

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## MODULE 4 – CHEMICAL HANDLING BEST PRACTICES

3. Special safety procedures that we follow in my facility when working with chemicals are:

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4. In case of an accident involving hazardous chemicals, the emergency procedures we follow in my facility include:

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5. In the spaces below note other important information you gain from the group discussion of Module 4.

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## MODULE 4 – CHEMICAL HANDLING QUIZ



## DISCUSSION POINTS

**Direct** participants to the quiz on page 30 in their workbook.

**Ask** participants to complete the quiz.

**Ask** volunteers for the answer to each of the quiz questions. (The questions and answers appear on the following pages.)

**Answer** any questions participants may have before ending the training program or **direct** participants to ask their supervisor if you are unable to answer the questions.

**Thank** participants for taking part in the training program.

## CHEMICAL SAFETY TRAINING QUIZ

Name: \_\_\_\_\_

Location: \_\_\_\_\_ Date: \_\_\_\_\_

Answer the following questions about the Chemical Safety Training. Circle the best answer to each question.

1. Which of the following hazards would be considered a physical hazard?
  - a. A 3<sup>rd</sup> degree burn
  - b. Flammability**
  - c. Skin irritation
  - d. Watering eyes
2. Which of the following consists of 16 sections that provide detailed information about a chemical, its hazards, how to safely use it, what makes it up and what PPE to use when handling?
  - a. Label
  - b. Chemical Inventory
  - c. Safety Data Sheet or SDS**
  - d. The Written Program
3. Which of the following sections would you refer to on an SDS if you wanted to find out information about how a chemical should look or smell?
  - a. Section 2 – Hazards Identification
  - b. Section 3 – Composition/Ingredient Information
  - c. Section 9 – Physical and Chemical Properties**
  - d. Section 11 – Toxicological Information
4. This element on a label would let you know the severe the hazard is.
  - a. Signal word**
  - b. Hazard statement
  - c. Pictogram
  - d. Supplier identification
5. In the U.S. and Canada, Ecolab uses colors on labels to help convey information. What color coding should you see on an acid product?
  - a. Orange
  - b. Blue
  - c. Green
  - d. Red or Dark Pink**

6. **If you find a chemical with a torn or illegible label, you should:**
  - a. Write the name of the chemical on the torn label so others know what it is.
  - b. Go ahead and use the chemical so it won't go to waste.
  - c. Dump the chemical into a drain so no one uses it.
  - d. Tell your Supervisor.**
  
7. **Which of the following steps will help you stay safe when using chemicals?**
  - a. Remove all jewelry.
  - b. Wear the proper PPE.
  - c. Wash and sanitize your hands thoroughly before starting work or after breaks.
  - d. All of the above.**
  
8. **Which of the following steps should you take to avoid hazards when handling chemicals?**
  - a. Never add water to caustic or strong corrosives.
  - b. Never eat, drink, smoke, or apply cosmetics near hazardous chemicals.
  - c. Never mix chemicals *unless* directed to do so.
  - d. All of the above.**
  
9. **Which of the following statements is true regarding the use of PPE?**
  - a. It is not necessary to wash your hands after you remove PPE.
  - b. Wear pant legs inside of your boots.
  - c. Cuff your chemical-resistant gloves and wear your sleeves outside the gloves.**
  - d. Cuff your chemical-resistant gloves and wear your sleeves inside the gloves.
  
10. **It is your responsibility to know which of the following in case an accident occurs?**
  - a. You should know where eye wash stations and emergency showers are located.
  - b. You should know company procedures for handling spills and what your role is.
  - c. You should know who emergency contacts are to call in case of an emergency.
  - d. All of the above.**



# Certificate of Course Completion

*This is to certify that*

*\_\_\_\_\_*  
*has successfully completed the Ecolab Chemical Safety Training*

**Date**

**Trainer**

**Ecolab Representative**

**Plant Manager**

As with any OSHA mandated workplace training program or procedure, our customers have the ultimate legal responsibility for the components of their sanitation program. Chemical Safety training is a tool provided to help meet that legal obligation.

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