# Alpena Biorefinery Right-To-Know / HazCom Program

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# Agenda

- OSHA Hazard Communication Standard
- MIOSHA / Right-To-Know
- AB Hazard Communication Program
  - Hazardous Chemicals in Use at AB
  - Container Labeling  Method and Policy
  - Pipe Labeling Scheme
  - Detecting a Release or Leak of Hazardous Chemicals
  - Location of Documents Related to Right-To-Know / HazCom Program

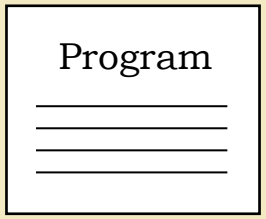
# OSHA Hazard Communication Standard

## OSHA Standard: 29 CFR 1910.1200

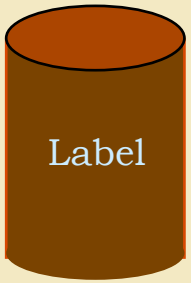
## Purpose

To ensure that employers and employees know about work hazards and how to protect themselves so that the incidence of illnesses and injuries due to hazardous chemicals is reduced

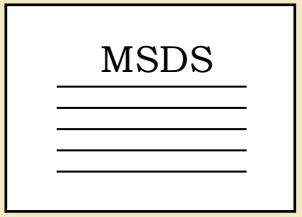
Hazard Communication Program




Container Labeling




Material Safety Data Sheet

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# OSHA Hazard Communication Standard

## Basic Employer Requirements

- Identify and list hazardous chemicals in their workplaces
- Proper labeling of hazardous chemicals in workplaces
- Maintain current Material Safety Data Sheets (MSDSs)
- Develop a written hazard communication program
- Implement employee hazardous chemical awareness training

# MIOSHA Right-To-Know Program

The state of Michigan passed Right-To-Know Law that enhances the Federal OSHA Federal Hazard Communication Standard

Compliance based on previous five requirements of Federal Standard with additional provisions

# MIOSHA Right-To-Know Program

## Employer Requirements

- Identify and list hazardous chemicals in their workplaces, including commonly used industrial products
- Proper labeling of hazardous chemicals in workplaces
- Proper labeling of pipe and piping systems
- Maintain current Material Safety Data Sheets (MSDSs)
- Develop a written hazard communication program
- Implement employee hazardous chemical awareness training
- Fire-Fighter Right-To-Know Law
- Post the Right-To-Know Law

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# MIOSHA Right-To-Know Program

Identify and List Hazardous Chemicals

- Determination of hazardous nature done from Material Safety Data Sheets (MSDSs)
- Inventory List must be developed, reviewed and updated periodically and available for employees

# MIOSHA Right-To-Know Program

Must also include commonly used and stored materials such as:

- Gasoline
- Diesel Fuel
- Motor Oil
- Lubricants
- Hydraulic Fluids
- Solvents
- Parts Cleaners
- Some Hand Cleaners

# MIOSHA Right-To-Know Program

## Labeling Requirements for Containers

Each container of hazardous chemicals entering the workplace must be marked with:

- The identity of the chemical
- Appropriate hazard warning
- Name and address of manufacturer, importer or other responsible party

Consumer products and other chemical products subject to labeling laws of other federal agencies are exempt from labeling requirements of this standard

# MIOSHA Right-To-Know Program

Labeling of Consumer Products

Anything available over the counter to the general public is exempt from labeling requirements provided the item has appropriate consumer warnings on the factory label

Labeling of Stationary Process Containers

Signs, placards, process sheets, batch tickets, or other written materials can be used instead of actually affixing labels to process containers such as tanks, so long as it conveys the same information that would be put on a label and is visible to employees

# MIOSHA Right-To-Know Program

## Labeling Portable Containers

Not required to label portable containers that hazardous materials are transferred into from labeled containers as long as the contents are used immediately by the person who performs the transfer

However; unlabeled containers of hazardous chemicals found in a work area may constitute a imminent danger situation

Imminent danger means a condition or practice in a place of employment which is such that a danger exists which could reasonably be expected to cause death or serious physical harm either immediately or before the danger can be eliminated through the enforcement of procedures otherwise provided.

# MIOSHA Right-To-Know Program

Labeling of Pipes and Piping Systems

Employees have the right to be informed, either by label or placard, of the hazards of any chemicals in pipes or pipe systems

# MIOSHA Right-To-Know Program

## Material Safety Data Sheets (MSDS)

Prepared by the manufacturer or importer and describe:

- Physical Hazards- fires and explosions
- Health Hazards- signs of exposure
- Routes of exposure
- Precautions for safe handling and use
- Emergency and first aid procedures
- Control measures

# MIOSHA Right-To-Know Program

## Material Safety Data Sheets (MSDS)- cont.

- Must provide information about the:
  - Physical and chemical characteristics
  - Health effects
  - Exposure limits
  - Carcinogenicity (cancer-causing)
  - Identification (name, address, phone number) of organization responsible for preparing the sheet

# MIOSHA Right-To-Know Program

Material Safety Data Sheets (MSDS)- cont.

If no MSDS has been received for a hazardous chemical, employer must contact the supplier, manufacturer, or importer to obtain one and maintain a record of the contact

# MIOSHA Right-To-Know Program

Requirements of Written HazCom Program

- Describes container labeling, MSDSs, and employee training for each workplace
- List of hazardous chemicals and how employer will inform employees of hazards associated
- Make information regarding hazards and protective measures available to other employers onsite

# MIOSHA Right-To-Know Program

Training

Training is required for employees who are exposed to hazardous chemicals in their work area:

- At the time of their initial assignment
- Whenever a new hazard is introduced into their work area

# MIOSHA Right-To-Know Program

Training

Training must consist of the following elements:

- Explanation of the HazCom Program, including information about labels, MSDSs, and how to obtain and use available hazard information
- Hazards of chemicals in the work area
- Protective measures such as engineering controls, work practices, and the use of PPE
- How to detect the presence or release of a hazardous chemical (using monitoring devices, observation, or smell)

# MIOSHA Right-To-Know Program

Firefighter Right-To-Know Law

Upon request, employer must provide the fire chief with:

- Hazardous Chemical Inventory List
- MSDSs for all chemicals onsite
- Information on quantities and locations of chemicals

# MIOSHA Right-To-Know Program

## Posting of Right-To-Know Law

- A poster must remind employees of their rights under the Michigan Right-To-Know Law and how to locate the MSDSs and RTK program.
- A second poster must inform employees of any changes recently made to one or more MSDSs
  - Must be filled within 5 days of receipt of new MSDSs and must remain for a minimum of 10 days

# AB Right-To-Know / HazCom Program

## Hazardous Chemicals Used/Produced in AB Operations

Sulfuric Acid- 93%

- Highly Corrosive
  - Causes severe chemical burns upon contact
- Reacts violently with water and organic compounds

Acetic Acid

- Corrosive to skin and eyes
  - Dehydrating effect on tissues
- Combustible

Potassium Hydroxide (Caustic Potash)

- Highly Corrosive
  - Causes severe chemical burns that are not immediately painful
- Reacts with acids and water to produce heat

Hydrated Lime

- Strong Irritant
  - Eye contact can cause burns and permanent damage
  - Skin contact particularly in the presence of moisture

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# AB Right-To-Know / HazCom Program

## Hazardous Chemicals Used/Produced in AB Operations

Gasoline (Denaturant)

- Highly Flammable Liquid
  - Vapors can form explosive mixtures with air

Ethanol

- Highly Flammable Liquid
  - Vapors can form explosive mixtures with air

Sodium Hydroxide (Caustic Soda)

- Highly Corrosive- slightly less than KOH
  - Causes severe chemical burns that are not immediately painful
- Reacts with acids and water to produce heat

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- By using the Hierarchy of Controls AB will try to minimize the risk of injury from hazardous chemicals

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Elimination
  - Where possible, the use of hazardous chemicals has been avoided
    - However, in order to execute the process and achieve the desired ethanol product, chemicals such as sulfuric acid and potassium hydroxide must be used

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Substitution
  - When possible, the substitution of less hazardous or non-hazardous chemicals have been chosen
    - After hydrolysis, neutralization is required. Hydrated lime will be used for this, which is a moderate skin irritant but not immediately corrosive to skin

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Modification
  - At some sample locations, modifications to sample valves have been or will be made to contain or cool the material to reduce exposure risk
  - One or two sample points have also been moved to a different locations to lessen the hazard of sample collection

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Ventilation
  - In the Fermentation area, a $CO_2$ scrubber is in place to remove $CO_2$ gas from the process and ventilate it to the atmosphere where does not present a hazard

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Containment
  - In the Hydrolysis Reactor area, containment curtains will be installed to cordon off the area to prevent sudden exposure to highly dangerous material should a leak occur

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- Work Practices
  - The practice of completing a hazard assessment and permit to enter a confined space ensures that all hazards related to the chemicals in use are recognized and addressed prior to entering
  - The practice of limiting the circumstances that require AB employees to enter a confined space reduces exposure

# AB Right-To-Know / HazCom Program

Reducing or Preventing Exposure to Hazardous Chemicals

- PPE
  - When in the Reactor Area, or Fermentation Area when CIP light is flashing, additional PPE is required to prevent exposure to the hazardous chemical in use
  - Specific sampling locations and procedures also require additional PPE based on the characteristics of the sample to be taken

# AB Right-To-Know / HazCom Program

## Container Labeling Policy and Methodology

- It will be the responsibility of the person receiving a material to verify that containers are clearly labeled with the following:
  - The contents of the containers
  - The appropriate hazard warning
  - The manufacturer's name and address

# AB Right-To-Know / HazCom Program

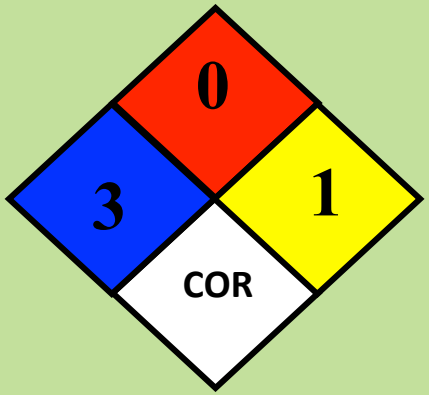
Container Labeling Policy and Methodology

- It will be the responsibility of the person who is placing and/or using a material in a secondary container to ensure the container is labeled either by:
  - An extra copy of the original manufacturer's label with hazard warning
  - NFPA Hazard Diamond designation and chemical identification

# AB Right-To-Know / HazCom Program

## Container Labeling Policy and Methodology

- Example- Sulfuric Acid




Sulfuric Acid
CHEMICAL

Jacey Radel 03/19/2012
OWNER DATE

# AB Right-To-Know / HazCom Program

## Pipe Labeling Scheme

- All piping systems will be marked with a colored label using the following ANSI A13.1-2007 recommendations for line coloration

| | Color Designation |
|---|---|
| Fire Quenching Fluids | White on Red |
| Toxic & Corrosive Fluids | Black on Orange |
| Flammable Fluids | Black on Yellow |
| All Water and Non-Hazardous Process Fluids | White on Green |
| Compressed Air | White on Blue |

# AB Right-To-Know / HazCom Program

Pipe Labeling Scheme

- The color of the label will denote specific hazards associated with the material in the line
  - Additional hazards may be present in the material and will be listed after the name of the material

**SULFURIC ACID - HOT**

# AB Right-To-Know / HazCom Program

Detecting a Release or Leak of Hazardous Chemicals

- Alarms from pressure, temperature, and level indications on lines and tanks throughout the process may remotely signal a release or leak
- Pooling of material, or fluid dripping/spraying from pipes or valves will visually indicate a leak or release
- Leaks in pressurized systems may also be detected by sound. Caution – Dangerous leaks may not be visible

# AB Right-To-Know / HazCom Program

Detecting a Release or Leak of Hazardous Chemicals

- If release or leak is encountered, the line must be shutdown remotely if possible
- Do not risk personal safety in investigating a release or leak
- If it must be done manually, additional PPE and caution will likely be required to avoid injury

# AB Right-To-Know / HazCom Program

Location of Documents Related to Right-To-Know / HazCom Program:

- In the Control Room the following hard copies will be located:
  - The Right-To-Know / HazCom Written Program
  - MSDSs for all chemicals on-site
- Both will also be electronically filed in the W: Drive
  - Safety Folder
    - RTK / HazCom Program