EMPLOYEE RIGHT TO KNOW TRAINING
Why do I have to do this?

• Satisfy OSHA requirement for annual training
• Reminder on how to protect yourself from hazards
Overview

Employee Right to Know (ERK) Act

- Passed by Minnesota Legislature in 1983
- Requires employers to make employees aware of hazardous substances and/or agents that may be encountered at work
ERK Overview

• Responsibility
• Hazard determination by employers
• Written program (available from Human Resources)
• Globally harmonized system (GHS)
• Labels and other warnings
• Methods of protection
• Emergency procedures
Changes - GHS

Globally Harmonized System (GHS) of Classification and Labeling of Chemicals

• Defining health, physical, and environmental hazards
• Creating classification processes using available data on chemicals
• Communicating hazard information and protective measures on labels and Safety Data Sheets (SDS)
## GHS Compliance Dates

<table>
<thead>
<tr>
<th>Effective Date</th>
<th>Requirement</th>
<th>Who It Affects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 1, 2013</td>
<td>Train all employees on the new label elements and Safety Data Sheet format</td>
<td>Employers</td>
</tr>
<tr>
<td>June 1, 2015</td>
<td>Comply with all modified provisions of this rule, except distributors that are allowed to ship products labeled by manufacturers under the old system until Dec. 1, 2015</td>
<td>Chemical manufacturers, importers, distributors and employers</td>
</tr>
<tr>
<td>Dec. 1, 2015</td>
<td>Comply with all modified provisions of the rule</td>
<td>Distributors</td>
</tr>
<tr>
<td>June 1, 2016</td>
<td>Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards</td>
<td>Employers</td>
</tr>
</tbody>
</table>

*Note: During the transition period, all chemical manufacturers, importers, distributors and employers may comply with either the final standard, the current standard or both.*

*Source: OSHA*
Health Effects

Acute

• Generally manifests quickly (either immediately or within days after an exposure).
• An example would be an acid spill on skin. The acute effect is immediate irritation or corrosion of the skin.
Health Effects

Chronic

• Usually takes longer to develop through repeated exposures.

• Usually targets certain organs (e.g., asbestos targets the lungs).

• An individual may not be able to sense the exposure.
Categories of Chemical Hazards

- Toxic – kills living cells
- Irritant – causes inflammation of tissues
- Corrosive – irreversibly destroys or alters tissues
- Oxidizer – enhances combustion of other materials
- Sensitizer – causes exaggerated allergic-type response
- Flammable – capable of being easily ignited and burning quickly
Categories of Hazards

• Reactive – causes rapid chemical reactions such as temperature increases, pressure buildup, or noxious/toxic/corrosive byproducts
• Carcinogen – causes cancer or has the potential to cause cancer
• Mutagen – causes mutation of DNA or chromosomes
• Teratogen – causes physical defects of developing embryo or fetus
• Reproductive Agents – causes sexual dysfunction, sterility, infertility
Harmful physical agents

- Heat
- Noise
- Vibrations
- Ionizing radiation
- Non-ionizing radiation
GHS Changes

Health Hazards
• Acute Toxicity
• Skin Corrosion/Irritation
• Serious Eye Damage/Eye Irritation
• Respiratory or Skin Sensitization
• Germ Cell Mutagenicity
• Carcinogenicity
• Reproductive Toxicity
• Target Organ Systemic Toxicity – single and repeated dose
# Health Hazards Classifications

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>1</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>1A</td>
</tr>
<tr>
<td>Serious Eye Damage/ Eye Irritation</td>
<td>1</td>
</tr>
<tr>
<td>Respiratory or Skin Sensitization</td>
<td>1</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>1A</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>1A</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>1A</td>
</tr>
<tr>
<td>STOT –Specific Target Organ Toxicity - Single Exposure</td>
<td>1</td>
</tr>
<tr>
<td>STOT – Repeated Exposure</td>
<td>1</td>
</tr>
<tr>
<td>Aspiration</td>
<td>1</td>
</tr>
<tr>
<td>Simple Asphyxiants</td>
<td>Single Category</td>
</tr>
</tbody>
</table>
GHS Changes

Physical Hazards

• Explosives
• Flammability – gases, aerosols, liquids, solids
• Oxidizers – liquid, solid, gases
• Self-reactive
• Pyrophoric – liquids, solids
• Self-heating
• Organic peroxides
• Corrosive to metals
• Gases under pressure
• Water activated flammable gases
# Physical Hazards

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosives</td>
<td>Unstable Explosives Div 1.1 Div 1.2 Div 1.3 Div 1.4 Div 1.5 Div 1.6</td>
</tr>
<tr>
<td>Flammable Gases</td>
<td>1 2</td>
</tr>
<tr>
<td>Flammable Aerosols</td>
<td>1 2</td>
</tr>
<tr>
<td>Oxidizing Gases</td>
<td></td>
</tr>
<tr>
<td>Gases under Pressure</td>
<td></td>
</tr>
<tr>
<td>Compressed Gases</td>
<td></td>
</tr>
<tr>
<td>Liquefied Gases</td>
<td></td>
</tr>
<tr>
<td>Refrigerated Liquefied Gases</td>
<td></td>
</tr>
<tr>
<td>Dissolved Gases</td>
<td></td>
</tr>
<tr>
<td>Flammable Liquids</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Self-Reactive Chemicals</td>
<td>Type A Type B Type C Type D Type E Type F Type G</td>
</tr>
<tr>
<td>Pyrophoric Liquids</td>
<td>1</td>
</tr>
<tr>
<td>Pyrophoric Solid</td>
<td>1</td>
</tr>
<tr>
<td><strong>Pyrophoric Gases</strong></td>
<td>Single category</td>
</tr>
<tr>
<td>Self-heating Chemicals</td>
<td>1 2</td>
</tr>
<tr>
<td>Chemicals, which in contact with water, emit flammable gases</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Oxidizing Liquids</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Oxidizing Solids</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Organic Peroxides</td>
<td>Type A Type B Type C Type D Type E Type F Type G</td>
</tr>
<tr>
<td>Corrosive to Metals</td>
<td>1</td>
</tr>
<tr>
<td><strong>Combustible Dusts</strong></td>
<td>Single Category</td>
</tr>
</tbody>
</table>
Routes of Entry

Dermal or Skin
- Absorption
- Direct contact
- Open wound

Inhalation
- Throat and lungs

Ingestion
- Mouth / gastrointestinal tract
Survey of Hazardous Substances

What chemicals does Bethany usually use and store?
• Completed in 2008
Three Parts of Hazard Communication

- Safety Data Sheets (formerly MSDS)
- Labeling
- Training
Material Safety Data Sheets

- Manufacturer’s recommendation on how to use the chemical safely
- All chemicals should have an MSDS available. Each time a new chemical is acquired it must be added to the binder located in each custodial office.
Changes - SDS

Now called Safety Data Sheets
16 sections, standardized format
1. Identification of the substance or mixture and of the supplier

- Product identifier
- Other means of identification
- Recommended use of the chemical and restrictions on use
- Supplier’s details (name, address, phone, etc.)
- Emergency phone number
2. Hazard identification

- GHS classification of the substance and any national or regional information
- GHS label elements, including precautionary statements (hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol, e.g. flame, skull and crossbones)
- Other hazards which do not result in classification (e.g. Dust explosion hazard) or are not covered by the GHS
3. Composition/information on ingredients

**Substance**
- Chemical identity
- Common name, synonyms, etc.
- Chemical Abstract Service number, etc.
- Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance

**Mixture**
The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cutoff levels
4. First Aid Measures

- Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion
- Most important symptoms/effects, acute and delayed
- Indication of immediate medical attention and special treatment needed, if necessary
5. Firefighting measures

- Suitable (and unsuitable) extinguishing media
- Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products)
- Special protective equipment and precautions for firefighters
6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures
- Environmental precautions
- Methods and materials for containment and cleaning up
7. Handling and storage

- Precautions for safe handling
- Conditions for safe storage, including any incompatibilities
8. Exposure controls/personal protection

- Control parameters, e.g. occupational exposure limit values or biological limit values
- Appropriate engineering controls
- Individual protection measures, such as personal protective equipment
9. Physical and chemical properties

- Appearance
- Odor
- Odor threshold
- pH
- Melting point/freezing point
- Initial boiling point and boiling range
- Flash point
- Evaporation rate
- Flammability (solid, gas)
- Upper/lower flammability or explosive limits
- Vapor pressure
- Vapor density
- Relative density
- Solubility
- Partition coefficient
- Auto ignition temperature
- Decomposition temperature
10. Stability and reactivity

• Chemical stability
• Possibility of hazardous reactions
• Conditions to avoid (e.g. static discharge, shock or vibration)
• Incompatible materials
• Hazardous decomposition products
11. Toxicological information

Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:

- Route of exposure information (inhalation, ingestion, skin and eye contact)
- Symptoms related to the physical, chemical and toxicological characteristics
- Delayed and immediate effects and also chronic effects from short and long-term exposure
- Numerical measure of toxicity (such as acute toxicity estimates)
12. Ecological information

- Ecotoxicity (aquatic and terrestrial, where available)
- Persistence and degradability
- Bio-accumulative potential
- Mobility in soil
- Other adverse effects
13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including contaminated packaging.
14. Transport information

- United Nations (UN) number
- UN proper shipping name
- Transport hazard class(es)
- Packing group, if applicable
- Marine pollutant (Yes/No)
- Special precautions which a user needs to be aware of or to comply with in connection with transport or conveyance either within or outside their premises
15. Regulatory information

Safety, health and environmental regulations specific for the product in question
16. Other

Other information including:

• Information on preparation
• Revision of SDS
New Label Elements

• Nine required sections
• Three standardized elements
Nine Label Sections

• Product Name and Identifier
• GHS pictograms and hazard classes
• Signal Words
• Physical, health, environmental hazard statements
• Supplemental information
• Precautionary measure and pictograms
• First aid statements
• Name and address of company
• Phone number
Three Standardized Elements

1. **Symbols/Pictogram:** The GHS symbols have been incorporated into pictograms which include the harmonized hazard symbols plus other graphic elements, such as borders, background patterns or colors which are intended to convey specific information.
Three Standardized Elements

2. **Signal Words:** The signal word indicates the relative degree of severity a hazard. The signal words used in the GHS are:
   - "Danger" for the more severe hazards, and
   - "Warning" for the less severe hazards.
   Signal words are standardized and assigned to the hazard categories. Only one signal word corresponding to the class of the most severe hazard should be used on a label.
Three Standardized Elements

3. Hazard Statements: Hazard statements are standardized and assigned phrases that describe the hazard(s) as determined by hazard classification.
Sample GHS Label

ToxiFlam (Contains: XYZ)
Danger! Toxic If Swallowed, Flammable Liquid and Vapor

Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat/sparks/open flame. – No smoking. Wear protective gloves and eye/face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment.

Take precautionary measures against static discharge. Use only non-sparking tools. Store in cool/well-ventilated place.

IF SWALLOWED: Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth. In case of fire, use water fog, dry chemical, CO₂, or “alcohol” foam.

See Material Safety Data Sheet for further details regarding safe use of this product

MyCompany, MyStreet, MyTown, NJ 00000, Tel: 444 999 9999
<table>
<thead>
<tr>
<th>GHS Pictograms and Hazard Classes</th>
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<tbody>
<tr>
<td><strong>Oxidizers</strong></td>
</tr>
<tr>
<td>Flammables</td>
</tr>
<tr>
<td>Self Reactives</td>
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<tr>
<td>Self-Heating</td>
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<tr>
<td><strong>Acute Toxicity (severe)</strong></td>
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</tr>
<tr>
<td>Aspiration Toxicity</td>
</tr>
<tr>
<td><strong>Environmental Toxicity</strong></td>
</tr>
<tr>
<td><strong>Irritant</strong></td>
</tr>
<tr>
<td>Dermal Sensitizer</td>
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<tr>
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<tr>
<td>Narcotic Effects</td>
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<td>Respiratory Tract Irritation</td>
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</table>
Pictogram Meaning

- Explosives
- Self-reactives
- Organic peroxides
Pictogram Meaning

- Flammables
- Pyrophorics
- Self-heating
- Emits flammable gas
- Self-reactives
- Organic peroxides
Pictogram Meaning

Oxidizers
Pictogram Meaning

Gases under pressure
Pictogram Meaning

Corrosive
Pictogram Meaning

Acute toxicity (severe)
Pictogram Meaning

- Irritant
- Dermal sensitizer
- Acute toxicity (harmful)
- Narcotic effects
- Respiratory sensitizer
- Irritation
Pictogram Meaning

- Carcinogen
- Respiratory sensitizer
- Reproductive toxicity
- Target Organ toxicity
- Mutagenicity
- Aspiration toxicity
Pictogram Meaning

Acute and chronic hazards to the aquatic environment
Labels

All containers must be properly labeled

- Original containers
- Secondary containers
  - Identity of product
  - Appropriate hazard warnings
- Do not bring chemicals from home!
Importance of Labels
NFPA Label

- Blue = Health/Toxicity
- Red = Fire Hazard
- Yellow = Reactivity
- White = Special Information

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HMIS Label

- 4 = Deadly
- 3 = Severe
- 2 = Moderate
- 1 = Slight
- 0 = No Hazard
Other Warning Systems vs GHS

- NFPA uses 0-4 scales with 4 being most hazardous
- HMIS uses 0-4 scales with 4 being most hazardous
- GHS uses 1-4 scales with 1, 1A or Type A as most hazardous
Control or Eliminate the Hazard

• Ventilation - use local exhaust
• Use least toxic solvent/chemical possible
• Use personal protective equipment
• Reduce speed or otherwise dampen noise on equipment
• Employees authorized to conduct Lockout/Tagout must shut off and lock-out all power sources, including electrical, mechanical, hydraulic, and pneumatic, before servicing or maintenance activities are performed on equipment
• Do not eat or allow food in work areas
Methods of Protection

Safety goggles/glasses
- Chemical splash goggles (handling chemicals)
- Glasses (wood dust, metal shavings)
Methods of Protection

Gloves
- Disposable (use only once!)
- Reusable (wash after each use)
- Heat resistant

Ear protection
- Ear plugs
Methods of Protection

Respirators/dust masks

• Half-face respirator must comply with BLC Respiratory Protection Program

• N95/dust mask requires user review and signing of “voluntary users” form
Work Practices and Hygiene

General rules
- Read labels and SDS
- Follow safety precautions
- Ensure adequate ventilation
- Wash thoroughly
- Change contaminated clothing
- Label materials when necessary
Wash your hands!

- Use warm water
- Wet both hands and wrists
- Apply liquid soap to palms first
- Lather well; spread lather to back of hands and wrists
- Scrub for at least 15 seconds
- Rinse well; dry completely
- Turn off faucet using disposable towels
Emergency Procedures

• Know where eyewashes are located
• Immediately report to Security Services (507-344-7888) if exposed
• Contact supervisor for spills greater than one gallon
• Post specific spill procedures in specific areas (science departments)
Eyewash Stations
Eyewash Stations

- Eyewashes and emergency showers are secondary items of protection.
- Plumbed eyewashes and showers are to be flushed and recorded once per week (3 minutes minimum).
- Portable eyewash stations are to be checked weekly to make sure they are accessible and fluid hasn’t been discharged.

Note: Life of fluid is approximately two years. Check expiration date!
Machine Guarding

- All hazards associated with a machine must be guarded.
- Machines shall be anchored to the floor or bench top.
- Guards should never be taken off or moved aside – be a good role model for students!
- If a guard breaks, take equipment out of service and contact Maintenance for repair.
- Grinder wheels should have no more than ¼ inch space at top and 1/8 inch space at bottom.
Hazardous Waste

- Must be labeled as “hazardous waste” with a descriptive name and date.
- Paper towels, rags used for stains may be thrown in trash.
- Paper towels, rags used for thinners must be disposed of as hazardous waste.
- Aerosol cans that are empty may be thrown in trash; if there is any product left in an aerosol can it must be disposed of as hazardous waste.
- Latex paint may be thrown in trash if solid (no liquid left).
- Oil-based paints or stains must be disposed of as hazardous waste, regardless of liquid/solid.
Electrical Safety

• Service equipment ONLY if it is locked out!
• Only authorized employees are allowed to conduct lockout/tagout on hard-wired equipment
• Replace frayed or worn electrical cords (do not repair with duct tape)
• Use only equipment with 3-prong plug or double insulated
Compressed Gases

- Gas cylinders should be labeled (contents and empty/full) and chained to the wall.
- Fuel (acetylene) and oxygen cylinders are to be stored at least 20 feet away from heat sources of combustible materials, or with a fire-rated wall between them, when not being used.
To complete the ERK training...

1. COPY this link into your web browser (Mozilla or Outlook work best) to take a short quiz:
   https://docs.google.com/a/blc.edu/forms/d/1CtKJR6OHQs1owIRFDdk
   axpiMtz8oWfThX2bYnuJnsmE/viewform?usp=send_form
2. Use your Bethany log-in information as prompted.
3. Answer the questions.
4. Submit
   The Human Resources office will be sent a notice that you have completed the quiz.

Contact the Human Resources office (hr@blc.edu) with questions about this quiz.