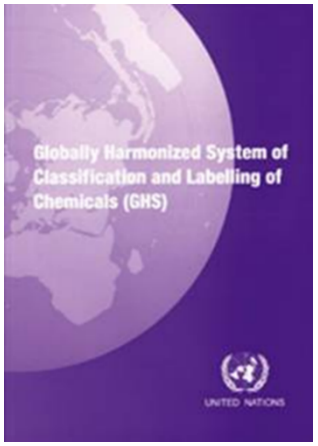
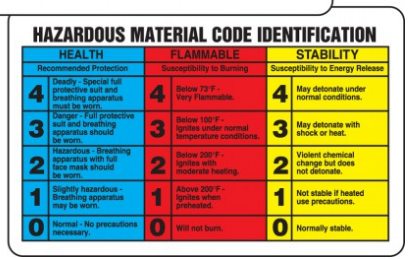
SOTARIS





Hazard Communication

Presented to the Lake County Safety Council

LAKECOUNTYSAFETYCOUNCIL

MAY 16, 2014

Today's Presenter

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- 24 Years Experience in Workplace Safety
- Specializations
  - Lockout/Tagout
  - Electrical Safety / Arc Flash (NFPA70E)
  - Hazard Communication
  - Emergency Preparedness Planning
  - Fall Protection

Sotaris Clients

SOTARIS
Your Workplace Safety Partner

Today's Objectives

- Review Hazard Communication Standard (HCS) Requirements
- Discuss how the HCS will be impacted with the adoption of the Globally Harmonized System (GHS)
- Cover what you need to do to make your HAZCOM program compliant with the new GHS requirements
- Review new Label Elements, Hazard Statements & Pictogram and the new SDS format

Concept of regulation

Employees have both a need and a **right to know** the hazards and identities of the chemicals they are exposed to when working.

They also need to know what protective measures are available to prevent adverse effects from occurring.

Compliance

- The Hazcom Standard continues to be one of the most cited OSHA standard
  - No Program or Inventory
  - Missing Labels
  - Missing SDS
  - Lack of Training

HAZCOM Purpose

"…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

MSDS/SDS

Training

HAZCOM Purpose (Cont.)

Requires **chemical producers** to determine the hazards of their products, and prepare labels and safety data sheets

Analysis

Container Labeling

Material Safety Data Sheet (SDS)

Labeling Exemptions

Other federal agencies control labeling requirements for the following substances:

- Pesticides
- Chemicals covered under the Toxic Substance Control Act
- Foods or food additives
- Distilled spirits, tobacco
- Consumer products
- Hazardous wastes

Consumer Products Exemption

Any consumer product as defined in the Consumer Product Safety Act where:

- Used in the workplace for the purpose intend
- Exposure within the range that could reasonably be experienced by consumers when used for intended purpose

Documenting your Program

The success of your program relies upon concisely documenting your company's policies and protocols for dealing with hazardous chemicals in your workplace.

The program or policy you create should be developed, implemented, and maintained at each physical workplace.

Employer Requirement: Written Program

Must cover at least:

- Purpose and Scope of the Program
- List of known hazardous chemicals present and a SDS for each
- Labels and other forms of warnings consistent with the SDS
- Methods used to inform employees of hazards of non-routine tasks and the associated risks for those tasks
- Storage and transportation methods of hazardous chemicals and materials
- Hazards of chemicals in unlabeled pipes
- Employee Information and Training
- Where and how employees must travel between workplaces and work shift changes when dealing with hazardous chemicals and materials
- Employee Availability to Information and Training

Inventory Hazardous Chemicals

All of the hazardous chemicals in your facility will need to be matched with properly formatted Safety Data Sheets SDS's.

Management system should also include the following details:

- Location tracking
- Container tracking and reconciliation reporting
- Unit of measure conversions and calculations
- Material approval routings
- Managing restricted and banned chemicals
- Notifications of exceeded thresholds

Safety Data Sheets (SDS)

Your Employees need to have easy access to SDS at all times.

- Program should include a full reference section of hazardous chemicals on-site.
- Detail how individuals are to access and manage/ maintain the system,
- Identify Roles and Responsibilities
- If necessary, provide training on electronic systems.
- If necessary, establish protocols for when SDSs are not available.

Labeling

Effective Labeling protocols effectively communicate critical hazard information to your employees

- With the advent of GHS, specifications have been established that include the product name, hazardous ingredients, applicable physical and health hazard statements, a “Danger” or “Warning” signal word and pictogram(s), along with supplemental and contact information.
- All of the chemicals in your organization’s facility that are stored in containers and tanks also need to be properly labeled;
- Most often, when utilizing secondary containers, labeling will be necessary. Make sure your program specifies your program’s requirements.

Labeling (continued)

The focus for labeling chemicals should be to ensure that all employees who may come in contact with chemicals can quickly recognize what chemicals they are handling the associated hazards/risks.

In order to have a successful program, you must assign responsibility for both the initial and ongoing activities that have to be undertaken to comply with the rule.

Labeling Overhead Pipes

If your workplace has pipes that contain hazardous substances or that are insulated with asbestos-containing material, you must either place warning labels on the pipes to identify the hazards or use other methods, such as process sheets or written operating procedures, to warn employees

Labeling; OSHA Looks for:

- Designation of person(s) responsible for ensuring labeling of in-plant containers;
- Designation of person(s) responsible for ensuring labeling of any shipped container;
- Description of labeling system(s) used;
- Description of written alternatives to labeling of in-plant containers (if used); and,
- Procedures to review and update label information when necessary.

.

Training

Regular Training and Program Monitoring is a key to the success of your Hazcom Program

Make sure all of your employees know how to read and interpret the hazardous chemical labels and SDS's. They should also know where the SDS's are stored and how they can access them.

Employee Information

Employers must inform employees of:

- Training requirements of this section
- Operations in their work area where hazardous chemicals are present;
- Location and availability of the written hazard communication program

Multi-Employer Workplaces

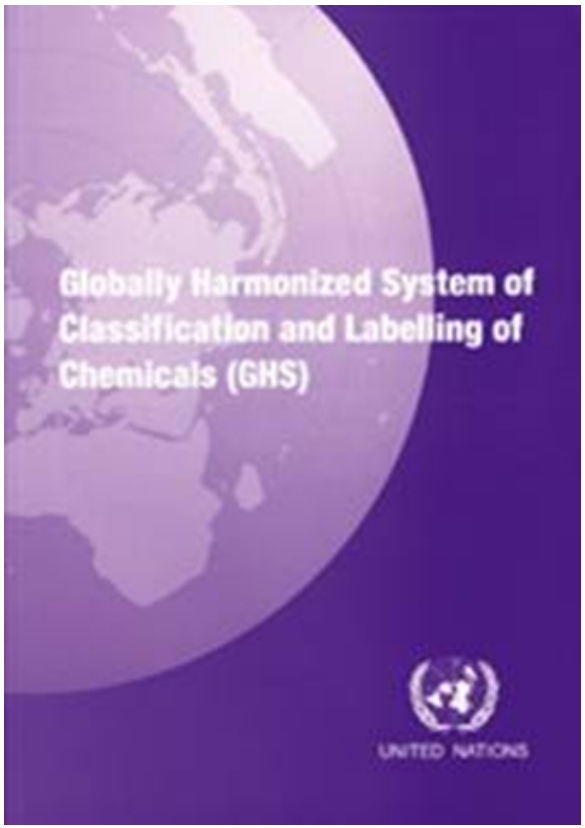
When other employers have employees onsite that may be exposed, program must include:

- Methods to provide contractor employees with on-site access to MSDS/SDS
- Methods used to inform other employers of precautionary measures for normal and emergency situations
- The employer's chemical labeling system

Program; OSHA Looks for:

- Does a list of the hazardous chemicals exist in each work area or at a central location?
- Are methods the employer will use to inform employees of the hazards of non-routine tasks outlined?
- Are employees informed of the hazards associated with chemicals contained in unlabeled pipes in their work areas?
- On multi-employer worksites, has the employer provided other employers with information about labeling systems and precautionary measures where the other employers have employees exposed to the initial employer's chemicals?
- Is the written program made available to employees and their designated representatives?.

What is the GHS?



…an international approach to hazard communication, providing agreed criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets

Why Adopt the GHS

The goal is to **reduce chemical source illnesses and injuries**

- Acute illnesses and injuries from chemicals have decreased 42% since the Hazcom Standard was implemented in 1983
- Unfortunately, there is still a critical need for effective information to protect exposed workers from chemicals; **particularly from chronic effects**
- OSHA estimates that over 43 million workers are covered by the standard and the GHS modification will prevent an estimated 500 injuries and 43 fatalities annually.

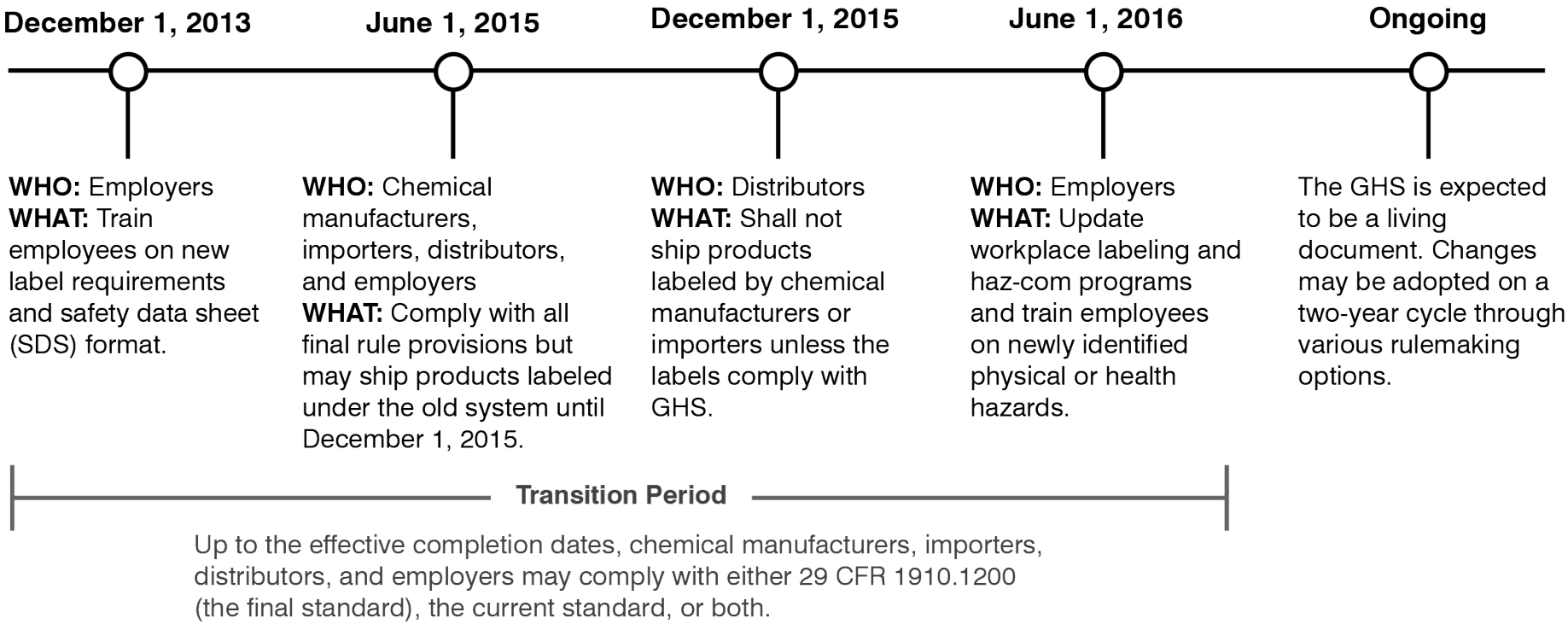
GHS Enhancements

- ***Increased worker comprehension of hazards***, specifically where there are literacy/language issues
- ***Reduced confusion*** and more effective training
- ***Quicker access*** to critical information

GHS Governing Authorities (U.S.)

- ***Occupational Safety & Health Administration (OSHA)***
- ***Environmental Protection Agency (EPA)***
- ***Department of Transportation (DOT)***
- ***Consumer Product Safety Commission (CPSC)***

OSHA - Timeline



GHS changes to Hazard Communication

The U.S. officially adopted the GHS on March 26, 2012. OSHA's adoption is actually a revision of the Hazard Communication Standard to align with the GHS. OSHA calls this revision, HazCom 2012

GHS changes to Hazard Communication

Hazard Classification

- Chemical manufacturers and importers are required to determine the hazards of the chemicals they produce or import
- Hazard classification under the new, updated standard provides specific criteria to address health and physical hazards as well as classification of chemical mixtures

Labels

- Chemical manufacturers and importers must provide a newly formatted label on their products

Safety Data Sheets

- New format requires 16 specific sections

Information and Training

- Training by December 1, 2011

GHS Classification Process

- *Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section.*
- *For each chemical, the chemical manufacturer or importer shall determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified.*
- *Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.*

GHS Classification

For classification, the GHS applies to pure substances and their dilute solutions and to mixtures. It does not apply to “articles” as defined by OSHA

Substances means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product.

Mixtures means a mixture or solution composed of two or more substances in which they do not react

Alloy means a metallic material, homogeneous on a macroscopic scale, consisting of two or more elements so combined that they cannot be readily separated by mechanical means. Alloys are considered to be mixtures for the purposes of classification under the GHS.

GHS Classification

For classification, the GHS applies to pure substances and their dilute solutions and to mixtures. It does not apply to “articles” as defined by OSHA

“**Article**” means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees

Employer Responsibility

List of Hazardous Chemicals

SDS for Chemicals

Written Program

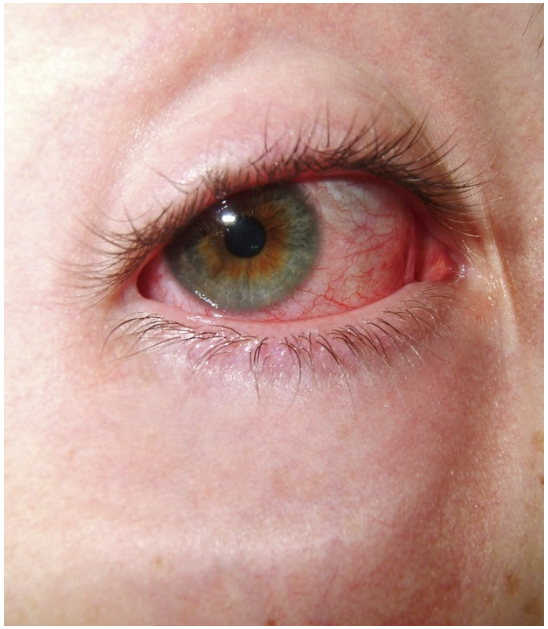
} Located in Various Locations

Provide Training → New hire, annual , job specific

Provide PPE → Available at all facilities

Health Hazards

- Acute Toxicity
- Skin Corrosion/Irritation
- Serious Eye Damage/Irritation



Health Hazards

- Respiratory or Skin Sensitization
- Germ Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicity
- Target Organ Systemic Toxicity – Single and Repeated Dose

Physical Hazards

- Explosives
- Flammability – gases, aerosols, liquids, solids
- Oxidizers – liquid, solid, gases
- Self-Reactive
- Pyrophoric – liquids, solids

Physical Hazards

- Self-Heating
- Organic Peroxides
- Corrosive to Metals
- Gases Under Pressure
- Water-Activated Flammable Gases

Environmental Hazards

- Hazardous to the Aquatic Environment

Current Labeling Systems

NFPA

DEGREE SCALE

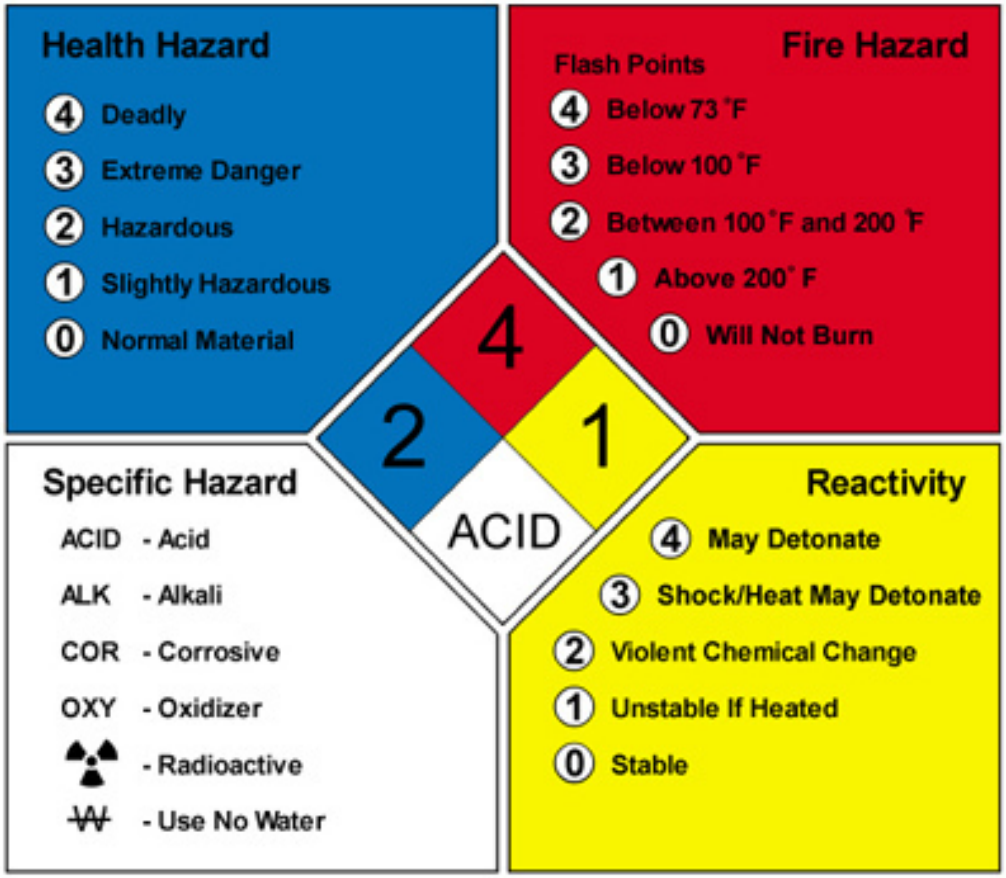
4 – EXTREME

3 – SERIOUS

2 – MODERATE

1 – SLIGHT

0 - MINIMAL



Credit: MSDS Online

Current Labeling Systems

HMIS / HMCIS

DEGREE SCALE

4 – EXTREME

3 – SERIOUS

2 – MODERATE

1 – SLIGHT

0 - MINIMAL

GHS Label Elements

Hazard Statement and Precautionary Statements and Pictograms:
Measures to minimize or prevent adverse effects.

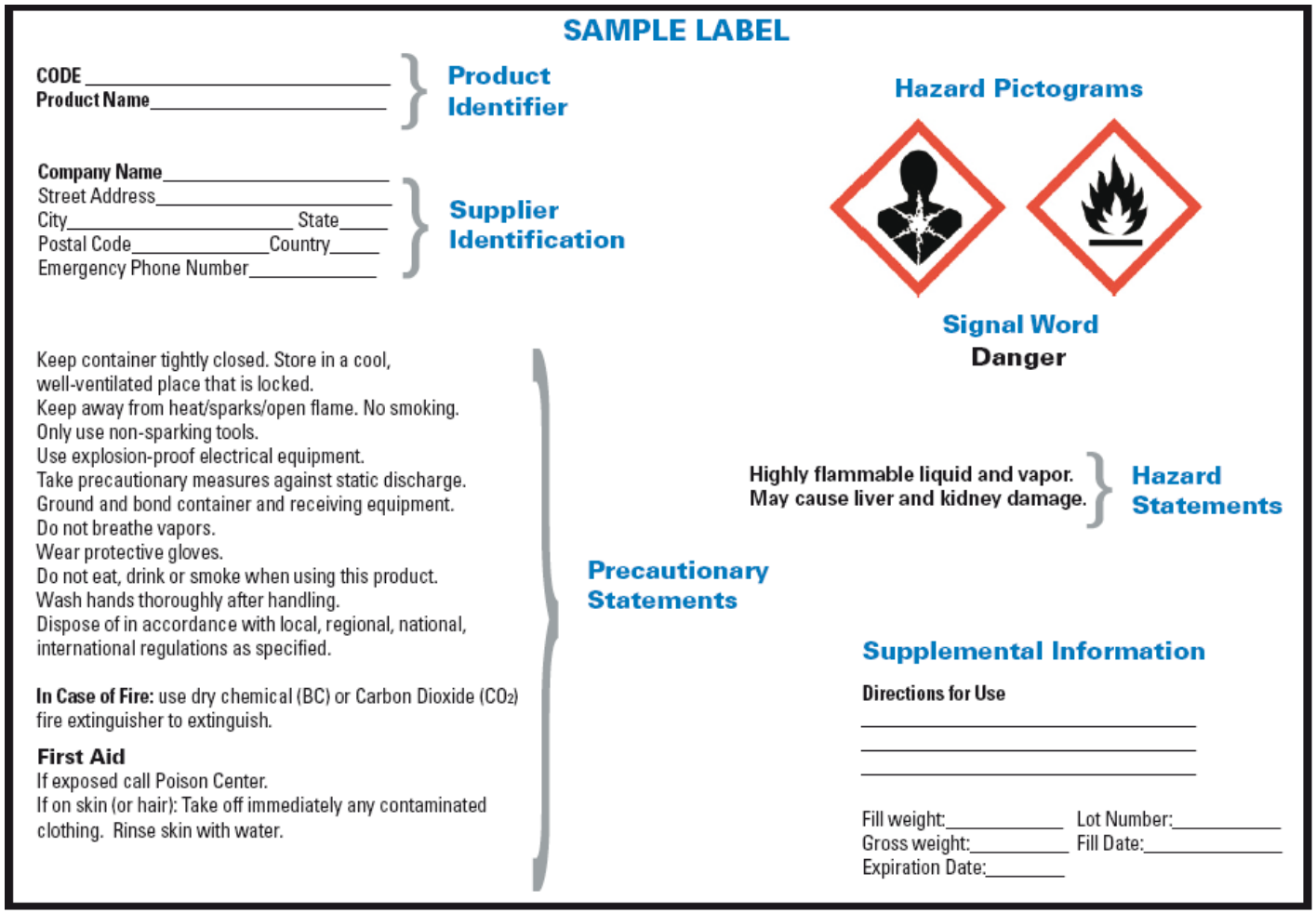
Product Identifier (ingredient disclosure):
Name or number used for a hazardous product on a label or in the SDS.

Supplier identification:
The name, address and telephone number should be provided on the label.

Supplemental information:
Non-harmonized information.

GHS Label

Note that the actual layout of the label is not specified provided that each element is addressed



GHS Label

Product Identifier

Identity of Hazardous Ingredient(s)

Pictogram *(Symbol in Red Frame)*

Signal Word *(Danger)*

Hazard Statement(s) *(Extremely flammable gas)*

Precautionary Statement(s) *(Keep away from heat and open flames. No smoking. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Store in well-ventilated place.)*

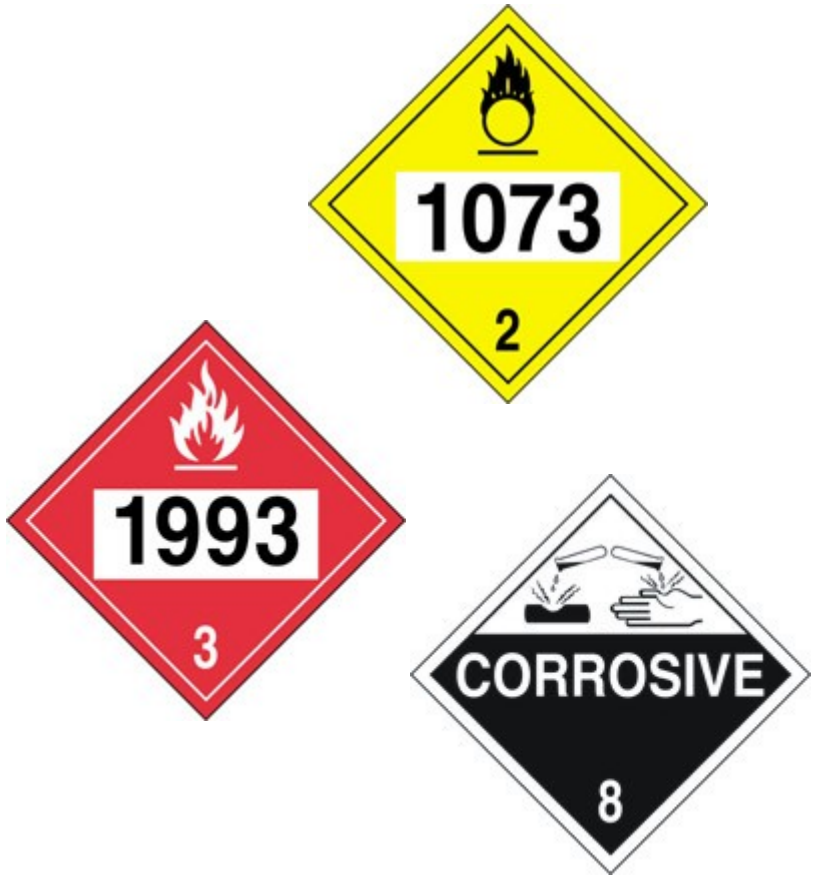
Name and Address of Company

Phone Number

GHS Label

For hazardous products being transported, outer containers have required label elements, product identifier and hazard symbols.

Transportation requirements are in addition to workplace or end use label requirements.

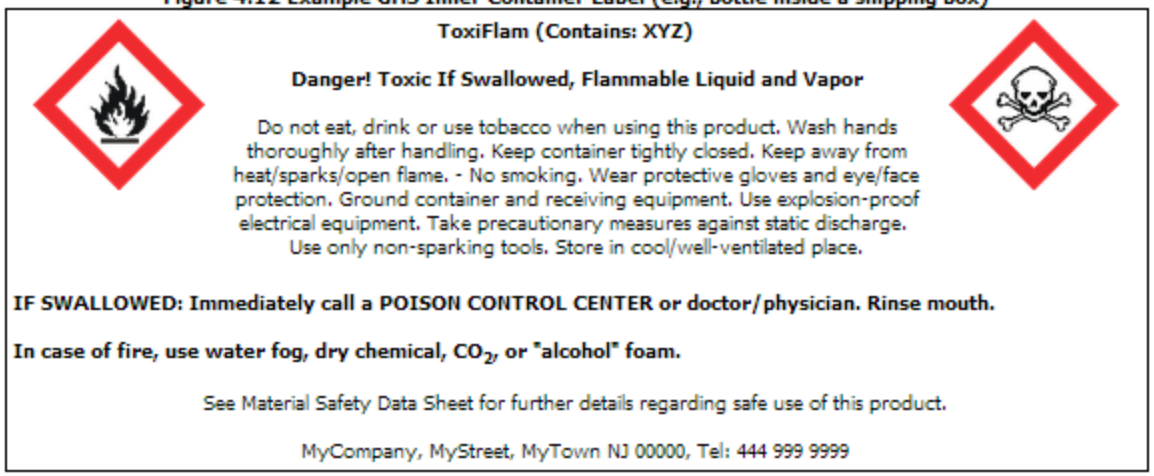


GHS Label

Several arrangements for GHS labels are also provided in Annex 7 of the Purple Book. Figure 4.13 shows an arrangement for a combination packaging with an outer shipping box and inner bottles. The shipping box has a transportation pictogram. The inner bottles have a GHS label with a GHS pictogram.

Figure 4.13 Combination Packaging (Outer box with inner bottles)

Figure 4.12 Example GHS Inner Container Label (e.g., bottle inside a shipping box)



GHS Label

For a container such as a 55 gallon drum, the transport required markings and pictograms may be combined with the GHS label elements or presented separately. In Figure 4.14 a label arrangement for a single packaging such as a 55 gallon drum is shown. Pictograms and markings required by the transport regulations as well as GHS label and non-duplicative GHS pictogram are shown on the drum.

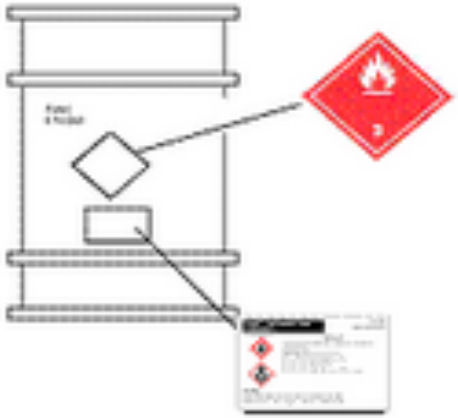


Figure 4.14 Combination Packaging (Outer box with inner bottles)

GHS Label

A label merging the transportation requirements and the GHS requirements into one label for the fictional product "ToxiFlam" is shown in Figure 4.15. This combined type label could also be used on a 55 gallon drum.

Figure 4.15 Example GHS Outer Container Label (55 gallon/200 liter drum)

ToxiFlam **Flammable liquids, toxic, n.o.s.**

Danger! Toxic If Swallowed **(contains XYZ)**

Flammable Liquid and Vapor **UN 1992**

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, CO_2, 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

Signal Words

Used to emphasize hazard and discriminate between levels of hazard.

Hazard Statements

A single harmonized hazard statement for each level of hazard within each hazard class

Example: Flammable liquids

- Category 1: Extremely flammable liquid and vapor
- Category 2: Highly flammable liquid and vapor
- Category 3: Flammable liquid and vapor
- Category 4: Combustible liquid

Note that unlike NFPA and HMIS Labels, GHS Labels will not include numbers.

Precautionary Statement

Precautionary information supplements the hazard information by briefly providing measures to be taken to minimize or prevent adverse effects from physical, health or environmental hazards. First aid is included in precautionary information.

Annex 3 of the GHS Purple Book includes precautionary statements and pictograms that can be used on labels.

GHS label needs to appropriately address:

- Prevention
- Response
- Storage
- Disposal

Product Identifier (ingredient disclosure)

A product identifier should be used on a GHS label and it should match the product identifier used on the SDS. Where a substance or mixture is covered by the UN Model Regulations on the Transport of Dangerous Goods, the UN proper shipping name should also be used on the package.

Supplier Information

GHS label need to include all pertinent contact information associated with the manufacturer of the chemical.

- Company Name
- Address
- Phone
- Website

Workplace Warnings

Old Format

New Format

GHS Pictograms

- “Pictogram” means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical.

- Eight pictograms are designated under this standard for application to a hazard category

Health Hazard

This pictogram is put on a chemical label when a substance presents these health hazards:

Carcinogen--may cause cancer

Respiratory sensitizer--may cause respiratory irritation

Reproductive toxicity--may damage fertility or the unborn child

Target organ toxicity--may cause damage to bodily organs

Mutagenicity--may cause genetic defects

Aspiration toxicity--may be fatal if swallowed and it enters the airways

Flame

Flammables - gases, aerosols, liquids, or solids that will burn or ignite under certain conditions,

Self-Reactives-heating alone, without air, may cause fire or explosion,

Pyrophorics--in small amounts, may ignite within 5 minutes after contact with air,

Self-Heating--which may catch fire only in large amounts and after long periods of time when exposed to air,

Emitters of flammable gas, and

Organic peroxides--which, when heated, may cause fire or explosion; may be sensitive to impact or friction; and may react dangerously with other chemicals.

Flame over Circle

This symbol on a chemical label means that the substance is an oxidizer. Oxidizers may cause a fire by increasing the concentration of oxygen in the air.

Exclamation Mark

It is used on a chemical label for substances that represent the following hazards:

Irritant--irritates the skin or eyes; Skin sensitizer--which is an allergic response following skin contact;

Acute toxicity--which may be fatal or cause organ damage from a single short-term exposure;

Narcotic effects like drowsiness, lack of coordination, and dizziness; and Respiratory tract irritation.

Gas Cylinder

This pictogram on a chemical label means that the substance is a compressed, liquefied, or dissolved gas under pressure at 29 pounds per square inch or more.

Exploding Bomb

The exploding bomb pictogram appears on the chemical labels of substances that are:

Explosives—which is a solid or liquid chemical capable of a chemical reaction that causes damage to the surroundings,

Self-Reactive—heating may cause fire or explosion without the need for air, or

Organic peroxides —again, heating may cause fire or explosion.

Corrosion

This pictogram on a chemical label means that the substance causes skin burns, eye damage, or destroys metals.

Environment

This non-mandatory pictogram means the hazard the chemical presents is aquatic toxicity.

Skull and Crossbones

Substances with a hazard of acute toxicity will have this symbol on their chemical label. Acute toxicity means that exposure to a single dose of the chemical may be toxic or fatal if inhaled or swallowed, or if it comes into contact with the skin.

SDS Format: 16 Headings

The Safety Data Sheet (SDS) provides comprehensive information for use in workplace chemical management.

- Employers and workers use the SDS as sources of information about hazards and to obtain advice on safety precautions.
- The SDS is product related and, usually, is not able to provide information that is specific for any given workplace where the product may be used.

The revised Purple Book contains guidance on developing a GHS SDS (Annex 4).

Section 1: Identification

- Product identifier
- Name, address, phone number of the manufacturer, and emergency phone number.
- Recommended use; restrictions on use

Section 2: Hazard(s) Identification

Hazard classification
Signal word
Hazard statement(s)
Pictograms
Precautionary statement(s)
Other hazards
Percentage of mixture with unknown acute toxicity

Section 2: Hazard ID (cont.)

Prevention	Ground and/or bond container and receiving equipment. - P240 Use explosion-proof - electrical, ventilating and/or lighting equipment. - P241 Use only non-sparking tools. - P242 Take precautionary measures against static discharge. - P243 Avoid breathing dust, fume, gas, mist, vapours and/or spray. - P261 Wash thoroughly after handling. - P264 Use only outdoors or in a well-ventilated area. - P271 Wear protective gloves/protective clothing/eye protection/face protection. - P280
Response	• In case of fire: Use appropriate media for extinction. - P370+P378 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340 Call a POISON CENTER or doctor/physician if you feel unwell. - P312 IF ON SKIN: Wash with plenty of soap and water. - P302+P352 Rinse skin with water/shower. - P353 Take off contaminated clothing and wash before reuse. - P362 If skin irritation occurs: Get medical advice/attention. - P332+P313 Specific treatment, see supplemental first aid information. - P321
Storage/Disposal	• Dispose of content and/or container in accordance with local, regional, national, and/o international regulations. - P501 Store in a well-ventilated place. Keep container tightly closed. - P403+P233

Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

Classification of the substance or mixture

WHMIS

- Flammable Liquids - B2
  Other Toxic Effects - D2B

Label elements

WHMIS

- Flammable Liquids - B2
  Other Toxic Effects - D2B

Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Other information

NFPA

Section 3:
Composition/Information on Ingredients

Chemical name

Common name and synonyms

CAS # (Chemical Abstracts Service)

Other unique identifiers

Section 4: First-Aid Measures

First-aid instructions

Description of symptoms

Required treatment

Section 4: First-Aid Measures

Description of first aid measures

Inhalation	• Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.
Skin	• In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Wash skin with soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention.
Eye	• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	• Do NOT induce vomiting. If person is drowsy or unconscious and vomiting, place on the left side with head down. Seek medical attention.

Most important symptoms and effects, both acute and delayed

• Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

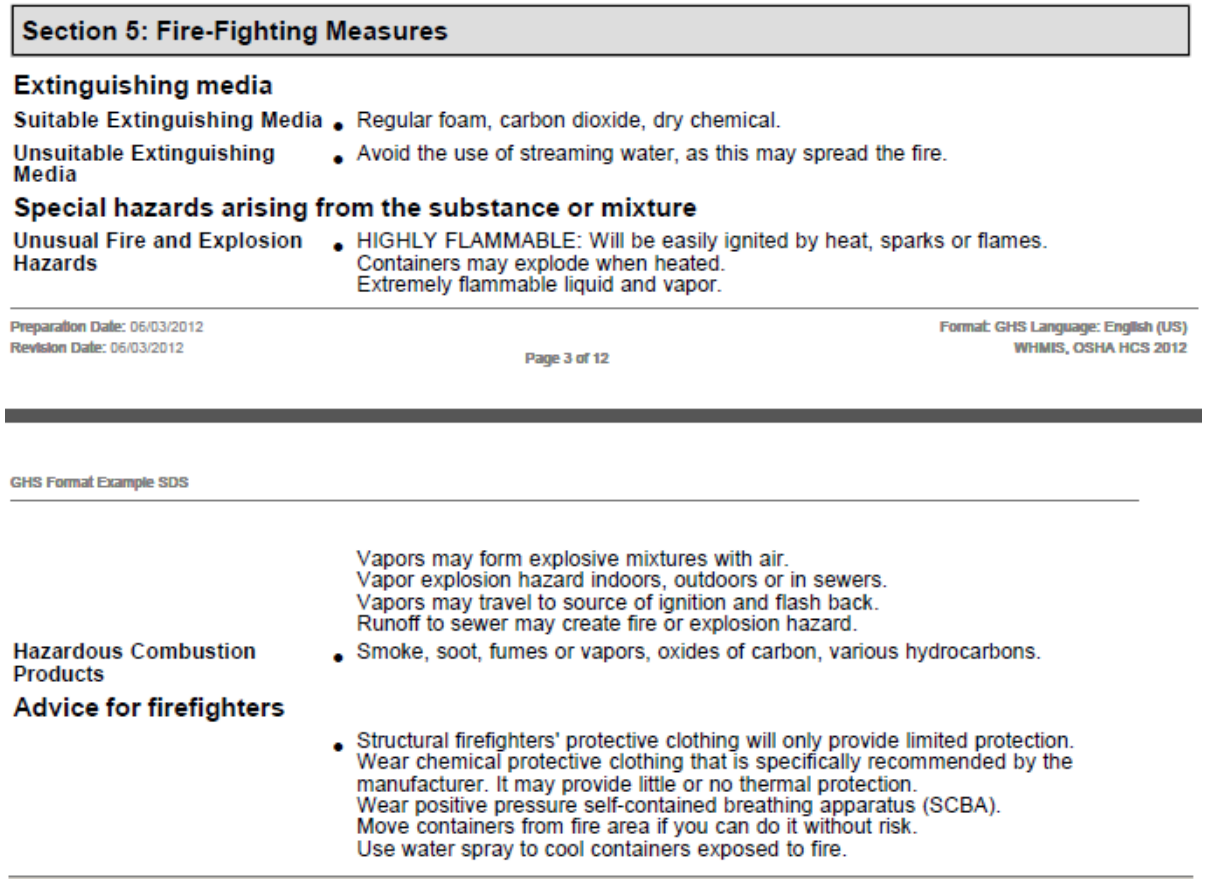
Notes to Physician	• All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

See Section 2 for Potential Health Effects.

Section 5:
Fire-Fighting Measures

Lists suitable extinguishing techniques and equipment

Chemical hazards from fire



Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media • Regular foam, carbon dioxide, dry chemical.

Unsuitable Extinguishing Media • Avoid the use of streaming water, as this may spread the fire.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards • HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
Containers may explode when heated.
Extremely flammable liquid and vapor.

Preparation Date: 06/03/2012
Revision Date: 06/03/2012

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Format: GHS Language: English (US)
WHMIS, OSHA HCS 2012

GHS Format Example SDS

Vapors may form explosive mixtures with air.
Vapor explosion hazard indoors, outdoors or in sewers.
Vapors may travel to source of ignition and flash back.
Runoff to sewer may create fire or explosion hazard.

Hazardous Combustion Products • Smoke, soot, fumes or vapors, oxides of carbon, various hydrocarbons.

Advice for firefighters

• Structural firefighters' protective clothing will only provide limited protection.
Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
Wear positive pressure self-contained breathing apparatus (SCBA).
Move containers from fire area if you can do it without risk.
Use water spray to cool containers exposed to fire.

Section 6:
Accidental Release Measures

Use of personal precautions and protective equipment

Emergency procedures

Methods and materials used for containment and cleanup

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions	• Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Emergency Procedures	• As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) Keep out of low areas. Keep unauthorized personnel away. Stay upwind. Ventilate closed spaces before entering.

Environmental precautions

• Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up

Containment/Clean-up Measures	• Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. A vapor suppressing foam may be used to reduce vapors. LARGE SPILLS: Dike far ahead of liquid spill for later disposal.

Section 7: Handling and Storage

Precautions for safe handling

- Handling of incompatible chemicals
- Minimizing the release into the environment
- Providing general hygiene practices.

Conditions for safe storage, including any incompatibilities.

Section 7 - Handling and Storage

Precautions for safe handling

Handling	• Keep away from heat and ignition sources – No Smoking. Product can accumulate static charge by flow or agitation. Bond and ground equipment when transferring from one vessel to another. Empty containers retain product residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat, flame, sparks or other ignition sources. They may explode and cause injury or death. Use only with adequate ventilation. Do not enter confined spaces such as tanks or pits without following proper entry procedures.

Conditions for safe storage, including any incompatibilities

Storage	• Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources. Keep container closed when not in use. Keep away from incompatible materials.
Incompatible Materials or Ignition Sources	• Keep away from heat, ignition sources oxidizers and strong acids.

Section 8:
Exposure Controls/Personal Protection

- OSHA (PELs)
- ACGIH Threshold Limit Values (TLVs)
- Appropriate engineering controls
- Personal protective equipment

Section 8 - Exposure Controls/Personal Protection

Preparation Date: 06/03/2012
Revision Date: 06/03/2012

Page 4 of 12

Format: GHS Language: English (US)
WHMIS, OSHA HCS 2012

GHS Format Example SDS

Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	China	NIOSH
Isopropyl alcohol (67-63-0)	STELs	400 ppm STEL	400 ppm STEL	500 ppm STEV; 1230 mg/m3 STEV	700 mg/m3 STEL	500 ppm STEL; 1225 mg/m3 STEL
	TWAs	200 ppm TWA	200 ppm TWA	400 ppm TWAEV; 985 mg/m3 TWAEV	350 mg/m3 TWA	400 ppm TWA; 980 mg/m3 TWA

Exposure Limits/Guidelines (Con't.)		
	Result	OSHA
Isopropyl alcohol (67-63-0)	TWAs	400 ppm TWA; 980 mg/m3 TWA

Section 8: Exposure Controls/Personal Protection (cont.)

Exposure controls

Engineering Measures/Controls	• Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable exposure limit values.
Personal Protective Equipment	
Pictograms	• 
Respiratory	• In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134. Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or symptoms are experienced.
Eye/Face	• Wear safety goggles.
Hands	• Wear protective gloves -neoprene, butyl or nitrile rubber with cuffs.
Skin/Body	• Where extensive dermal exposure may be expected, either a chemical suit or chemical apron will be needed.
General Industrial Hygiene Considerations	• Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Safety shower and eye wash should be available close to work areas.
Environmental Exposure Controls	• Follow best practice for site management and disposal of waste. Avoid release to the environment.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
MSHA = Mine Safety and Health Administration

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
STEL = Short Term Exposure Limits are based on 15-minute exposures
STEV = Short Term Exposure Value

Section 9:
Physical and Chemical Properties

Appearance

Odor

Odor threshold

pH Relative density;

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(ies)

Auto-ignition temperature

Decomposition temperature

Viscosity

Section 9:
Physical and Chemical Properties (Cont.)

Odor Threshold	Data lacking	**Physical and Chemical Properties**	Data lacking
General Properties			
Boiling Point	200 F(93.3333 C)	**Melting Point**	Data lacking
Decomposition Temperature	Data lacking	**Heat of Decomposition**	Data lacking
pH	Data lacking	**Specific Gravity/Relative Density**	0.82 Water=1
Density	6.83 lbs/gal	**Bulk Density**	Data lacking
Water Solubility	Insoluble	**Solvent Solubility**	Data lacking
Viscosity	Not relevant	**Explosive Properties**	Classification criteria not met.
Oxidizing Properties:	Classification criteria not met.		
Volatility			
Vapor Pressure	45 mmHg (torr) @ 68 C(154.4 F)	**Vapor Density**	3.5 Air=1
Evaporation Rate	4.2 n-Butyl Acetate = 1	**VOC (Wt.)**	Data lacking
VOC (Vol.)	495 g/L	**Volatiles (Wt.)**	Data lacking
Volatiles (Vol.)	Data lacking		
Flammability			
Flash Point	-10 C(14 F)	**UEL**	7 %
LEL	1 %	**Autoignition**	223 C(433.4 F)
Self-Accelerating Decomposition Temperature (SADT)	Data lacking	**Heat of Combustion (ΔHc)**	Data lacking
Burning Time	Data lacking	**Flame Duration**	Data lacking
Flame Height	Data lacking	**Flame Extension**	Data lacking
Ignition Distance	Data lacking	**Flammability (solid, gas)**	Classification criteria not met.
Environmental			
Half-Life	Data lacking	**Octanol/Water Partition coefficient**	Data lacking
Coefficient of water/oil distribution	Data lacking	**Bioaccumulation Factor**	Data lacking

Section 10:
Stability and Reactivity

Reactivity

- Description of the specific test data

Chemical Stability

- Stable or unstable under normal ambient temperature and conditions while in storage and being handled.
- Description of any stabilizers
- Indication of any safety issues

Other

- Indication of the possibility of hazardous reactions
- Conditions to avoid
- List of all classes of incompatible materials
- List of any known or anticipated hazardous decomposition products

Section 11: Toxicological Information

- Routes of exposure
- Description of the symptoms
- Acute and Chronic effects
- Numerical measures of toxicity

Section 11 - Toxicological Information

Information on toxicological effects

Component Name	CAS	Data
Isopropyl alcohol (1% TO 8%)	67-63-0	**Acute Toxicity:** orl-rat LD50:5045 mg/kg; ihl-rat LC50:16000 ppm/8H; skn-rbt LD50:12800 mg/kg; **Irritation:** eye-rbt 100 mg SEV; skn-rbt 500 mg MLD; **Reproductive:** ihl-rat TCLo:7000 ppm/7H (1-19D preg)

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012** • Classification criteria not met
Aspiration Hazard	**OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**OSHA HCS 2012** • Skin Irritation 2
Skin sensitization	**OSHA HCS 2012** • Classification criteria not met
STOT-RE	**OSHA HCS 2012** • Classification criteria not met
STOT-SE	**OSHA HCS 2012** • Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects
Toxicity for Reproduction	**OSHA HCS 2012** • Classification criteria not met

Target Organs • Central Nervous System (CNS)

Route(s) of entry/exposure • Inhalation, Skin, Eye, Ingestion

Potential Health Effects

Inhalation

Acute (Immediate) • May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death. Intentional concentration and inhalation of vapors of this material may lead to nervous system damage.

Chronic (Delayed) • No data available.

Skin

Acute (Immediate) • Causes skin irritation.

Chronic (Delayed) • Repeated and prolonged exposure may cause dermatitis.

Eye

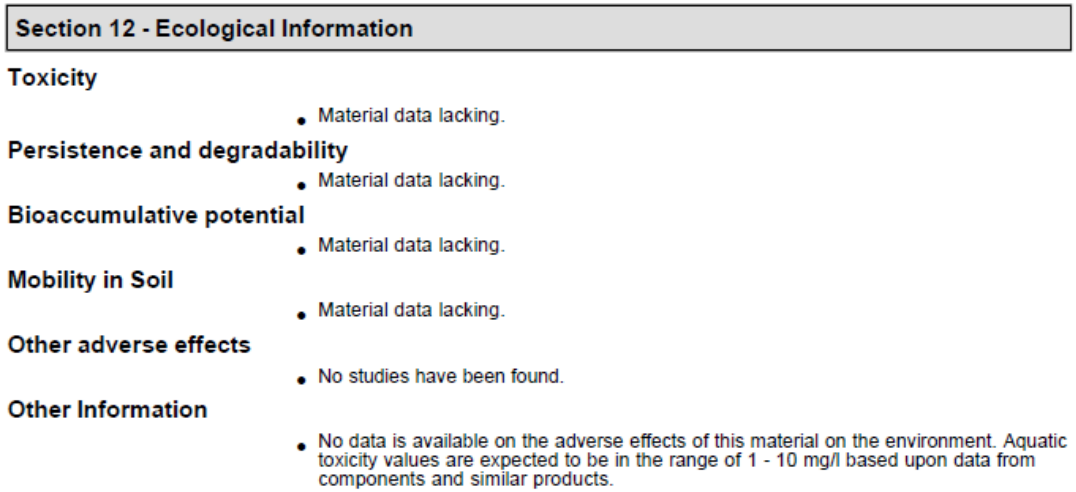
Acute (Immediate) • May cause mild eye irritation.

Chronic (Delayed) • No data available.

Ingestion

Section 12: Ecological Information (non-mandatory)

- Data from toxicity tests
- Whether there is a potential for the chemical to persist and degrade in the environment
- Results of tests of bioaccumulation potential
- The potential for a substance to move from the soil to the groundwater
- Other adverse effects



Section 12 - Ecological Information

Toxicity

- Material data lacking.

Persistence and degradability

- Material data lacking.

Bioaccumulative potential

- Material data lacking.

Mobility in Soil

- Material data lacking.

Other adverse effects

- No studies have been found.

Other Information

- No data is available on the adverse effects of this material on the environment. Aquatic toxicity values are expected to be in the range of 1 - 10 mg/l based upon data from components and similar products.

Section 13:
Disposal Considerations (non-mandatory)

Proper disposal practices, recycling or reclamation and safe handling practices.

Description of appropriate disposal containers

Recommendations of appropriate disposal methods

Section 13 - Disposal Considerations

Waste treatment methods

Product waste	• Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
Packaging waste	• Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14:
Transport Information (non-mandatory)

Classification information for shipping and transporting of hazardous chemical

UN number/shipping name

Transport hazard class(es)

Packing group number

Guidance on transport in bulk

Any special precautions

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1993	Flammable liquids, n.o.s.	3	II	NDA
TDG	UN1993	FLAMMABLE LIQUID, N.O.S.	3	II	Potential Marine Pollutant
IMO/IMDG	UN1993	FLAMMABLE LIQUID, N.O.S	3	II	NDA
IATA/ICAO	UN1993	Flammable liquids, n.o.s.	3	II	NDA

Special precautions for user • None specified.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code • This product is provided only in non-bulk containers.

Section 15: Regulatory Information (non-mandatory)

Identifies the safety, health, and environmental regulations

Any national and/or regional regulatory information of the chemical or mixtures

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Fire

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Naphtha (petroleum), hydrotreated light	64742-49-0	No	No	No
Isopropyl alcohol	67-63-0	Yes	Yes	Yes

Inventory				
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**TSCA**
Naphtha (petroleum), hydrotreated light	64742-49-0	Yes	No	Yes
Isopropyl alcohol	67-63-0	Yes	No	Yes

Canada

Labor

Canada - **WHMIS** - Classifications of Substances

• Naphtha (petroleum), hydrotreated light	64742-49-0	60% TO 100%	Not Listed
• Isopropyl alcohol	67-63-0	1% TO 8%	B2, D2B (including 70%)

Canada - **WHMIS** - Ingredient Disclosure List

Section 16:
Other Information

Indicates when the SDS was prepared or when the last known revision was made.

Section 16 - Other Information	
Last Revision Date	• 06/03/2012
Preparation Date	• 06/03/2012
Disclaimer/Statement of Liability	• The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Transitioning from MSDS to SDS

Carefully Plan the means by which you will be transitioning from MSDS to SDS on the plant floor:

- Review current Binder to determine accuracy
  - Achieve Older Sheets (DO NOT DISCARD!)
  - Verify that all inventoried Chemicals have MSDS/SDS
  - If requesting new MSDS/SDS be certain that you are procuring for the exact chemical you have in your possession
  - As part of review, evaluate PPE, Storage, Spill Plans, Training, etc.
  - Establish a plan for interim markings for portable storage containers

Hazcom Employer To-Do List

Train employees on new GHS-style label elements

Train employees on new SDS format

Continue to update safety data sheets when new ones become available

Update written hazard communication programs if new hazards are identified

Update alternative workplace labeling as necessary

Provide additional employee training for newly identified physical or health hazards

Make sure all container labels in the workplace are compliant

SOTARIS
Your Workplace Safety Partner

Questions?