HAZARDOUS MATERIALS/WASTE MANAGEMENT COURSE

This course is based on the Department of the Army's Introduction to Hazardous Waste Management Course.

PURPOSE

- The Hazardous Materials/Waste (HMW) Management course has been developed to provide information about proper storage, handling and turn-in of hazardous materials, hazardous waste and regulated medical waste.
- This course meets the requirements with EPA 40 Code of Federal Regulation (CFR) 265.16 initial personnel training.
- **The course will consist of a Post-test**
  - **Post-test gauges the effectiveness of the training method and assesses the students increase in knowledge resulting from the training**

Module 1
Introduction/Managing Hazardous Waste

Objectives

- State the Army Environmental Compliance Policy contained in Army Regulation (AR) 200-1
- Describe the course content
- List the responsibilities associated with hazardous materials/waste management (HM/HW)
- Describe the environmental law associated with HW management
- List the elements of an effective HM/HW program.

Achieving Environmental Stewardship

- Minimize impacts on the environment
- Know what's required by Federal, State, and local laws and Army regulations
- Provide a safer and healthier environment
- Practice cost effectiveness

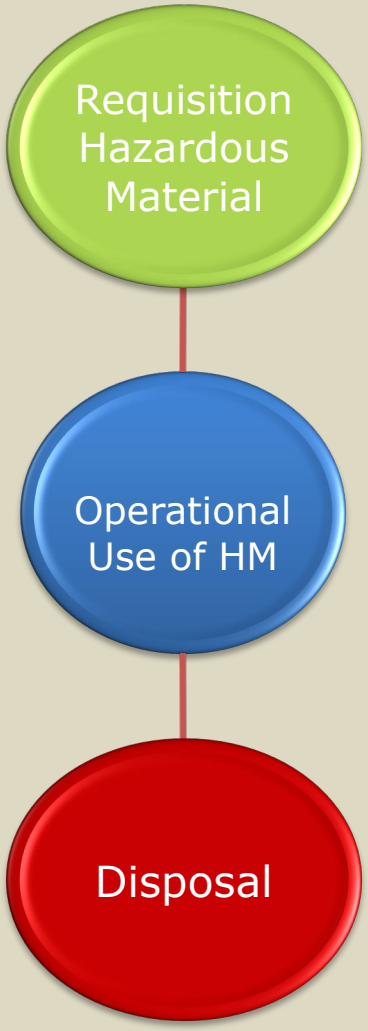
!Know the Difference!

- **Hazardous Material**
- Useful products that exhibit harmful characteristics
- They're toxic, ignitable, reactive, or corrosive
- Use my generate vapors and gases that are hazardous emissions

- **Hazardous Waste**
- When hazardous material can no longer be used for its intended purpose, it becomes hazardous waste
- Waste that Environment Protection Agency (EPA) determines is dangerous or potentially harmful to our health or the environment
- Hazardous wastes can be liquids, solids, gases, or sludge

Hazardous Waste Process

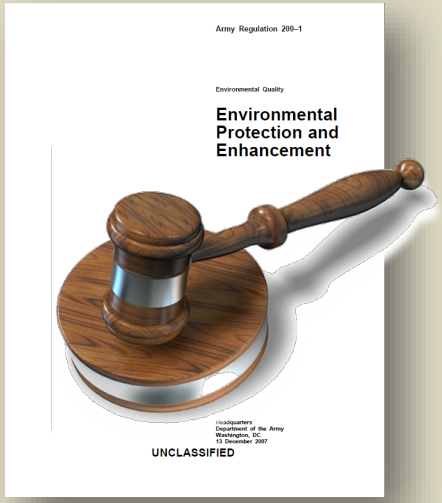
- **BEGINS:** When you Requisition hazardous materials.
- **CONTINUES:** When you use those materials
- **ENDS:** When you generate and dispose of waste products.



LEGAL SOURCES

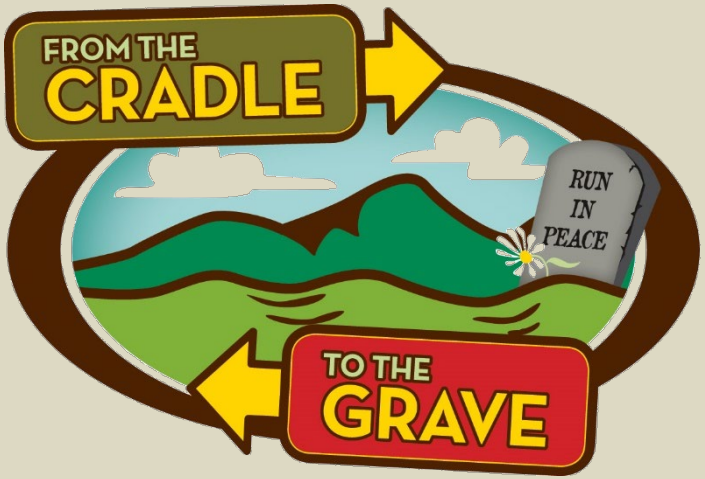
code of federal regulations

- **AR 200-1** - Environmental Protection and Enhancement
- **Code of Federal Regulations (CFR)**
  - Title 29, Occupational Safety Health
  - Title 40, Environmental Protection Agency (EPA)
  - Title 49, Department of Transportation (DOT)



Resource Conservation Recovery Act (RCRA)

- Specified in 40 CFR.
- Known as “cradle-to-grave” law
- Defines responsibilities, limitations, and liabilities for anyone who generates, transports, treats, stores, or disposes of hazardous waste.
- Allows US Environmental Protection Agency (EPA) to authorize States to manage more stringent RCRA program for facilities within their boundaries.



Federal Statutes

Comprehensive Environmental Response Compensation and Liability Act (CERCLA) "Superfund"

Superfund: The program operated under the legislative authority of CERCLA and SARA that funds and carries out EPA solid waste emergency and long-term removal and remedial activities

Implements the study and clean-up process for potentially contaminated site on the National Priorities List.

Toxic Substances Control Act (TSCA)

Requires control of specified hazardous substances, including:

- Polychlorinated Biphenyl (PCB)
- Asbestos Containing Materials (ACM)
- Radon
- Lead-based Paint

Superfund Amendment and Reauthorization Act (SARA)

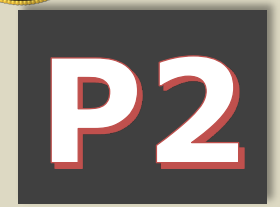
Amends CERCLA to add reporting requirements; Title III is the **E**mergency ***P***lanning and ***C***ommunity ***R***ight-to-Know-***A***ct (EPCRA).

Hazardous Materials Transportation Act

The principal federal law in the United States regulating the transportation of hazardous materials (1975)

Establishes specification for containers, labels, and placards to be used when transporting hazardous materials/waste.

Pollution Prevention (P2)



- Identifying areas, processes, and activities which create excessive waste products or pollutants in order to reduce or prevent them through, alteration, or eliminating a process.

RCRA

- Requires
  - Training of users, supervisors and managers of hazardous materials and waste
  - Training for managers and handlers of hazardous waste that includes information on how to manage waste and respond emergencies.

Criminal and Civil Liabilities

Violators include:

- Actual person who caused environmental damage.
- Supervisors and commanders who allow the pollution to occur.

Violations carry fines:

- up to **$50,000** per day.
- and/or up to **5 years** in prison.

Prevention

- Focus on awareness programs for users, supervisors, and managers of hazardous materials/waste.
- RCRA training for managers and handlers of hazardous waste including emergency response.
- Hazardous Waste Management training must be completed within 6 months of the date an employee begins a job involving hazardous waste
- In accordance with 29 CFR 1910.1200 each employee should be made aware of the specific hazards in their workplace and how to protect themselves.

Module 1 Review

1. List at least four Army Environmental Compliance Policies described in AR 200-1.
2. Describe at least five responsibilities of the Installation Commander that are integral to the hazardous waste management process.
3. Identify the primary focus of the following environmental regulations:
    a. CERCLA
    b. NEPA
    c. OSHA
    d. RCRA
    e. AR 200-1
4. List the five elements of a successful hazardous waste management program.
5. Who is liable for civil and criminal penalties if convicted of violation environmental laws/regulations?
6. What's the difference between hazardous materials and hazardous waste?
7. What is the most important element when establishing the hazardous waste management program?
8. What is the most important element when implementing the hazardous waste management program?
9. Who is considered under the AR 200-1 to be the generator of hazardous waste at an installation?

Module 2
Hazardous Communications

Objectives

- Identify material requirements to perform mission duties
- Requisition selected materials
- Accept materials

Hazardous Waste Minimization Program

- Emphasizes source reduction methods like hazardous materials substitution as the first priority.
- The goal is to reduce overall generation of hazardous waste
- All pollutant releases into air, water and land should be considered as a part of a waste minimization program.
- Mandated by the Resource Conservation Recovery Act
- Implemented under AR 200-1

Benefits of Hazardous Minimization (HAZMIN)

- Protects the environment
- Protects public and worker health and safety
- Saves money by reducing waste treatment and disposal costs, raw material purchases, and other operating costs
- Meets State and Federal waste minimization policy goals
- Reduces potential environmental liabilities

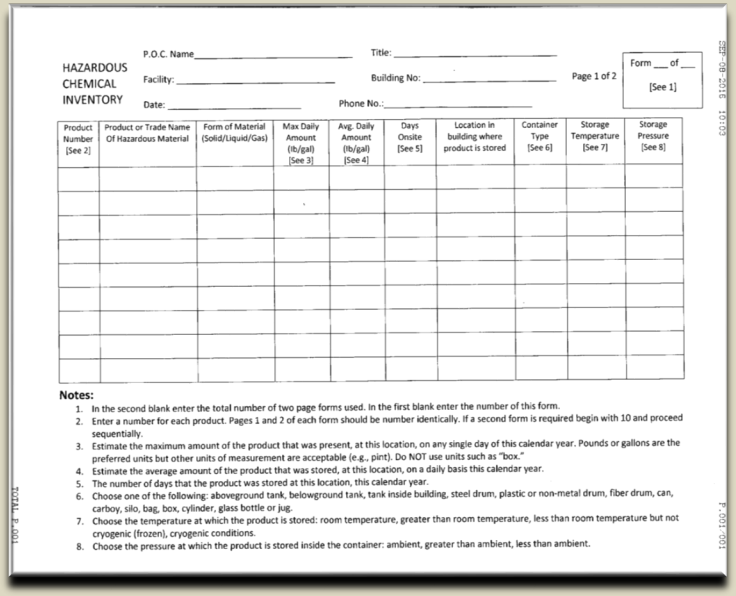
Recognizing the Hazards

OSHA requires that containers of hazardous chemicals to be labeled. This identification may include:

- Manufacturer's name, address and phone number
- Its code number, chemical or trade name
- The degree of hazard (Caution; Warning; Danger
- A hazard statement with the major hazards you face (Extremely Flammable; Harmful If Inhaled)
- Precautions (Avoid Breathing)
- First Aid information
- Antidotes, medical information
- Fire protection and spill clean-up instructions
- Container Storage and handling instructions

Recognizing Hazardous Materials/Chemicals

- Safety Data Sheet (SDS)
- Hazardous Materials Inventory
- Labels



HAZARDOUS CHEMICAL INVENTORY

P.O.C. Name_____ Title: _____

Facility: _____ Building No: _____ Page 1 of 2

Date: _____ Phone No.:_____

Form ___ of ___ [See 1]

Product Number [See 2]	Product or Trade Name Of Hazardous Material	Form of Material (Solid/Liquid/Gas)	Max Daily Amount (lb/gal) [See 3]	Avg. Daily Amount (lb/gal) [See 4]	Days Onsite [See 5]	Location in building where product is stored	Container Type [See 6]	Storage Temperature [See 7]	Storage Pressure [See 8]

Notes:

1. In the second blank enter the total number of two page forms used. In the first blank enter the number of this form.
2. Enter a number for each product. Pages 1 and 2 of each form should be number identically. If a second form is required begin with 10 and proceed sequentially.
3. Estimate the maximum amount of the product that was present, at this location, on any single day of this calendar year. Pounds or gallons are the preferred units but other units of measurement are acceptable (e.g., pint). Do NOT use units such as "box."
4. Estimate the average amount of the product that was stored, at this location, on a daily basis this calendar year.
5. The number of days that the product was stored at this location, this calendar year.
6. Choose one of the following: aboveground tank, belowground tank, tank inside building, steel drum, plastic or non-metal drum, fiber drum, can, carboy, silo, bag, box, cylinder, glass bottle or jug.
7. Choose the temperature at which the product is stored: room temperature, greater than room temperature, less than room temperature but not cryogenic (frozen), cryogenic conditions.
8. Choose the pressure at which the product is stored inside the container: ambient, greater than ambient, less than ambient.

Identifying Hazardous Materials Requirements

- Develop a list of hazardous chemicals that you use
- Identify how each HM is used
- Identify the hazards
- Use a team approach in determining how the HM is used
- Identify alternatives or suitable substitutes
- Identify total cost to include procurement, storage, use and disposal

Command Supply Discipline

Self-control to order only what you need for the mission in the minimum quantity required.

Accepting Hazardous Materials

A knowledgeable personnel should be designated to accept delivered materials to:

- Verify the Hazardous Material order or acceptable substitute.
- Check to see if the SDS is with the order.
- AR 200-1 requires that the user receive a SDS with the delivery.

Resources for Transporting HM On-Post

- Spill Contingency & Countermeasures Plan
- Installation Hazardous Waste Management Plan
- DPW, Environmental Division
- Directorate of Logistics (DOL)
- Transportation Directive (DOL, Transportation Office)

Module 2 Review

1. List six factors that MUST be considered when attempting to identify possible alternatives to hazardous materials currently in use for mission requirements.
2. Explain how requisitioning of hazardous materials affects the HAZMIN program.
3. How can you recognize a hazardous chemical?
4. Explain why a team approach to evaluating alternative materials is important.
5. What two things must you do to ensure you get the materials you want when you requisition it?
6. Define the expression “command supply discipline”.
7. When should you request a SDS and Why?
8. Explain why a knowledgeable individual should be designated to accept delivered materials.
9. What resources should be consulted to determine your valid options for transporting hazardous materials on-post?

Module 3
HANDLING HAZARDOUS MATERIALS

Submodule 3.1
Complying with HAZCOM Requirements

Objectives

- Introduce The Global Harmonized System, Hazard Communication program
- Cover the safety and health and environmental aspects of having hazardous materials
- Proper handling of hazardous materials
- Spill response

29 CFR 1910.1200

Hazard Communication Standard (HCS) -2012

&

United Nations Globally Harmonized System of Classification and Labeling of Chemicals

(GHS, Rev 3)

HAZCOM PROGRAM

Intent - To provide employees with information to help them make knowledgeable decisions about chemical hazards in their workplace.

STANDARD REQUIREMENTS

- Written program for each location to cover issues of chemical safety and hazard communication (HAZCOM)
- Labels to identify each chemical
- Safety Data Sheet (SDS)
- Safe work procedures/practices
- Employee training on SDS information and safe chemical procedures and practices

Training

- After six months of initial employment or assignment, you are required to obtain Hazardous Waste Management training.

- When a new hazardous product/chemical is introduced into the workplace

- Change in process

- As deemed necessary by supervision/management

"Right to Know" Law

- Ensures all employees 'right to know' the hazards of chemicals they work with at their job

- Mandates that employees must be provided with information about chemicals they work with through:
  - Information on chemical labels
  - Safety Data Sheets (SDSs)
  - Training on hazard communication
  - Written HAZCOM plan

Globally Harmonized System

"Globally Harmonized System" created by the United Nations

Also known as "GHS"

A system for standardizing chemical classification and labeling for world-wide implementation

Labels:

- ❑ Signal words (Danger/Warning)
- ❑ Hazard statements
- ❑ Precautionary statements
- ❑ Pictograms (9)

SDS-16 categories

Training

Rationale:

"To provide a single, harmonized system to classify chemicals, labels and SDS with the primary benefit of increasing the quality and consistency of information provided to workers, employers and chemical users"*

Effective, in part, on June 26, 2012, with a built-in transition period and a fully effective date of June 1,2016

*Ruth Mayo, EHS Today, "GHS: The Power of One," December 1, 2009

Updating GHS/HCS

- The adoption of this will affect the OSHA 29 CFR 1910.1200 Hazard Communication Standard with changes

- GHS is updated every two years

- Hazard Communication Standard, (HCS), to remain current, can be updated by:

  - Technical updates (minor terminology changes),
  - Direct final rules (for text clarification), and
  - Notice and comment rulemaking (for more substantive updates or changes)

Other Label Elements

OSHA label elements for:

Pyrophoric Gases:

-Signal Word: Danger

-Hazard Statement: "Catches fire spontaneously if exposed to air"

Simple Asphyxiants:

-Signal Word: Warning

-Hazard Statement: "May displace oxygen and cause rapid suffocation"

Combustible Dusts:

-Signal Word: Warning

-Hazard Statement: "May form combustible dust concentrations in the air"

Hazard Classification

- GHS has specific criteria for each health and physical hazard

- Detailed instructions for hazard evaluation and determinations whether mixtures of the substance are covered

- A and B (mandatory): Classification guidance for health hazards and physical hazards

- Test-method neutral (person classifying a chemical or substance should use available data and no additional testing is required to classify a chemical)

Routes of Occupational Exposure

Inhalation - nearly all materials that are airborne can be inhaled

Skin Absorption - skin contact with a substance can result in a possible reaction

Ingestion - most workers do not deliberately swallow materials they handle

Injection – normally associated with bloodborne pathogens

Ocular - absorbed through the eyes

Hazards

A chemical can pose a "physical hazard" or a "health hazard"

The hazard communication standard applies to *both* types of hazards

GHS looks at:

- Class-nature of hazard
- Category-degree of severity

Physical Hazards

Physical hazards are exhibited by certain chemicals because of their physical properties (e.g. flammability, reactivity, etc.)

These chemicals fall into the following classes:

- Flammable liquids or solids
- Combustible liquids
- Compressed gases
- Explosives

Physical Hazards

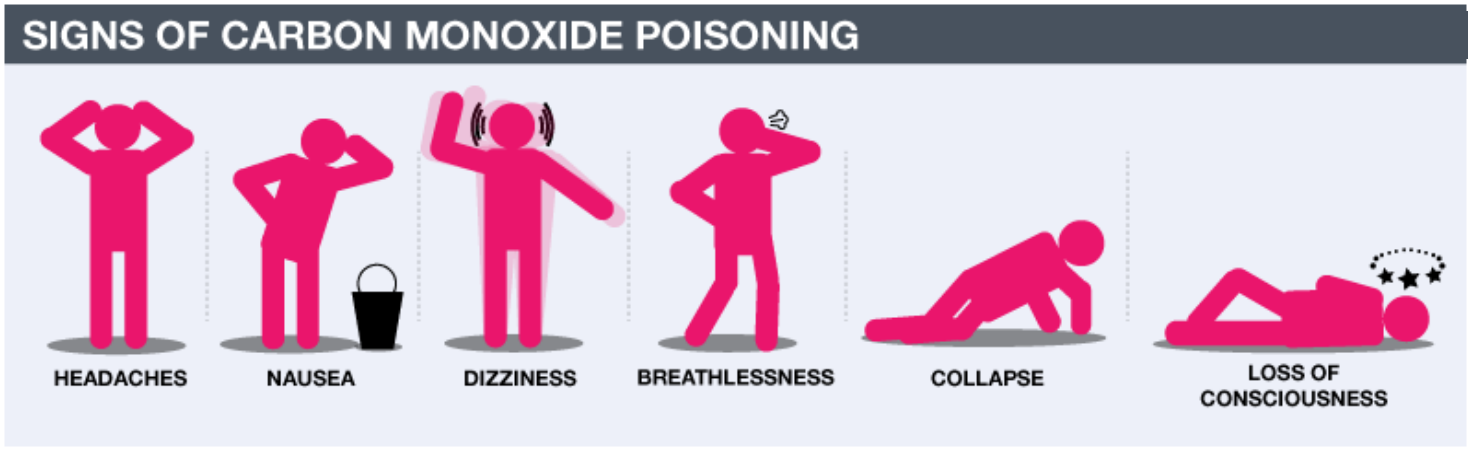
- Organic peroxide: May react explosively to temperature/pressure changes
- Oxidizers: Chemicals that initiate or promote combustion in other materials
- Pyrophoric materials: May ignite spontaneously in air temperatures of 130ºF or below
- Unstable materials
- Water reactive materials

Health Hazard

Health hazard - Occurs when a chemical produces an acute or chronic health effect on exposed employees.

Acute Health Effects

- Happen quickly
- High, brief exposure
- Examples:
  - Carbon monoxide poisoning
  - Cyanide inhalation
  - Hydrogen sulfide inhalation



Chronic Health Effects

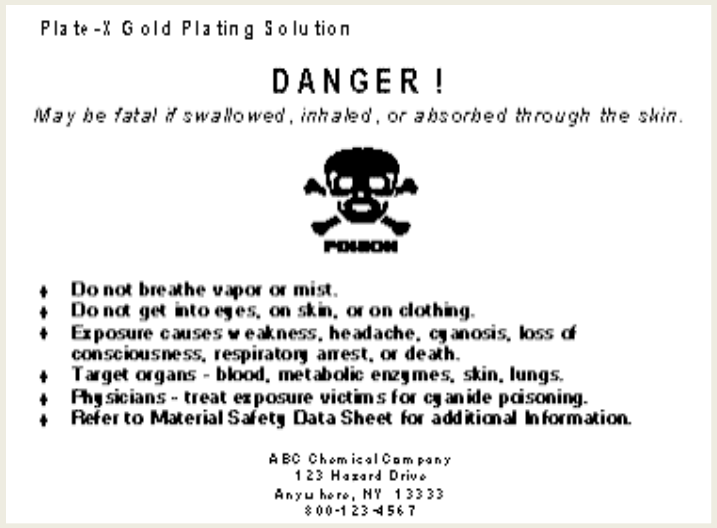
- May be caused by chemical exposures that do not cause immediate, obvious harm or make you feel sick right away
- May not see, feel, or smell the danger
- Effects are long, continuous and follow repeated long-term exposure; e.g.:
  - Lung cancer from cigarette smoking
  - Black lung from coal mine dust

Labeling

Example of one type of labeling system used

Chemical Labels

- Each container must be labeled, tagged or marked
- Warning can be a message, words, pictures or symbols
- Labels must be written in English and prominently displayed



Label Information

Chemical manufacturers and importers must provide a label that includes:

- Harmonized signal word
- Pictogram
- Hazard statement for each hazard class and category
- Precautionary statements must also be provided as well as product identifier and supplier information

Reading Chemical Labels

Warning labels provide important information about the chemical:

- ✓ **DANGER**
- ✓ **WARNING**

Always read the label *before* you begin a job using a potentially hazardous chemical

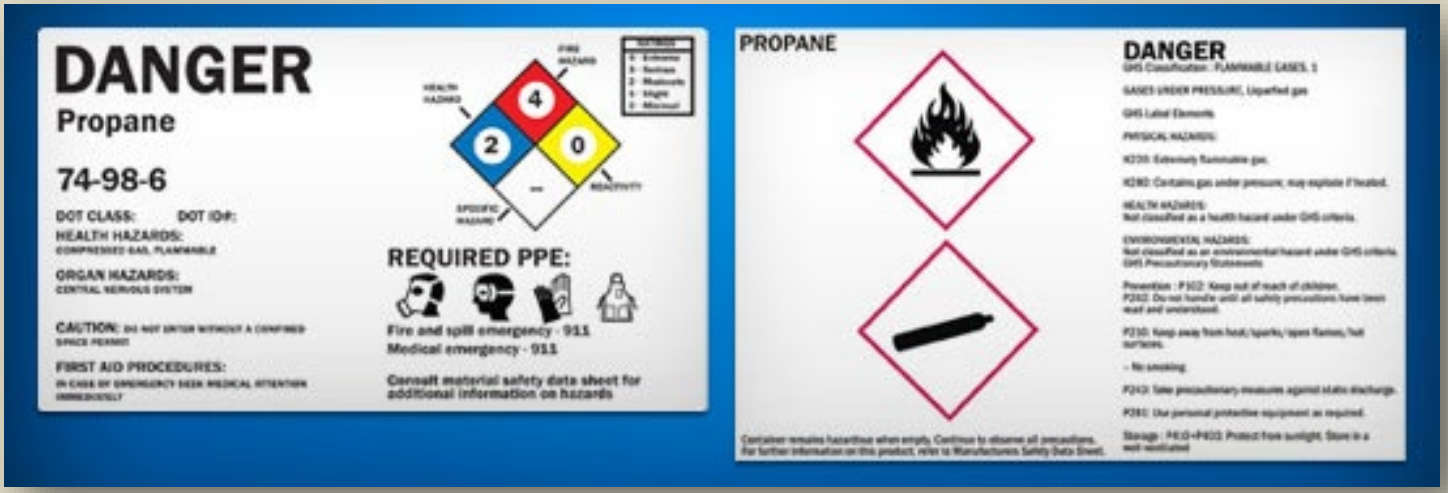
Labels/Other Warnings

- Mandatory Appendix C: What specific information is to be provided for each hazard class and category once a chemical is classified
- Requirements are significantly different from existing Hazard Communication Standard (HCS)
- GHS uses nine pictograms to convey health, physical and environmental hazards
- Proposed HCS requires eight of these pictograms (no environmental hazard since environmental is not within OSHA's jurisdiction)

Labeling

Employers who only store chemicals may either use OSHA's new labeling system or continue using the NFPA 704 rating system or HMIS system

(OSHA plans to change the labeling system June 1, 2016)



GHS Comparison

GHS classification ratings order of severity differ from NFPA and HMIS:

HMIS/NFPA

0 = Least Hazardous

4 = Most Hazardous

GHS

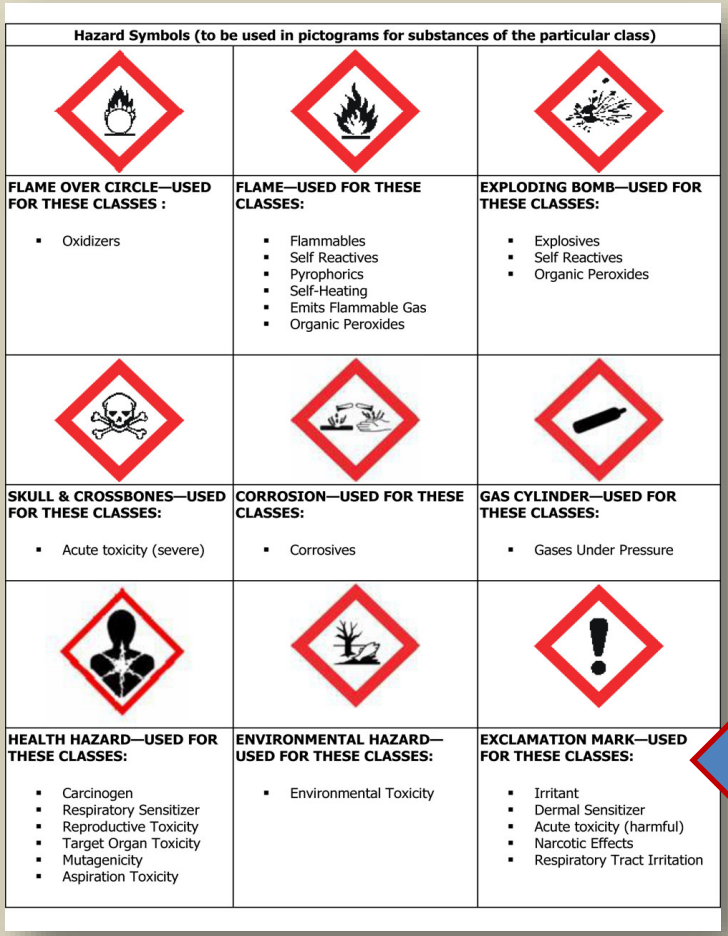
5 = Least Hazardous

1 = Most Hazardous

Pictograms

Different symbols on white background with red square frame set on point.

Eight pictograms are required by OSHA



Hazard Symbols (to be used in pictograms for substances of the particular class)		
FLAME OVER CIRCLE—USED FOR THESE CLASSES : ▪ Oxidizers	**FLAME—USED FOR THESE CLASSES:** ▪ Flammables ▪ Self Reactives ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Organic Peroxides	**EXPLODING BOMB—USED FOR THESE CLASSES:** ▪ Explosives ▪ Self Reactives ▪ Organic Peroxides
SKULL & CROSSBONES—USED FOR THESE CLASSES: ▪ Acute toxicity (severe)	**CORROSION—USED FOR THESE CLASSES:** ▪ Corrosives	**GAS CYLINDER—USED FOR THESE CLASSES:** ▪ Gases Under Pressure
HEALTH HAZARD—USED FOR THESE CLASSES: ▪ Carcinogen ▪ Respiratory Sensitizer ▪ Reproductive Toxicity ▪ Target Organ Toxicity ▪ Mutagenicity ▪ Aspiration Toxicity	**ENVIRONMENTAL HAZARD—USED FOR THESE CLASSES:** ▪ Environmental Toxicity	**EXCLAMATION MARK—USED FOR THESE CLASSES:** ▪ Irritant ▪ Dermal Sensitizer ▪ Acute toxicity (harmful) ▪ Narcotic Effects ▪ Respiratory Tract Irritation

The ninth one dealing with the environment is not within OSHA's jurisdiction

Health Hazard

Used to describe:

- Carcinogen
- Mutagenicity
- Reproductive toxicity
- Respiratory sensitizer
- Target organ toxicity
- Aspiration toxicity
- Germ cell mutagens

Flame

Describes:

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

Exploding Bomb

Describes:

- Explosives
- Self-reactives
- Organic peroxide

Exclamation Mark

Describes:

- Irritant (skin and eye)
- Skin sensitizer
- Acute toxicity (harmful)
- Narcotic effects
- Respiratory tract irritant
- Hazardous to ozone layer (non-mandatory)

Corrosion

Describes:

- Skin corrosion/burns
- Eye damage
- Corrosive to metals

Gas Cylinder

Describes:

- Gases under pressure

Flame Over Circle

Describes:

- Oxidizers

Anything wrong with this picture?

Yes!

Unsafe storage– cylinders falling over!

Skull and Crossbones

Describes:

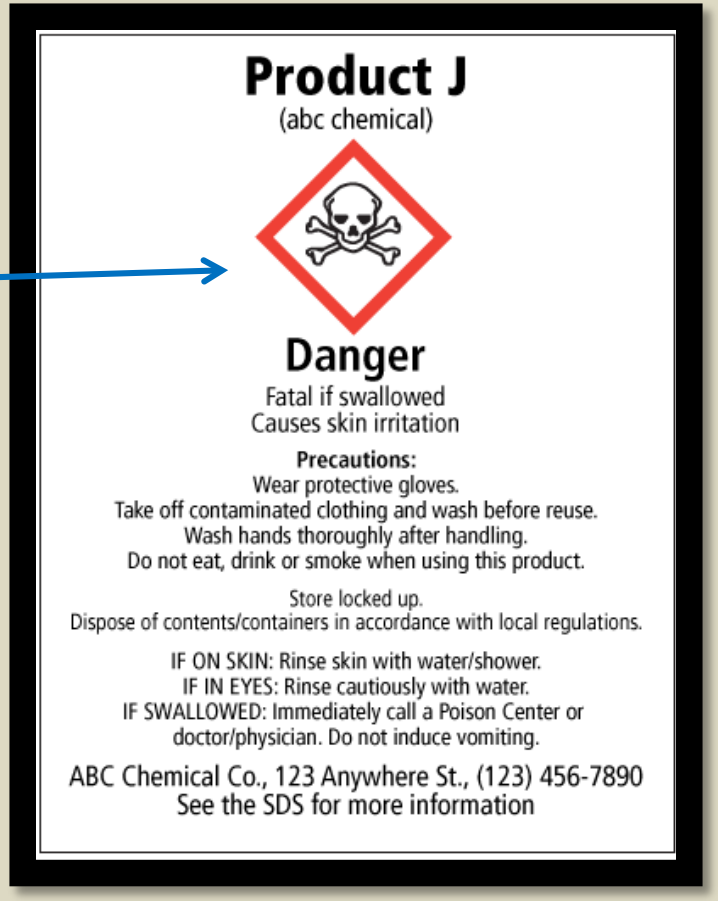
- Acute toxicity (fatal or toxic)

Signal Word

A single word indicating relative hazard severity

"Danger" for more severe hazards,

"Warning" for less severe hazards



Hazard Statement

- Assigned to hazard class and category,
- Nature of hazard of a chemical, and
- Degree of hazard
- "Statements" are alphanumeric codes

  Example: **H2221** (means flammable gas)

  H= That this is a hazard statement

  2=physical hazard

  3=health hazard

  4=environmental hazard

  "21" in this code is specific to the hazard

Precautionary Statement

- Measures to minimize/prevent adverse effects from exposure, improper storage, or handling

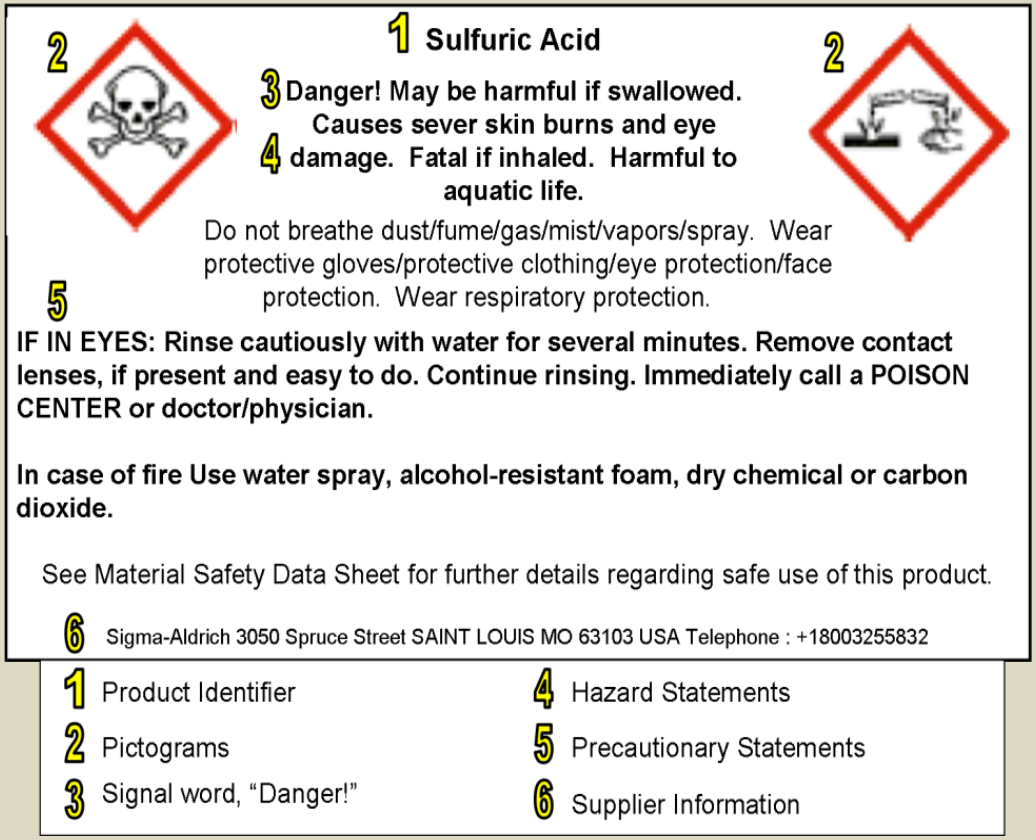
- Also an alphanumeric code

- Example: **P373**
  P=that this is a precautionary statement
  1=general precaution
  2=prevention precaution
  3=response precaution
  4=storage precaution
  5=disposal precaution
  P373="Don't fight fire when fire reaches explosives"

Labels

Information required on a GHS label:

1-Product identifier
2-Pictograms
3-Signal word
4-Hazard statement
5-Precautionary statement
6-Supplier information



GHS: Annex 2

Classification and Labeling Summary Tables A2.1 Explosives

Hazard	Criteria	Hazard Communication Elements	
Unstable Explosives	According to the results of the test in Part 1 of the Manual of Tests and Criteria … Transport of Dangerous Goods	Symbol	
		Signal Word	Danger
		Hazard Statement	Unstable Explosives

Classification and Labeling Summary Tables
A2.6 Flammable Liquids

Hazard	Criteria	Hazard Communication Elements	
1	Flash point <23°C and initial boiling point ≤35°C	Symbol	
		Signal Word	Danger
		Hazard Statement	Extremely Flammable Liquid & Vapor

Table A3.1.2 Hazard Statement Codes

Hazard Statement Codes for Health Hazards (Examples)

Code Cat	Health Hazard	Hazard Class	Hazard Cat
H301	Toxic if swallowed	Acute Toxicity, oral	3
H331	Toxic if inhaled	Acute Toxicity, inhalation	3
H311	Toxic in contact w/skin	Acute Toxicity, dermal	3

Table A3.2.3 Precautionary Statements

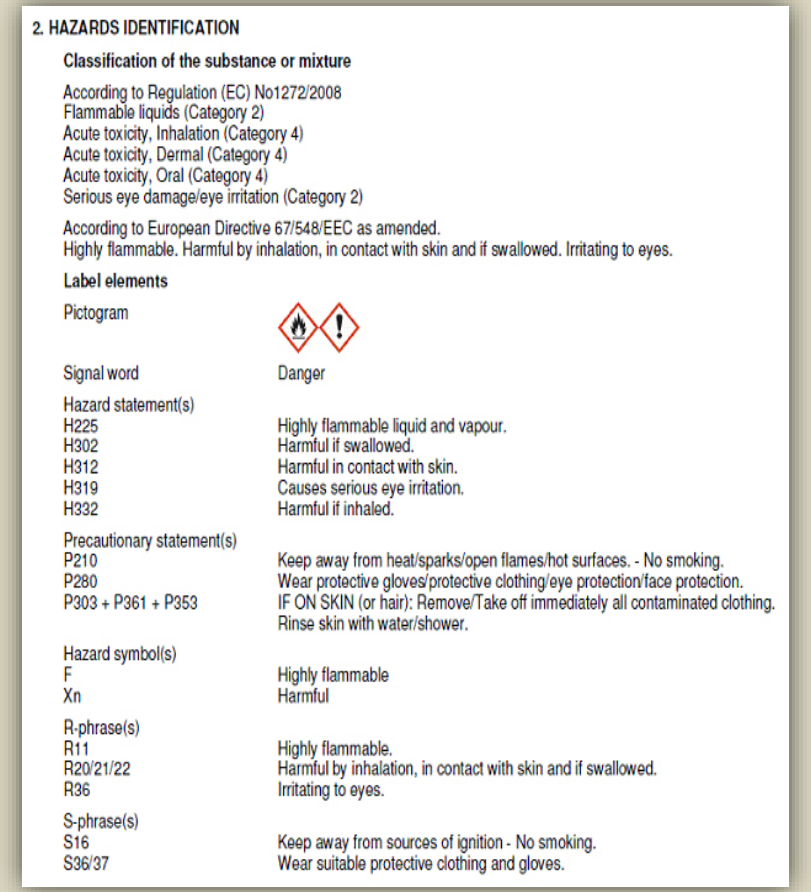
Code	Health Hazard	Hazard Class	Hazard Cat
P301	If swallowed	Acute Toxicity, oral Skin corrosion Aspiration hazard	1,2,3,4 1A, 1B, 1C 1,2
P330	Rinse mouth	Acute Toxicity, oral Skin corrosion	1,2,3,4 1A, 1B, 1C
P331	DO NOT induce vomiting	Skin corrosion Aspiration hazard	1A, 1B, 1C 1, 2

Labels

Chemical manufacturer, importer or distributor:

ensure each container of hazardous chemicals leaving workplace is labeled, tagged or marked with:

- Identity of chemical,
- Hazard warnings, and
- Name and address of manufacturer, distributor or importer



2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

According to Regulation (EC) No1272/2008
Flammable liquids (Category 2)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 4)
Acute toxicity, Oral (Category 4)
Serious eye damage/eye irritation (Category 2)

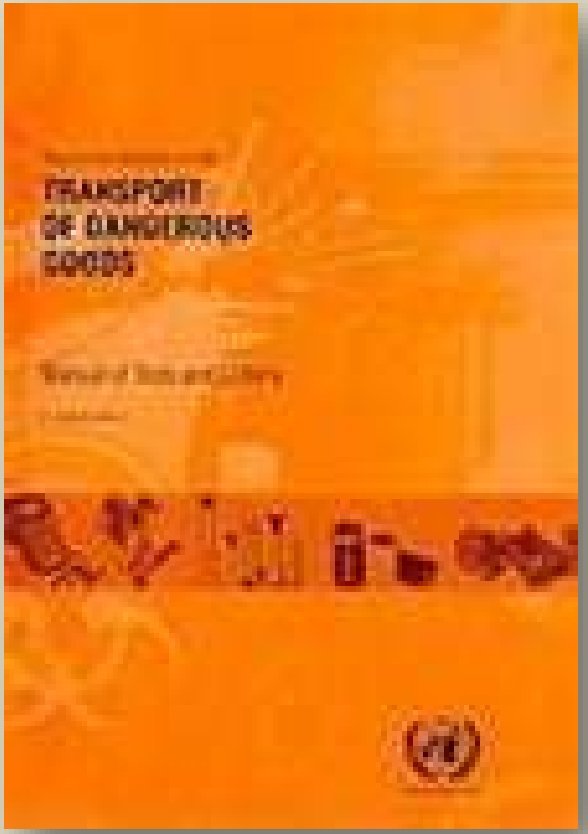
According to European Directive 67/548/EEC as amended.
Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes.

Label elements

Pictogram	
Signal word	Danger
Hazard statement(s)	
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
Precautionary statement(s)	
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Hazard symbol(s)	
F	Highly flammable
Xn	Harmful
R-phrase(s)	
R11	Highly flammable.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R36	Irritating to eyes.
S-phrase(s)	
S16	Keep away from sources of ignition - No smoking.
S36/37	Wear suitable protective clothing and gloves.

Transporting

For transportation:
Use pictograms, referred to as labels in transport regulations, prescribed by UN Model Regulations on the Transport of Dangerous Goods



Dangerous Good Label

UN regulations:

This symbol affixed to packaging on a background of contrasting color

Only UN transport markings and labels are required for outer packaging

Label Examples

On containers

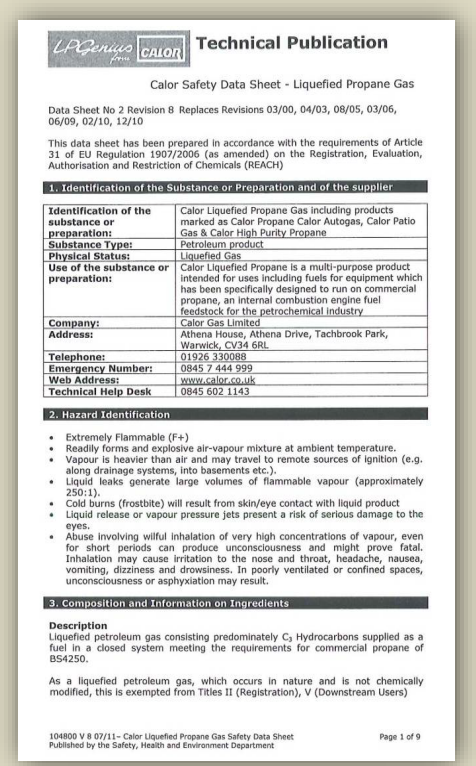
On shipping boxes

Safety Data Sheet

- Under the GHS, MSDSs (material safety data sheets) become SDS (safety data sheets)
- Categories (16) to be listed in a specific order
- Adheres to ANSI standard Z400.1
- GHS requires new SDSs be in uniform format by June 1, 2015
- Information for mixtures not individual chemicals in a mixture

SDS and Information They Contain

- Safety Data Sheet
- Developed by chemical manufacturers and importers
- An SDS must be on hand for each hazardous chemical used
- SDS for mixtures not individual chemicals in the mixtures
- Chemical names
- Manufacturer info (name, address and telephone numbers)
- List of chemical ingredients
- Permissible exposure limits (PELs) and threshold limit values (TLVs)



Technical Publication

Calor Safety Data Sheet - Liquefied Propane Gas

Data Sheet No 2 Revision 8 Replaces Revisions 03/00, 04/03, 08/05, 03/06, 06/09, 02/10, 12/10

This data sheet has been prepared in accordance with the requirements of Article 31 of EU Regulation 1907/2006 (as amended) on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

1. Identification of the Substance or Preparation and of the supplier

Identification of the substance or preparation:	Calor Liquefied Propane Gas including products marked as Calor Propane Calor Autogas, Calor Patio Gas & Calor High Purity Propane
Substance Type:	Petroleum product
Physical Status:	Liquefied Gas
Use of the substance or preparation:	Calor Liquefied Propane is a multi-purpose product intended for uses including fuels for equipment which has been specifically designed to run on commercial propane, an internal combustion engine fuel feedstock for the petrochemical industry
Company:	Calor Gas Limited
Address:	Athena House, Athena Drive, Tachbrook Park, Warwick, CV34 6RL
Telephone:	01926 330088
Emergency Number:	0845 7 444 999
Web Address:	www.calor.co.uk
Technical Help Desk	0845 602 1143

2. Hazard Identification

- Extremely Flammable (F+)
- Readily forms and explosive air-vapour mixture at ambient temperature.
- Vapour is heavier than air and may travel to remote sources of ignition (e.g. along drainage systems, into basements etc.).
- Liquid leaks generate large volumes of flammable vapour (approximately 250:1).
- Cold burns (frostbite) will result from skin/eye contact with liquid product
- Liquid release or vapour pressure jets present a risk of serious damage to the eyes.
- Abuse involving wilful inhalation of very high concentrations of vapour, even for short periods can produce unconsciousness and might prove fatal. Inhalation may cause irritation to the nose and throat, headache, nausea, vomiting, dizziness and drowsiness. In poorly ventilated or confined spaces, unconsciousness or asphyxiation may result.

3. Composition and Information on Ingredients

Description
Liquefied petroleum gas consisting predominately C_3 Hydrocarbons supplied as a fuel in a closed system meeting the requirements for commercial propane of BS4250.

As a liquefied petroleum gas, which occurs in nature and is not chemically modified, this is exempted from Titles II (Registration), V (Downstream Users)

104800 V 8 07/11– Calor Liquefied Propane Gas Safety Data Sheet
Published by the Safety, Health and Environment Department

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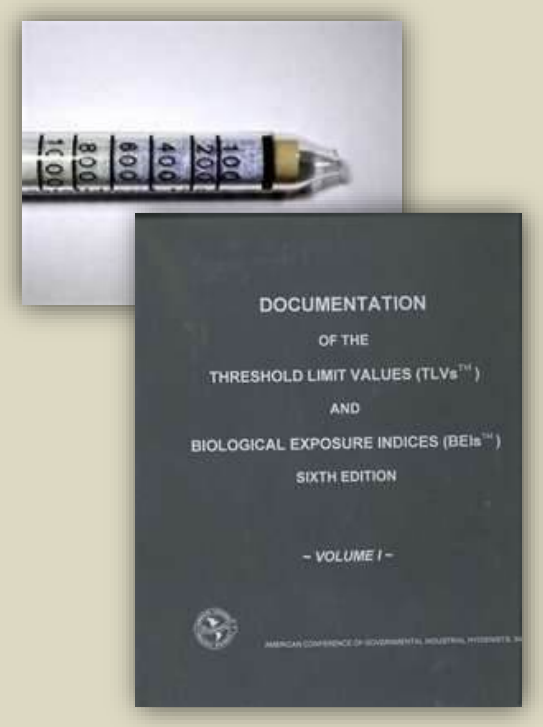
Where Tradition Meets the Future

Information on a SDS

Any other exposure limit used or recommended by chemical manufacturer, importer or employer preparing the SDSs now are required on the SDS



- Reactions with other chemicals
- Physical appearance
- Date of preparation
- Plus:
  - How to put out a fire caused by a chemical
  - How to handle spills
  - How to prevent dangerous exposures

Where are your SDSs?

SDSs:

- Must be readily accessible to employees during their work shift
- Are typically kept in a centralized location
- Must be updated as new information becomes available

SDS Categories

Section 1: Identification

Section 2: Hazard identification

Section 3: Ingredients

Section 4: First-aid measures

Section 5: Fire fighting measure

Section 6: Accidental release measures

Section 7: Handling and storage

Section 8: Exposure controls and personal protection

SDS Categories

Section 9: Physical and chemical properties

Section 10: Stability and reactivity

Section 11: Toxicological information

Section 12: Ecological information*

Section 13: Disposal considerations*

Section 14: Transport information*

Section 15: Regulatory information*

Section 16: Other information

*OSHA indicated that since other agencies regulate sections 12-15, OSHA will not be enforcing them

- Product identifier used on label
- Other means of identification
- Recommended use of chemical and restrictions on use
- Name, address, telephone number of manufacturer, importer or other responsible party
- Emergency phone number

- Instead of hazard determination, employer must classify a hazardous chemical according to changed conditions provided in Appendices A and B
- Pictograms are a new requirement
- Standardized hazard statements
- Signal words
- Precautionary statements are now required
- SDS required for each mixture rather than one for each chemical comprising a mixture
- If one study in 10 indicates material is carcinogenic, but others don't, must list the one carcinogenic study

- Classification of chemical
- Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of this section (hazard symbols may be provided as graphical reproductions or the name of the symbol, e.g. flame, skull and crossbones)
- Unclassified hazards (e.g., combustible dust or dust explosion hazard)
- Where an ingredient with unknown acute toxicity is used in a mixture at a concentration > 1 percent, a statement that x percent of mixture consists of ingredient(s) of unknown toxicity is required

No new requirements other than:

- Format
- A separate SDS will be required for each mixture rather than one for each chemical comprising the mixture

Except as provided in (i) this section on trade secrets

<u>For Substances</u>

- Chemical name
- Common name and synonyms
- CAS number and other unique identifiers
- Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance

- The chemical name and concentration or concentration ranges of all ingredients, which are classified as health hazards in accordance with (d) this section

- For all chemicals where a trade secret is claimed Trade Secret per (i) this section, a statement that the specific chemical identity and/or percent of composition has been withheld as a trade secret is required

- No new requirements other than format
- Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact, ingestion
- Most important symptoms/effects, acute and delayed
- Indication of immediate medical attention and special treatment needed, if necessary

No new requirements other than format

- 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

- No new requirements other than format
- Personal precautions, protective equipment, emergency procedures
- Methods and materials for containment and clean up

- No new requirements other than format
- Precautions for safe handling
- Conditions for safe storage, including any incompatibilities

  - Cylinders unchained;
  - Drum not labeled properly;
  - No spill containment for drum;
  - Materials may be incompatible

Is this safe storage? NO!

No new requirements other than format

- OSHA PEL (permissible exposure limit) and any other exposure limit used or recommended by the chemical manufacturer, importer or employer preparing the SDS
- Appropriate engineering controls
- Individual protection measures, such as PPE

Section 9: Physical, Chemical Properties

No new requirements other than format:

- Appearance (physical state, color, etc)
- Odor
- pH
- Melting point/freezing point
- Initial boiling point and boiling range
- Flash point
- Evaporation rate
- Flammability (solid, liquid, gas)
- Upper/lower flammability or explosive limits
- Vapor pressure
- Vapor density
- Relative density
- Solubility

- Partition coefficient: n-octanol/water
- Auto-ignition temperature
- Decomposition temperature
- Viscosity

- Conditions to avoid
- New to HCS (as has been required in ANSI Z400.1 standard)
- Reactivity
- Chemical stability
- Possibility of hazardous reactions
- Conditions to avoid (static discharge, shock or vibration
- Incompatible materials
- Hazardous decomposition products

No new requirements other than format:

- Description of various toxicological effects and available data used to identify those effects, including:
  - Likely exposure routes (inhalation, ingestion, skin and eye contact)
  - Symptoms related to the physical, chemical and toxicological characteristics
  - Delayed and immediate effects and chronic effects from short and long term exposure
  - Numerical measures of toxicity (such as acute toxicity estimates)

Non-mandatory

- To be GHS-compliant, the requirements for this section would be:
  - Ecotoxicity (aquatic and terrestrial, where available)
  - Persistence and degradability
  - Bio-accumulative potential
  - Mobility in soil
  - Other adverse effects

- To be GHS compliant, this section is provided, but compliance is outside OSHA jurisdiction
- However, OSHA may enforce provisions associated with safe handling and use, including appropriate hygienic practices (see Section 7, above)
- Description of waste residues and information on their safe handling
- Methods of disposal
- Disposal of any contaminated packaging

Section 14: Transportation Information

- To be GHS compliant, this section is provided, but compliance is outside OSHA jurisdiction
- UN number
- UN proper shipping name
- Transport hazard classes
- Packing group, if applicable
- Environmental hazards such as marine pollutant (yes/no)
- Transport in bulk (per Annex II of MARPOL 73/78 and IBC Code)
- Special precautions which a user needs to be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises

- To be GHS compliant, this section is provided, but compliance is outside OSHA jurisdiction
- Safety
- Health
- Environmental regulations specific to product

- No new requirements other than format
- Date of preparation of SDS or last revision date

Special Hazards

Management of process spills or leaks:

- Implement the facility's emergency control program
- Secure the area

Barriers to Harmful Chemicals

Protective clothing and equipment

- Gloves
- Goggles
- Face Shields
- Respirators

Summary

- All facilities should have a hazard communication plan in a location that is accessible to all employees
- All hazardous products should be labeled and all employees should be aware of what and where they are
- SDSs should be available and accessible for all hazardous products

Now that You've Been Through the Presentation:

Do you see any problems here?

- ✓ Large containers balanced on edge of shelf- not safe
- ✓ If it's a chemical, a coffee can is not proper type of storage container

Maybe improperly labeled container- what's in the coffee can?
Coffee not allowed with chemicals; if chemical, not labeled properly

Module 3.1 Review

1. What is the regulatory source for the GHS HAZCOM program?
2. GHS stands for?
3. What are three ways chemicals can get into your body?
4. What are the only Signal Words allowed under the GHS HAZCOM program?
5. Differentiate between the following routs of occupational exposure:
    a. Inhalation
    b. Skin Absorption
    c. Ingestion
    d. Injection
    e. Ocular
6. How many sections are there in a Safety Data Sheet?
7. Differentiate between physical and health hazards due to chemical effects.
8. Name the 4 Pictograms below:

Module 3
HANDLING HAZARDOUS MATERIALS

Submodule 3.2

Handling Hazardous Materials

Objectives

The student will be able to:

- Store hazardous materials in accordance with applicable laws and regulations
- Identify job site waste minimization practices relative to use of hazardous materials
- Respond to hazardous materials spills

Hazardous Materials Storage and Handling Criteria

Reference: DOD Regulation 4145.19-R-1, Ch 5, section 4

The rules are geared toward:

- Control and management of HAZMAT
- Spill prevention
- Fire Safety
- Efficient use of supplies

Sources for Guidance

- DOD 4145.19-R-1
- OSHA Safety and Health Standards, 29 CFR 1910
- National Fire Protection Association Fire Protection Guide on Hazardous Materials
- AR 200-1
- Army Technical Manual 38-410

Managing Materials for Storage Shelf Life

Two categories--Type I and Type II:

- Type I is an item w/shelf-life requirements that are a definite period of time, the item will deteriorate and is nonextendible.

  Identified by expiration date. Should be disposed of after expiration date as no longer suitable for issue or use. Identified by alpha code other than "X".

- Type II is an item w/shelf-life requirements that can be extended, components within the item will deteriorate, and the item must be visually inspected/lab. tested and restored to its initial characteristics. Identified by inspection/test date. Identified by numeric code and "X".

Hazardous Materials Storage Compatibility Chart

	Flammable	Corrosive	Irritant	Toxic	Noxious	Reactive
Flammable	X		O		O	
Corrosive		⬢	X		O	
Irritant	O	X	X	O	O	O
Toxic			O	X	X	
Noxious	O	O	O	X	X	⬢
Reactive			O		⬢	X

X Co- storage allowed under law, good management practice

O Co- storage allowed under law, but not recommended

⬢ Avoid if possible. Co-storage allowed under law based on hazard characteristics, BUT chemical incompatibility very likely. Example: acids and bases, which are both corrosive, should never be stored together

Indoor Storage of Flammable and Combustible Liquids

29 CFR 1910.106 includes:

- Fire resistant rating and fire protection.
- Arrangement of storage IAW Table H-14 or H-15 found in 29 CFR 1910.106.
- Portable Tanks.
- Container storage in piles.
- Aisle space.
- Placement of flammable/combustible liquids piles in building

Materials Received for Storage

- Materials received for storage must be checked for:
  - Date of manufacture
  - Shelf life expiration
- Materials received without date of manufacture labeling must be marked with:
  - Shipping document date
  - Monitor using that date for age control

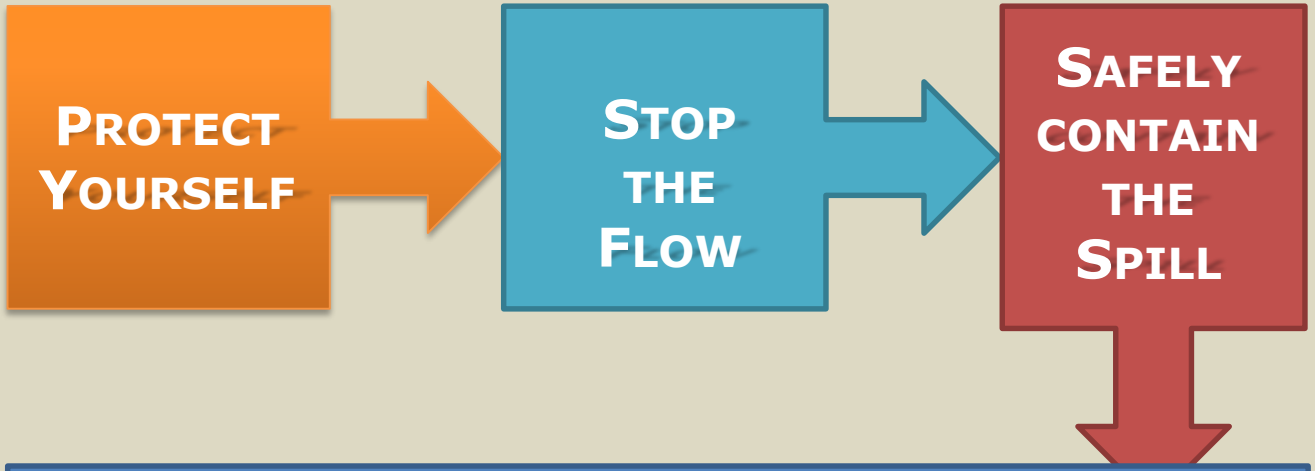
Apply the principle of first in, first out (FIFO)

Using Hazardous Materials

- Use FIFO Principle.
- Only take the amount you need to do the job.
- Don’t overstock.
- If a spill occurs, clean it up in accordance with your SOP and the Installation Hazardous Waste Management Plan (IHWMP).

If you don’t thoroughly clean up a spill, you can risk tracking the chemical and mixing it with a different, incompatible chemical in the same area and could get a big surprise.

Responding to Spills



*ALL SPILLS MUST BE CONTROLLED AND CLEANED UP AS SOON AS POSSIBLE

*FUNCTIONS AND RESPONSIBILITIES ARE FOUND IN THE SPCCP

Inspecting Hazardous Materials Storage Areas

- Inspect all safety equipment
- Verify emergency POC information and procedures are current
- Identify leaking or damaged containers
- Ensure proper segregation of hazardous materials
- Ensure proper rotation of hazardous material stock
- Identify shortages, expire items unauthorized stock and excess items
- Ensure that only needed materials are on hand/on order
- Contact DOL concerning items for extending expiration dates

Module 3.2 Review

1. What are the three primary aims of the rules for storing hazardous materials?
2. Where can you obtain assistance with decisions on proper storage of hazardous materials?
3. What additional safety equipment is required in a bulk acid storage facility?
4. Explain the principle of shelf-life management. How does it differ from the principle of FIFO?
5. What are the basic rules for drawing hazardous materials from stock?
6. What can result if you fail to adequately clean-up hazardous materials spills?
7. What items should be checked during a periodic inspection of the hazardous materials storage area?
8. Where can you find information about functions and responsibilities during spill response actions?
9. What are the four basic rules for spill response, in their order of priority?
10. How can you best prepare for a major spill?

MODULE 4
HANDLING HAZARDOUS WASTE

Submodule 4.1
Identifying Hazardous Waste

Objective

- Identify waste streams for classification

Managing Hazardous Waste

- Department of the Army is legally and financially responsible for the proper handling of wastes
- RCRA definition of generator applies to the installation as a whole
- Every activity contributes to the total quantity of hazardous waste being produced
- The installation can be cited for non compliance with federal, state or local laws if waste is improperly managed

"Ignorance of the law is NOT an excuse"

EPA definition of "generator"

"Any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 of the 40 CFR or whose act first causes a hazardous waste to become subject to regulation," 40 CFR 260.10.

Resource Conservation and Recovery Act

- This Act is the law that describes the kind of waste management program that Congress wanted to establish.
- IAW 40 CFR it provides regulatory, technical and practical information on the subjects of:
  - identification of HW
  - storage requirements
  - land disposal restrictions
  - recordkeeping
  - contingency planning
  - emergency procedures

What is Hazardous Waste?

Defined by EPA in 40 CFR subpart D of 261 as:

- Any solid, liquid or contained gaseous material that no longer is of use and either recycle , throw away, or store until you have accumulated for treatment or disposal.

Listed Waste

EPA established four types of listed HW, which are grouped into three categories:

- Non-specific Source Wastes
- Specific Source Wastes
- Discarded Commercial Chemical Products

Listed Waste

F	Non-specific sources
K	Specific industry processes
P&U	**P** list is determined by EPA to be acutely HW. **U** list consists of toxic waste

Characteristic Waste

- Waste that are not listed (or mixed with a listed waste) are a HW if they exhibit a HW characteristic (40 CFR 261)
- HW Characteristics

Ignitable – flashpoint less than 60°C (140°F)

Corrosive – pH less than or equal to 2 or greater than or equal to 12.5

Reactive – normally unstable, reacts violently with water.

Toxic – Toxic in accordance with 40 CFR 261.24. Waste that exhibit toxicity as a result of a chemical test called the Toxicity Characteristic Leaching Procedure (TCLP)

Waste Stream Analysis

- All facilities are required to submit a hazardous waste report every two years describing efforts to reduce hazardous wastes and specify quantities of hazardous waste generated, treated and disposed of or transported off-site
- This report is prepared using the results of an annual hazardous waste inventory

Evaluating Your Waste Stream

- Where is the hazardous waste generated?
- What kinds of hazardous waste are generated at these locations?
- How much of each type of hazardous waste is generated?
- What is the reason for generating each type of hazardous waste ?

Who Performs the Waste Stream Analysis?

- Analysis should be done by a team which includes:
  - Environmental staff
  - Facility Managers
  - Facility personnel and/or personnel with direct responsibility and knowledge of the particular waste stream or area in a facility.

Hazardous Waste Inventory

- The Hazardous Waste inventory is required to be conducted by the installation environmental staff annually.
- Heads of hazardous waste generating activities will maintain an accurate current inventory that reflects changes in operation.

Module 4.1 Review

1. Where can you obtain help in determining if an unknown waste is hazardous or not?
2. Who should be on the team which performs the waste stream analysis?
3. List at least six sources of information you can use to identify specific quantities of hazardous waste generated by your activity.
4. Who is responsible for maintaining the accuracy of the hazardous waste inventory in your facility?
5. How often must the hazardous waste inventory be updated?

MODULE 4
HANDLING HAZARDOUS WASTE

Submodule 4.2
Establishing Hazardous Waste Collection Sites

Objectives

- Establish a Satellite Accumulation Point (SAP)
- Conduct weekly inspections

RCRA Storage

RCRA regulations identify three types of storage:

- RCRA Part B- permitted storage facilities where hazardous waste can be stored longer than 90 days
- Storage areas where hazardous waste can be accumulated and stored for up to 90 days
- Storage areas at or near the point of generation where hazardous waste can be stored indefinitely. When the quantity exceeds the 55 gallon limit, it must be moved to a permitted or temporary storage area within 3 days.
- Always consult the Installation Hazardous Waste Management Plan.

Identify Your Needs

- Every organization will have unique requirements and responsibilities, depending on the variety and quantity of hazardous waste they generate.

Examples:

- Medical facilities
- Motor pools
- Craft Shops
- Field operations

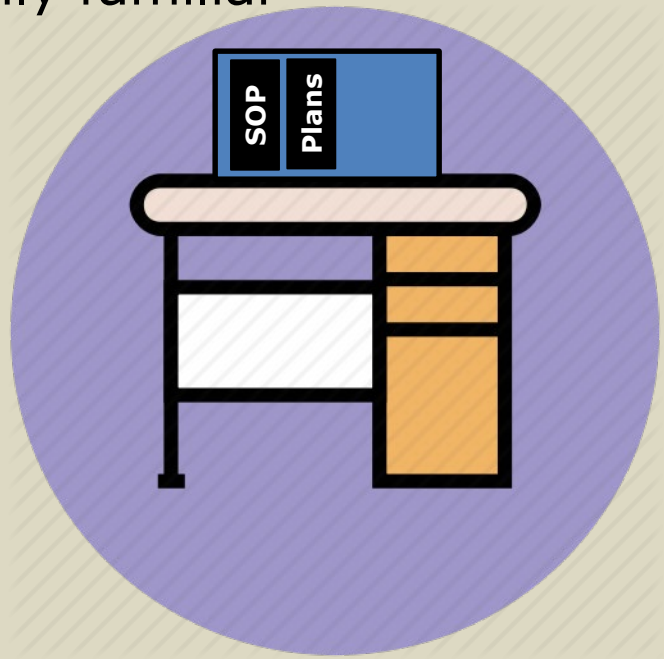
Selecting the Proper Storage

- Should it be indoors or outdoors?
- Do the waste attract animals or insects? that could spread contaminants outside the storage area?
- What kinds of access controls are needed?
- How big should the facility be?
- What kind of alarm systems are required?
- What kind of fire fighting, spill control and decontamination is needed?

Contact the fire department and the installation environmental division for inspection and approval.

Activating the Storage Area

- Restrict access
- Post warning signs
- Post emergency numbers
- Inspect area
- Provide equipment to prevent and respond to spills
- Coordinate for emergencies
- Everyone must be trained and thoroughly familiar with the SOPs, contingency plans and emergency procedures



Module 4.2 Exercise

1. When is a RCRA Part B permit required for a hazardous waste storage facility?
2. Explain why ”one size fits all” is an invalid philosophy for hazardous waste storage areas.
3. What agencies must be involved in selecting the criteria for the storage are?
4. How can you inform people the policies and procedures to be used at the storage area?

MODULE 4
HANDLING HAZARDOUS WASTE

Submodule 4.3
Managing Hazardous Waste Containers

Objective

How to Manage hazardous waste containers.

Managing Hazardous Waste

- Comply with storage time, quantity and handling requirements for containers and tanks
- Take adequate precautions to prevent accidents, and be prepared to handle them properly if they do occur.

Effective Container Management

- Selecting appropriate containers
- Labeling in accordance with regulations and laws
- Segregating different categories of waste
- Properly adding and removing contents
- Inventorying wastes
- Monitoring accumulation times and quantities
- Inspecting containers in the accumulation site weekly

Properly Maintain Containers:

- Containers should stay free of rust or corrosion
- Keep them flammables upright and electrically grounded.
- Protect from weather conditions if stored outside.
- Store container on pallets.
- Properly address spills and leaks.

Selecting Hazardous Waste Containers

- Hazardous Waste is stored in drums, tanks or other containers suitable for the type of waste generated.
- Hazardous wastes must be transported in DOT-approved containers.
- The container must be compatible with the waste you put in it.
- The container must be easy to add or remove waste.(removable head)
- Select the appropriate size for the amount of waste you collect.
- Select the appropriate storage facility or area to store your waste.
- Know the requirements for your accumulation sites.

PACKAGING REQUIREMENTS

- Hazardous waste must be transported in Department of Transportation(DOT) approved containers.
- 49 CFR part 173, DOT regulations for containers holding hazardous substances apply to waste being transported.
- Waste is accumulated in DOT approved containers and properly labeled.

RCRA Packaging Requirements

40 CFR 265, EPA regulations provides specific requirements or hazardous waste containers.

- Containers must be in good condition (free of cracks or severe rusting).
- Constructed of or lined with materials that will not react with the waste.
- Store waste in compatible container
- Containers must have lids and be closed at all times except when adding or removing wastes.
- Properly mark and label all hazardous waste containers

Marking and Labeling

- Use DOT-approved adhesive labels.
- Fill in labels with permanent, indelible ink
- Containers holding hazardous waste must be labeled with the words “Hazardous Waste”.
- Place label on the container when the first amount of waste is put in the container.

Conducting Hazardous Waste Transfer Activities

- When transferring waste from one container to another, put the proper label on the new container and remove all the labels from the old one.
- Over pack containers must be labeled and marked with the same label as the interior container.
- When applicable, indicate the quantity of hazardous waste items inside the over pack container.
- Containers that held acutely hazardous wastes must be triple rinsed

Requirements for "Empty" Containers that Contained Acutely Hazardous Waste

- Triple rinse
- Collect rinseate and handle as "Hazardous Waste"

Module 4.3 Exercise

1. List at least six essential requirements of effective container management.
2. List at least five factors that should be considered when selecting a hazardous waste container.
3. Why should you always clean previously-used containers before adding new contents?
4. Describe when and how you would use an over pack container.
5. What markings are required by RCRA on all hazardous waste containers?
6. List at least three actions that should be accomplished to maintain hazardous waste containers properly.

Module 4.3 Exercise

7. How does segregating wastes benefit you?

8. When can you have an open hazardous waste container?

9. What are you required to do with an "empty" container that just had its acutely hazardous waste removed from it?

10. Who is responsible for hazardous wastes generated off-post by an organization during training exercises?

11. You are responsible for "closing" an above ground storage tank farm that was used to store listed wastes. One container, which has a capacity of 10,000 pounds of liquid waste, was pumped out to the greatest extent possible and is empty with the exception of a two-inch layer of sludge which settled at the bottom during storage. The sludge layer is estimated to weigh about 25 pounds. Is this container considered "empty" according to RCRA standards?

MODULE 5

TURNING IN HAZARDOUS WASTE

Objective

- After completing this module the student will be able to list steps for turning in hazardous waste

Identifying Hazardous Waste for Turn-in

You must identify:

- Accumulation time limits
- Maximum quantity limits
- Proper storage containers
- Manage Hazardous Waste Profiles
- Maintain an inventory of all waste
- Know what the Hazardous Material Control Point will and will not accept.

Categories of Waste Turn-in

- Hazardous materials no longer needed
- Hazardous materials with expired shelf-life
- All hazardous waste

Preparing Hazardous Material for a Turn-in

- Hazardous materials no longer needed consist of new, unopened products that have not exceeded their shelf-life.
- To turn-in hazardous materials you must have a turn-in document and the MSDS.
- Check with DOL to determine if the shelf-life date has been extended.
- For medical-unique materials, check with the preventive medicine office.

Preparing Hazardous Waste for a Turn-in

- Hazardous waste includes used/waste hazardous materials
- Must be properly package and label the waste
- To turn-in hazardous waste you must have a turn-in document (DD Form 1348-1A) and the hazardous waste profile (DRMS Form 1930)
- Containers must be rust free and in good condition.
- Make an appointment with the HMCP

Materials Prohibited for Turn-In to HMCP

Toxicological, biological, radiological and lethal chemical warfare materials which, by law, must be destroyed.
Materials such as radioactive and controlled medical items that cannot be disposed of in their present form because of military regulations.
Municipal =type garbage, trash, and refuse.
Contractor-generated materials that are the contractor's responsibility under terms of the contract.
Sludges resulting from municipal wastewater treatment facilities.
Sludges and residues resulting from industrial waste treatment facilities.
Refuse and other described materials that result from mining, dredging, construction and demolition operations
Unique waste and residues of a non-recurring nature that research and development experimental programs generate.

Turning-In Hazardous Waste to the HMCP

- HMCP keep four copies of the DD Form 1348-1A and give you a carbon copy which is returned to your activity supply office.
- In accordance with AR 200-1 the activity is responsible for transporting their waste within the installation boundaries.
- Privately-owned vehicles are prohibited from transporting of waste.

SECTION 6

WASTE TURN-IN PROCEDURES

6.1 TURN-IN PROCEDURES FROM A SAP

When the HW container is three-quarters full, the SAP manager or ECC will coordinate turn-in to the HMCC, **by appointment only**, by calling 706-791-9824/9825. If an appointment cannot be made within 3 days, you should contact the ENRMO immediately. To turn-in HW, the generator must:

- Ensure the container is packaged, marked, and labeled in accordance with the DOT 49 CFR 107-185
- Complete a Disposal Turn-in Document (DTID) DD Form 1348-1A (sample and instructions follow in Figure 6-1)
- The generator must ensure that Hazardous Waste Profiles (HWP) accompany any waste stream being turned-in the first time. A HWP number will be referenced on DD Form 1348-1A for all subsequent turn-ins. HWPs are prepared by the ENRMO to identify hazardous constituents, HW codes, proper shipping name, and other required information. HWPs are updated annually. A HWP sheet and instructions are provided in Section 7, Hazardous Waste Profile Sheet, Figure 7-1.

IF THE QUANTITY OF HW AT A SAP EXCEEDS 55 GALLONS, THE EXCESS WASTE MUST BE DATED AND TURNED-IN TO THE HMCC WITHIN 3 DAYS TO MAINTAIN COMPLIANCEWITH FEDERAL REGULATIONS.

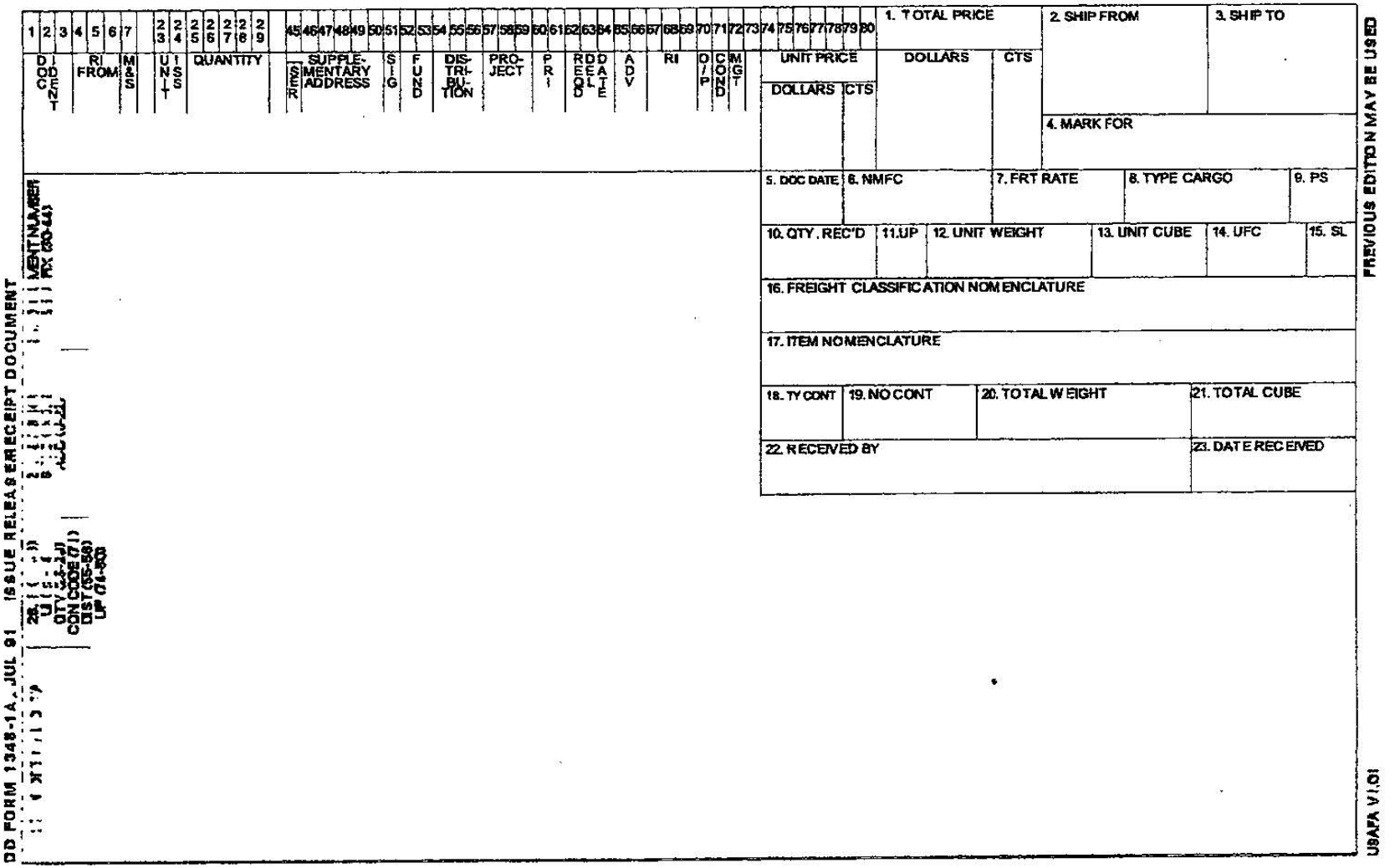
6.2 SPECIFIC ISSUES REGARDING HW TURN-IN

The Fort Jackson DRMO will not accept compressed gas cylinders that are not completely empty. All activities/units are responsible for ensuring that all compressed gas cylinders scheduled for turn-in are completely empty. For additional information on this matter contact the HMCC or the ENRMO.

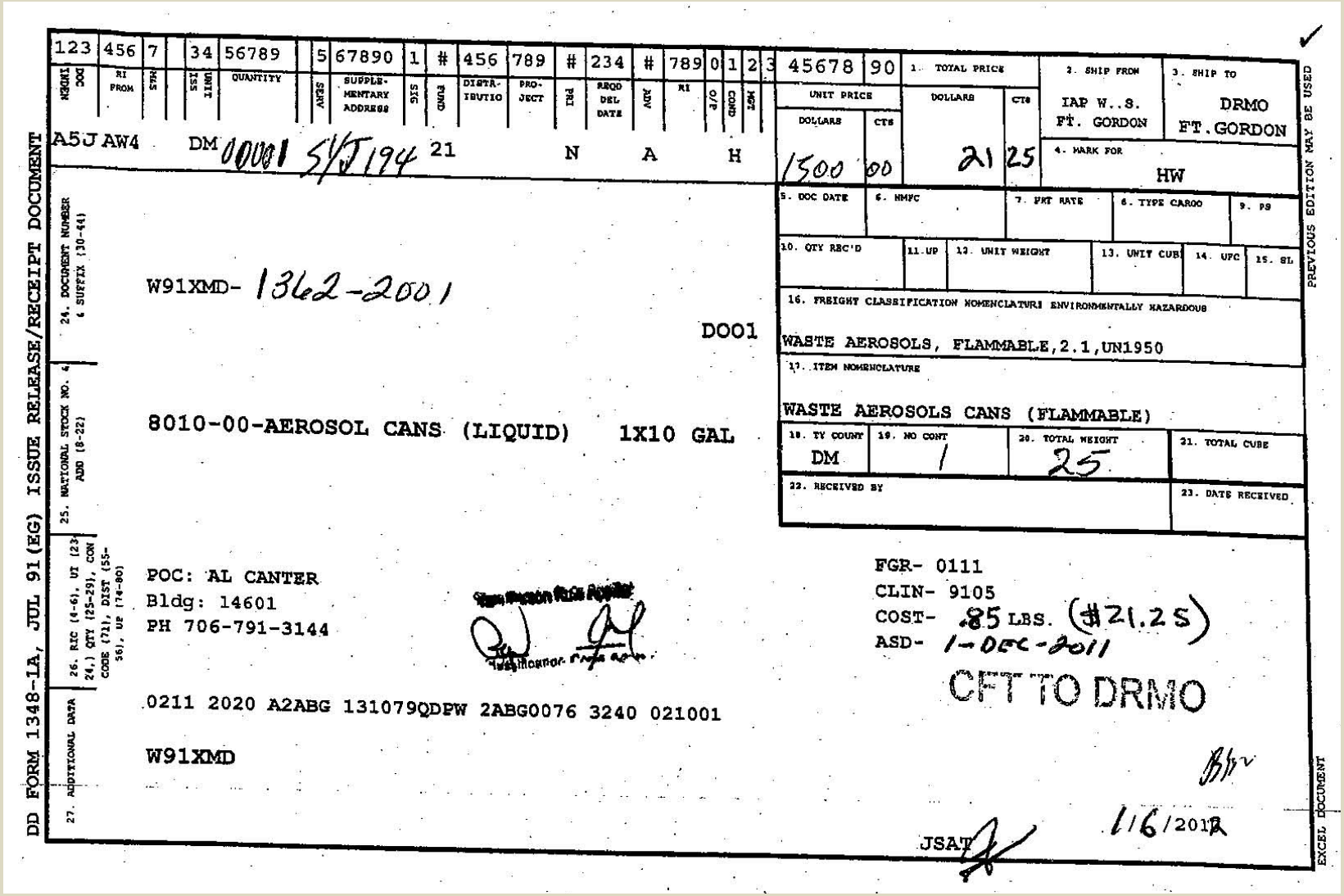
Figure 6-1
Instructions for completing DD-Form 1348-1A

CC 1-3	A5J (Document Identifier Code)
Block 25	National Stock Number
CC 23-24	Unit of Issue
CC 25-29	Quantity
Block 24	DoD activity address code (DODAAC Document Number: Julian Date Serial number (assigned by Property Book office)
CC 52-53	MILSBILLS Fund Code (obtain proper code from your budget analyst)
CC 64	Disposal Authority Code - M, N, or R (from AMDF)
CC 65	Demil Code (from AMDF)
CC 70	Condition Code (as applicable)
CC 74-80	Unit Cost (acquisition cost of new product)
Block 2	Shipped from: Unit/Activity name
Block 27	POC, Phone Number
Block 3	Shipped to: DRMO, Jackson 1902 Ewell Rd Ft Jackson, SC 29207
Block 4	Mark for: HW or HM
CC 57-59	Project: HWP# or MSDS# and EPA Waste Codes (provided by ENMRO)
Block 16	DOT proper shipping name (from 49 CFR 172.101)
Block 17	Item nomenclature: noun name and known components
Block 18	Type of container
Block 19	No. of containers being turned-in
Block 20	Total weight in pounds (estimate if necessary)
Block 27	W33M8Q, Fund Citation and APC (see budget analyst) Contract Line Item No (CLIN) from ENRMO Total Disposal Cost (from ENRMO)

DD Form 1348-1A



Turn-in Document Example



DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

123	456	7		34	56789		5	67890	1	#	456	789	#	234	#	789	0	1	2	3	45678	90
DOC IDENTIFICATION	RI FROM	M&S	ISS UNIT	QUANTITY		SERV	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD DEL DATE	ADV	RI	O/F	CONDITION	MAT			UNIT PRICE DOLLARS	UNIT PRICE CTS

A5J AW4 DM 00001 5KJ194 21 N A H

1. TOTAL PRICE DOLLARS: 21 CTS: 25
2. SHIP FROM: IAP W..S. FT. GORDON
3. SHIP TO: DRMO FT.GORDON
4. MARK FOR: HW
5. DOC DATE
6. NMFC
7. FRT RATE
8. TYPE CARGO
9. PS
10. QTY REC'D
11. UP
12. UNIT WEIGHT
13. UNIT CUBE
14. UFC
15. SL
16. FREIGHT CLASSIFICATION NOMENCLATURE ENVIRONMENTALLY HAZARDOUS: WASTE AEROSOLS, FLAMMABLE,2.1,UN1950
17. ITEM NOMENCLATURE: WASTE AEROSOLS CANS (FLAMMABLE)
18. TY COUNT: DM
19. NO CONT: 1
20. TOTAL WEIGHT: 25
21. TOTAL CUBE
22. RECEIVED BY
23. DATE RECEIVED

24. DOCUMENT NUMBER & SUFFIX (30-44): W91XMD- 1362-2001 DO01

25. NATIONAL STOCK NO. & ADD (8-22): 8010-00-AEROSOL CANS (LIQUID) 1X10 GAL

26. RIC (4-6), UI (23-24,) QTY (25-29), CON CODE (71), DIST (55-56), UP (74-80): POC: AL CANTER
Bldg: 14601
PH 706-791-3144

27. ADDITIONAL DATA: 0211 2020 A2ABG 131079QDPW 2ABG0076 3240 021001
W91XMD

FGR- 0111
CLIN- 9105
COST- .85 LBS. ($21.25)
ASD- 1-DEC-2011
CFT TO DRMO

JSAT 1/6/2012

PREVIOUS EDITION MAY BE USED
EXCEL DOCUMENT

Off-site/Contractor Disposal

- The Hazardous Waste Manifest is a shipping document used to accompany hazardous waste shipments off-post.
- The manifest form is used to track hazardous waste from their point of generation to their final destination – "cradle-to-grave goal of RCRA.

Hazardous Waste Manifest

- The HW generator, the hauler, and the designated disposal facility must sign the HW Manifest and retain a copy
- The disposal facility operation must send a copy back to the generator when their shipment is received.
- The copy which will contain the hauler and the designated facility must be kept on file for 3 years.
- The State or EPA should be notified if the copy is not received within 30 days.

EPA Form 8700-22

Please print or type (Form designed for use on elite (12 - pitch) typewriter) Form Approved. OMB No. 2050 - 0039 Expires 9 - 30 - 91

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR,** if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700 - 22 (Rev. 9 - 88) Previous editions are obsolete.

Who signs the HW Manifest on the Installation?

The Installation Commander is considered the “Generator” according to AR 200-1 and will sign the manifest or designate an individual to sign it.

Managing Your Waste

- Reduce the amount of hazardous waste
- Conduct self-assessments (inspections)
- Cooperate with state and local inspectors
- Call the installation environmental staff, DOL, or preventive medicine offices with questions
- Use good housekeeping practices

Reducing the Waste Generated

- Do not mix non-hazardous waste with hazardous waste.
- Avoid mixing different types of hazardous waste
- Avoid spills or leaks of hazardous products
- Make sure the original containers of hazardous products are completely 9 legally) empty before you throw them away.
- Avoid using more of a hazardous product than you need.

Tips

- Always be ready for inspections.
- Inspectors are valuable sources of information.
- Accompany them on the tour of the facility
- Write down any guidance provided during the assessment.

Module 5.0 Exercise

1. What resource would you use to determine the appropriate disposal method at your installation?
2. List at least six categories of waste that the HMCP will NOT accept.
3. Differentiate between disposal options for hazardous materials and hazardous wastes.
4. Who is responsible for the accuracy of the Turn-in Document, DD Form 1348-1A?
5. Why is an appointment with the HMCP so important?