CALIFORNIA COMMISSION ON PEACE OFFICER STANDARDS AND TRAINING

Basic Course Workbook Series

Student Materials

Learning Domain 41
Hazardous Materials
Version 4.1

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Published 1999
Revised April 2001
Revised January 2006
Revised January 2007
Workbook Correction January 27, 2009

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THE ACADEMY TRAINING MISSION

The primary mission of basic training is to prepare students mentally, morally, and physically to advance into a field training program, assume the responsibilities, and execute the duties of a peace officer in society.

FOREWORD

The California Commission on Peace Officer Standards and Training sincerely appreciates the efforts of the many curriculum consultants, academy instructors, directors and coordinators who contributed to the development of this workbook. The Commission extends its thanks to California law enforcement agency executives who offered personnel to participate in the development of these training materials.

This student workbook is part of the POST Basic Course Training System. The workbook component of this system provides a self-study document for every learning domain in the Basic Course. Each workbook is intended to be a supplement to, not a substitute for, classroom instruction. The objective of the system is to improve academy student learning and information retention.

The content of each workbook is organized into sequenced learning modules to meet requirements as prescribed both by California law and the POST Training and Testing Specifications for the Basic Course.

It is our hope that the collective wisdom and experience of all who contributed to this workbook will help you, the student, to successfully complete the Basic Course and to enjoy a safe and rewarding career as a peace officer serving the communities of California.

PAUL CAPPITELLI
Executive Director

LD 41: Hazardous Materials

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Preface

Introduction

Student workbooks

The student workbooks are part of the POST Basic Course Instructional System. This system is designed to provide students with a self-study document to be used in preparation for classroom training.

Regular Basic Course training requirement

Completion of the Regular Basic Course is required, prior to exercising peace officer powers, as recognized in the California Penal Code and where the POST-required standard is the POST Regular Basic Course.

Student workbook elements

The following elements are included in each workbook:

- chapter contents, including a synopsis of key points,
- supplementary material, and
- a glossary of terms used in this workbook.

How to Use the Student Workbook

Introduction

This workbook identifies training requirements for this Learning Domain. It is intended to be used in several ways: for initial learning prior to classroom attendance, for test preparation, and for remedial training.

Workbook format

To use the workbook most effectively, follow the steps listed below.

Step	Action
1	Begin by reading the: Preface and How to Use the Workbook, which provide an overview of how the workbook fits into the POST Instructional System and how it should be used.
2	Refer to the Chapter Synopsis at the end of each chapter to review the key points that support the chapter objectives.
3	Read the text.
4	Complete the Workbook Learning Activities at the end of each chapter. These activities reinforce the material taught in the chapter.
5	Refer to the Glossary for a definition of important terms. The terms appear throughout the text and are bolded and underlined the first time they appear (e.g., **term**).

Chapter 1

Introduction to Hazardous Materials

Overview

Learning need

Peace officers need to know the risks presented by hazardous materials and their role in responding to hazardous materials incidents.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	E.O. Code
• identify a hazardous materials incident.	41.01.EO2
• identify the specific challenges that are presented by incidents involving hazardous materials.	41.01.EO3
• recognize the roles and responsibilities of a First Responder at the awareness level.	41.01.EO4
• identify the primary pathways in which a hazardous material can enter the human body, including: - inhalation - absorption - ingestion - injection	41.01.EO6
• identify precautions peace officers can take to protect themselves from contacting a hazardous material.	41.01.EO7

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Overview, Continued

In this chapter

This chapter focuses on basic information regarding hazardous materials and the roles and responsibilities of peace officers when faced with a hazardous materials incident.

Introduction to Hazardous Materials

[41.01.EO2, 41.01.EO3]

Introduction

Hazardous materials (Haz Mat) are a byproduct of our modern, technological society. These chemicals produce enormous benefits for society's standard of living, but can also cause potentially dangerous, even lethal effects, if not properly handled.

Definition

There is no single definition for the term "hazardous material." The table below contains definitions used by three U.S. government agencies.

Agency	Definition
Environmental Protection Agency (EPA)	• Substance, which due to its concentration, quantity or chemical or physical properties, may cause or significantly contribute to: - an increase in mortality, an increase in serious, irreversible or incapacitating reversible illness, or - a substantial present or potential hazard to human health or the environment when improperly managed.
Department of Transportation (DOT)	• Any substance or material in any form or quantity which poses an unreasonable risk to safety, health and property.
Occupational Safety and Health Administration (OSHA)	• Any substance to which exposure results or may result in adverse effects on the health or safety of employees, or • Any chemical which is a physical hazard or a health hazard.

NOTE: For the purpose of this workbook, the terms hazardous materials, hazardous substances and dangerous goods are used interchangeably.

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Scope

Hazardous materials are found everywhere in our environment. Millions of chemicals are now in existence and thousands are classified as potentially dangerous.

Some form of a hazardous material is being generated, manufactured, used, stored, and disposed of, in most communities in this country.

Since hazardous materials are everywhere, accidental spills and releases of these substances cannot be avoided. Peace officers need to understand their role and responsibilities in responding to these events.

Hazardous materials incidents

A **hazardous materials incident** is any emergency involving the release or potential release of a hazardous material. Incidents involving hazardous materials can present risks to life, the environment, and property. Some hazardous materials incidents may be catastrophic and endanger entire communities, while others may not appear significant but have the potential for long-lasting effects.

Hazardous materials incidents differ in the following areas:

- Not always reported as a hazardous materials incident
- Need to be handled slowly and methodically
- Need for specialized personal protective equipment and training
- Need to recognize many different communication systems
- Exposure symptoms may not materialize for years

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Specific challenges

Hazardous materials incidents may present the following specific challenges:

- Difficulty in identifying the materials
- Potential long-and short-term health effects on humans and animals
- Environmental impact
- Public safety implications
- Multiple hazards (toxic, flammable, reactive, radioactive or corrosive hazards, physical hazards, etc.)
- Complexity of the situation (rescue problems, fire, flood, explosion, closures of major thoroughfares, closures of business, large perimeters, major evacuations, etc.)

Response coordination

A hazardous materials incident may require coordination of many different government agencies.

Hazardous materials incidents may include, but are not limited to, personnel from:

- fire service,
- additional law enforcement resources,
- emergency medical service,
- public/environmental health,
- public works (e.g., city, county, state or other resources),
- private sector representatives,
- other governmental representatives (e.g., Cal Trans, Fish and Game, military, etc.), and
- Office of Emergency Services.

First Responders

[41.01.EO4]

Introduction

Peace officers are often the first to respond to an incident that could involve hazardous materials.

Leadership

In a HazMat emergency, distance is the key factor. Preserving and protecting is the primary function of law enforcement. Peace officers can expose themselves unnecessarily to harmful materials by rushing into a HazMat scene without proper precautions.

Responder levels

In general, the typical peace officer will respond to hazardous materials incidents at the **awareness level.** The following table further differentiates between the two levels of **First Responders.**

	First Responders trained at an awareness level	**First Responders trained at an operational level**
Differences	• have been trained to initiate an emergency response sequence by notifying the proper authorities of the release, • isolate and deny entry, and • take no further action beyond notifying the authorities of the release.	• have been trained to respond to hazardous materials incidents to protect people, the environment, and property from hazardous substances, • isolate and deny entry, • may respond defensively without trying to actually stop the release at the source, and • may work at a distance from the point of release to contain the released material, keep it from spreading and prevent exposures.

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First Responders, Continued

Responder levels (continued)

	First Responders trained at an awareness level	First Responders trained at an operational level
Example	A peace officer responded to a traffic collision involving a gasoline tanker truck and a passenger car. No one was injured and everyone involved had exited their vehicles and were standing several yards from the vehicles. The officer, acting as a First Responder, immediately notified dispatch to initiate an emergency response sequence, then isolated and denied entry.	Continuing the previous example: The officers, could create a dirt berm to isolate or re-direct the flow of the substance.

Agency policies

It is each officer's responsibility to know and comply with their agency policies and guidelines for responding to hazardous materials incidents in its jurisdictions.

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First Responders, Continued

Other responders

There are a number of other personnel who have set responsibilities when responding to a hazardous materials incident. The following table describes some of these individuals.

Other responders may include...	**who...**
technicians	• respond to releases or potential releases of hazardous substances in order to stop the release. • assume a more aggressive role than a first responder.
specialists	• respond with and provide support to hazardous materials technicians.
an incident commander	• assumes control of the incident scene. • has overall management of the incident.

Health and Safety Issues Involving Hazardous Materials

[41.01.EO6, 41.01.EO7]

Introduction

Peace officers, with rare exception, do not have the appropriate protective clothing, special equipment, or level of training to respond to a hazardous materials incident beyond the awareness level. Usually, general issued field equipment does not offer any protection from hazardous material. (e.g., helmet, or riot gear)

Community policing

Communities worry about illnesses such as cancer that may result from exposure to hazardous materials. Clean air, water, and a clean food supply are not only the concern of environmentalists. Peace officers can identify and intervene against violations of hazardous materials laws such as illegal disposal, dumping, burning, storing, or use of restricted materials.

Exposure and toxicity

The effect of a hazardous material on humans depends on the level of exposure to a material and that material's **toxicity**. To protect themselves and others, officers need to be aware of the primary routes of entry into the body.

Exposure means being in the general area where you may come into contact with a hazardous material.

Contamination means actually coming into contact with the material. The amount of contamination depends on *how much* material is involved and *how long* it remains there.

NOTE: The primary way officers can protect themselves and others from a toxic exposure is to remain a safe distance upwind, uphill, and upstream from the material in question.

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Health and Safety Issues Involving Hazardous Materials,
Continued

Individual reactions

Exposure to hazardous materials can affect the health and safety of both victims and response personnel. Every individual may react differently when exposed to toxic substances. Some of the factors that can affect each person's susceptibility to a hazardous material include, but are not limited to:

- gender,
- age,
- physical condition,
- medical history, and
- prior exposures to hazardous materials.

Exposure

The table below illustrates the four routes by which a hazardous material can enter the human body.

Route	Explanation	Protective Actions
Inhalation (primary route of exposure)	Vapors and extremely fine particles can be inhaled and rapidly absorbed into the body through the lungs.	• When possible, approach a potentially dangerous scene from upwind. • Stay alert to changes in wind direction.
Absorption	Absorption of a hazardous material through the skin or eyes may be possible if the material is splashed, spilled, or drifts onto an exposed area of the body (e.g., face, neck, back of hands).	• If possible, remain upwind from a potentially dangerous scene. • Do not attempt to touch or move any unidentified materials. • Keep hands and clothing away from eyes. • Wash exposed areas frequently.

Continued on next page

Health and Safety Issues Involving Hazardous Materials,
Continued

Exposure (continued)

Route	Explanation	Protective Actions
Ingestion	A hazardous material can be accidentally swallowed when persons eat, drink, smoke, touch their mouths with their hands, or lick their lips.	• Avoid eating, drinking, or smoking at a potentially dangerous scene. • Be cautious about touching anything that is suspicious. • Wash hands and face frequently.
Injection	Hazardous materials may enter the body if the skin is punctured at the scene.	• Be cautious of sharp objects.

Effects of exposure

There are two primary effects a hazardous material can have on a person who is exposed to that material;

Type	Description	Example
Acute Effect	• One-time, limited or short-term exposure.	• Ranges from no immediate effects to death within minutes
Chronic Effect	• Continuous, recurring or long-term exposures.	• May not be detectable for years; could cause death • Developmental disorders (e.g, miscarriages, birth defects) • Long-term disorders (e.g., cancer, respiratory or kidney disorders)

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Health and Safety Issues Involving Hazardous Materials,
Continued

Multiple hazards

Officers must also be aware that a hazardous material may have more than one hazard. For example, gasoline is flammable, poisonous and carcinogenic.

Documenting personal exposures

Federal and state regulations require that First Responders report exposures to their employer. The same regulations require the employer to maintain these records for 30 years after separation from employment. It is also recommended that First Responders maintain personal exposure records in order to have a complete history of all exposures to hazardous materials.

Every person who is exposed or who may have been exposed at a hazardous materials incident shall document their exposure. Such documentation should include at a minimum:

- exposed person's name,
- date, time and location of exposure,
- incident number,
- name of the hazardous materials,
- type, concentration and duration of the exposure,
- decontamination method and medical treatment provided, and
- what specific task or activity was being performed.

NOTE: Follow agency policy regarding documentation of exposure to hazardous material.

Medical evaluations

Federal and state regulations require that First Responders be medically evaluated when they:

- are injured as a result of exposure,
- experience symptoms which may be related to exposure.

NOTE: Peace officers acting as First Responders need to understand and follow their agency or jurisdiction regulations regarding medical evaluations after exposure to hazardous materials.

Chapter Synopsis

Learning need	Peace officers need to know the risks presented by hazardous materials and their role in responding to hazardous materials incidents.
Hazardous materials incidents [41.02.EO2]	A hazardous materials incident is any emergency involving the release or potential release of a hazardous material.
Specific challenges [41.01.EO3]	Hazardous material incidents may present peace officers with specific challenges.
First responder [41.01.EO4, 41.01.EO5]	In general, the typical peace officer will respond to hazardous materials incidents at the awareness level.
Health and safety precautions [41.01.EO6, 41.01.EO7]	The effect of a hazardous material on humans depends on the amount of *exposure* to a material and that material's *toxicity*. In order to protect themselves and others, officers need to be aware of the primary routes of entry through which the body can be exposed to a hazardous material.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to appropriate text, you should be able to prepare a response.

Activity questions

1. Define the signs and symptoms of acute exposure. Contrast that to chronic exposure.

2. What are the main ways a chemical can enter the body?

Continued on next page

Activity questions (continued)

3. Peace officers are the first to respond to the scene of an extensive fire at a dry cleaning plant. After securing the scene and checking for victims, they are informed by hazardous material trained fire personnel that they have been exposed to perchloroethylene, a toxic dry cleaning chemical recognized as a carcinogen. About ten minutes have elapsed. Based on this information, document the exposure for one of the officers' personal exposure record.

   What additional information is needed?

Continued on next page

Student notes

Chapter 2

Recognition and Identification

Overview

Learning need

Peace officers must become familiar with the indicators and warning systems that identify specific dangers of hazardous materials in order to respond safely and effectively to hazardous materials incidents.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	E.O. Code
• recognize the indicators of a hazardous materials incident including but not limited to: - National Fire Protection Association 704 (NFPA) - placards/labels - physical indicators - witnesses or involved parties - container(s) - victim/injuries	41.02.EO1
• list standardized sources of information of materials present at a hazardous material incident to include but not limited to: - Emergency Response Guidebook (ERG), - Material Safety Data Sheets (MSDS), - Shipping papers, or - Other documents	41.02.EO9 41.02.EO10 41.02.EO11 41.02.EO12

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Overview, Continued

In this chapter This chapter focuses on the recognition and identification of hazardous materials at the scene of a hazardous materials incident.

Recognizing Hazardous Materials

[41.02.EO1]

Introduction

For their own safety and the safety of the public, it is critical that peace officers, acting as First Responders, be alert for indicators of the presence of hazardous materials as they approach a scene of an incident.

Calls

There are a number of calls that officers may receive that could involve hazardous materials incidents.

Examples include, but are not limited to:

- traffic collisions,
- medical aid,
- fires, or
- building searches,
- clandestine laboratories
- **weapons of mass destruction**.

Individuals who report incidents such as these may not be aware of the presence of hazardous materials or may not understand that the presence of these substances is important. First responders need to know that the individuals reporting the incident may not be aware of the presence of hazardous material.

Recognizing Hazardous Materials, Continued

Hazardous materials indicators

There may be a number of indicators that can warn responding officers of the presence of hazardous materials. If any of these indicators are present, First Responders should suspect the presence of a hazardous material. These indicators may include, but are not limited to:

- fire, smoke, vapor clouds,
- visible leaks or damaged containers,
- loud roar or increased pitch of an operating relief valve,
- hissing, pinging or knocking sounds from closed containers,
- people showing signs of dizziness, nausea or breathing problems,
- people running from an area,
- unconscious people,
- location,
- and senses.

National Fire Protection Association 704 Warning System

[41.02.EO1]

Introduction

The National Fire Protection Association (NFPA) has established a warning system for the identification of hazardous materials at fixed facilities. The purpose of the system is to safeguard the lives of those individuals who may be concerned with fires or emergencies occurring in areas such as an industrial plant, storage facilities, and other fixed locations.

NFPA704 warning signs

NFPA 704 warning system warning signs appear as four diamond shapes grouped to form one large diamond-shaped sign. Diamond-shaped quadrants within the sign represent specific hazard categories.

NOTE: A sample NFPA 704 warning sign is included in the Supplemental Materials portion of this workbook.

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National Fire Protection Association 704 Warning System,
Continued

Hazard categories

The following table identifies the categories of hazardous materials and how they are identified on a NFPA warning sign.

Category	Color Code	Location on NFPA 704 Warning Sign	Type of Warning
Health	Blue	Left diamond	• The inherent property of a material to cause injury, illness or death when taken into the body by inhalation, ingestion, injection, etc.
Flammability	Red	Top diamond	• A material's susceptibility to burning
Reactivity	Yellow	Right diamond	• Potential to accelerate chemical reactions • Self-reaction, polymerization • Violent explosive reaction with other materials
Special Hazard	White	Bottom diamond	• An indication of an unusual hazard such as reactivity with water, radioactivity, etc.

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National Fire Protection Association 704 Warning System,
Continued

Degree of hazard

The red, blue, and yellow diamond within the large diamond shape of a NFPA 704 warning sign also contains a number ranging from zero to four indicating the degree of hazard for the category in that field.

The following table generally identifies the five degrees of hazards used.

Numerical Value	Degree of hazard
0	No unusual hazard
1	Minor hazard
2	Moderate hazard
3	Major hazard
4	Extreme hazard

Special hazards

The special hazard diamond of the NFPA 704 warning sign (bottom white diamond) may also contain a special hazard symbol. Special hazard symbols are noted in the following table.

Symbol	Means the hazardous material
W	is water reactive
OX or OXY	has oxidizing properties
	is radioactive
EXP	is explosive or shock sensitive
POL	is subject to polymerization

NOTE: NFPA 704 is not mandated in all jurisdictions.

Emergency Response Guidebook

[41.02.EO9]

Introduction

The **Emergency Response Guidebook (ERG)** is a basic safety tool for First Responders to use in identifying hazardous materials.

Information included

The ERG is a guide to aid First Responders in quickly identifying the specific or generic hazards of the materials involved in an incident. It also gives information on how First Responders can protect themselves and others during the initial response phase of the incident. It is not intended to provide information on the physical or chemical properties of the hazardous materials.

NOTE: Material System Data Sheets (MSDS) and emergency response information, if available, should be obtained and used to provide more accurate information.

The guidebook is organized into five parts and is color coded for easy usage.

Section	Information
White pages	• Information on how to use the guide • Placard table • Hazard classification system • Rail car and road trailer identification chart • Criminal/terrorist use of chemical/biological agents • Glossary
Yellow-bordered pages	• Indexed by the four-digit identification number • Refer the responder to the appropriate guide page
Blue-bordered pages	• Indexed by name • Refer the responder to the appropriate guide page

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Emergency Response Guidebook, Continued

Information included (continued)

Section	Information
Orange-bordered pages-numerical	• Provide information on potential hazards and appropriate emergency actions
Green-bordered pages	• Contain the Table of Initial Isolation and Protective Action Distances • Dangerous when wet materials and poison inhalation hazards • Entries are indexed by the four-digit identification number NOTE: First Responders must also reference the appropriate guide page (orange-bordered pages) before referring to the green-bordered pages.

NOTE: The ERG is intended for use only in the initial response phase. Additional guidance from trained personnel will be needed at the incident.

Continued on next page

Emergency Response Guidebook, Continued

Using ERG

Peace officers acting as First Responders can use the ERG upon arriving at a hazardous materials incident to determine:

- the specific or generic hazards of the materials involved, and
- actions to take during the initial phase of the incident.

The following table identifies the steps First Responders can follow when using the ERG.

Step	Action	Description
1	Identify the material	• Identification can be accomplished using any *one* of the following and the ERG: - 4-digit ID number on a placard, document or package - Name of the material on a document or package.
2	Determine the material's guide number	• Look up the hazardous material's guide number in either the: - ID number index (yellow-bordered pages), or - material name index (blue-bordered pages). • If the index entry is highlighted, look for the ID number and name of the material in the Table of Initial Isolation and Protective Action Distances (green-bordered pages; if the material is on fire do not use the green-bordered pages). If necessary, begin protective actions immediately.

Continued on next page

Using ERG (continued)

Step	Action	Description
3	Determine potential hazard(s) and appropriate emergency actions.	• Turn to the guide number (orange-bordered pages) and read carefully.
4	If no material name or ID number is available use alternative means to identify the material.	• If a numbered guide cannot be obtained following the above steps, and a placard can be seen, locate the placard in the table of placards (white pages), then go to the guide (orange-bordered pages) shown next to the sample placard that matches the placard at the scene. • For rail car and road trailer turn to identification chart in white pages and follow guide. • If a reference to a guide cannot be found and hazardous materials are believed to be involved: - turn to Guide 111, and - use it until additional information becomes available.

Sources of Information

[41.02.EO10, 41.02.EO11, 41.02.EO12]

Introduction

There are a number of additional indicators that First Responders should look for upon arrival at an incident that could warn of the presence of hazardous materials.

Sources	Examples
Container	• Size, shape, type of container commonly used (e.g., 55-gallon drums, tank trucks, etc.)
Special markings	• Presence of signs, placards, signal words, identification numbers, symbols, colors, etc. that appear on or near the materials and communicate specific information
Documentation materials	• Documents describing the material
Information from witnesses	• Information from bystanders, responsible parties, etc.

Containers

The shape of a hazardous materials container may be a clue to its contents. Some common hazardous materials containers include, but are not limited to:

- rail cars,
- cargo tanker trucks,
- storage tanks,
- drums, bottles, boxes, bags, cylinders, and
- pipelines.

NOTE: Stresses on containers such as thermal (heat damage), mechanical (damage to container), or chemical (incompatibility) may cause a hazardous materials incident.

Continued on next page

Sources of Information, Continued

Special markings

There are three standard communication systems that have been established to help identify hazardous materials and communicate the risk.

- Department of Transportation (DOT) communication standards,
- National Fire Protection Association (NFPA) warning system, and
- Occupational Safety Health Administration (OSHA)

Some common types of warnings for hazardous materials are:

- signs,
- signal words,
- placards,
- labels, and
- other markings.

Documentation

Hazardous materials in the workplace and in transport have several documents to identify the material, communicate the hazards and give guidance when the material is involved in an incident. Examples of these documents are

- Shipping papers, invoices and bills of lading
- Material Safety Data Sheets
- Emergency information such as the **Emergency Response Guidebook (ERG)**
- Other documents such as product information sheets, brochures, catalogs and employee right-to-know information

Information from involved parties or witnesses

Involved parties or witnesses can provide valuable information to responders including initial observations of the event, location of drivers or employees, and other pertinent details.

Continued on next page

Sources of Information, Continued

Use of DOT standard

The **(DOT) communication standard** system has become a standard for use on placards, labels, markings and documents associated with the *shipping* of hazardous materials. The rules on the use and placement of these placards, labels, markings, and documents will vary with the type of materials being shipped, the quantity, the mode of travel and the container type used.

Hazard classes

The DOT communication standards uses hazard class and division numbers, colors, and descriptive symbols to identify a primary hazard of a material. Any of this information may help the first responder identify the type hazard.

NOTE: For further information on DOT classifications, see Supplemental Materials at the back of this workbook.

Shipping papers

Federal regulation requires that any transported hazardous material must have shipping papers that describe the material and its hazards. Shipping papers are a preferred information source for identifying hazardous materials. The papers should give the emergency contact number which may be used for additional emergency information on the materials shipped.

Shipping papers should contain the:

- proper shipping name of the material,
- hazard class and division number,
- identification number (ID number)
- packing group,
- total quantity and unit of measure, and
- other information required by DOT regulations.

NOTE: The hazard class number is a number assigned based on the specific type of hazard posed by the material (e.g., hazard class 1 – explosives, hazard class 3 – flammable liquids, etc.). The division is a sub-category of a hazard class (e.g., 2.3 – poison gas).

Continued on next page

Shipping papers (continued)

NOTE: The identification number is a four-digit number assigned to a material or group of materials with the same hazardous characteristics, identification numbers can also appear on placards, vehicles, rail cars, packages, and Material Safety Data Sheets.

NOTE: Common names associated with shipping papers include but are not limited to: Bills of Lading, Air Bills, Waybills (shipping documents) or Dangerous Cargo Manifest.

Material safety data sheets

Federal regulations require employers that use or produce hazardous materials to prepare written documentation for the workplace describing the hazards the substance may present. This information is contained in the Material Safety Data Sheets and may accompany shipping papers as required emergency response information.

For First Responders the most valuable information the Material Safety Data Sheets provide is the:

- chemical name,
- company identification,
- hazard identification,
- response information,
- chemical/physical properties,
- first aid measures, and
- exposure controls/personal protection.

NOTE: First Responders should be aware that the information contained in shipping papers and Material Safety Data Sheets may not always be accurate or complete.

Continued on next page

Sources of Information, Continued

Placards

Placards are required to be displayed on containers used to transport hazardous materials. Placards must be displayed on all four sides of a:

- freight container,
- transport vehicle, or
- rail car.

Conveying information on placards

Placards use a number of components to convey information regarding a hazardous material. An 11-inch diamond is used to identify the hazard by the use of:

- color(s),
- symbol or pictograph in the upper corner,
- hazard class name, material name or identification number in the middle of the placard, and/or
- hazard class and division number in the bottom corner of the placard.

NOTE: All placards must have, at a minimum, an identification color. Other identification methods may or may not appear on a placard.

NOTE: Sample placards, classes and divisions can be found in the Supplementary Material portion of this workbook.

"Dangerous" placards

Some vehicles may use a "dangerous" placard if the transport vehicle contains multiple classes of hazardous materials,

- with a combined weight of 1001 pounds or more,
- that may require different placards.

Continued on next page

Sources of Information, Continued

Labels

Labels are affixed directly to smaller containers, i.e., 55-gallon drums, cartons or cylinders which hold hazardous materials and are used to indicate the hazard classification. A four-inch diamond is identical to the 11-inch placard and is used to identify the hazard by the use of:

- label color(s),
- symbol or pictograph in the upper corner of the label,
- hazard class name, and/or
- hazard class and division number in the bottom corner of the label.

Markings

Markings are used in several locations including packages or containers of hazardous materials.

Generally, markings consist of the material name and the identification number of the hazardous material.

NOTE: Markings are located close to the hazard label on a package.

Multiple hazards

Some individual materials may have more than one hazard classification. In that instance, substances are classified according to the class posing the greatest hazard.

Materials with multiple hazards may have multiple placards and labels to warn of each hazard. A placard or label indicating a subsidiary hazard will not have a class or division number at the bottom. Shipping documents may not indicate these additional hazards.

First Responders should always consider the possibility of multiple hazards of a material regardless of how it is placarded or labeled.

Other Systems

OSHA

Several agencies and groups have signs and indicators to warn of the presence of hazardous materials. This section will give a basic description of the major warning indicators.

OSHA is the federal agency that regulates the workplace. Among many programs OSHA has is the warning for industrial workers and the public who may be exposed to hazards. The signs required by OSHA use a warning word and a sign color scheme to communicate the warning. The three signs are described in the following chart.

Warning Word	Sign	Hazard Description
DANGER	Red	Situation which has high probability of death or serious injury
WARNING	Orange	Situation which has some probability of death or serious injury
CAUTION	Yellow	Situation which may cause minor or moderate injury

Chapter Synopsis

Learning need	Peace officers must become familiar with the indicators and warning systems that identify specific dangers of hazardous materials in order to respond safely and effectively to hazardous materials incidents.
Indicators [41.02.EO1]	There may be a number of outward indicators that could warn responding officers of the involvement of hazardous materials. If any of these conditions are present, First Responders should suspect the presence of hazardous materials until proven otherwise.
Sources of information [41.02.EO9, 41.02.EO10, 41.02.EO11, 41.02.EO12]	Hazardous materials in the workplace and in transport have several documents to identify the material, communicate the hazards and give guidance when the material is involved in an incident.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. Peace officers are dispatched to the scene of a fire at a pharmaceuticals company.

   En route to the scene, what hazards should the officers already be anticipating?

2. Continuing the scenario of question 1: As First Responders, the officers find that the particular building involved in the fire has posted magenta and yellow signs featuring a trefoil symbol. A company representative tells the officers that the facility manufactures dyes used in certain types of X-ray procedures.

   At this point, what hazard(s) should officers prepare for?

Continued on next page

Activity questions (continued)

3. What risks should officers recognize when approaching an overturned tanker truck with a placard that features a red flame and the number 3?

   What if the placard was white over black with a test tube symbol and the number 8? Does a Class 8 hazard necessarily pose a lower risk to safety, health, or the environmental than a Class 1 hazard? Explain.

4. Officers responding to a call about a trespasser at an abandoned industrial site discover several rusty drums that appear to be leaking. Upon noticing that one of the drums bears the partially worn away word "Caution," one officer says, "Oh, I was worried for a minute, but this stuff can't be too bad." At this point the officer proceeds to touch the leaking substance to try to identify it.

   Explain the rationale for the officer's statement and outline the critical flaws in the officer's thinking and actions.

Continued on next page

Activity questions (continued)

5. How might a peace officer identify a hazardous substance with the ERG if no four-digit number exists on the placard?

6. Where should peace officers expect to find NFPA hazard markings? You see a building with a 704 sign storing a highly toxic pesticide; what number would you expect to see in the blue quadrant?

   What placard would you expect to see on a tanker truck transporting the same material?

Continued on next page

Activity questions (continued)

7. Draw and explain the 704 warning sign system.

Workbook Corrections

Suggested corrections to this workbook can be made by going to the POST website at: www.post.ca.gov

Chapter 3

Safety, Isolation and Notification

Overview

Learning need

Peace officers must have a clear understanding of the need for safety, isolation, and notification when acting as First Responders at the scene of a hazardous materials incident.

Learning objectives

The chart below identifies the student learning objectives for this chapter.

After completing study of this chapter, the student will be able to:	**E.O. Code**
• recognize the guidelines for safely assessing and approaching a hazardous materials incident.	41.03.EO1
• identify factors to consider when establishing a perimeter around a hazardous materials incident.	41.03.EO5
• identify the types of control zones at a hazardous materials incident, including: - exclusion zone - contamination reduction zone - support zone	41.03.EO6

Continued on next page

Learning objectives, (continued)

After completing study of this chapter, the student will be able to:	E.O. Code
• identify the information that should be communicated to dispatch from the scene of an incident, including: - location of the incident - type of premises and/or vehicles involved - size and perimeter of the involved area - weather conditions - name of hazardous material involved, if known - information about placards, ID numbers, warning signs, etc., - safe entry and exit routes to and from the scene, and - activate EMS, if appropriate - location of command post	41.03.EO9
• identify the procedures to be followed before leaving the scene. (e.g., decontamination)	41.03.EO4

In this chapter

This chapter focuses on the actions that First Responders must take when they arrive at the scene of a hazardous materials incident.

Safety and Assessment

[41.03.EO1]

Introduction

It is essential that First Responders understand that their primary mission is to respond to hazardous materials incidents in a safe and competent manner, within the limits of their training, capabilities, and resources.

Information from dispatch

When called to a known or suspected hazardous materials incident, the First Responder should consider requesting the following types of information from dispatch.

- Size and location of the incident
- Occupancy type (if the incident is in or near a building or buildings)
- Descriptions of vehicles involved
- Weather conditions, such as wind direction
- Victims
- Information or warning signs on containers (such as placards, labels, identification numbers, manufacturers and chemical names)
- Where to meet the reporting party
- Safe approach route

SIN

The efficiency and effectiveness of any hazardous material response depends on the First Responder's ability to recognize and adhere to established response priorities and protocols.

The priorities of an officer when arriving at the scene of a hazardous incident are:

S: SAFETY
I: ISOLATION
N: NOTIFICATION

Continued on next page

Safety and Assessment, Continued

Safety

The First Responder's primary consideration at a hazardous materials incident is always safety. Safety for the First Responder shall include a safe approach and distance from the incident. When approaching a scene of a known or suspected hazardous materials incident, First Responders should, whenever possible, approach upwind, upgrade (up hill), and/or upstream.

First Responders should consider positioning themselves upwind versus uphill and select the safest approach, or do not approach and remain at a safe distance.

Safe minimum distances

When responding to a hazardous materials incident, the First Responders should remain a safe distance from the scene to avoid contamination.

If the presence of hazardous materials is suspected or has already been identified, the First Responder can refer to the ERG to determine the minimum distance that must be maintained for personal safety.

Assessing the incident

First Responders need to conduct a preliminary assessment of the incident during this initial period. In doing so, First Responders should never compromise their safety.

The basic guidelines for a safe assessment include:

- observe the hazard from a safe distance at all times.
- giving the exact location and other available information when reporting the incident.
- advise responding units of the safe route of approach.

Continued on next page

On-scene safety guidelines

There are a number of safety guidelines that First Responders at the scene of an incident should always follow.

- Do not rush to assist. Under most circumstances, First Responders at the awareness level are not adequately trained or equipped to conduct victim rescues.
- Be cautious, and treat materials as hazardous until identified and verified as nonhazardous.
- Approach incidents from uphill, upwind and upstream, if possible.
- Maintain a safe distance at all times.
- Never eat, drink or smoke in the incident area.
- Do not inhale, touch or ingest released materials. (Do not assume vapors are harmless due to lack of smell or taste.)
- Eliminate all ignition sources, including flares, near the incident.
- Continually reassess personal safety.
- Keep communication continually updated.

Agency policies

Peace officers must be aware of and comply with all agency policies and procedures regarding required safety measures when responding to a hazardous materials incident.

Examples

The following examples illustrate accepted safety practices and guidelines of safety for First Responders at the scene of a hazardous materials incident.

Example: Peace officers responded to a call of a vehicle roll-over collision. At the scene an overturned tanker truck was leaking a green liquid that emitted a dark vaporous gas and smelled like gasoline. For safety reasons, the officers parked their patrol car and viewed the scene approximately one-half mile from the truck. They positioned their car facing away from the scene, denied entry and called in the appropriate response agencies to handle the incident.

Continued on next page

Examples (continued)	Non-example:	Peace officers responded to a call of a substance on the roadway. At the scene were several open unmarked bags of a white powdery substance. The officers drove to the incident and turned over a bag to check for any markings. The officers should not have gotten that close and should never have touched or moved the bags.

Isolation

[41.03.EO5, 41.03.EO6]

Introduction

Isolation involves establishing a perimeter at a hazardous materials incident to ensure the safety of all responders and the public.

Perimeter

The *first operational priority* at an incident is to isolate the incident scene and deny entry to any unauthorized people by establishing a command post and an inner perimeter.

A **perimeter** at a hazardous materials incident is an area which is secured far beyond the hazardous material release and which no one else can enter without proper authority. When in doubt go as large as practical.

The size of the perimeter is dependent on several factors including but not limited to:

- size and type of incident
- environmental factors
- personnel resources, etc.

The perimeter should be large enough to prevent exposure to any responding personnel or the public. It is important that First Responders set perimeters that they can control.

Methods for establishing perimeters

Various methods for establishing perimeters include the use of:

- police personnel
- barricades,
- banner tape,
- traffic cones,
- natural and artificial barriers (rivers, buildings, etc.), or
- vehicles.

Due to the potential of fires or explosions, the use of road flares is generally discouraged.

Continued on next page

Isolation, Continued

Control zone

A **control zone** is an area, inside the perimeter, established at a hazardous materials incident to ensure safety, control the hazard area, and support response operations. Control zones are set by hazardous materials technicians/specialists.

Types of control zones

There are three types of control zones that are established at a hazardous materials incident. They form three distinct areas surrounding the incident.

The following table identifies each zone.

Zone	Location	Description
Exclusion zone (*"hot" zone*) (red zone)	• Innermost area • Isolation area	• Extreme danger • Completely surrounds the hazardous materials incident • Entry is restricted to trained personnel in protective clothing only
Contamination reduction zone (*"warm" zone or* yellow zone)	• Between the exclusion and support zones • Transition area	• Where personnel and equipment are decontaminated
Support zone (*"cold" zone or* green zone)	• Outermost area • Safe zone	• Equipment and personnel should not become contaminated in this area • Considered safe for support personnel and resources (e.g., staging areas, media, command post, etc.)

Perimeters and control zones may need to be modified depending on changing conditions (wind shift, etc.) at the scene of the incident.

Continued on next page

Isolation, Continued

Incident command system

First Responders at the awareness level should be familiar with the use of **Incident Command System (ICS)** in a hazardous materials incident.

Incident commander

An Incident Commander assumes control of the incident scene and has overall management of the incident. The initial First Responder shall assume temporary command and establish an incident command post.

The initial Incident Commander shall manage the incident until relieved. When relieved, the First Responder shall communicate the pertinent information about the incident to the new Incident Commander.

Safety officer

Federal and state law requires that a Safety Officer be designated at a hazardous materials incident. A Safety Officer's responsibilities include:

- emergency authority to stop or prevent unsafe acts,
- identifying and evaluating hazards,
- identifying potentially unsafe situations,
- ensuring operations are conducted safely, and
- modifying of response activities in relation to any perceived hazard.

Individual First Responders will be required to follow the specific direction of the Safety Officer regarding appropriate safety procedures.

NOTE: Additional information about the elements of the Incident Command System is included in LD 43: *Emergency Management.*

Continued on next page

Isolation, Continued

Contamination

The First Responder shall isolate any contaminated people and equipment within the established perimeter. If possible, contaminated people should be directed to a safe area away from the immediate threat, yet still within the perimeter.

The First Responder should advise responding personnel of the existence and location of the contaminated people and equipment.

Examples

The following examples illustrate First Responders following standard procedures for isolating the scene of a hazardous materials incident.

Example: Officers were called to a traffic collision on a major freeway. The collision involved a hazardous materials spill from a tanker truck. The driver of the patrol vehicle parked across the lanes of the freeway to stop vehicles from entering the incident and becoming exposed to the spill.

Example: After responding to a call of a release of a gaseous substance at a pesticides firm, officers positioned their vehicle in front of the gate, at a safe distance, in order to prevent anyone from entering the area. They also radioed for additional resources to help set up and maintain a perimeter to secure the area.

Notification

[41.03.EO4, 41.03.EO9]

Introduction

This action is to notify the appropriate personnel so that a safe and effective response to the incident can continue.

Notifications

Notifications must include:

- Local dispatch
- Administering Agency (e.g., fire dept., county health dept.)
- Office of Emergency Services

First Responders responding to the reported release or threatened release of a hazardous material or to any fire or explosion involving a release shall immediately advise the superintendent of any school located within a ½ mile of the incident.

Information to dispatch

When reporting a hazardous materials incident, officers should communicate the following information to dispatch.

- Location of the incident
- Type of premises and/or vehicles involved
- Size and perimeter of the involved area
- Weather conditions onsite
- Name of hazardous material involved, if known
- Any information about placards, ID numbers, warning signs, etc.
- Safe entry and exit routes to and from the scene
- Activate Emergency Medical Services (EMS), if appropriate
- Location of command post

Continued on next page

Notification, Continued

Additional personnel

First Responders will need to request additional personnel depending on the nature and degree of the hazard. These additional resources may include, but are not limited to:

- emergency medical services (EMS),
- supervisory personnel,
- fire service,
- additional law enforcement personnel, (e.g., CHP)
- health department.

Safety issues before leaving the scene

Before leaving a hazardous materials incident, First Responders should:

- check with authorized personnel (specialists, technicians, etc.) regarding the need for personal/equipment decontamination.
- complete a personal exposure report.

NOTE: State and federal regulations require reporting of personal exposures to hazardous materials. Individual agencies may also have policies that address specific reporting procedures.

Chapter Synopsis

Learning need	Peace officers must have a clear understanding of the need for safety, isolation and notification when acting as First Responders at the scene of a hazardous materials incident.
Safely assessing and approaching [41.03.EO1]	When approaching a scene of a known or suspected hazardous materials incident, First Responders should, whenever possible, approach the scene, upwind, upgrade (uphill), upstream, and at a safe distance (use of binoculars is recommended).
Safety procedures before leaving the scene [41.03.EO4]	Before leaving a hazardous materials incident, the First Responder should check with authorized personnel regarding the need for personal/equipment decontamination, and complete a personal exposure report.
Establishing a perimeter [41.03.EO5]	Various methods for establishing perimeters include the use of barricades, barrier tape, traffic cones, natural and artificial barriers (rivers, buildings, etc.), or vehicle (at a safe distance).
Control zones [41.03.EO6]	There are three types of control zones that are established at a hazardous materials incident. They form three distinct areas surrounding the incident.
Content of notification [41.03.EO9]	The officer should communicate certain information to dispatch.

Workbook Learning Activities

Introduction

To help you review and apply the material covered in this chapter, a selection of learning activities has been included. No answers are provided. However, by referring to the appropriate text, you should be able to prepare a response.

Activity questions

1. Draw a diagram illustrating the relative position of each of the following: perimeter, exclusion zone, contamination reduction zone, and support zone.

   How might a sudden shift in wind direction from east to west affect the positioning of these areas, given a relatively flat landscape?

2. A suspicious explosion in a pharmaceutical research facility leaves five laboratory workers injured, one critically. The five employees are also contaminated with an infectious substance. Peace officers are the first responders to the scene, getting this information in a 911 call from the facility. Ambulances arrive only minutes later.

   Until a knowledgeable Incident Commander arrives, what actions should officers take or prevent with regard to the injured workers?

Continued on next page

Activity questions, (continued)

3. Peace officers are the first responders to the scene of a highway accident involving a tanker truck that has run off the road down a shallow embankment. One block away is a school. The truck driver used his radio to report the accident and to inform officers that the truck was carrying fuel oil, which is slowly leaking into a creek at the bottom of the embankment.

   Based on this information, what safety precautions should the officers take? Presume you are one of the first responding officers. List the information you should relay to your dispatcher. Fill in details as required. What, if any, other reporting requirements do you have as a First Responder?

4. Two officers patrolling the highway outside a large residential area witness a driver of a small car cut in front of a truck transporting drums. The truck swerves to avoid the car, overturns and bursts into flames. As the officers approach to assist, they see the driver escape from the truck safely. The driver tells the officers the drums contain the chemical toluene, used in paint manufacturing. The officers have no specialized training, but one recognizes toluene as being extremely toxic.

   What actions should the officers take as first responders? What should they not do under any circumstances? How do you think the officers' role should have changed, if at all, if the driver was unconscious in the truck cab?

Continued on next page

Activity questions, (continued)

5. Several officers from a nearby town respond to the scene of a train collision with a bus. An unknown chemical is leaking from at least two tanker cars.

   As an officer on the scene, what contamination hazards should you be aware of, and what precautions should you take as you try to assist injured victims? What risks should you as an officer deem unacceptable to take, even in this emergency situation?

Supplementary Material

Graphic Illustration

Content

Hazard Classifications

DOT hazard classes

The following table identifies the Department of Transportation hazard classifications.

Class	Division	Hazard Name	Color	Symbol	Example
1	1.1 1.2 1.3 1.4 1.5 1.6	• **Explosives** - Explosives (mass explosion) - Explosives (projection hazard) - Explosives (fire hazard) - Explosives (no significant blast) - Very insensitive explosive (blasting agent) - Extremely insensitive explosive	Orange Orange Orange Orange Orange Orange	Bursting ball Bursting ball Bursting ball Bursting ball Bursting ball Bursting ball	**Flaming gases** Trinitrotoluene (TNT) Shaped charges Nitrocellulose with 25% alcohol or more Common fireworks Ammonium Nitrate- Fuel Oil Mix (ANFO) None (rarely used)

Continued on next page

Hazard Classifications, Continued

DOT hazard classes (continued)

Class	Division	Hazard Name	Color	Symbol	Example
2	2.1 2.2 2.3	• **Gases** - Flammable gases - Non-flammable, nontoxic gases - Oxygen - Poison/toxic gases	Red Green Yellow White	Flame Cylinder Burning ball Skull and cross bone	**Non-flaming gases** **Non-toxic gases** Propane Argon, Nitrogen Oxygen, liquid or cryogenic Chlorine gas
3	- -	• **Flammable and Combustible Liquids** - Flammable liquids - Combustible liquids	Red Red	Flame Flame	**Poison/toxic gases** Gasoline Diesel fuel

Continued on next page

Hazard Classifications, Continued

DOT hazard classes (continued)

Class	Division	Hazard Name	Color	Symbol	Example
4		• **Flammable Solid/ Spontaneously Combustible/ Dangerous When Wet**			**Corrosive gases (Canada)**
	4.1		Red and white stripes	Flame	Fusee (road flare)
	4.2	- Flammable solids	White over red		
			Blue		
	4.3			Flame	
		- Spontaneously combustible materials			Plastic-nitrocellulose based
		- Dangerous when wet materials		Flame	
					Sodium metal
5		• **Oxidizer/ Organic Peroxide**		Burning ball	Hydrogen peroxide
	5.1	- Oxidizers	Yellow		
	5.2	- Organic peroxides	Yellow	Burning ball	Benzoyl peroxide

Continued on next page

Hazard Classifications, Continued

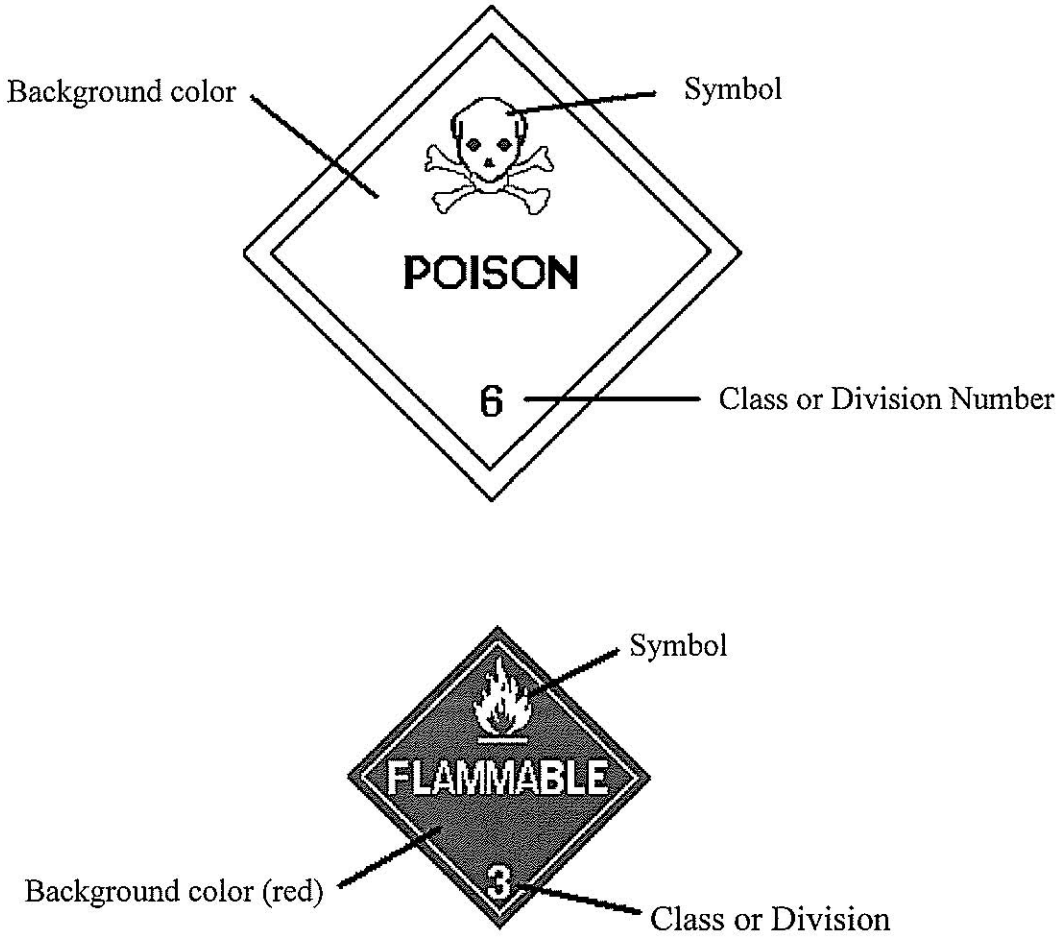
DOT hazard classes (continued)

Class	Division	Hazard Name	Color	Symbol	Example
6	6.1 6.2	• **Poison (Toxic) Material/ Infectious Substance** - Poisons - Infectious substances	White White	Skull and cross bones Label only with biohazard symbol	Arsenic, cyanide Botulism
7	-	• **Radioactive materials**	Yellow over white	Trefoil	Plutonium, radio pharmaceutical
8	-	• **Corrosive materials**	White over black	Test tube over metal bar and hand	Nitric acid, sodium hydroxide
9	-	• **Miscellaneous hazardous materials**	Black and white stripes over white	None	Asbestos, elevated temperative material
ORM-D	-	• **Other Regulated Materials** - **Consumer commodities**	None	ORM-D	-

Sample Placards

Hazardous placards

Below are samples of placards indicating the presence of a hazardous substance.



Supplementary Material

NFPA Diamond

Health, flammable and reactive

Below is an illustration of the NFPA diamond. Numbers indicate the degree of hazard.

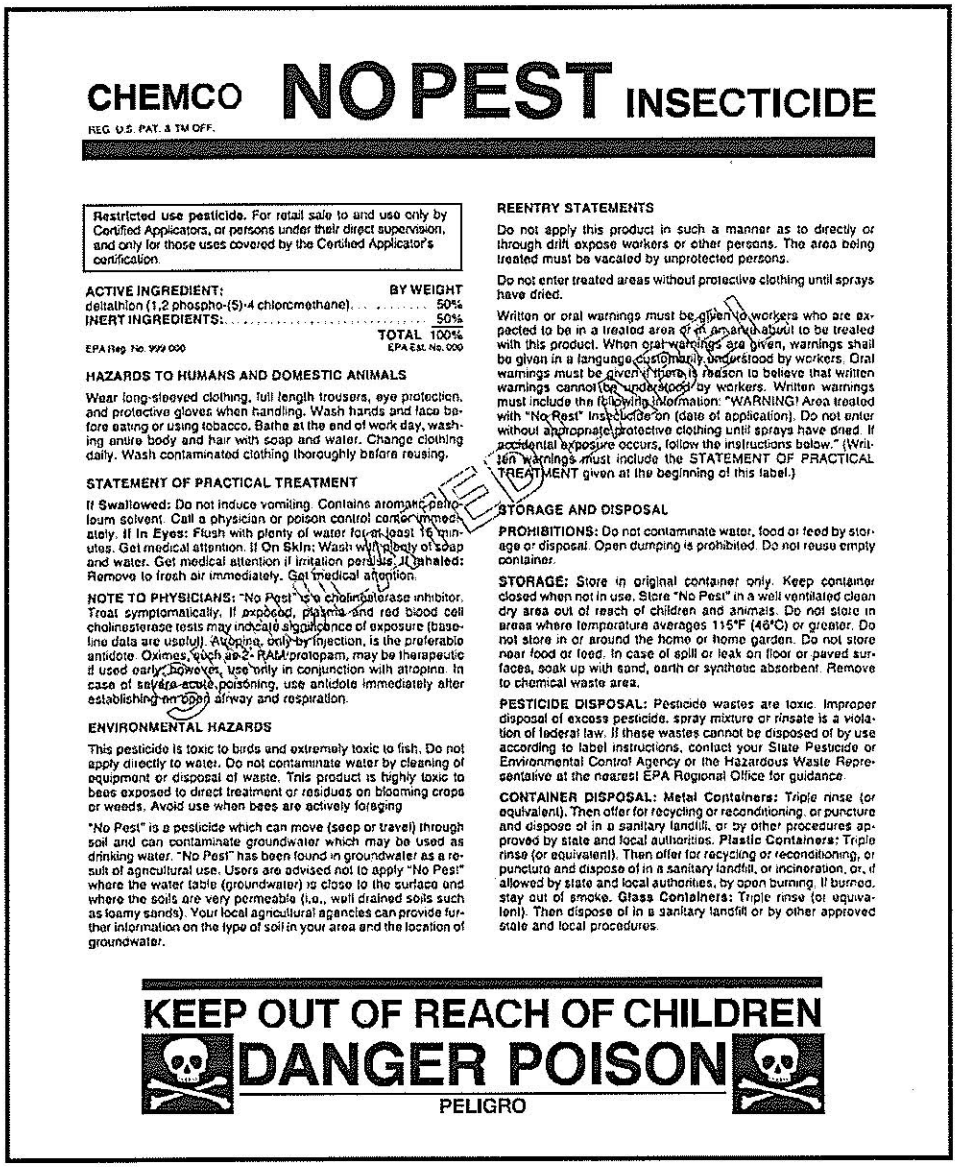
HEALTH HAZARD	FIRE HAZARD	REACTIVITY HAZARD	SPECIFIC HAZARD	
4 – Deadly	Flash points	4 – May Detonate	Oxidiser	OXY
3 – Extremely Hazardous	4 – Below 73°F	3 – May Detonate with Heat or Shock	Acid	ACID
2 – Hazardous	3 – Below 100°F		Alkali	ALK
1 – Slightly Hazardous	2 – Below 200°F	2 – Violent Chemical Change	Corrosive	COR
0 – Normal Material	1 – Above 200°F	1 – Not Stable if Heated	Use NO WATER	~~W~~
	0 – Will Not Burn	0 – Stable	Radiation Hazard	

Supplementary Material

Pesticide Warning Label

Pesticide warning label

Below is an illustration of a pesticide label and its warning mark



CHEMCO **NO PEST** INSECTICIDE

REG. U.S. PAT. & TM OFF.

Restricted use pesticide. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

ACTIVE INGREDIENT:	BY WEIGHT
deltathion (1,2 phospho-(5)-4 chloromethane)	50%
INERT INGREDIENTS:	50%
TOTAL	100%

EPA Reg. No. 999-000 EPA Est. No. 000

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Wear long-sleeved clothing, full length trousers, eye protection, and protective gloves when handling. Wash hands and face before eating or using tobacco. Bathe at the end of work day, washing entire body and hair with soap and water. Change clothing daily. Wash contaminated clothing thoroughly before reusing.

STATEMENT OF PRACTICAL TREATMENT

If Swallowed: Do not induce vomiting. Contains aromatic petroleum solvent. Call a physician or poison control center immediately. **If In Eyes:** Flush with plenty of water for at least 15 minutes. Get medical attention. **If On Skin:** Wash with plenty of soap and water. Get medical attention if irritation persists. **If Inhaled:** Remove to fresh air immediately. Get medical attention.

NOTE TO PHYSICIANS: "No Pest" is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2- PAM protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to birds and extremely toxic to fish. Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of waste. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Avoid use when bees are actively foraging.

"No Pest" is a pesticide which can move (seep or travel) through soil and can contaminate groundwater which may be used as drinking water. "No Pest" has been found in groundwater as a result of agricultural use. Users are advised not to apply "No Pest" where the water table (groundwater) is close to the surface and where the soils are very permeable (i.e., well drained soils such as loamy sands). Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

REENTRY STATEMENTS

Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing until sprays have dried.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: "WARNING! Area treated with "No Pest" Insecticide on (date of application). Do not enter without appropriate protective clothing until sprays have dried. If accidental exposure occurs, follow the instructions below." (Written warnings must include the STATEMENT OF PRACTICAL TREATMENT given at the beginning of this label.)

STORAGE AND DISPOSAL

PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

STORAGE: Store in original container only. Keep container closed when not in use. Store "No Pest" in a well ventilated clean dry area out of reach of children and animals. Do not store in areas where temperature averages 115°F (46°C) or greater. Do not store in or around the home or home garden. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with sand, earth or synthetic absorbent. Remove to chemical waste area.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. **Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by open burning. If burned, stay out of smoke. **Glass Containers:** Triple rinse (or equivalent). Then dispose of in a sanitary landfill or by other approved state and local procedures.

KEEP OUT OF REACH OF CHILDREN

DANGER POISON

PELIGRO

Glossary

Introduction	**The following glossary terms apply only to Learning Domain 41: Hazardous Materials Awareness.**
acute effect	An effect that occurs shortly after exposure to a hazardous material; usually within 24 hours
chronic effect	An effect that does not appear until at least 24 hours or more after exposure to a hazardous material
contamination	Actually coming into contact with the material. The amount of contamination depends on how much material is involved and how long it remains there.
control zone	An area, inside the perimeter, established at a hazardous materials incident to ensure safety, control the hazard area, and support response operations
DOT communication standard	A standard means of communicating information regarding hazardous materials that are being shipped; utilizes classification numbers, colors, and descriptive symbols on placards, labels, marking, and other documentation materials
emergency response guide (ERG)	Emergency response information should be included with shipping papers. The information contains assistance in potential health, fires and chemical hazards and guidance in handling the incident
environmental protection agency (EPA)	Environmental Protection Agency; has adopted words to indicate the potential hazard of pesticides

Continued on next page

Glossary, Continued

exposure	Being in the general area of a substance which may cause contamination
first responder	Personnel who are the first to arrive at the scene of a hazardous materials incident
hazardous materials incident	Any emergency involving the release or potential release of a hazardous material.
incident command system (ICS)	A statewide emergency management system that organizes the various response personnel into one functioning unit; integrates all the departments and agencies into one command system
NFPA 704 warning system	System for identifying potential hazardous materials stored at fixed facilities; utilizes warning signs that appear as four diamond shapes grouped to form one large diamond-shaped sign
occupational safety and health administration (OSHA)	Occupational Safety and Health Administration is the federal agency that regulates the workplace. Among many programs OSHA has is the warning of industrial workers and the public who may be exposed to hazards.
perimeter	An area which is secured far beyond the site of the incident and which no one else can enter without proper authority
toxicity	The capacity of a hazardous material to cause injury or illness