U.S. Department of Homeland Security

United States Coast Guard

Hazardous Material Management Afloat Tactics, Techniques, and Procedures (TTP)

Force Readiness Command (FORCECOM)

CGTTP 4-11.2
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United States Coast Guard

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COAST GUARD TACTICS, TECHNIQUES, AND PROCEDURES 4-11.2

Subj: HAZARDOUS MATERIAL MANAGEMENT AFLOAT TTP

Ref:
(a) Hazard Communication for Workplace Materials, COMDTINST 6260.21 (series)
(b) Hazardous Waste Management Manual, COMDTINST M16478.1 (series)
(c) Vessel Environmental Manual, COMDTINST M16455.1 (series)
(d) U.S. Navy Surface Ship (Non-Submarine) Authorized Chemical Cleaning Products and Dispensing Systems Catalog, NAVSEA S6480-A4-CAT-010
(e) Requirements for Preservation of Ship Structures, SFLC Standard Specification 6310
(f) The Emergency Planning and Community Right-to-Know Act (EPCRA), and Pollution Prevention (P2), COMDTINST M16455.10
(g) Simplified Acquisition Procedures (SAP) Manual, COMDTINST M4200.13 (series)
(h) Hazardous Material Authorized Chemical List Management Process Guide, CGTO PG-85-00-700-S
(i) Hazard Communication, 29 CFR § 1910.1200
(j) Naval Ships' Technical Manual (NSTM), Chapter 670, Volume 1: Afloat Hazardous Material Control and Management Guidelines, S9086-WK-STM-010
(k) Naval Ships' Technical Manual (NSTM), Chapter 670, Volume 3: Hazardous Material Minimization Center (HAZMINCEN) Standard Operating Procedures, S9086-WK-STM-030
(l) Naval Ships' Technical Manual (NSTM), Chapter 670, Volume 2: Afloat Hazardous Material Control and Management Guidelines Hazardous Material Users Guide (HMUG), S9086-WK-STM-020

1. PURPOSE. To provide the afloat environmental protection coordinator (AEPC) with Coast Guard tactics, techniques, and procedures (CGTTP) on the management of hazardous materials afloat.

2. ACTION. This CGTTP publication applies to all afloat environmental protection coordinators, hazardous waste managers, environmental compliance managers, environmental officers, hazardous chemical control officers, HAZMAT coordinators, and pollution prevention coordinators. Internet release authorized.

3. DIRECTIVES/TTP AFFECTED. None.

4. DISCUSSION. This TTP publication's intended audience is the afloat environmental protection coordinator (AEPC). Hazardous material management varies across vessels as the Coast Guard fleet currently has no tactics, techniques, or procedures to assist in the management of HAZMAT afloat. HAZMAT use, storage, and disposal fall under the laws and regulations of the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC).

5. DISCLAIMER. This guidance is not a substitute for applicable legal requirements, nor is itself a rule. It is intended to provide guidance for Coast Guard personnel and is not intended to nor does it impose legally-binding requirements on any party outside the Coast Guard.

6. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. While developing this publication, Integrated Process Team (IPT) members examined environmental considerations under the National Environmental Policy Act (NEPA) and determined they are not applicable.

7. DISTRIBUTION. FORCECOM TTP Division posts an electronic version of this TTP publication to the CGTTP Library on CGPortal. In CGPortal, navigate to the CGTTP Library by selecting References, Tactics, Techniques, and Procedures (TTP), and then TTP Library. FORCECOM TTP Division does not provide paper distribution of this publication.

8. RECORDS MANAGEMENT CONSIDERATIONS. Integrated Process Team (IPT) members thoroughly reviewed this publication during the TTP coordinated approval process and determined there are no further records scheduling requirements per Federal Records Act, 44 U.S.C. Chapter 31 § 3101 et seq., NARA requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This publication does not have any significant or substantial change to existing records management requirements.

9. FORMS/REPORTS. None.

10. REQUEST FOR CHANGES. Submit recommendations for TTP improvements or corrections via email to FORCECOM-PI@uscg.mil or through the TTP Request form on CGPortal. In CGPortal, navigate to the TTP Request form by selecting References, Tactics, Techniques, and Procedures (TTP), and then TTP Request.

    Info COMCOGARD FORCECOM NORFOLK VA//FC-P// on message traffic containing lessons learned applicable to this TTP publication.

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By Direction of Commander, Force Readiness Command

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Chapter 1: Introduction

Introduction

This chapter describes the contents of this TTP publication. It defines hazardous materials (HAZMAT) and explains the United States Coast Guard (USCG) stance toward its regulatory environment. It also defines notes, cautions, and warnings used in USCG publications.

In This Chapter

This chapter contains the following sections:

Section A: Introduction

A.1. Introduction

Hazardous material (HAZMAT) is any item or agent—biological, chemical, or physical—that has the potential to cause harm to humans, animals, or the environment. This harm can come from the nature of the HAZMAT, or from the reactivity of HAZMAT with material it contacts. HAZMAT use, storage, and disposal fall under the laws and regulations of the U.S. Environmental Protection Agency (EPA), the U.S. Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the U.S. Nuclear Regulatory Commission (NRC).

Compliance with environmental laws and regulations presents significant cost to the USCG in terms of money and labor.

This publication is a tool for the afloat environmental protection coordinator (AEPC) to use in reducing costs and ensuring the safety of our health and environment.

Section B: Notes, Cautions, and Warnings

B.1. Overview The following definitions apply to notes, cautions, and warnings found in this publication.

NOTE: **An emphasized statement, procedure, or technique.**

CAUTION: **A procedure, technique, or action that, if not followed, carries the risk of equipment damage.**

WARNING: ***A procedure, technique, or action that, if not followed, carries the risk of personnel injury or death.***

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Chapter 2:
Roles and Responsibilities

Introduction

This chapter describes the roles and responsibilities of the commanding officer (CO) and the afloat environmental protection coordinator (AEPC). It also provides procedures for training and certification of the AEPC.

In This Chapter

This chapter contains the following sections:

Section A: Commanding Officer

A.1. Appoint an AEPC

The CO appoints, in writing, the AEPC per the following references:

- Reference (a), Hazard Communication for Workplace Materials COMDTINST 6260.21 (series).
- Reference (b), Hazardous Waste Management Manual COMDTINST M16478.1 (series).
- Reference (c), Vessel Environmental Manual COMDTINST M16455.1 (series).

A.1.a. Larger Vessels

The CO appoints multiple AEPCs, if the workload requires it.

NOTE:

USCG units refer to the person responsible for unit-level compliance with HAZMAT regulations by various titles. The title used in this publication is AEPC. Although the title used aboard vessels may be different, the collateral duties are the same. Other titles include hazardous waste manager, environmental compliance manager, environmental coordinator, environmental officer, hazardous chemical control officer, HAZMAT coordinator, and pollution prevention coordinator.

A.2. Liability

The vessel CO is liable for the improper management of hazardous waste (HAZWASTE) per reference (b).

A.3. Host/Tenant Agreement

The vessel CO ensures that the host/tenant agreement regarding proper management and handling of HAZWASTE is current and reviewed annually with host command per reference (b).

A.4. Used and Excess HAZMAT

The CO ensures that the vessel complies with procedures for management of used and excess HAZMAT per reference (c).

Section B: Afloat Environmental Protection Coordinator (AEPC)

B.1. Management Storage and Disposal	The AEPC is responsible for proper management, stowage, and transfer to shore of HAZMAT and HAZWASTE per reference (b), Hazardous Waste Management Manual COMDTINST M16478.1 (series).
B.2. Hazard Communication	The AEPC develops and implements a hazard communication (HAZCOM) program per reference (a), Hazard Communication for Workplace Materials COMDTINST 6260.21 (series).

Section C: AEPC Training and Certification

C.1. Highly Recommended Training

As a best practice, the AEPC takes the Collateral Duty Environmental Coordinator Course, which covers HAZMAT and HAZWASTE management.

1. Follow this link: http://epss.uscg.mil/evc_epss/index.htm
2. Click the box that says, **Need support to do your job as Environmental Coordinator?**
3. Take all of the training modules on the page by clicking the blue hyperlinked text.
   a. Pay particular attention to:
      (1) Hazardous Materials Management.
      (2) Hazardous Waste Management.

C.1.a. Certification

The AEPC takes the Collateral Duty Environmental Coordinator Course Certification Test.

1. Use the USCG Learning Management System to take the test.
2. Follow this link: https://elearning.uscg.mil/
3. Search the course catalog for number 502413.
4. Enroll and take the test: Collateral Duty Environmental Coordinator.

C.2. Additional Training

Access the Afloat Hazardous Material Coordinator Course, number: CSS-HAZMAT-030-2.0 03, from Navy Knowledge Online (NKO). NKO requires Common Access Card (CAC) authentication.

1. Click this link https://www.nko.navy.mil to access the NKO homepage.
2. Click **eLearning** in the upper left hand corner under **Educational Sites**.
3. Choose digital certificate for CAC authentication.
4. Click the **Course Catalog** tab.
5. Enter **HAZMAT** into the **Number (suffix)** field
6. Click **Apply Filters**.
7. Click **Enroll** and then **Continue**.

The course should now appear under the **My Learning** tab.

Chapter 3:
Authorized HAZMAT

Introduction This chapter describes HAZMAT authorized aboard USCG vessels.

In This Chapter This chapter contains the following sections:

Section A: Authorized Chemical List (ACL)

A.1. Authorized Chemical List

The authorized chemical list (ACL) is a list of chemicals necessary to perform all maintenance functions aboard a USCG cutter. The ACL is composed of all of the chemicals listed on each maintenance procedure card (MPC).

A.1.a. Accessing the ACL

Go to the Naval Engineering Technical Information Management System (NE-TIMS) located in the Surface Forces Logistics Center (SFLC) portal and download the most current ACL for your vessel.

Follow this link to NE-TIMS:

http://cgweb.netims.uscg.mil:1088/cgi-bin/WebObjects/Tims

1. Enter **Guest** as user name and **Guest** as password (case sensitive).
2. Click **Submit**.
3. Click **Enter NE-TIMS**.
4. Click **MPCs**.
5. Enter **000ACL.0** in the **MPC Number:** field.
   a. Alternately, enter **authorized chemical list** into the **Title (full or partial):** field.
6. Click **Search**.
7. Find the vessel in the **Asset Type** column on the left, and click **View MPC** on the right.
8. In the new tab that opens in the browser, click **View or download MPC file**.

NOTE: **Currently, not all platforms have ACLs. SFLC pushes ACLs to the Technical Information Management Branch (TIMB) for review and publication as they become available.**

Section B: NAVSEA Authorized Chemical Cleaning Products and Dispensing System Catalog

B.1. NAVSEA Catalog

Use reference (d), U.S. Navy Surface Ship (Non-Submarine) Authorized Chemical Cleaning Products and Dispensing Systems Catalog NAVSEA S6480-A4-CAT-010, aboard USCG vessels.

- Phase out the use of any chemicals not on this list by using up what is left, and replacing it with a different chemical from the catalog.

NOTE: **Do not phase out chemicals on the ACL, even if they are not listed in the NAVSEA catalog. Chemicals on the ACL are necessary to meet MPC requirements.**

B.1.a. Accessing the Catalog

Access reference (d) from the Navy Knowledge Online (NKO) link below:

https://www.nko.navy.mil/documents/3956937/3956955/TM_S6480-A4-CAT-010+Rev3_U.S.+NAVY+SURFACE+SHIP+%28NON-SUBMARINE%29%20AUTHORIZED+CHEMICAL+CLEANING+PRODUCTS+AND+DISPENSING+SYSTEMS+CATALOG+/4e098816-2ba1-4e21-b319-a5bd1ee98d8c?version=1.0

- NKO requires CAC authentication.

Section C: Cutter and Boat Authorized Coatings

C.1. Authorized Coatings	Use only coatings and paints listed in Appendix C of reference (e), Requirements for Preservation of Ship Structures SFLC Standard Specification 6310. No other paints or coatings are authorized.
C.1.a. Accessing Standard Specification 6130	Access reference (e) at: http://www.uscg.mil/SFLC/mlclant/vdiv/docs/std_2012/SFLCStdSpec6310.pdf

Chapter 4:
Purchase Request Approval

Introduction

This chapter describes the process for approving the purchase request of HAZMAT.

NOTE: **This publication only provides guidance for approving purchase requests for HAZMAT. Follow local command procedures for the acquisition process.**

In This Chapter

This chapter contains the following sections:

Section A: Statement of Essential Need (SEN)

A.1. Purchase Requests

All requests to purchase HAZMAT begin at the shop level. The department supervisor or authorized requisitioner submits purchase requests (PR) for HAZMAT.

A.1.a. Statement of Essential Need

Include a statement of essential need (SEN) if the PR contains HAZMAT per reference (f), The Emergency Planning and Community Right-to-Know Act (EPCRA) and Pollution Prevention (P2) COMDTINST M16455.10, and reference (g), Simplified Acquisition Procedures (SAP) Manual COMDTINST M4200.13 (series). See figure 4-1 for a sample SEN.

Statement of Essential Need

I certify that this hazardous material procurement is essential to the mission of this unit, and that the minimum quantities are being ordered; in addition,

___ The material safety data sheet(MSDS)/safety data sheet (SDS) for this product is currently on file, and listed in the hazardous materials inventory (MSDS/SDS Reference #_____), and personnel are properly trained in its use. There is currently _____ in inventory.
(qty)

OR

___ This is a new product not currently on file in the hazardous materials inventory; the MSDS/SDS for the product is attached. Personnel will be trained in proper use.

_____/ _____
Authorized Requisitioner date

___ Approved ___ Disapproved

_____/ _____
AEPC date

Figure 4-1 Sample statement of essential need

A.1.b. SEN Approval

Route all PRs for HAZMAT and the accompanying SEN through the AEPC for approval.

Section B: AEPC Responsibilities

B.1. Policy

Per reference (f), The Emergency Planning and Community Right-To-Know Act (EPCRA) and Pollution Prevention (P2) COMDTINST M16455.10 (series), the AEPC is responsible for the following:

- Reducing costs and limiting waste by only approving the purchase of necessary HAZMAT.
- Maintaining accurate inventory of authorized HAZMAT.

B.2. Check Against Authorized Lists

For all PRs containing HAZMAT, verify that the HAZMAT is authorized by checking the three authorized lists in Chapter 3: Authorized HAZMAT.

B.3. Purchase Approval of HAZMAT on ACL

For any PR and SEN requesting authorized HAZMAT, follow the procedure detailed below.

1. Check the request against the current inventory to ensure that there is a need to order more.
2. Ensure that there is an MSDS/SDS on file.
3. Sign and approve the SEN if there is a need to order more HAZMAT and an MSDS/SDS is on file.

B.4. Purchase Approval of HAZMAT Not on ACL

For any PR and SEN requesting HAZMAT not already authorized, follow the procedure detailed below per reference (h), Hazardous Material Authorized Chemical List Management Process Guide CGTO PG-85-00-700-S.

1. Verify that there is an actual need for the HAZMAT aboard the cutter.
2. Submit a CG-22 to request an addition to the ACL.
    a. Use the electronic system located here: http://sflccentral.uscg.mil/forums/elc/dispatch.cgi/cmp_pms_feedback/newDocForm/fol/100001/cmd1191952079

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Chapter 5: Labeling

Introduction

This chapter describes standards for labeling HAZMAT aboard USCG vessels, and how to locate or create spare labels.

In This Chapter

This chapter contains the following sections:

Section A: HAZMAT Label Requirements

A.1. OSHA Regulations

In 2012, OSHA updated HAZMAT labeling requirements under its Hazard Communication Standard (HCS).

As of 1 June 2015, all manufacturers, importers, and distributors are required to label HAZMAT to conform to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). These labels must include pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification per reference (i), Hazard Communication 29 CFR § 1910.1200.

- See Appendix B: Globally Harmonized System HAZMAT Labels for GHS labeling standards and examples of labels and pictograms.

Section B: Creating Labels for HAZMAT in Inventory

B.1. Missing Label on HAZMAT

If HAZMAT has no label, label it immediately.

- Verify the contents of the container before applying a label.

WARNING:

Failure to label unidentified HAZMAT correctly could lead to improper segregation causing toxic fumes, gases, fire, or explosion.

B.2. Manufacturer's Label

HAZMAT is often shipped with additional manufacturer supplied labels.

- Encourage division/shops to keep additional labels on hand.
- Use these labels first to replace missing HAZMAT labels.

B.3. Blank Labels

If there is no manufacturer supplied label, fill out a blank HAZMAT label.

Per reference (a), Hazard Communication for Workplace Materials COMDTINST 6260.21 (series), ensure labels clearly indicate:

- Name of the hazardous material as indicated on the MSDS/SDS.
- Warning of the principal hazards (e.g., health, fire, reactivity, etc.).
- Effects of overexposure on target body organs (e.g., skin, eyes, liver, kidneys, etc.).
- Name, and address or location of the manufacturer or supplier.

B.3.a. Label Supply

Work with supply personnel to ensure that there is an adequate supply of blank labels aboard the cutter.

B.3.b. Printable Labels

Use form DD-2521, large HAZMAT label, or form DD-2522, small HAZMAT label, to mark HAZMAT containers if no blank labels are available from supply.

Follow these links to find fillable PDFs of the forms:

- Large label: http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd2521.pdf
- Small label: http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd2522.pdf

Section C: Labeling Used HAZMAT

C.1. Used HAZMAT

Apply a second label to ensure that the used HAZMAT is clearly identified.

- Refer to Figure 5-1 for a sample used HAZMAT label.

USED

VESSEL _____ WORK-CENTER_____

NAME OF MATERIAL_____

PROCESS IN WHICH MATERIAL WAS USED _____

_____

ANY KNOWN IMPURITIES _____

SPECIAL STOWAGE REQUIREMENTS _____

AEPC SIGNATURE_____

DATE _____

HAZARDOUS MATERIAL

Figure 5-1 Used HAZMAT label

Chapter 6:
Inventory and Safety Data Sheets (SDS)

Introduction

This chapter describes the process for conducting inventory of HAZMAT, and for replacing outdated material safety data sheets (MSDS) with safety data sheets (SDS) to conform to the new Hazard Communication Standard (HCS) per reference (i), Hazard Communication 29 CFR § 1910.1200.

In This Chapter

This chapter contains the following sections:

Section A: Conducting Inventory

A.1. Inventory Objectives

The objectives of a hazardous material inventory are to verify the following:

- Only authorized HAZMAT is stowed onboard.
- An SDS is on file for each type of HAZMAT onboard.
- Only the minimum necessary amounts of HAZMAT are stowed onboard.

A.2. Inventory Types

There are two types of inventory kept aboard USCG vessels.

- Divisions/shops maintain an inventory at each HAZMAT stowage locker under their responsibility.
- The AEPC maintains an inventory of all HAZMAT on the vessel.
  - ➢ The vessel inventory is an aggregate of the locker inventories.

A.3. Inventory Reporting

Divisions/shops report HAZMAT locker inventory to the AEPC monthly.

The AEPC reports the vessel HAZMAT inventory to the safety officer annually.

A.4. Vessel Inventory Data

Record the following information for each type of HAZMAT in inventory per reference (a), Hazard Communication for Workplace Materials COMDTINST 6260.21 (series):

- Product name.
- Manufacturer's name and address.
- Product national item identification number (NIIN)/national stock number (NSN).
- Product's location.
  - ➢ Include compartment name and number.
  - ➢ Record additional specifying information if the compartment contains multiple hazardous material stowage locations or lockers.

Also include:

- A reference number for keeping track of SDS/MSDS.

  - Reference numbers are consistent across the vessel. For example, if you assign kerosene as material "1," list it as material "1" on all inventories where it appears.
- Container size and type (e.g., 1-quart can, 55-gallon drum).
- Quantity.

A.4.a. Best Practice

Use Microsoft Excel to maintain the vessel inventory. Appendix G: Templates contains a template to assist in creating a vessel HAZMAT inventory.

Section B: Safety Data Sheets

B.1. Safety Data Sheets

OSHA promulgated a new HCS in 2012. The new HCS prescribes a uniform format for SDSs, which were previously known as MSDSs and came in multiple formats. This new format is aligned with the GHS. Chemical manufacturers are required to provide SDSs for their products by 1 June 2015.

- See Appendix B: Globally Harmonized System HAZMAT Labels for a table that defines the 16 sections of the SDS and compares them with the old MSDS.

B.2. Policy

Per reference (i), Hazard Communication 29 CFR § 1910.1200:

- Keep an SDS on file for each type of HAZMAT in the workplace.
- Make SDSs readily available for review.

B.3. Maintaining SDSs

Keep a paper copy of an SDS at the HAZMAT locker site for each HAZMAT stored in the locker.

Keep an electronic copy of the SDS along with vessel inventory for every HAZMAT in inventory on the vessel.

B.4. Acquiring SDSs

To access SDSs from the Defense Logistics Agency Web site:

- Click this link http://www.dlis.dla.mil/hmirs
- Under the **System Access** tab on the left hand side, choose the appropriate option to **Request HMIRS Access**.
- Once you are registered for an account, download SDSs.

B.4.a. Replacing MSDSs with SDSs

Replace all MSDSs on file with the new SDSs by 1 June 2016.

B.4.b. Archiving

It is best practice to keep copies of MSDSs once replaced by SDSs.

Chapter 7:
Stowage and Management

Introduction

This chapter describes the categories of HAZMAT, and how to properly segregate and store it to avoid dangerous reactions. It also suggests a process for managing the issue and return of HAZMAT, and for locker inspections.

In This Chapter

This chapter contains the following sections:

Section A: Appropriate Containers and Labeling

A.1. Appropriate Containers

Store HAZMAT in containers that do not break down and allow the material to leak out.

- Use the appropriate container and label when transferring HAZMAT from a bulk container to a smaller container.
- See Appendix D: Hazard Compatibility Code Matrix and Definitions for a list of appropriate containers and national stock numbers (NSN) for ordering.

WARNING: ***Use appropriate personal protective equipment (PPE) when handling HAZMAT.***

WARNING: ***Failure to use the appropriate container can cause HAZMAT to leak, leading to toxic fumes, gases, fire, or explosion.***

A.1.a. Labels

See Chapter 5: Labeling for guidance on labeling containers.

Section B: Compatibility, Segregation, and Stowage

B.1. Compatibility

HAZMAT is categorized by type (e.g., oxidizer, flammable, corrosive) and reactivity (e.g., highly reactive, non-reactive). Some categories of HAZMAT react dangerously if they contact HAZMAT from an incompatible category.

Determine HAZMAT compatibility before stowing it with other HAZMAT.

WARNING:

If incompatible HAZMATs come into contact, they can create toxic fumes, gases, catch fire, or explode.

B.1.a. Hazard Compatibility Codes

Each HAZMAT has a hazard compatibility code (HCC).

- Use the Hazardous Material Information Resource System (HMIRS) to determine the HCC.
- Access the HMIRS here: http://www.dlis.dla.mil/hmirs/.

B.2. Segregation

The two-character HCC indicates segregation requirements for HAZMAT.

B.2.a. Alpha Character

The first is an alpha character (e.g., A). It indicates the HAZMAT's primary segregation code. See Table 7-1 for primary segregation codes.

Code	Explanation
A	Radioactive materials
C	Corrosive materials
D	Oxidizing materials
E	Explosives
F	Flammable materials
G	Compressed gas cylinders
L	Low hazard (general purpose) materials
P	Peroxides, organic
R	Reactive materials
T	Poison/toxic materials

Table 7-1 Primary segregation codes

B.2.b. Numeric Character	The second character in the HCC is a number (e.g., 1). This number indicates the HAZMAT's secondary segregation category.
B.2.c. Applying the HCCs	HCCs provide a thorough system for safely segregating HAZMAT; however, the system is complicated and counterintuitive. The first alpha character of the HCC might not match the letter for the primary segregation code. For example, primary segregation code T, poison/toxic materials, contains HCCs K1, K2, T1, T2, T3, and T7. HCCs T4, T5, and T6 belong to primary segregation code L, low hazard material. • See Figure 7-1 for a general understanding of how to apply segregation codes. ➢ Larger blocks represent separate storerooms on the vessel for each primary segregation code. ➢ Smaller blocks represent separate HCCs and how each is further segregated within a storeroom or locker. • Review the compatibility matrix and segregation code definitions in Appendix D: Hazard Compatibility Code Matrix and Definitions for a more complete understanding. • Follow the links in the definitions table to develop a comprehensive understanding of HAZMAT properties and reactivity hazards.
B.2.d. SDS	The SDSs for each HAZMAT are the authority on compatibility.

NOTE: **Use the information on the SDS if a discrepancy exists between the compatibility matrix and the information on the SDS.**

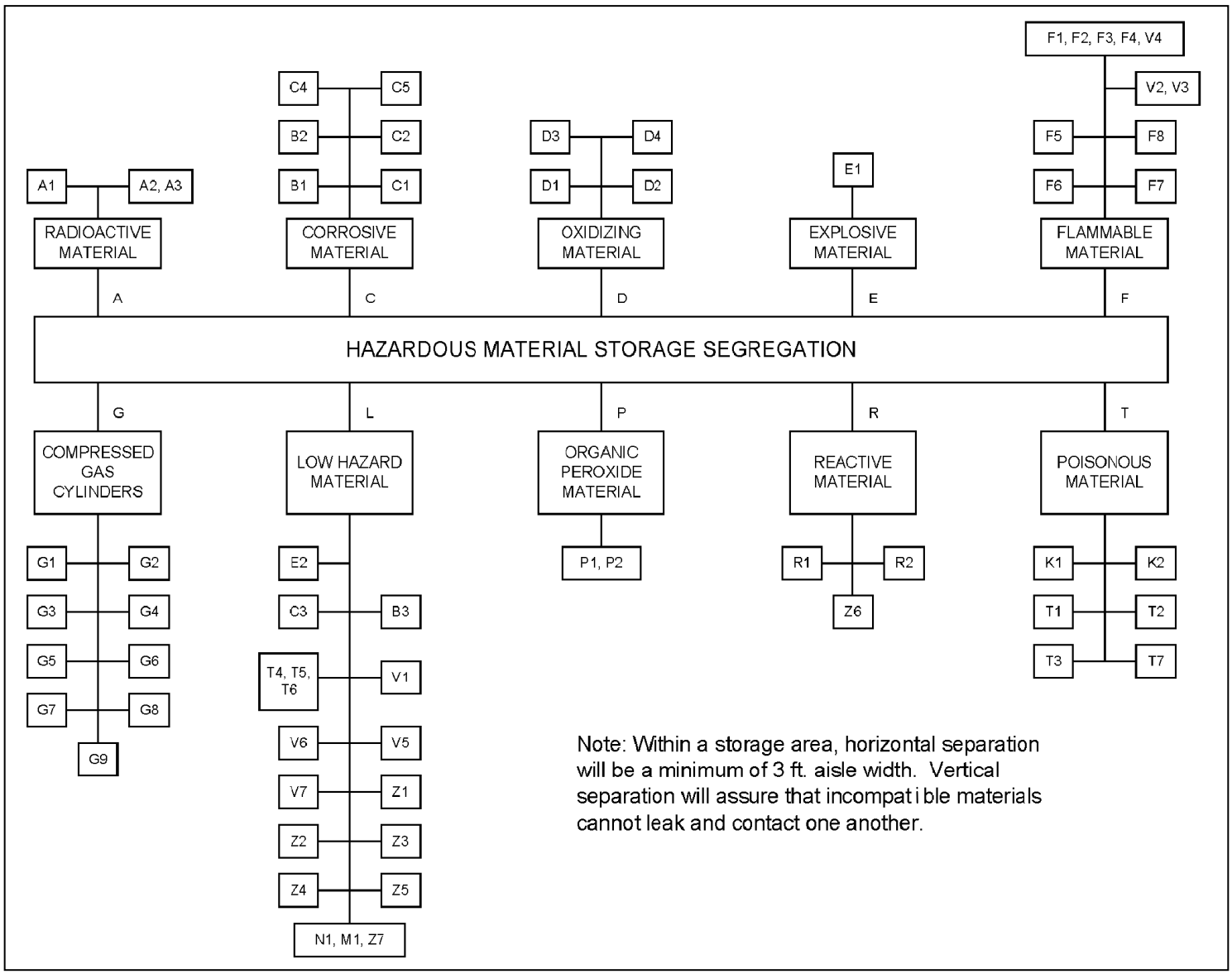

Figure 7-1 HAZMAT segregation chart

B.3. Stowage

Stow compatible HAZMAT together.

Stow incompatible HAZMAT in different compartments.

B.3.a. Exceptions

Use every available means to prevent the accidental mixing of incompatible materials, such as partitions and coamings, if space limitations make storing incompatible HAZMAT in the same compartment necessary.

WARNING: ***Only stow incompatible HAZMAT in the same compartment as a last resort. This arrangement presents an inherent risk of toxic fumes gases, fire, and explosion.***

WARNING: ***Always segregate oxidizers from all other HAZMAT.***

B.3.b. Best Practices

The following are best practices regarding the stowage of HAZMAT. Share these best practices through word of mouth, written communication, and training as applicable.

- Stow paint, paint thinners, and associated cleaners and hardeners in a dedicated paint locker.
- Rotate stock, and use the oldest material first before it expires.
- Apply and enforce strict spill prevention and control measures.

  For example:

  - Coamings.
  - Barriers.
  - Seals around drains and doors.
- Observe good housekeeping at all times.
  - Permit free movement of personnel, equipment, and materials in aisles and passageways.
  - Keep areas clean, dry, uncluttered, and adequately ventilated.
- Limit exposure of HAZMAT to excessive temperatures to avoid increased material volatility and the possibility of a change in the properties of HAZMAT.
- Do not fill HAZMAT containers to absolute capacity.
  - Many hazardous liquids expand when heated due to vapor release. Failure to provide expansion space can cause the container to rupture if heated.
- Arrange HAZMAT within stowage compartments to minimize the effects of vessel pitch and roll.

B.4. Additional Reading on Stowage Areas

For assistance creating HAZMAT stowage areas, consult the following publications for further information:

- U.S. Navy Ship Design Standard (SDS) 077-1 Safety Design Criteria for Stowage Areas Containing Hazardous Materials on Surface Ships.
- Preliminary Design Guidance Manual for HAZMINCEN Areas on Surface Ships, S9593-DS-GYD-010.
- Reference (j), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 1: Afloat Hazardous Material Control and Management Guidelines S9086-WK-STM-010.

Section C: Issue and Return Systems

C.1. Suggestion for HAZMINCEN and CHRIMP Implementation

Although not required by USCG policy, establishing a hazardous material minimization center (HAZMINCEN) is a good way to manage the use of HAZMAT on the vessel.

The Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) is a suggested system for managing a HAZMINCEN.

For detailed guidance on establishing a CHRIMP, see reference (k), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 3: Hazardous Material Minimization Center (HAZMINCEN) Standard Operating Procedures S9086-WK-STM-030

Section D: HAZMAT Lockers and Inspections

D.1. Overview

Inspections help ensure the safety of the crew, the ship, and the environment. Additionally, attending to a regular inspection schedule helps the vessel to maintain readiness for review by outside inspecting agencies.

HAZMAT lockers (flammable and corrosive) allow for the safe stowage of HAZMAT within a work-center, which in turn allows work-center access to HAZMAT daily for completing maintenance procedure card tasks, or for other operational requirements.

Work-center personnel are responsible for maintaining lockers in compliance with applicable HAZMAT policy and regulations.

The AEPC oversees work-center maintenance of HAZMAT lockers by providing inspections and ensuring the remediation of unsatisfactory locker conditions.

D.2. Locker Types

HAZMAT lockers installed within storerooms fall into two categories:

- Lockers custom built and permanently installed by the ship builder.
- Commercially available lockers.

NOTE: **All commercially purchased HAZMAT lockers must meet the requirements set forth in reference (j), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 1: Afloat Hazardous Material Control and Management Guidelines S9086-WK-STM-010.**

D.3. Locker Installation Policies

Reference (l), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 2: Afloat Hazardous Material Control and Management Guidelines Hazardous Material Users Guide (HMUG) S9086-WK-STM-020, provides specific policies regarding lockers and spaces containing lockers. Meet the following conditions when installing HAZMAT lockers:

- Install a 27-pound capacity, potassium bicarbonate (PKP) fire extinguisher in the vicinity of a locker.
- Lockers stand off from bulkheads by a minimum of six (6) inches and have an eighteen (18)-inch clearance from hot surfaces, such as machinery or piping.
- Compartment has free passage of personnel for escape or access to fire.

- Do not install locker in living, berthing, or food preparation spaces.
- Fasten lockers to the deck by approved methods:
  - The locker base welded all around to deck plating or 10.2-pound plate welded sub-base on machinery room gratings.
  - Installation that is Grade B shock approved.
- Label and paint lockers per reference (l), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 2: Afloat Hazardous Material Control and Management Guidelines Hazardous Material Users Guide (HMUG) S9086-WK-STM-020.

D.4. Locker Inspection Binder	Create and maintain a HAZMAT locker inspection binder. The purpose of the binder is to provide a consolidated place to store program guidance documents and records.
D.4.a. Binder Sections	Divide the binder into three sections.
D.4.a.(1). Section One	Include guidance documents and forms. • Specifically include blank HAZMAT Locker Inspection and Follow-Up checklists if paper checklists are used aboard the vessel. See Appendix F: HAZMAT Locker Inspection and Follow-Up Checklist.
D.4.a.(2). Section Two	Contains the master locker location list, and a list of division personnel trained to do satellite locker inspections. Include: • The name of the trained personnel. • The date each was assigned to the locker program. • The date the HAZMAT training was completed. Appendix G: Templates contains templates to assist in creating the locker location list and the trained personnel list.
D.4.b. Section Three	Contains individual HAZMAT locker inventory lists, and inspection records for each individual locker. Group locker inventory lists alphabetically, first by department and then by work center. Include for each work-center: • The most recent copy of the locker inventory. • One year of HAZMAT locker inspection and follow-up checklists, signed by the work-center and the inspectors with applicable dates.

D.4.c. Binder Maintenance	Maintain the original records of locker locations, notes, and comments provided by the damage controlman (DC), the safety department, and the AEPC in the binder. • Update the master locker location list as necessary. • Update the inventory of material stored in each locker monthly.
D.4.d. Provide Copies	Provide copies of originals as required by inspecting entities.
D.5. Locker Inspections	Establish an inspection schedule so that all lockers are inspected once a month. • Use the HAZMAT Locker Inspection and Follow-Up Checklist to inspect the lockers. See Appendix F: HAZMAT Locker Inspection and Follow-Up Checklist. • Physically verify the location of all lockers on the list. • Maintain copies of inspection checklists in the inspection binder for a minimum of 1 year.
D.5.a. Inspector PPE	The AEPC, safety officer, and any inspection personnel use proper PPE when conducting inspections per reference (l), Naval Ships' Technical Manual (NSTM) Chapter 670 Volume 2: Afloat Hazardous Material Control and Management Guidelines Hazardous Material Users Guide (HMUG) S9086-WK-STM-020.
D.5.b. Guidelines	Use the following guidelines to get a general awareness of HAZMAT locker requirements.
NOTE:	**These guidelines do not replace the HAZMAT Locker Inspection and Follow-Up Checklist. Use a checklist for every locker inspection.**
D.5.b.(1). Compartment	Ensure that access to exits, safety equipment, alarms, and fire extinguishing equipment is unobstructed at all times.
D.5.b.(2). Labeling	Verify that lockers have: • Flammable or corrosive label. • Strip ship label. • Warning label for hazardous material.

- No eating/drinking/smoking label.
- Correct locker paint color.
  - Flammable lockers are painted yellow; color chip 13538 or similar.
  - Corrosive lockers are painted light blue; color chip 15200 or similar.

D.5.b.(3). Operability

Ensure the locker is in good working condition by determining that:

- Self-closing door operates satisfactorily.
- Door is not damaged.
- Hasp on door is functional.
- Rubber seal around the door is attached and in good condition.

NOTE: **Pay special attention to the seal on the bottom of the door.**

D.5.b.(4). Safety Equipment

Ensure the good working order of:

- Fire suppression systems.
- Emergency equipment, such as deluge shows and spill clean-up kits.
- Personal protective equipment.

Record a lack of or damaged PPE as unsatisfactory during locker inspections.

D.5.b.(5). Miscellaneous

Ensure that:

- The locker inventory list is posted on the locker, and that the corresponding SDSs are available for all HAZMAT in the locker.
- Materials in inventory are on one of the three authorized lists in Chapter 3: Authorized HAZMAT.
- Materials have not leaked, spilled, or corroded the locker.
- HAZMAT in the locker is segregated per Chapter 7: Stowage and Management.
- HAZMAT shelf life management is being conducted—oldest material is used first before the expiration date.

D.6. Responding to Locker Inspection Results	Respond immediately to unsatisfactory (UNSAT) locker inspection results.
D.6.a. Communication	Notify work-center supervisor, DC, and safety officer of locker inspection results. Provide copies for their records.
D.6.b. Remediation	Direct the personnel responsible for the locker to correct any UNSAT inspection items immediately.
D.6.c. Follow-up Inspection	Schedule a follow-up inspection within 24 hours to ensure that the personnel responsible for the locker corrected the discrepancy. Include the safety officer in the follow-up inspection.
D.6.d. Safety Hazard	If corrective action is beyond the capacity of the work-center, or requires more than 24 hours, enter the discrepancy into the current ship's corrective maintenance action (CMA) as a safety hazard, and make a note of it in the follow-up section of the inspection checklist.
NOTE:	**Remove the contents of HAZMAT lockers that are beyond repair and transfer the HAZMAT to a serviceable locker until a replacement is acquired.**
D.6.e. Documentation	Document the results of the follow-up inspection in the space provided at the bottom of the HAZMAT Locker Inspection and Follow-Up Checklist and file it in the locker inspection binder. See Appendix F: HAZMAT Locker Inspection and Follow-Up Checklist.

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Chapter 8:
Offload of Used or Excess HAZMAT

Introduction

This chapter describes what HAZMAT to offload, and how to control the process.

In This Chapter

This chapter contains the following sections:

Section A: General Information for HAZMAT Offload

A.1. Policy

Per reference (c), Vessel Environmental Manual COMDTINST M16455.1 (series), manage used and excess HAZMAT as follows:

- Never discharge HAZMAT overboard unless specifically permitted by USCG policy.
- Never collect used or excess HAZMAT from other ships or shore facilities and transport it to sea for disposal.

A.1.a. Offload Coordination

Per reference (b), Hazardous Waste Management Manual COMDTINST M16478.1 (series), all offloading of HAZMAT is authorized and coordinated through the AEPC, or the AEPC's supervisor.

A.2. What to Offload

Offload the following types of HAZMAT:

- Excess.
- Used.
- Contaminated.
- Expired shelf life.

A.3. Prior to Offload

Ensure that all personnel involved in the offload receive training. Direct them to take, at a minimum, the following two sections of the Afloat Hazardous Material Coordinator Course, number: CCS-HAZMAT-030-2.0 03, hosted by NKO.

- Basics of Afloat Hazardous Material.
- Packaging and Labeling Afloat Hazardous Material.

To access this course follow the procedure below.

1. Click this link https://www.nko.navy.mil to access the NKO homepage.
2. Click **eLearning** in the upper left hand corner under **Educational Sites**.
3. Choose digital certificate for CAC authentication.
4. Click the **Course Catalog** tab.
5. Enter **HAZMAT** into the **Number (suffix)** field.
6. Click **Apply Filters**.
7. Click **Enroll** and then **Continue**.

The course should now appear under the **My Learning** tab.

A.3.a. Packaging	Prepare, package, and over-pack the HAZMAT as necessary to comply with ship-to-ship or ship-to-shore standards. • See reference (b) for packaging guidelines.
WARNING:	***Maintain segregation of incompatible HAZMAT at all times during the packaging and offload evolution.***
A.3.b. Documentation	Produce all necessary documentation, including form DD-1348, SDSs, and locally required paperwork.

Section B: Ship-to-Shore Offload of HAZMAT

B.1. Determination of Disposition	Offload HAZMAT to a shore activity for determination of disposition.
B.2. Port Arrival	Assemble the following information, before the ship's arrival into port, and be ready to provide it to the ashore point of contact (POC): • A basic description of all HAZMAT designated for offload (e.g., used or excess HAZMAT, paints, hydraulic fluids, solvents, acids). • Estimated quantity and types of containers, categories of HAZMAT, and number of pallets to be offloaded. • Any known unique factors above and beyond normal requirements for offload during the in-port period.
B.3. Designate Coordinator	Designate an offload coordinator as the vessel's representative for the offload. This person may be the AEPC or any other crew member who has been properly trained.
B.3.a. POC	In all major homeports, the facility engineer or engineering officer functions as the initial POC for coordinating the offload of HAZMAT.
B.3.b. Shoreside Documents	The shoreside activity provides to the offload coordinator the procedural and documentation requirements for offloading HAZMAT at that port.
B.3.c. Identify HAZMAT	Prior to transfer ashore, identify HAZMAT to the receiving shore facility per the host facility's guidance and specific requirements per established host/tenant agreements.
B.4. Offload in non-USCG Ports	When visiting non-Coast Guard ports and foreign ports, only offload HAZMAT when necessary and feasible.
B.4.a. Adequate Facilities	Hold HAZMAT for offload at a USCG port if inadequate facilities exist.
B.4.b. Compliance	If offload is necessary in foreign ports, commanding officers/officers in charge ensure compliance with applicable customs laws and the status-of-forces agreement (SOFA).

B.4.c. LOGREQ	Identify in the logistics request (LOGREQ) the type(s) and amount of used hazardous material to be offloaded.
B.4.d. Manifests	Acquire and maintain copies of all HAZWASTE manifests.
B.4.e. Containers and Labels	Properly label and containerize all HAZMAT.
B.5. Maintenance Availability	Prior to entering a shipyard for a maintenance availability:
B.5.a. Homeport	To the maximum extent feasible, offload HAZMAT/HAZWASTE in homeport or other USCG facility.
B.5.b. POC	Contact the ship superintendent or port engineer.
B.5.b.(1). Documentation	Provide a list of the types and amounts of HAZMAT and HAZWASTE anticipated by ship's force during the availability.
B.5.b.(2). Request Authority	Request authority and resources to ensure vessel compliance with HAZMAT and HAZWASTE management procedures and site specific management practices established by the ship superintendent or port engineer.
B.5.c. Contractor Responsibility	Ensure contractors are aware that they are responsible for proper handling and disposal of any HAZWASTE generated while performing their contracted tasks during the availability. This includes their compliance with any shoreside waste procedural requirements established by the host unit.
B.5.d. Policy	For work performed at Coast Guard facilities by Coast Guard personnel, the facility commanding officer or officer in charge promulgates instructions to ensure compliance with reference (c), Vessel Environmental Manual COMDTINST M16455.1 (series).

Section C: Ship-to-Ship Offload of HAZMAT

C.1. Ship-to-Ship	Only transfer HAZMAT to another USCG vessel when the receiving vessel requires the material for use. Transfer of HAZMAT to non-Coast Guard vessels is prohibited per reference (c), Vessel Environmental Manual COMDTINST M16455.1 (series).
C.1.a. Documentation	Document the transfer of HAZMAT between vessels by updating the vessel HAZMAT inventory of both the transferring and receiving vessels.
C.1.b. Packaging	Over-pack all HAZMAT transferred over water.

Appendix A:
Glossary and Acronyms

ACGIH	The American Conference of Governmental Industrial Hygienists, Inc.
ACL	Authorized chemical list.
AEPC	Afloat environmental protection coordinator.
AFFF	Aqueous firefighting foam
B/V	Bung and vent.
CAC	Common Access Card.
CAS	Chemical Abstracts Service.
CBI	Confidential business information.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, aka SuperFund Act.
CFR	Code of Federal Regulations.
CHRIMP	Consolidated Hazardous Material Reutilization and Inventory Management Program.
CO	Commanding officer.
COMDTINST	Commandant instructions.
CMA	Corrective maintenance action.
DC	Damage controlman.
DOD	Department of Defense.
DODAC	Department of Defense ammunition code.

DOT	Department of Transportation.
EC	European Community.
EPA	Environmental Protection Agency.
EPCRA	Emergency Planning and Community Right-To-Know Act.
FLIS	Federal Logistics Information System.
GHS	Globally Harmonized System of Classification and Labeling of Chemicals.
HAZCOM	Hazard communication.
HAZMAT	Hazardous material.
HAZMINCEN	Hazardous material minimization center.
HAZWASTE	Hazardous waste.
HCC	Hazard compatibility code— a two-digit alphanumeric code that provides a means of categorizing HAZMAT according to type and reactivity. It is an identification and tracking mechanism that links national stock numbers (NSNs) with specific details of hazards associated with the material.
HCS	Hazard Communication Standard.
HMIRS	Hazardous Material Information Resource System.
HMUG	Hazardous Material User Guide.
HSWL	Health, Safety and Work-Life.
IARC	International Agency for Research on Cancer.
IATA	International Air Transport Association.
ICAO	International Civil Aviation Organization.
LOGREQ	Logistics request.

MPC	Maintenance procedure card.
MSDS	Material safety data sheet.
NA	North American (numbers).
NAVSEA	Naval Sea Systems Command.
NE-TIMS	Naval Engineering Technical Information Management System.
NIIN	National item identification number.
NKO	Navy Knowledge Online.
NOS	Not otherwise specified.
NRC	Nuclear Regulatory Commission.
NSN	National stock number.
NSTM	Naval Ships' Technical Manual.
NTP	National Toxicology Program.
OSHA	Occupational Safety and Health Administration.
P2	Pollution prevention.
PCB	Polychlorinated biphenyls.
PCCL	Prohibited and Controlled Chemicals List.
PEL	Permissible exposure limit.
PKP	Potassium bicarbonate.
PL	Product line.
PMS	Planned maintenance system.

POC	Point of contact.
POL	Petroleum oils and lubricants.
PPE	Personal protective equipment.
PR	Purchase request.
RC	Removable cover.
RQ	Reportable quantity.
RSC	Regular slotted container.
SAP	Simplified acquisition procedures.
SAT	Satisfactory.
SDS	Safety data sheet; ship design standard.
SEN	Statement of essential need.
SFLC	Surface Force Logistics Center.
SOFA	Status-of-forces agreement.
TIMB	Technical Information Management Branch.
TLV	Threshold limit value.
TTP	Tactics, techniques, and procedures.
UN	United Nations.
UNSAT	Unsatisfactory.
USCG	United States Coast Guard.
VEM	Vessel Environmental Manual.

Appendix B:
Globally Harmonized System HAZMAT Labels

B.1. GHS Label Standards	Per reference (i), Hazard Communication 29 CFR § 1910.1200, all HAZMAT labels must include the following information.
B.1.a. Product Identifier	Lists the name and/or code identifying the hazardous material. The product identifier information should match the safety data sheet.
B.1.b. Supplier Identification	Lists the name, address, and emergency phone number of the manufacturer or supplier of the product.
B.1.c. Hazard Pictograms	A harmonized hazard symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red diamond. The various pictograms are depicted in Figure B-2.
B.1.d. Signal Word	A single word used to alert the user to the presence of a hazard, and to indicate the relative severity of the hazard. The signal words are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for less severe hazards. For the least severe hazards, a signal word might not be used.
B.1.e. Hazard Statements	A statement assigned to a specific hazard class and category that describes the nature of the hazard(s), including, where appropriate, the degree of hazard.
B.1.f. Precautionary Statements	Describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling of a hazardous chemical.
B.1.g. Supplemental Information	Contains information that is not specifically required by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Supplemental information might be used to provide further detail that does not contradict the standardized hazard information. It also might be used to provide information about hazards not yet incorporated into the GHS.

B.2. Label Examples

Figure B-1 is an example of a HAZMAT label that meet GHS requirements.

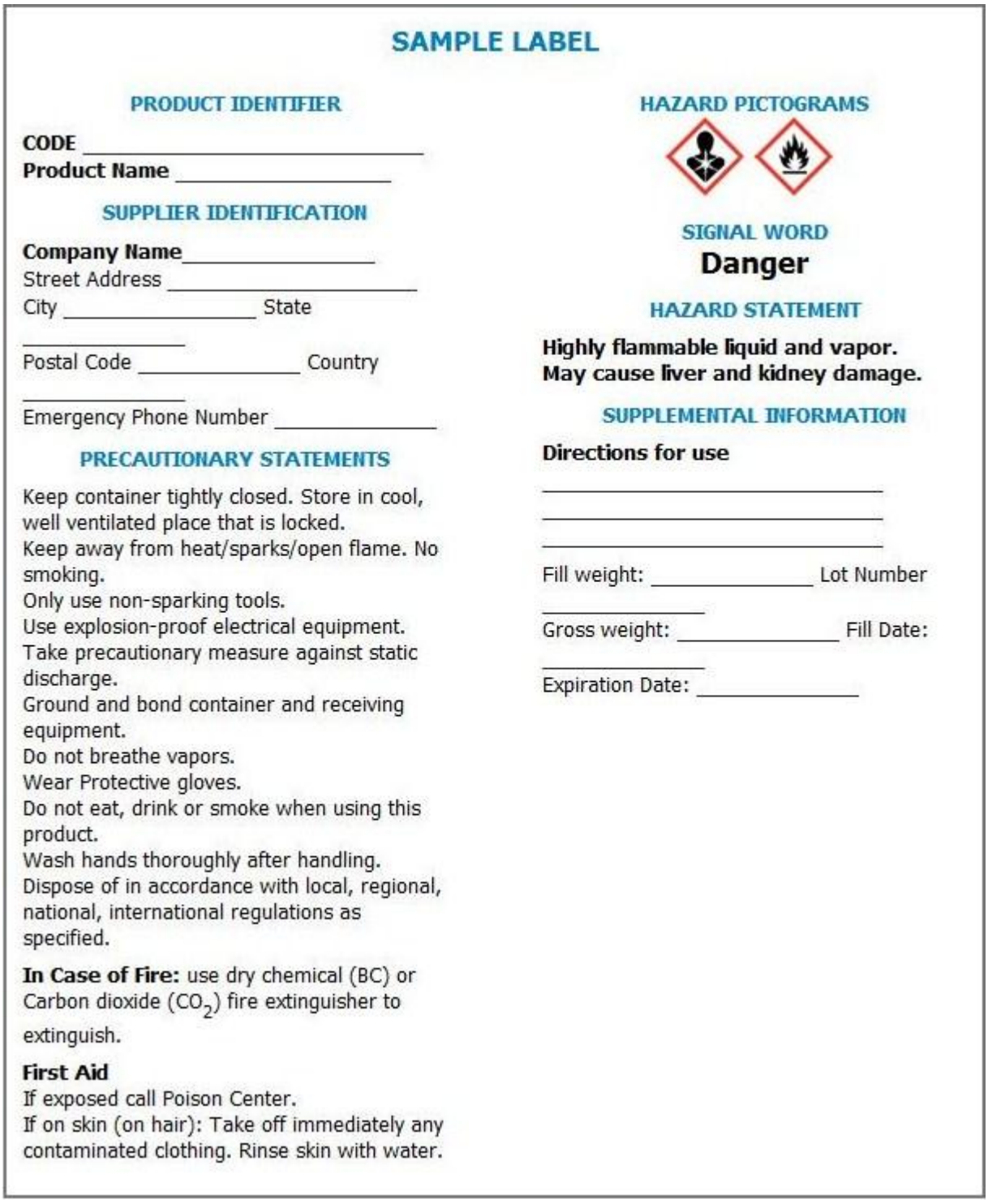

Figure B-1 GHS Label

B.3. Pictogram Examples

Figure B-2 provides an example of all of the GHS pictograms.

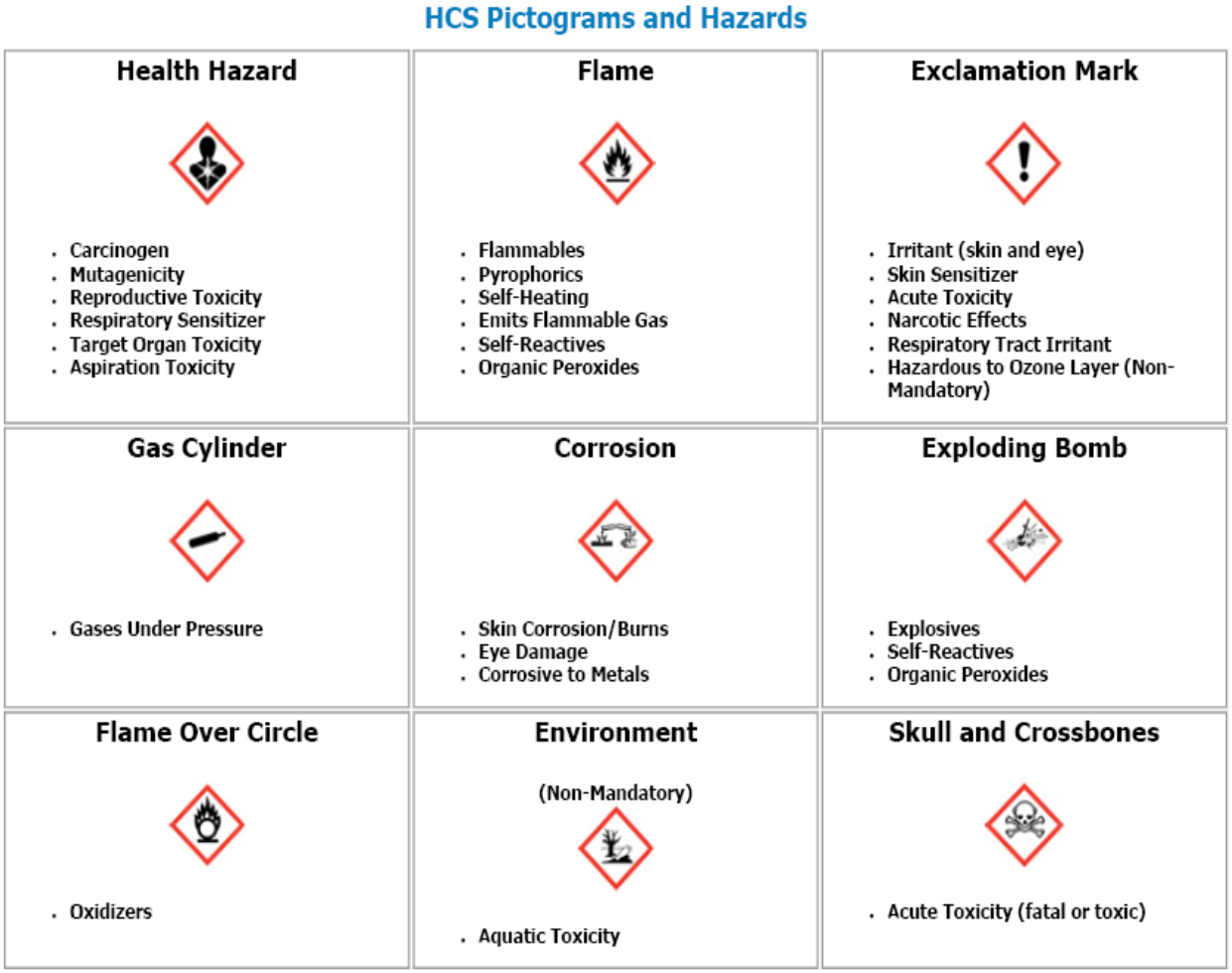

Figure B-2 GHS Pictograms

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Appendix C:
SDS-MSDS Comparison Table

SDS Sections	GHS SDS	OSHA MSDS
1. Product and company identification	GHS product identifier. Other means of identification. Recommended use of the chemical and restrictions on use. Supplier's details including name, address, phone number, etc. Emergency phone number.	Product identity same as on label. Name, address, and telephone number of the manufacturer, distributor, employer, or other responsible party.
2. Hazards identification	GHS classification of the substance/mixture and any regional information. GHS label elements including precautionary statements. (Hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol, e.g., flame, skull, and crossbones.) Other hazards which do not result in classification (e.g., dust explosion hazard) or are not covered by the GHS.	Health hazards including acute and chronic effects, listing target organs or systems, signs and symptoms of exposure, conditions generally recognized as aggravated by exposure, primary routes of exposure if listed as a carcinogen by OSHA, International Agency for Research on Cancer (IARC), or National Toxicology Program (NTP), physical hazards, including the potential for fire, explosion, and reactivity.

SDS Sections	GHS SDS	OSHA MSDS
3.Composition/ information on ingredients	Substance: Chemical identity, common name, synonyms, etc., Chemical Abstracts Service (CAS) registry number, EC number, etc. Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance. Mixture: The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cut-off levels. The cut-off level for reproductive toxicity, carcinogenicity and category 1 mutagenicity is 0.1%. The cut-off level for all other hazard classes is 1%. Note: For information on ingredients, the competent authority rules for CBI to take priority over the rules for product identification.	Chemical and common name of ingredients contributing to known hazards. For untested mixtures, the chemical and common name of ingredients at 1% or more that present a health hazard and those that present a physical hazard in the mixture. Ingredients at 0.1% or greater, if carcinogens.
4. First-aid measures	Description of necessary measures subdivided according to the different routes of exposure (e.g., inhalation, skin and eye contact, and ingestion). Most important symptoms/effects, acute and delayed. Indication of immediate medical attention and special treatment needed, if necessary.	Emergency and first aid procedures.
5. Firefighting measures	Suitable (and unsuitable) extinguishing media. Specific hazards arising from the chemical (i.e., the nature of any hazardous combustion products). Special protective equipment and precautions for firefighters.	Generally applicable control measures, flammable property information such as flashpoint, physical hazards including the potential for fire, explosion, and reactivity.
6. Accidental release measures	Personal precautions, protective equipment, and emergency procedures. Environmental precautions. Methods and materials for containment and cleaning up.	Procedures for cleanup of spills and leaks.
7. Handling and storage	Precautions for safe handling. Conditions for safe storage, including any incompatibilities.	Precautions for safe handling and use, including appropriate hygienic practices.

SDS Sections	GHS SDS	OSHA MSDS
8. Exposure controls/personal protection	Control parameters (e.g., occupational exposure limit values or biological limit values). Appropriate engineering controls. Individual protection measures, such as personal protective equipment.	Generally applicable control measures, appropriate engineering controls and work practices, protective measures during maintenance and repair, personal protective equipment, permissible exposure levels, threshold limit values listed by OSHA, the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH), or established company limits.
9. Physical and chemical properties	Appearance (i.e., physical state, color, etc.) Odor, odor threshold, pH, melting point, freezing point, initial boiling point and boiling range, flash point, evaporation rate, flammability (solid, gas), upper/lower flammability or explosive limits, vapor pressure, vapor density, relative density, solubility(ies), partition coefficient: *n*-octanol/water, auto-ignition temperature, decomposition temperature	Characteristics of hazardous chemicals such as vapor pressure and density. Physical hazards including the potential for fire, explosion, and reactivity.
10. Stability and reactivity	Chemical stability. Possibility of hazardous reactions. Conditions to avoid (e.g., static discharge, shock, or vibration). Incompatible materials. Hazardous decomposition products.	Organic peroxides, pyrophoric, unstable (reactive), or water-reactive hazards, physical hazards, including reactivity and hazardous polymerization.
11. Toxicological information	Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including: Information on the likely routes of exposure (e.g., inhalation, ingestion, skin and eye contact); Symptoms related to the physical, chemical, and toxicological characteristics; Delayed and immediate effects and also chronic effects from short- and long-term exposure; Numerical measures of toxicity, such as acute toxicity estimates.	See section 2: Hazards identification.

SDS Sections	GHS SDS	OSHA MSDS
12. Ecological information	Ecotoxicity (aquatic and terrestrial, where available): persistence and degradability, bioaccumulative potential, mobility in soil, and other adverse effects.	No present requirements.
13. Disposal considerations	Description of waste residues and information on their safe handling and methods of disposal, including any contaminated packaging.	No present requirements, See section 7: Handling and storage.
14. Transport information	UN number. UN proper shipping name. Transport hazard class(es). Packing group, if applicable. Marine pollutant (Y/N). 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.	No present requirements.
15. Regulatory information	Safety, health, and environmental regulations specific for the product in question.	No present requirements.
16. Other information	Other information including information on preparation and revision of the SDS.	Date of preparation of MSDS or date of last change

Appendix D:
Hazard Compatibility Code Matrix and Definitions

D.1. Introduction

The HCC matrix below facilitates shipboard HAZMAT compatibility evaluation. It is a supplement to, not a replacement for, consulting the SDS in each case. HCC definitions below describes the hazard group.

D.2. How to Use the Matrix

Determine the HCC for the specific item using HMIRs.

- Access the HMIRS here: http://www.dlis.dla.mil/hmirs/.

D.2.a. HAZMAT with Same HCC

Store items with the same HCC together, unless individual SDSs indicate otherwise.

NOTE: **Items with the same NSN can have different HCCs.**

D.2.b. HAZMAT with Different HCCs

Determine the compatibility between items with different HCCs.

D.2.b.(1). Find the Intersection

Locate one HCC along the left hand side of the matrix and the other along the bottom. Then, find where the two codes intersect.

D.2.b.(2). Interpret the Symbol

The symbol at the intersection indicates the compatibility as defined in the legend to the right of the matrix.

- [X]: Incompatible - stowage in the same compartment prohibited.
- [O]: Incompatible - minimum 3-foot separation.
- [#]: Consult MSDS for specific stowage requirements.
- [+]: Compatible - stowage together permitted.

D.2.c. Limited Storage Space

If there is an HCC pairing with a [+] symbol and there is no available space to store the new item, then:

- Relocate that item next to other HCCs that have a [+] symbol pairing.
- Relocate existing items on shelf to maximize [+] pairings.

NOTE: **Always seek first to separate flammable materials from oxidizing materials, then all other pairs with [X] symbols.**

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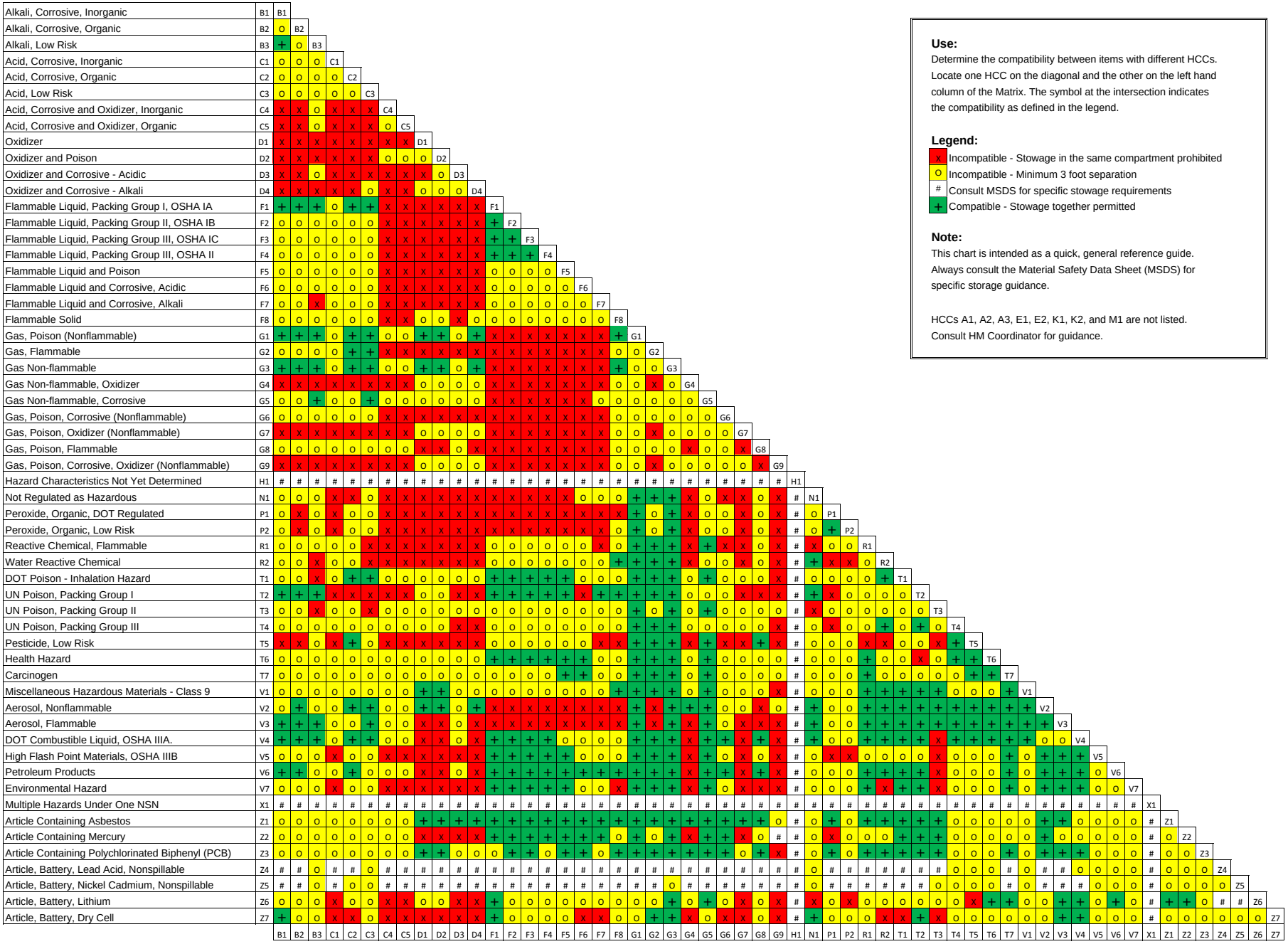

Use:
Determine the compatibility between items with different HCCs. Locate one HCC on the diagonal and the other on the left hand column of the Matrix. The symbol at the intersection indicates the compatibility as defined in the legend.

Legend:

x	Incompatible - Stowage in the same compartment prohibited
o	Incompatible - Minimum 3 foot separation
#	Consult MSDS for specific stowage requirements
+	Compatible - Stowage together permitted

Note:
This chart is intended as a quick, general reference guide. Always consult the Material Safety Data Sheet (MSDS) for specific storage guidance.

HCCs A1, A2, A3, E1, E2, K1, K2, and M1 are not listed. Consult HM Coordinator for guidance.

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HCC Definitions

This table is copied from the following web source:

http://www.ilpi.com/msds/ref/hcc.html

See webpage for updates.

HCC	Hazard Group, Comments
A1	**Radioactive, Licensed** Any radioactive material that requires the issuance of a specific or general license, according to Title 10, Code of Federal Regulations (CFR), to persons who manufacture, produce, transfer, receive, possess, acquire, own, or use by-product material.
A2	**Radioactive, License Exempt** Any radioactive material that does not require the issuance of a specific or general license according to Title 10, CFR, Parts 30 and 40.
A3	**Radioactive, License Exempt, Authorized** Radioactive material, exempt from specific or general license requirements of Title 10, CFR, but for which the appropriate military services or agency representative has determined that an authorization or permit is required for the receipt, transfer, ownership, possession, or use. Included are electron tubes, smoke detectors, or other devices containing material not exceeding the Nuclear Regulatory Commission (NRC) license-exempt quantities.
B1	**Alkali, Corrosive, Inorganic** An inorganic alkali (not hydrocarbon based), either liquid or solid, meeting the definition of a corrosive material (Class 8) under DOT Title 49, Section 173.136, or EPA 40 CFR 370.2, or OSHA 1910.1200, Appendix A that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or aluminum.
B2	**Alkali, Corrosive, Organic** An organic alkali (hydrocarbon based), either liquid or solid, meeting the definition of a corrosive material (Class 8) under DOT Title 49, Section 173.136, or EPA 40 CFR 370.2, or OSHA 1910.1200, Appendix A that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or aluminum.

B3	**Alkali, Low Risk** A liquid or solid product that exhibits alkali (caustic/basic) properties and does not meet the definition of HCCs B1 or B2 but which through experience or through documentation on the MSDS or product bulletin would cause severe skin or eye irritation, dermatitis, or allergic skin reaction.
C1	**Acid, Corrosive, Inorganic** An acid (not hydrocarbon based), either liquid or solid, meeting the definition of a corrosive material (Class 8) under DOT Title 49, Section 173.136, or EPA 40 CFR 370.2, or OSHA 1910.1200, Appendix A that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or aluminum.
C2	**Acid, Corrosive, Organic** An acid (hydrocarbon based), either liquid or solid, meeting the definition of a corrosive material (Class 8) under DOT Title 49, Section 173.136, or EPA 40 CFR 370.2, or OSHA 1910.1200, Appendix A that causes visible destruction or irreversible alterations in human skin tissue at the site of contact, or a liquid that has a severe corrosion rate on steel or aluminum.
C3	**Acid, Low Risk** A liquid or solid product that exhibits acidic properties and does not meet the definition of HCCs C1 or C2 but which through experience or through documentation on the MSDS or product bulletin would cause severe skin or eye irritation, dermatitis, or allergic skin reaction.
D1	**Oxidizer** A material regulated as an oxidizer, UN Class 5.1, by DOT under 49 CFR 173.127 or is listed in Section 43A of the National Fire Protection Association (NFPA) Fire Codes Subscription Service as a Class 1, 2, 3, or 4 oxidizer other than a compressed gas, that can undergo an explosive reaction when catalyzed or exposed to heat, shock, or friction; or cause a severe increase in the burning rate of combustible material with which it comes in contact; or which undergoes vigorous self-sustained decomposition when catalyzed or exposed to heat; or moderately increases the burning rate or which may cause spontaneous ignition of combustible or flammable material with which it comes in contact.
D2	**Oxidizer and Poison** An oxidizing material (HCC D1), other than a compressed gas (HCC G4), that also meets the definition of a poison (HCCs T1, T2, T3, or T4).
D3	**Oxidizer and Corrosive - Acidic** An oxidizing material (HCC D1), other than a compressed gas (HCC G4), that also meets the definition of a corrosive material, acidic (HCC C1 or C2).

D4	**Oxidizer and Corrosive - Alkali** An oxidizing material (HCC D1), other than a compressed gas (HCC G4), that also meets the definition of a corrosive material, alkali (HCC B1 or B2).
E1	**Explosives, Military** Items classed as explosives, UN Class 1, Division 1.1, 1.2, 1.3, 1.4 (except 1.4S), and 1.5 as defined in 49 CFR 173.50 and all military explosives identified by a Department of Defense ammunition code (DODAC).
E2	**Explosives, Low Risk** Items classed as explosives, UN Class 1, Division 1.4S and 1.6, as defined in 49 CFR 173.50. Division 1.4S consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.
F1	**Flammable Liquid, Packing Group I, OSHA IA** A product meeting the definition of a flammable liquid (UN Class 3) under 49 CFR 173.120 and classed as a Packing Group I under 49 CFR 173.121 with an initial boiling point less than or equal to 95 °F (35 °C). Included in this definition are OSHA IA liquids, except those that have a boiling point between 95 °F and 100 °F. The definitions for OSHA classes of flammable liquids are found in 29 CFR 1910.106.
F2	**Flammable Liquid, Packing Group II, OSHA IB** A product meeting the definition of a flammable liquid (UN Class 3) under 49 CFR 173.120 and classed as a Packing Group II under 49 CFR 173.121 with an initial flash point less than 73 °F (23 °C) and an initial boiling point of more than 95 °F (35 °C). Included in this definition are OSHA IB liquids and the balance of OSHA IA liquids with boiling points between 95 °F and 100 °F.
F3	**Flammable Liquid, Packing Group III, OSHA IC** A product meeting the definition of a flammable liquid (UN Class 3) under 49 CFR 173.120 and classed as a Packing Group III under 49 CFR 173.121 with an initial flash point greater than or equal to 73 °F (23 °C) but less than 100 °F (38 °C). Included in this definition are OSHA IC liquids.
F4	**Flammable Liquid, Packing Group III, OSHA II** A product meeting the definition of a flammable liquid (UN Class 3) under 49 CFR 173.120 and classed as a Packing Group III under 49 CFR 173.121 but with a flash point greater than or equal to 100°F (38 °C) but less than 141 °F (60.5 °C). Included in this definition are OSHA II liquids.
F5	**Flammable Liquid and Poison** UN Class 3 flammable liquids (HCCs F1, F2, F3, or F4) that also have the hazards of UN division 6.1, poisons (HCCs T1, T2, T3, T4, or T6).

F6	**Flammable Liquid and Corrosive, Acidic** UN Class 3 flammable liquids (HCCs F1, F2, F3, or F4) that also have the hazards of UN Class 8 corrosive materials and are acidic in nature meeting the definition of HCC C1 or C2.
F7	**Flammable Liquid and Corrosive, Alkali** UN Class 3 flammable liquids (HCCs F1, F2, F3, or F4) that also have the hazards of United Nations Class 8 corrosive materials and are alkali (caustic/basic) in nature meeting the definition of HCC B1 or B2.
F8	**Flammable Solid** Any product which is required to be shipped as UN Class 4.1 under 49 CFR 173.124 which under conditions typically associated with transportation or storage is likely to cause fires through friction, retained heat from manufacturing or processing, or which can be readily ignited and when ignited burns so vigorously and persistently as to create a serious transportation hazard.
G1	**Gas, Poison (Nonflammable)** Any product which is required to be shipped as UN Class 2.3 under 49 CFR 173.115(c) (gas poisonous by inhalation) and is required to be marked "Inhalation Hazard" under 49 CFR 172.313.
G2	**Gas, Flammable** Any product, other than a flammable aerosol, which is required to be shipped as a UN Class 2.1 (flammable gas) under 49 CFR 173.115 (a).
G3	**Gas Nonflammable** Any product (includes compressed gas, liquefied gas, pressurized cryogenic gas, and compressed gas in solution) which is required to be shipped as UN Class 2.2 under 49 CFR 173.115 (b). A nonflammable, non-poisonous compressed gas.
G4	**Gas Nonflammable, Oxidizer** Meets the definition of a nonflammable gas (HCC G3), except is an oxidizer; does not meet the definition of poison gas (HCC G1) or flammable gas (HCC G2); and requires an oxidizer label and a nonflammable gas label for transportation under 49 CFR.
G5	**Gas Nonflammable, Corrosive** Meets the definition of a nonflammable gas (HCC G3), except it is corrosive; does not meet the definition of poison gas (HCC G1) or flammable gas (HCC G2); and requires a corrosive label and a nonflammable gas label for transportation under 49 CFR.

G6	**Gas, Poison, Corrosive (Nonflammable)** Meets the definition of a nonflammable gas (HCC G3), except it is poisonous and corrosive; does not meet the definition of a flammable gas (HCC G2) or an oxidizing gas (HCC G4); meets the definition of a poison gas (HCC G1); and requires a corrosive label and a poison gas label for transportation under 49 CFR.
G7	**Gas, Poison, Oxidizer (Nonflammable)** Meets the definition of a nonflammable gas (HCC G3), except it is oxidizing and poisonous; does not meet the definition of a flammable gas (HCC G2) or a corrosive gas (HCC G5); meets the definition of a poison gas (HCC G1); and meets the definition of an oxidizing gas (HCC G4)
G8	**Gas, Poison, Flammable** Any product which is required to be shipped as a UN Class 2.3 under 49 CFR 173.115(c) (gas, poisonous by inhalation), is required to be marked "Inhalation Hazard" under 49 CFR 172.313, and meets the definition of a flammable gas (HCC G2).
G9	**Gas, Poison, Corrosive, Oxidizer (Nonflammable)** Meets the definition of a nonflammable gas (HCC G3), except it is poisonous, oxidizing, and corrosive; does not meet the definition of a flammable gas (HCC G2); meets the definition of a poison gas (HCC G1) and an oxidizer gas (HCC G4); and requires a corrosive label, an oxidizer label, and a poison gas label for transportation under 49 CFR.
H1	**Hazard Characteristics Not Yet Determined** Definitive hazard characteristics are not yet determined. The source of this code is the Federal Logistics Information System (FLIS).
K1	**Infectious Substance** A viable micro-organism, or its toxin, which causes or may cause animal or human disease as published in Title 42 CFR, Section 72.3. Includes infectious substances affecting animals only (UN 2900), infectious substances affecting humans (UN 2814), and etiologic agent, not otherwise specified (N.O.S.) (NA 2814).
K2	**Cytotoxic Drugs** Antineoplastic (chemotherapy) drugs used in the treatment of cancer and determined and listed by the Directorate of Medical Material, Defense Supply Center Philadelphia, Philadelphia, PA.
M1	**Magnetized Material** Any material meeting the definition of a magnetized material as defined in the International Air Transport Association (IATA) regulations 3.9.1.3. The best method for determining magnetic properties is specified in IATA Packing Instruction 902, Method 2.
N1	**Not regulated as Hazardous** Any material, which does not meet the definition of any other HCC, is not

	regulated as hazardous by any regulatory organization, and through technical evaluation is generally regarded as nonhazardous for storage. Supporting documentation regarding the lack of storage hazards must be available through documents such as the MSDS, product labels, manufacturer's literature, and the advisory sources listed in Appendix C of 29 CFR 1910.1200, OSHA Hazard Communication Standard. Note: This rating does not reflect the hazards associated with the actual use of the item.
P1	**Peroxide, Organic, DOT Regulated** A product classed as a UN Class 5.2 (organic peroxide) by the US DOT as defined in 49 CFR 173.128 and listed in the Organic Peroxides Table in 49 CFR 173.225 and defined in NFPA Code 43B as NFPA Classes I, II, or III organic peroxides based on information provided by the supplier or manufacturer.
P2	**Peroxide, Organic, Low Risk** A product that is an organic peroxide that is not regulated by the US DOT and meets the definition of NFPA Code 43B, Class IV organic peroxides that burn as ordinary combustibles and present minimal reactivity hazard. Class IV formulations present fire hazards that are easily controlled. Reactivity has little effect on fire intensity. Also included are organic peroxides that are not regulated by the US DOT and meet the definition of NFPA Code 43B, Class V organic peroxides. Class V formulations do not themselves burn and do not present a decomposition hazard. This definition includes organic peroxides regulated by the FDA.
R1	**Reactive Chemical, Flammable** Any product meeting the definition of UN Class 4.2 (spontaneously combustible) as defined in 49 CFR 173.124(b), which is likely to heat spontaneously under conditions normal to transportation or storage, or is likely to heat up in contact with air and catch fire. Included in this group are pyrophoric liquids that ignite spontaneously in dry or moist air at or below 130 °F (54.4 °C) as defined in 29 CFR 1910.1200.
R2	**Water Reactive Chemical** Any product meeting the definition of UN Class 4.3 (dangerous when wet) as defined in 49 CFR 173.124(c), which on interaction with water, is liable to become spontaneously ignitable or to give off flammable gases in dangerous quantities.
T1	**DOT Poison-Inhalation Hazard** A material, other than a poisonous gas (HCC G1), meeting the definition of UN Class 6.1 (Poisonous Material) under 49 CFR 173.132(a)(1)(iii) and assigned to Hazard Zone A or B per 49 CFR 173.133(a) and required to be marked or labeled "Inhalation Hazard" under 49 CFR 172.313 or 49 CFR 172.416 or 49 CFR 172.429.

T2	**UN Poison, Packing Group I** A material, other than a poisonous gas (HCC G1) or poison-inhalation hazard (HCC T1), that is classed as a UN Class 6.1 (poisonous material), that for packing purposes has been assigned Packing Group I (Great Danger) as defined in 49 CFR 173.133 (a)(1).
T3	**UN Poison, Packing Group II** A material, other than a poisonous gas (HCC G1) or poison-inhalation hazard (HCC T1), that is classed as a UN Class 6.1 (poisonous material), that for packing purposes has been assigned Packing Group II (Medium Danger) as defined in 49 CFR 173.133 (a)(1).
T4	**UN Poison, Packing Group III** A material, other than a poisonous gas (HCC G1) or poison-inhalation hazard (HCC T1), that is classed as a UN Class 6.1 (poisonous material), that for packing purposes has been assigned Packing Group III (Minor Danger) as defined in 49 CFR 173.133 (a)(1) 1) and may be labeled "Keep Away From Food."
T5	**Pesticide, Low Risk** Any product meeting the definition of a pesticide or pesticide product as defined in 40 CFR 152.3 which is in Toxicity Categories II, III, or IV as specified for warning label purposes in 40 CFR 156.10(h) and is not otherwise classed as a hazardous material under 49 CFR, and does not meet the definition of any other HCC.
T6	**Health Hazard** Any product defined as hazardous in 29 CFR 1910.1200, which cannot be assigned any other HCC and which is supported by documentation such as an MSDS or product bulletin, or through experience is a known health hazard. Although the primary purpose of the HCCs is to assure safe storage of products, pollution prevention may also be considered. This HCC does not denote hazards associated with the actual use of the item.
T7	**Carcinogen** A material not meeting the definition of any other HCC and which meets the definition of a carcinogen under the OSHA Hazard Communication standard and is so specified on the MSDS.

V1	**UN Class 9 Miscellaneous Hazardous Materials** Materials meeting the definition of a UN Class 9 material as defined in Title 49 CFR, Section 173.140, the UN IMDG Code, or the IATA Dangerous Goods Regulations. This category includes any material which has anesthetic, noxious, or other similar properties that could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties. It also includes any material designated as a hazardous substance with a reportable quantity (RQ) listed in Title 49 CFR, Section 172.101 Appendix A, an elevated temperature material, a hazardous waste, or a marine pollutant which does not meet the definition of any other transportation hazard class.
V2	**Aerosol, Nonflammable** An aerosol product not exceeding 1-liter capacity which can be shipped under the shipping name "Aerosols, Nonflammable" Hazard Class 2.2
V3	**Aerosol, Flammable** An aerosol product not exceeding 1-liter capacity which can be shipped under the shipping name "aerosols, flammable" Hazard Class 2.1, UN1950 or the shipping name "Consumer Commodity," ORM-D, as specified in 49 CFR 173.306 (h). Included are International Civil Aviation Organization (ICAO) flammable non-refillable receptacles made of metal, glass, or plastic and containing a gas compressed, liquefied, or dissolved under pressure, with or without a liquid, paste, or powder, and fitted with a self-closing release device allowing the contents to be ejected as solid or liquefied particles in suspension in a gas, as a foam, paste, or powder, or in a liquid or gaseous state. Excluded are refillable compressed gas cylinders or flasks which are assigned a "G" series code.
V4	**DOT Combustible Liquid, OSHA IIIA.** Any product that does not meet the definition of any other hazard class or HCC and has a flash point (closed cup) above 141 °F (60.5 °C) and at or below 200 °F (93 °C). OSHA Class IIIA items are included in this definition.
V5	**High Flash Point Materials, OSHA IIIB** Materials, not meeting the definition of any other HCC, that have a flash point above 200 °F (93 °C). Excluded from this definition are petroleum oils and lubricants (POLs) as they have a separate HCC (V6). OSHA Class IIIB liquids are included in this definition.
V6	**Petroleum Products** Materials, not meeting the definition of any other HCC, containing petroleum products which could cause an environmental hazard if spilled on water or land. This category includes oils, greases, and lubricants that could be categorized in Federal Supply Class 9150 or 9160 as defined in the Federal Supply Classification Cataloging Handbook H2-1.

V7	**Environmental Hazard** Materials, not meeting the definition of any other HCC, which contain an extremely hazardous substance listed in 40 CFR, Part 355, Appendix A or B, or a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substance listed in 40 CFR, Part 302.4, or a toxic chemical listed in 40 CFR, Part 372.65. In deciding whether or not a product falls into this category, determine if the concentration of a chemical exceeds the established de minimis limits which compare to the requirement for reporting the existence of the chemical under 29 CFR 1910.1200 section (g)(2)(i)(C)(1).
X1	**Multiple Hazards Under One National Stock Number (NSN)** System generated code to reflect the existence of more than one HCC for an NSN. Different products under the NSN can have different hazards and consequently different HCCs.
Z1	**Article Containing Asbestos** An article per 29 CFR 1910.1200 which contains asbestos, or an item containing asbestos which under conditions of storage would not be expected to release hazardous materials and would not pose a physical hazard or health risk to employees. This category includes asbestos gaskets, brake shoes, or other products in which the asbestos is bound or otherwise immobilized to the point that exposure to personnel in a storage environment is minimal.
Z2	**Article Containing Mercury** An article per 29 CFR 1910.1200 which contains mercury, or an item containing mercury which under conditions of storage would not be expected to release hazardous materials and would not pose a physical hazard or health risk to employees. This category includes electron tubes, mercury switches and relays, mercury vapor lamps and tubes, fluorescent lamps, manometers, pumps, thermometers, or other devices in which the mercury is contained in such a fashion that exposure to personnel in a storage environment is minimal. For batteries which contain mercury, use HCC Z7.
Z3	**Article Containing Polychlorinated Biphenyl (PCB)** An article per 29 CFR 1910.1200 which contains polychlorinated biphenyls (PCB), or an item containing PCB which under conditions of storage would not be expected to release hazardous materials and would not pose a physical hazard or health risk to employees. This category includes transformers, capacitors, or other devices in which the PCBs are contained in such a fashion that exposure to personnel in a storage environment is minimal.

Z4	**Article, Battery, Lead Acid, Nonspillable** A nonspillable battery consisting of a lead anode, a lead dioxide cathode, and sulfuric acid electrolyte that is designed and constructed so as to positively prevent leakage of the electrolyte, irrespective of the position of the battery. It must meet the definition of a "nonspillable battery" as defined in 49 CFR, Section 173.159(d).
Z5	**Article, Battery, Nickel Cadmium, Nonspillable** A nonspillable battery consisting of a cadmium anode, a nickel oxyhydroxide cathode, and potassium hydroxide electrolyte that is designed and constructed so as to positively prevent leakage of the electrolyte, irrespective of the position of the battery. It must meet the definition of a "nonspillable battery" as defined in 49 CFR, Section 173.159(d).
Z6	**Article, Battery, Lithium** A nonspillable battery consisting of a lithium anode, a solid or liquid cathode, and electrolyte that is designed and constructed so as to positively prevent leakage of the electrolyte, irrespective of the position of the battery. The battery must meet the conditions established by 49 CFR, 173.185.
Z7	**Article, Battery, Dry Cell** A sealed, non-vented battery containing electrolyte immobilized in the form of a paste or gel and not regulated for transportation by 49 CFR.

Appendix E:
Hazardous Materials and Appropriate Containers

Hazardous Materials	Approved Container
Chlorinated Cleaning Solvents:	
• Perchlorethylene	Steel drum (b/v)
• Trichlorethane	Tin or steel can; steel drum (b/v)
• Trichloroetylene	Tin or steel can; steel drum (b/v)
• Trichlorourethane	Tin or steel can; steel drum (b/v)
• Mercury and mercury compounds	Plastic bottle
• Polychlorinated biphenyls (PCBs)	Polyethylene-lined steel drum; plastic-lined steel drum; steel drum (b/v, r/c)[1]
Fluorocarbon Compounds:	
• Dichlorodifluoromethane	Original gas cylinder
• Trichlorotrifluoroethane	Steel drum
Organic Cleaning Solvents (Non-Chlorinated):	
• Acetone	Tin can; steel drum (b/v)
• Ethyl acetate	Steel drum (b/v)
• Kerosene	Steel drum (b/v)
• Methyl ethyl ketone	Steel drum (b/v)
• Morpholine (40%)	Tin can; steel drum (b/v)[2]
• Naptha	Steel drum (b/v)
• Stoddard solvent	Steel drum (b/v)
• Toluene	Tin can; steel drum (b/v)
• Turpentine	Tin can; steel drum (b/v)
• Xylene	Tin can; steel drum (b/v)
Oxidizing Materials:	
• Ammonium dichromate	Plastic bottle; plastic-lined steel drum
• Ammonium nitrate	Plastic bottle; plastic-lined steel drum
• Calcium hypochlorite	Plastic bottle; plastic-lined steel drum
• Chromic acid	Glass carboy
• Hydrogen peroxide	Plastic bottle; plastic-lined steel drum
• Mercurous nitrate	Plastic bottle; plastic-lined steel drum
• Potassium dichromate	Plastic bottle; plastic-lined steel drum
• Potassium nitrate	Plastic bottle; plastic lined steel drum
• Potassium permanganate	Plastic bottle; plastic-lined steel drum
• Potassium superoxide (oxygen breathing apparatus canister)	Fiberboard box
• Silver nitrate	Plastic bottle; plastic-lined steel drum
• Sodium chromate	Plastic bottle
• Sodium nitrate	Plastic bottle; plastic-lined steel drum
• Sodium nitrite	Plastic bottle; plastic-lined steel drum

Acids	
• Acetic acid	Plastic bottle; plastic-lined steel drum
• Acetic acid, glacial	Plastic bottle
• Batteries (lead acid)	Steel drum[3]
• Battery acid (sulfuric)	Plastic bottle; plastic-lined steel drum[2]
• Citric acid	Plastic bottle[2]
• Compound, boiler passivator	Plastic-lined steel drum (oxalic acid)
• Compound, descaler (caustic/acid)	Plastic-lined steel drum
• Formic acid (nickel electroplating solution)	Plastic bottle; plastic-lined steel drum
• Hydrochloric acid	Plastic bottle[2]
• Nitric acid	Glass carboy
• Paint remover (caustic)	Plastic bottle; plastic-lined steel drum
• Sulfamic acid, solid	Plastic-lined steel drum
• Sulfamic acid, solution	Plastic bottle; plastic-lined steel drum
• Sulfuric acid	Clear carboy; plastic bottle; plastic-lined steel drum
Alkalines:	
• Ammonia solution	Plastic bottle
• Sodium hydroxide, solid	Steel drum (r/c)
• Sodium hydroxide, solution	Steel can; steel drum (b/v)[2]
Alcohols:	
• Ethylene glycol	Plastic-lined steel drum
• Ethyl alcohol	Plastic bottle
• Isopropyl alcohol	Plastic bottle
• Methyl alcohol	Plastic bottle
Non-Fuel Oils and Lubricants:	
• Grease (ball bearings, general purpose, graphite, halocarbon)	Steel drum (r/c)
• Hydraulic fluid (petroleum)	Steel drum (r/c)
• Hydraulic fluid (synthetic)	Epoxy-lined steel can; plastic-lined steel drum
• Molybdenum graphite, dry-lube	Steel drum (r/c)
• Oil, cutting (synthetic)	Epoxy-lined steel can
• Oil, liquid coolant (synthetic)	Epoxy-lined steel can
• Oil, NOS	Steel drum (b/v)
General Adhesives	Steel drum
Epoxy and Acrylic Resins Painting Supplies:	
• Lacquers	Tin or steel can; steel drum (b/v)
• Paint, enamel	Steel drum (b/v)
• Thinner (organic)	Tin or steel can; steel drum
• Varnish, insulating electrical	Steel drum (b/v)
• Varnish, VOS	Steel drum (b/v)

• Varnish, phenolic resin	Steel drum
Abbreviations: • b/v = bung and vent • r/c = removable cover	

1. Whenever possible, reuse the Department of Transportation-approved container used in the original issue of the material. Container openings specified are for storage of those materials that are characteristically either liquid, semi-solid, or solid. Some materials (for example, silicone compounds) may appear in more than one state, depending upon usage. Make the choice of openings for containers used to hold those materials on a case-by-case basis.

2. No standard container proposed. Containers may vary from 5- to 55- gallon drums to large bulk tanks.

3. Bulk usage is probable in large scale operations.

NATIONAL STOCK NUMBERS FOR HAZMAT CONTAINERS

Type	**NSN**	**Item Description**	**Applicable Specifications**
Bag	8105-00-848-9631	Polyolefin, single wall, 5 mil, 36 in. x 54 in., flat, wire tie	PPP-B-26 TY 2
Plastic bottle	8125-00-174-0852	Polyethylene, 1-gal, round, screw cap closure	MIL-B-26701
	8125-00-731-6016	Polyethylene, 13-gal, round, screw cap closure	Not available
	8125-00-888-7069	Polyethylene, 5-gal, round screw cap closure	Not available
Fiberboard box	8115-01-012-4597	Fiberboard, RSC style, 34 in. x 26 in. x 16 in., burst-strength 400 lb	DOT 2 C PPP-B636 TY 5 CL4
Tin can	8110-00-879-7182	Tin, 1-gal, oblong, screw cap closure, enamel outside surface treatment	DOT 2F PPP-C-96
Steel can, lined	8110-00-128-6819	Steel, 24-gauge, 1-gal, screw cap with neoprene liner closure, epoxy resin interior lining	DOT 17C
	8100-00-400-5748	Steel, 24-gauge, 5-gal, screw cap with neoprene liner closure, epoxy resin interior lining	DOT 17C PPP-P704 TY1 CL4, 11
Glass carboy	8125-00-598-9380	Glass, 5-gal, wood box over-pack	MIL-C-17932 TYB
Steel drum	8100-00-030-7780	Steel, 16-gauge, 55-gal, removable cover with lock-ring, enamel outside surface treatment	DOT 17H PPP-D729

Steel drum (continued)	8110-00-823-8121	Steel, 18-gauge, 55-gal, removable cover with lock-ring, enamel outside surface treatment	DOT 17H PPP-D729
	8110-01-101-4055	Hazardous material recovery, 85-gal, open head	None
	8110-01-101-4056	Hazardous material recovery, 85-gal, open head	None
Steel drum with bung and vent	8110-00-282-2520	Steel, 5-gal, enamel exterior treatment	PPP-D-704 TY 1CL8
	8110-00-292-9738	Steel, 18-gauge, 55-gal, with bung and enamel outside surface treatment	DOT 17E PPP-D729 TY 2
	8110-00-597-2353	Steel, 16-gauge, 55-gal, with bung and paint exterior surface treatment	DOT 17E PPP-D729
Plastic liner	8115-00-145-0038	Liner, polyethylene, 5-gal, to be used with 5-gal steel drum	DOT 25 MIL-D40030 PPP-C00569
Plastic drum		Polyethylene, 5-or 55-gal, used to contain AFFF, reusable if in good condition, triple rinsed, and properly relabeled.	PPP-C-1337

Appendix F:
HAZMAT Locker Inspection and Follow-Up Checklist

F.1. Creating Checklists

Follow these links to find PDF files of this checklist, or make a copy from the pages of this publication.

- http://www.uscg.mil/forcecom/ttp/downloads/HAZMAT_Locker_Inspection_and_FollowUp_Checklist_Printable.pdf (For printing and filling out by hand.)
- http://www.uscg.mil/forcecom/ttp/downloads/HAZMAT_Locker_Inspection_and_FollowUp_Checklist_Fillable.pdf (For filling out electronically. Includes text fields and drop-down menus.)

Locker No.:	Locker Location:	Inspector:	Date:

#	Inspection Item	Reference	Remarks	SAT/UNSAT
1	Locker is NSTM approved.[1,2]	NSTM 670, Vol. 2		
2	Locker NOT installed in a living, berthing, or food preparation space.[2]	NSTM 670, Vol. 2		
3	Locker is located a minimum of 6 inches from the bulkhead.[2]	NSTM 670, Vol. 1		
4	Locker is attached to the deck.[2,3]	NSTM 670, Vol. 2		
5	Ventilation space of 1 to 1.5 inches exists under locker.	NSTM 670, Vol. 2		
6	Flammable warning/strip ship condition label affixed.	NSTM 670, Vol. 1		
7	Warning label for hazardous material space is affixed.[4]	NSTM 670, Vol. 1		
8	Stowage limit not exceeded (15 gal/locker), total locker stowage limit per space is 30 gal/space.	NSTM 670, Vol. 2.		
9	Self-closing door closes without assistance and is not damaged.	NSTM 670, Vol. 1		
10	Rubber seal around door is in good condition and securely affixed. [5]	N/A		

Locker No.	Locker Location	Inspector:	Date:

#	Inspection Item	Reference	Remarks	SAT/UNSAT
11	Shelving is stable, and no evidence of a spill exists.	NSTM 670, Vol. 1		
12	Stowed material is labeled correctly.	NSTM 670, Vol. 1		
13	Material stowed in locker matches locker inventory.	NSTM 670, Vol. 1		
14	HAZMAT in locker is verified as authorized.	CIM 16455.1 (series)		
15	SDS/MSDS for the stowed material are on file and available in the work-center.	CIM 16455.1 (series)		
16	Stowed HAZMAT within the locker is compatible.	NSTM 670, Vol. 2		
17	Incompatible material is stored in separate lockers, having a minimum separation of 3 feet.	NSTM 670, Vol. 1		
18	Required PPE is located in the work-center.	NSTM 670, Vol. 1		

Work-Center Rep Signature:	Inspector Signature:

Footnotes:
1. All satellite lockers are required to be Grade B shock approved.
2. Indicates a pre-installation criteria inspection item.
3. Locker may not be secured to any furniture or any bulkhead.
4. Applicable to spaces such as battery and refrigeration.
5. The bottom of the door seal is typically the first part to exhibit signs of damage.

Do a follow-up inspection within 24 hours if any of the inspection items are UNSAT.

Form continues on next page for follow-up inspections.

Inspector:	Safety Officer:	Date:
Do all inspection items rated UNSAT now rate SAT? YES/NO		If YES, file checklist.
If NO, list the inspection number (1-19) and explain the deficiency and why it has not been addressed. Attach additional pages and documentation as necessary.		
Work-Center Rep Signature:	Inspector Signature:	
Report any inspection item UNSAT after follow-up to the responsible division head and the CO. If warranted, suspend the locker from use, removing all HAZMAT and relocating it to a safe stowage location until the deficiencies are resolved.		

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Appendix G: Templates

G.1. Templates with Sample Data

These templates provide guidance for creating lists and inventories. The cells appear pre-filled with data as an example.

G.1.a. Vessel HAZMAT Inventory template.

Vessel HAZMAT Inventory						
Ref #	Material Name	Manufacturer's Name and Address	NIIN/NSN	Product Location(s) on Vessel	Container Size and Type	Quantity
1	Antiseize Compound	Bostik, Inc. 211 BOSTON ST MIDDLETON, MA 01949-2128 UNITED STATES	001050270	Locker 1	1-pound can with brush top	1 pound
2	Threadlocker, Adhesive, JBAIDS	Biofire Diagnostics, Inc.	015242547	Locker 2 and 4	10.0-ml bottle 10 / case	200.0 ml / 2 cases
3	Grease, Silicone	Insulated Electric Motor Foam Seal, Inc.	002575358	Locker 1,2 and 5	20-oz tube	3 tubes

Table G-1 Vessel HAZMAT Inventory template

G.1.b. HAZMAT Locker Inventory template.

Locker Inventory				
Locker Number_____1_____ **Locker Location:** ____Battery Shop 2-225-2_____				
Ref #	**Material Name**	**NSN/NIIN**	**Authorized on list**	**Maximum Quantity**
1	Antisieze Compound	001050270	ACL	l-lb
5	Organic Cleaner / Degreaser	6850-01-505-7711	NAVSEA catalog	4 - 1 GL/case
38	Sigmaguard BT Primer 5404	8010-01-470-7107	SFLC Std. Spec. 6310	1.0 gal

Table G-2 HAZMAT Locker Inventory template

G.1.c. Master Locker Location List template.

Master Locker Location List							
#	**Locker Location**	**Type: Flammable/ Corrosive**	**Dept/ Div**	**Work-Center Rep.**	**J-Dial**	**Status**	**Status Since Date**
1	Battery Shop 2-225-2	Corrosive		AN Micaela Blonzetti	4767	In-Use	4MAR2014
2	Jet Shop 1-125-4	Flammable		BM3 Michael West	8254	Suspended	1APR2014
3	Machine Shop 4-100-6	Flammable		MMC Jorge Jimenez		In-Use	7DEC2000

Table G-3 Master Locker Location List template

G.1.d. Satellite Locker Program Trained Personnel List template.

Satellite Locker Program Trained Personnel List		
Name	**Date of Assignment**	**Date Training Completed**
BMC Eddie Bobby	26MAR2004	27MAR2004
LTJG Amy Tan	9APR2005	10APR2005

Table G-4 Satellite Locker Program Trained Personnel List template

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