



Battery Reporting Guidance

March 29, 2022, 11:00 – 12:00



24th California Unified Program
Annual Training Conference
March 22, 23, 24, 29, 30, 31 - 2022

Introduction

- San Mateo County Env. Health, CUPA inspector: 6 years
 - Private industry
 - EH&S Consulting



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Objective

- Provide guidance on how to report “any” battery in CERS.
- Discuss the guidance document.
- Not talking about battery chemistry or technology



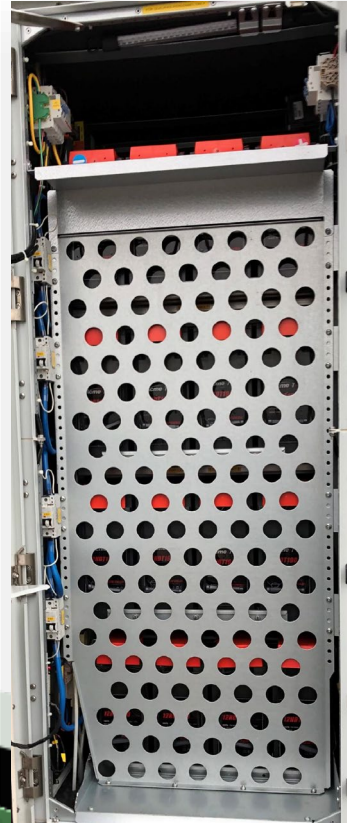
Poll Question 2 - Multiple choice question

Why are you interested in battery reporting?

- a. I'm a regulator / Inspector.
- b. I'm a business, consultant, or industry rep. who needs to know how to report them.
- c. Other



Am I required to report this?



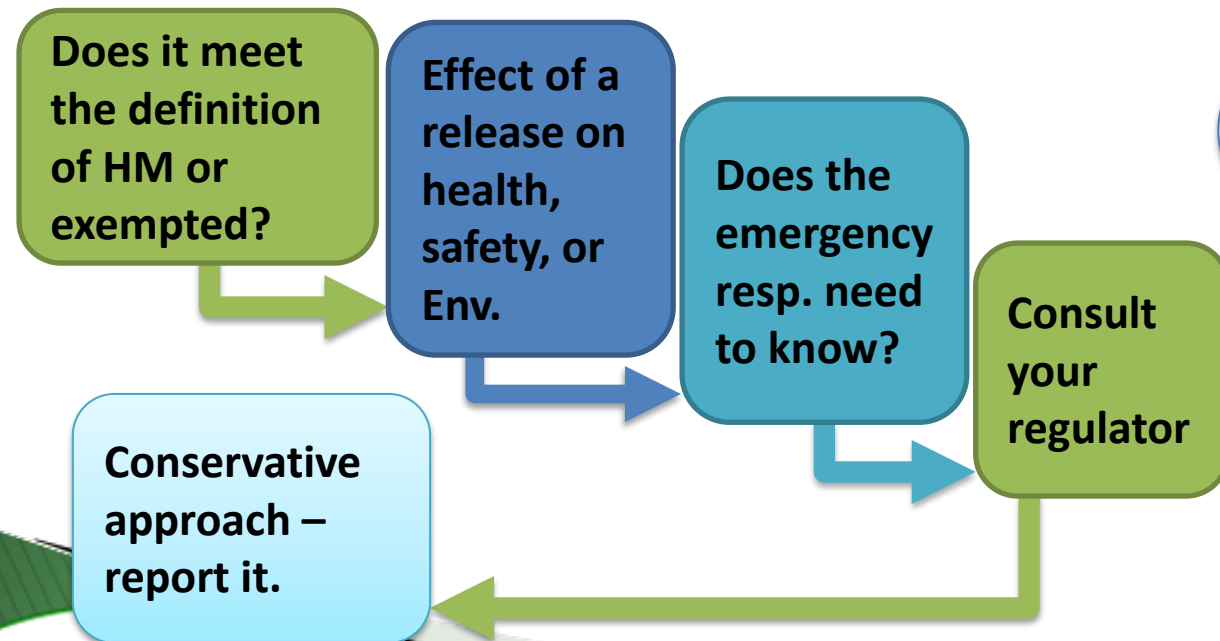
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Poll Question 1: WORD CLOUD

- What are some things you consider when deciding if it is reportable?



Report it or not?



Consider:

1. Nature of business.
2. Proximity to people or sensitive sites.
3. Potential damage that the hazardous material may cause.



[CCR Title 19 2650-2660](#)
[HSC 25503](#)

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Agenda

- Flow chart + guidance document. *2011 template
- The workgroup
- The critical issues and hurdles.
- How to report batteries



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Why now?

- Renewable energy storage
- Grid flexibility & Stability
- Consumer electronic devices
- Utilities and infrastructure



UPAAG Approved



UNIFIED PROGRAM
ADMINISTRATION AND
ADVISORY GROUP (UPAAG)

HAZARDOUS MATERIALS BUSINESS PLAN (HMBP)
STEERING COMMITTEE

HAZARDOUS MATERIALS BUSINESS PLAN (HMBP)
TECHNICAL ADVISORY GROUP

BATTERY REPORTING GUIDANCE

FOR

UNIFIED PROGRAM AGENCIES

Edition:
March 10, 2022

UPAAG Adopted Date:
March 10, 2022

California Unified Program
Training Conference
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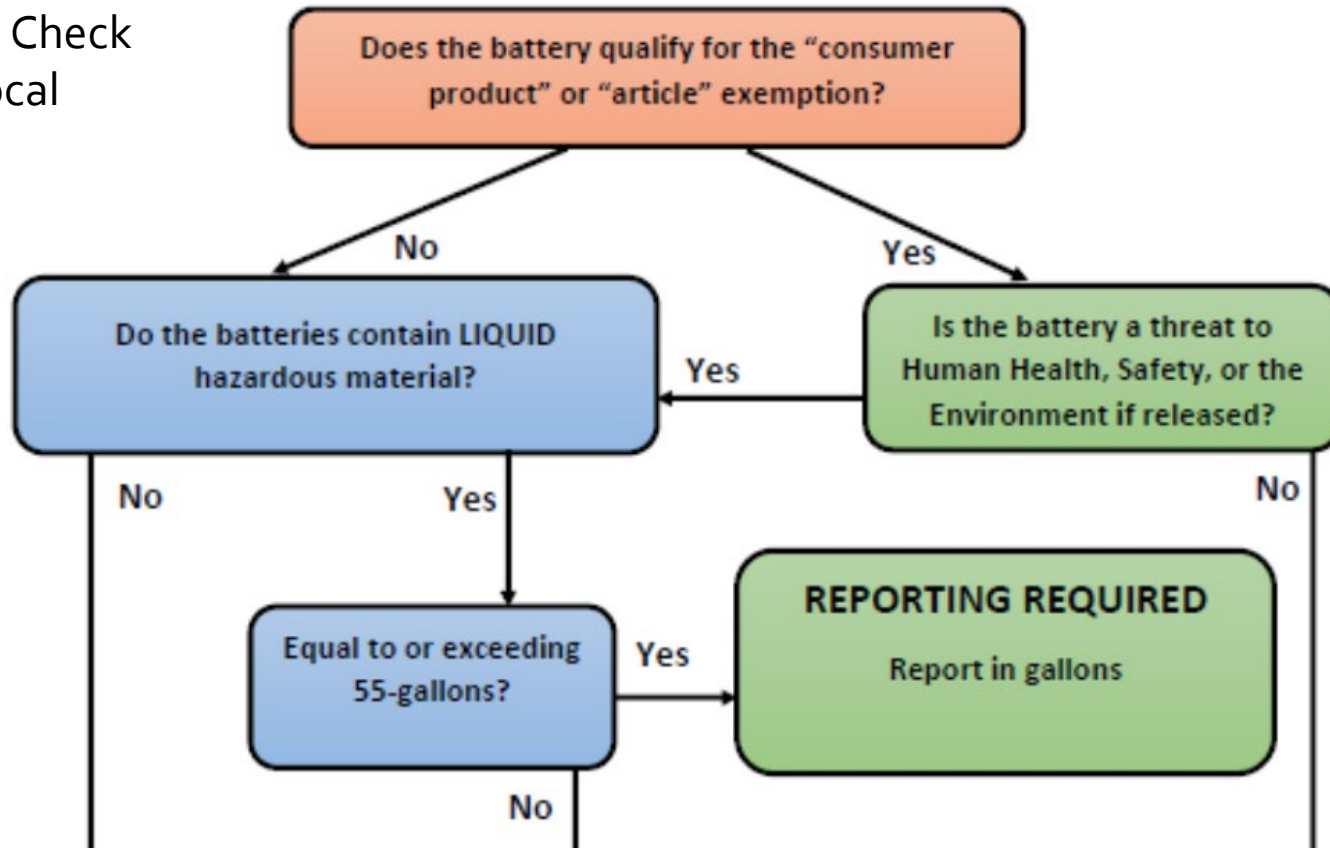


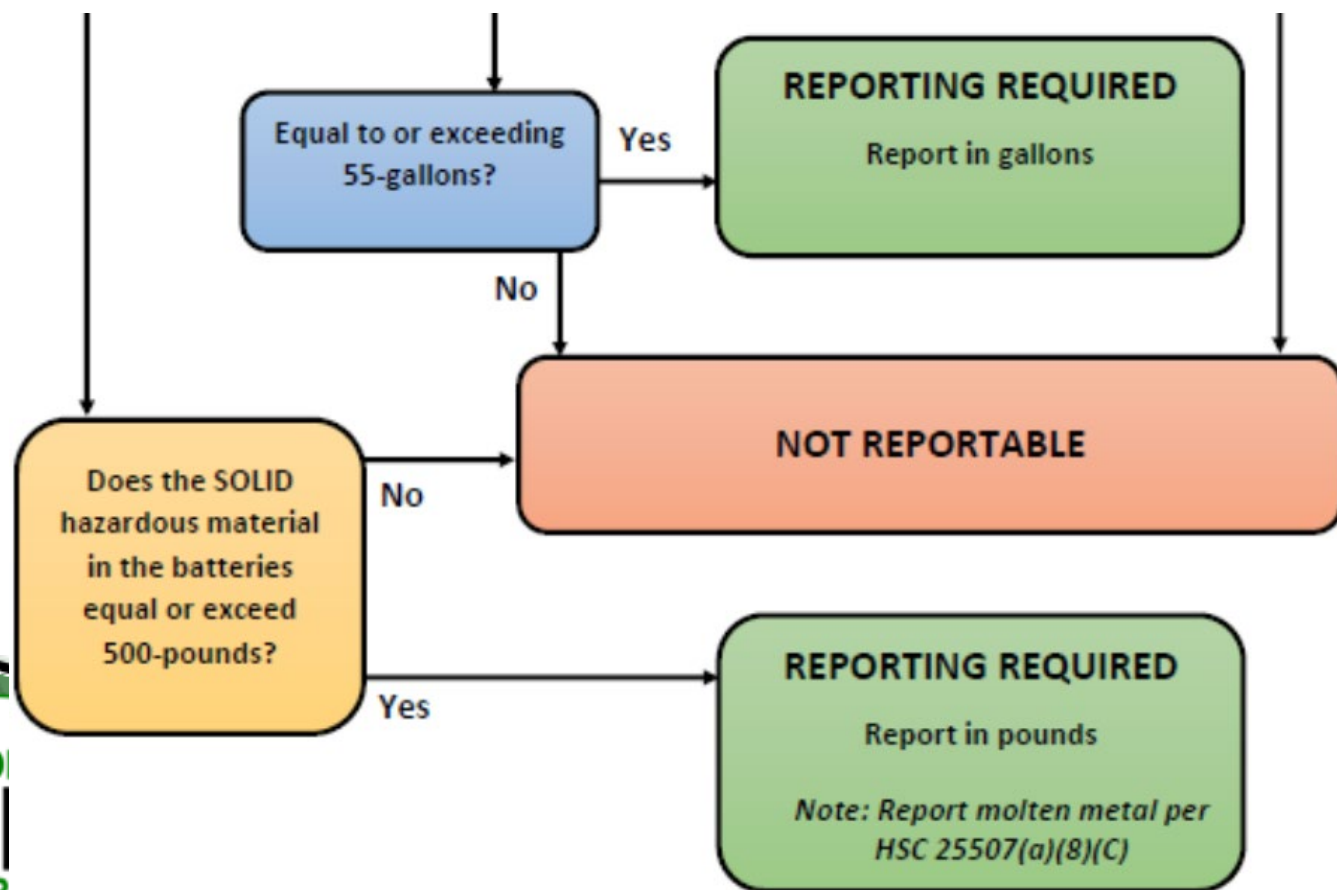
What is a battery?

- Chemical energy → electrical energy
- Galvanic/voltaic cell(s)
- Oxidation reduction reaction: transfer of electrons



*Reminder: Check
with your local
jurisdiction





Background

- Established workgroup.
- Reviewed data about batteries and hazards.
- Reviewed definitions and reporting reqs.
- Considered Fire Code changes.



Work Group

- CUPA / Fire representatives from across the state

HansenRooks, Summer	Orange County
Helm, Apollonia (Polly) and Erin Thomas	San Mateo County
Keene, Matt	Sacramento County
Kirby, Lee	Downey Fire
Matt Stueber	Ventura County
Whittle, Jim	Shasta County
James Pawlonek, John Wallace, and Nritya Hosamane	Riverside County
Resources	
Darwin Cheng	OC Health, Env. Health
Frederick Chun	Santa Clara Fire



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Poll Question 3. WORD CLOUD

What types of batteries are you concerned about reporting?

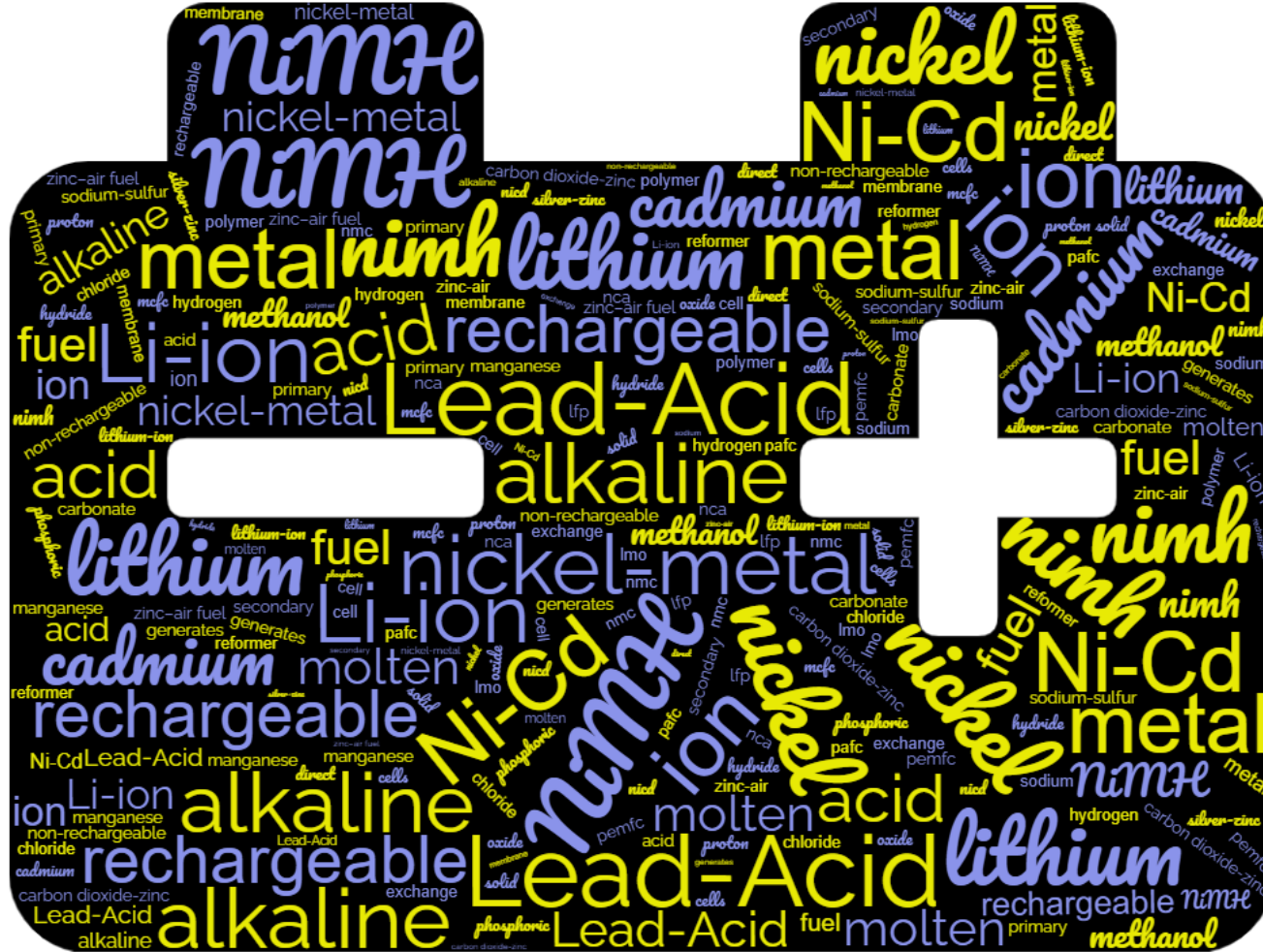


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Reviewed Data

- Battery types and technologies
- Hazardous material present, solid or liquid
- Hazards of those materials
- Conditions of use and facility types





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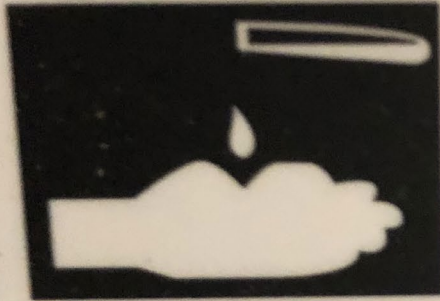
Carcinogen

Sensitizer
Contact
Dermatitis

Toxicity:
Heavy
metals



DANGER



CORROSIVE



EXPLOSIVE GASES

WARNING
-CORROSIVE-
ALKALINE BATTERY
ELECTROLYTE
CAUSES SEVERE
BURNS TO SKIN
AND EYES

-EXPLOSIVE GASES-
USE IN VENTILATED
AREAS ONLY
NEVER ALLOW
SPARKS, FLAMES OR
SMOKING IN THE
BATTERY AREA

HAZARDS

Skin burns

Hydrogen gas

Fires

Reporting

- Definitions
- Current reporting standards, HMBP, EPCRA



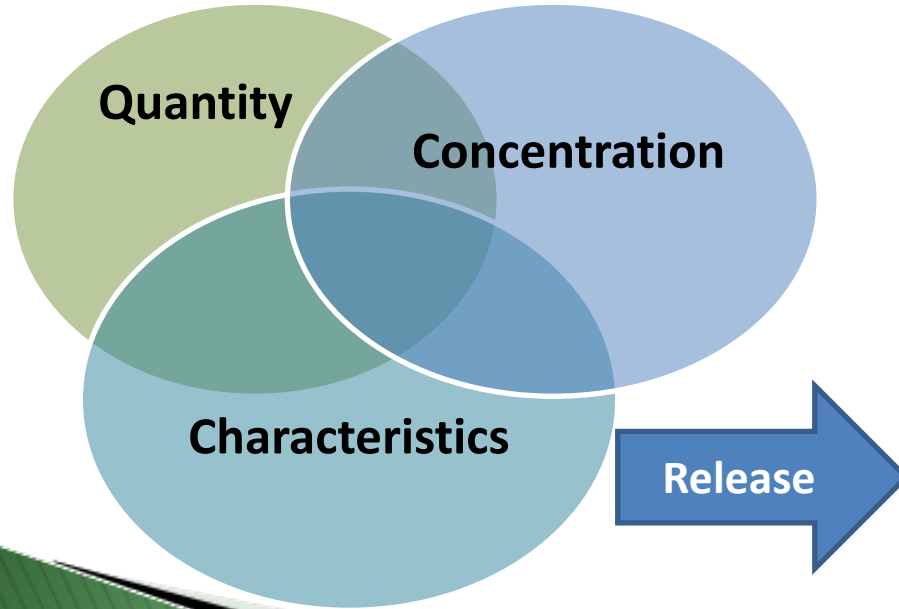
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Critical Issues

- Hazardous Material definition, 25501(n)
- What is included and what is exempted?
 - “Article” by definition
 - “Consumer Product” by definition.



Definition of Hazardous Material



“Hazardous material”

Includes (n)(2)(A)-(E), for example:

- a) Required to have SDS
- b) Hazardous Waste
- c) On DOT table

The quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

[Definitions: HSC 25501 \(n\)\(1\)](#)

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Exemptions

Does the battery qualify for the “article” or
“consumer product” exemption?

(1st question on the flow chart)



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Poll question 4. Have you ever received a request for this or another exemption?

- Yes
- No



Poll question 5, open ended.

If so, what was the other exemption?



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“Article”

Technical data sheet: “this item is an “article”. According to HazCom, NO SDS REQUIRED. By definition, “Article” is not a hazardous material (HSC 25501(n)(2)) because it is not required to have an SDS under Haz. Com.

FACILITY / MANUFACTURER

KEY CRITERIA: “under normal conditions of use does not release ... a hazardous chemical and does not pose a physical hazard or health risk to employees” (1910.1200(c)). These items do not meet the definition of an “article”: Lead-Acid battery, Lithium-ion battery.

OSHA



[Hazard Communication standard in CFR](#)

[1910.1200\(b\)\(6\)\(v\)](#)

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EPCRA Reporting

YES. This applies to chemicals required to have SDS under HCS. No lead-acid batteries and lithium-ion batteries are not “articles” according to OSHA in the HCS.

considered “articles”, OSHA has determined, similar to lead-acid batteries, that lithium ion batteries are not considered “articles” and are subject to the OSHA HCS regulations. Although these batteries are sealed, they have the potential to leak, spill or break during normal conditions of use and in foreseeable emergencies causing exposure to chemicals. Thus, since owners / operators of facilities are required to prepare or have an MSDS for lithium ion batteries, they must complete MSDS Reporting and Tier II Reporting if the applicable reporting thresholds in [40 CFR Part 370.10](#) are met or exceeded.

Consumer products are exempt.

household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public ([40 CFR 370.13\(c\)\(1\)](#)). This exemption would not apply to any large commercial type batteries that are not available for purchase or use by the general public.



[Lithium Ion Batteries – EPCRA Reporting \(EPA.GOV\)](#) (7/30/2020)

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“Consumer Product”

- “Consumer products” in retail establishments intended for sale to and use by, the public. Does not apply at the facility that manufactures the product, the warehouse or the distribution center as specified in HSC 25507(b)(5).
- Batteries used for commercial and industrial – Most are not a consumer product.



“Consumer Product”

Proposed language: (ii) A consumer product sold at a retail establishment that has a National Fire Protection Association or “NFPA” or Hazardous Materials Identification System or “HMIS” rating of 3 or 4 and is stored, at any time, in quantities equal to, or greater than, 165 gallons for a liquid, 600 cubic feet for a gas, and 1,500 pounds for a solid.



“Consumer Product”

If a unified program agency determines that a consumer product stored at a retail establishment is stored at or above a reportable threshold listed in subdivision (a), and poses a significant potential hazard, the unified program agency may require the product to be reported in accordance with this chapter.



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DOT HM Table

- Definition, 25501 (n)(2)(A)-(E) also includes the hazardous material table: (C) Listed in 49 CFR
 - Batteries, dry, containing potassium hydroxide solid, electric storage
 - Batteries, dry, sealed, NOS (used for Batteries, nickel-metal hydride)
 - Batteries, wet, filled with acid, or filled with alkali, or non-spillable
 - Lithium-ion batteries including lithium-ion polymer
 - Lithium metal batteries including lithium alloy batteries



[49 CFR 172.101 Haz. Materials Table](#)

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Entering Data - Guidance

- Title 27 – lead acid batteries
- Example using the flow chart.



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Title 27 Lead-Acid Battery Reporting

27 CCR § 15186.1

§ 15186.1. Standard Descriptions for Chemical Inventory Reporting.

a) A handler shall report lead acid batteries as part of a chemical inventory submission using the standard descriptions and values contained in the CERS Chemical Library (template CCL-06669) as follows:

- (1) Data element 205, Chemical Name, is "Lead Acid Batteries".
- (2) Data element 206, Trade Secret, is "No".
- (3) Data element 207, Common Name, is "Lead Acid Batteries".
- (4) Data element 208, EHS, shall be left blank.

Field Help



EHS

Data Registry Field Number: 208

Check "Yes" if the hazardous material is an Extremely Hazardous Substance (EHS), as defined in 40 CFR, Part 355, Appendix A. If the material is a mixture containing an EHS, leave this section blank and complete the section in the Mixture Components table below.

Close

(18) Data element 226, Hazardous Component 1 Percent by Weight, is "40".

(19) Data element 227, Hazardous Component 1 Name, is "Sulfuric Acid".

(20) Data element 228, Hazardous Component 1 EHS, is "Yes".

(21) Data element 229, Hazardous Component 1 CAS #, is "7664-93-9".



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Entering Data - Scenario

- Large NiMH batteries.
- Has a SDS with hazard warnings. Industrial use.
- 21 batteries with 3.5 gal/ea and one 1.5 gal



Entering Data - Scenario

- Electrochemical batteries?
- Exemptions?
- Contains liquid?
- Exceeds threshold?
- Report it?
- Yes, use flow chart.
- No
- Yes
- Yes, 75 gallons.
- Yes



Entering Data - Guidance

Discard

Save

Cancel

Chemical Identification and Physical Properties

Chemical Name

Nickel-Metal Hydride "NiMH" battery

Common Name

Nickel-Metal Hydride "NiMH" battery (large battery cells)

Physical State

☐ Solid ☒ Liquid ☐ Gas

CERS Chemical Library ID

-

US EPA SRS ID

Hazardous Material Type

☐ Pure ☒ Mixture ☐ Waste

Trade Secret

☐ Yes ☒ No

Inventory Location and Quantity

Chemical Location

North West Shed

Average Daily Amount

70

Maximum Daily Amount

75

Chemical Location Confidential EPCRA

☐ Yes ☒ No

Largest Container

3.5

Annual Waste Amount

Map # (Optional)

Grid # (Optional)

Days on Site

365

Units

☒ gallons ☐ cubic feet ☐ pounds ☐ tons

Inventory Storage Information

☐ Aboveground Tank ☐ Can ☐ Box ☐ Tank Truck, Tank Wagon

☐ Underground Tank ☐ Carboy ☐ Cylinder ☐ Tank Car, Rail Car

☐ Tank Inside Building ☐ Silo ☐ Glass Bottle ☒ Other

☐ Steel Drum ☐ Fiber Drum ☐ Plastic Bottle

battery container

☐ Plastic/Non-Metallic Drum ☐ Bag ☐ Tote Bin

Storage Pressure

☒ Ambient ☐ Above Ambient ☐ Below Ambient

Storage Temperature

☒ Ambient ☐ Above Ambient ☐ Below Ambient ☐ Cryogenic

Chemical Hazard Classification

SRS

☒ Yes ☐ No

Radioactive

☐ Yes ☒ No

Curies

Fire Code Hazard Classes (by priority)

Corrosive

Toxic

DOT Hazard Class

9 - Misc. Hazardous Materials

State Waste Code

View/Edit Additional Firecodes

Lookup Code

Federal Hazard Categories

☐ Fire (Obsolete)
☐ Reactive (Obsolete)
☐ Pressure Release (Obsolete)
☐ Acute Health (Obsolete)
☐ Chronic Health (Obsolete)

Federal Hazard Categories

☐ PHYSICAL: Flammable
☐ PHYSICAL: Gas Under Pressure
☐ PHYSICAL: Explosive
☐ PHYSICAL: Self-heating
☐ PHYSICAL: Pyrophoric
☐ PHYSICAL: Oxidizer
☐ PHYSICAL: Organic Peroxide
☐ PHYSICAL: Self-reactive
☐ PHYSICAL: Pyrophoric Gas
☐ PHYSICAL: Corrosive to Metal
☐ PHYSICAL: In Contact with Water Emits Flammable Gas
☐ PHYSICAL: Combustible Dust
☒ PHYSICAL: Hazard Not Otherwise Classified (HNOC)
☒ HEALTH: Carcinogenicity
☐ HEALTH: Acute Toxicity
☐ HEALTH: Reproductive Toxicity
☒ HEALTH: Skin Corrosion or Irritation
☒ HEALTH: Respiratory or Skin Sensitization
☒ HEALTH: Serious Eye Damage or Eye Irritation
☐ HEALTH: Specific Target Organ Toxicity
☐ HEALTH: Aspiration Hazard
☐ HEALTH: Germ Cell Mutagenicity
☐ HEALTH: Simple Asphyxiant
☐ HEALTH: Hazard Not Otherwise Classified (HNOC)

Mixture Components

Hazardous Component Name	CAS Number	% by Weight	EHS
Hydrogen Absorbing Alloy		40.00	<input checked="" type="radio"/> Yes <input type="radio"/> No
Nickel-Cobalt-Zinc oxide		25.00	<input checked="" type="radio"/> Yes <input type="radio"/> No
Nickel	7440-02-0	15.00	<input checked="" type="radio"/> Yes <input type="radio"/> No
Iron	7439-89-6	40.00	<input checked="" type="radio"/> Yes <input type="radio"/> No
Potassium Hydroxide	1310-58-3	15.00	<input checked="" type="radio"/> Yes <input type="radio"/> No

Additional Mixture Components

Sodium Hydroxide 1310-73-2 0-15%
Lithium Hydroxide 1310-65-2 0-15%
Carbon Black 1333-86-4 0-1%

Entering Data - Guidance

Discard

Save

Cancel

Chemical Identification and Physical Properties

Chemical Name

Nickel-Metal Hydride "NiMH" battery

CERS Chemical Library ID

-

Common Name

Nickel-Metal Hydride "NiMH" battery (large battery cells)

CAS Number

US EPA SRS ID

Physical State

☐ Solid ☒ Liquid ☐ Gas

Hazardous Material Type ⓘ

☐ Pure ☒ Mixture ☐ Waste

Trade Secret

☐ Yes ☒ No



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Chemical Hazard Classification

EHS 

☐ Yes ☒ No

Radioactive

☐ Yes ☒ No

Curies


Fire Code Hazard Classes (by priority)

Corrosive ▼


Toxic ▼

▼

[View/Edit Additional Firecodes](#)

DOT Hazard Class 

9 - Misc. Hazardous Materials ▼

State Waste Code 

[Lookup Code](#)

Federal Hazard Categories

- ☐ Fire (Obsolete)
- ☐ Reactive (Obsolete)
- ☐ Pressure Release (Obsolete)
- ☐ Acute Health (Obsolete)
- ☐ Chronic Health (Obsolete)

Federal Hazard Categories

- ☐ PHYSICAL: Flammable
- ☐ PHYSICAL: Gas Under Pressure
- ☐ PHYSICAL: Explosive
- ☐ PHYSICAL: Self-heating
- ☐ PHYSICAL: Pyrophoric
- ☐ PHYSICAL: Oxidizer
- ☐ PHYSICAL: Organic Peroxide
- ☐ PHYSICAL: Self-reactive
- ☐ PHYSICAL: Pyrophoric Gas
- ☐ PHYSICAL: Corrosive to Metal
- ☐ PHYSICAL: In Contact with Water Emits Flammable Gas
- ☐ PHYSICAL: Combustible Dust
- ☒ PHYSICAL: Hazard Not Otherwise Classified (HNOC)
- ☒ HEALTH: Carcinogenicity
- ☐ HEALTH: Acute Toxicity
- ☐ HEALTH: Reproductive Toxicity
- ☒ HEALTH: Skin Corrosion or Irritation
- ☒ HEALTH: Respiratory or Skin Sensitization
- ☒ HEALTH: Serious Eye Damage or Eye Irritation
- ☐ HEALTH: Specific Target Organ Toxicity
- ☐ HEALTH: Aspiration Hazard
- ☐ HEALTH: Germ Cell Mutagenicity
- ☐ HEALTH: Simple Asphyxiant
- ☐ HEALTH: Hazard Not Otherwise Classified (HNOC)

Inventory Location and Quantity

Chemical Location

North West Shed

Average Daily Amount

70

Maximum Daily Amount

75

Units

- ☒ gallons
☐ cubic feet
☐ pounds
☐ tons

Chemical Location Confidential EPCRA

☐ Yes ☐ No

Largest Container

3.5

Annual Waste Amount

Map # (Optional)

Grid # (Optional)

Days on Site

365

Inventory Storage Information

- ☐ Aboveground Tank ☐ Can ☐ Box ☐ Tank Truck, Tank Wagon
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☐ Tank Inside Building ☐ Silo ☐ Glass Bottle ☒ Other
☐ Steel Drum ☐ Fiber Drum ☐ Plastic Bottle battery container
☐ Plastic/Non-Metallic Drum ☐ Bag ☐ Tote Bin

Storage Pressure

☒ Ambient ☐ Above Ambient ☐ Below Ambient

Storage Temperature

☒ Ambient ☐ Above Ambient ☐ Below Ambient ☐ Cryogenic

Mixture Components

Hazardous Component Name	CAS Number	% by Weight	EHS
Hydrogen Absorbing Alloy		40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel-Cobalt-Zinc oxide		25.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel	7440-02-0	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
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Additional Mixture Components

Sodium Hydroxide 1310-73-2 0-15%
Lithium Hydroxide 1310-65-2 0-15%
Carbon Black 1333-86-4 0-1%

Fire Code Guidance

Battery Technology	Capacity
Flow batteries	20 kWh
Lead acid, all types	70 kWh
Lithium, all types	20 kWh
Nickel cadmium (Ni-Cd)	70 kWh
Sodium, all types	20 kWh
Other battery technologies	10 kWh

California Fire Code Table 1206.2
Battery Storage System Threshold Quantities



Conditional Exemptions

- **Unstaffed facility: 25507.2.** Corrosive liquids, not to exceed 500 pounds of extremely hazardous substances, used as electrolytes, and in closed containers.
- **25507 (a)(4) (A):** Below 5,000 pounds for solids or a total volume of 550 gallons for liquids - hazardous material classified as irritant or sensitizer.
- **Apply for an exemption 25507 (c)-(e):** CUPA / Handler may apply for exemption from HMBP hazardous material.



[HSC 25507](#), [HSC 25507.2](#)

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Any Questions?

Apollonia (Polly) Helm, San Mateo County Env. Health. ahelm@smcgov.org, 650-207-9133



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EXTRA INFO IF TIME ALLOWS



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Lead-Acid Batteries Template on CERS

CERS Chemical Library Search

Chemical ID	Material Name
View	Lead Acid Batteries
View	Lead Acid Batteries
View	Lead acid batteries,
View	Lead Acid Battery

1 10

Chemical Identification and Physical Properties

Chemical Name
-

Common Name **CAS Number**
Lead Acid Batteries -

Physical State
Liquid

Mixture Components

Hazardous Component Name	CAS Number	% by Weight	EHS
Sulfuric Acid	7664-93-9	40.00	Yes
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

CCL ID
CCL-106669
CCL-106669
CCL-106669



Lead-Acid Battery Calculation

SECTION 9 -- PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	210 - 245° F	Specific Gravity (H2O = 1):	1.215 to 1.350
Melting Point:	N/A	Vapor Pressure (mm Hg):	10
Solubility in Water:	100%	Vapor Density (AIR = 1):	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	% Volatile by Weight:	N/A
pH:	~1 to 2	Flash Point:	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	UEL (Upper Explosive Limit)	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

EnerSys DataSafe 12HX330-FR Battery Specifications:

Chemistry:	Rechargeable Sealed Lead Acid
Voltage:	12 volts
Nominal Capacity:	82.0Ah 336W
Terminals:	M6 Insert
Dimensions (L x W x H):	11.8 x 6.80 x 8.40
Weight (pounds):	71

Summary:

- 34% sulfuric acid by weight.
- 71 pounds per battery
- Minimum specific gravity is 1.215
- Remember: 8.34 pound/gallon for water to calculate the gallons.

			OSHA PEL	
Lead	34	7439-92-1	50 µg/m ³	
Lead Peroxide	31	1309-60-0	50 µg/m ³	
Lead Sulfate	1	7446-14-2	50 µg/m ³	
Sulfuric Acid (35%)	34	7664-93-9	1mg/m ³	(res

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Lead-Acid Battery Calculation

Total Electrolyte Volume = (%Weight/100) x (pounds per battery) /
(Specific Gravity electrolyte) x (8.34 pounds/gallon)

$$\frac{(\%34/100) \times (71 \text{ pounds})}{(1.215) \times (8.34 \text{ pounds/gal})} = 0.34 * 71 / (1.215 * 8.34) = 2.38 \text{ gallons per battery}$$

2.38 gallons per battery * 14 batteries = 33.35 \approx 33 gallons
33 gallons < 55 gallons, below threshold.



BREAK TIME!



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ADMINISTRATION AND
ADVISORY GROUP (UPAAG)**

**HAZARDOUS MATERIALS BUSINESS PLAN (HMBP)
STEERING COMMITTEE**

**HAZARDOUS MATERIALS BUSINESS PLAN (HMBP)
TECHNICAL ADVISORY GROUP**

**BATTERY REPORTING GUIDANCE

FOR

UNIFIED PROGRAM AGENCIES**

**Edition:
March 10, 2022**

**UPAAG Adopted Date:
March 10, 2022**

INTRODUCTION

A battery work group was established within the Hazardous Materials Business Plan (HMBP) Technical Advisory Group (TAG) with members of UPAs from across the state to help address the issues associated with reporting batteries in the hazardous materials business plan. A review was conducted of many different types of batteries, the materials contained within them, associated hazards, and the technical challenges of reporting to provide the best practices for battery reporting outlined in this document.

Please consider the contents of this document as guidance and that it tries to cover most scenarios. However, battery technology is rapidly changing and may not fit in your exact situation. When faced with questions, one should consult with your management, HMBP TAG, and/or California Environmental Protection Agency for additional guidance and clarification.

I. BACKGROUND

Hazardous Materials Business Plan reporting for batteries presents a technical challenge because of the mixed chemical (ex. contains sulfuric acid and lead) and physical state (ex. both liquid, and solid) as well as the need to report them in a standardized way across the state. In addition to the technical challenges, another concern is the determination of any given battery as either a hazardous material, an article, or a consumer product as defined by laws and regulations for the hazardous materials business plan.

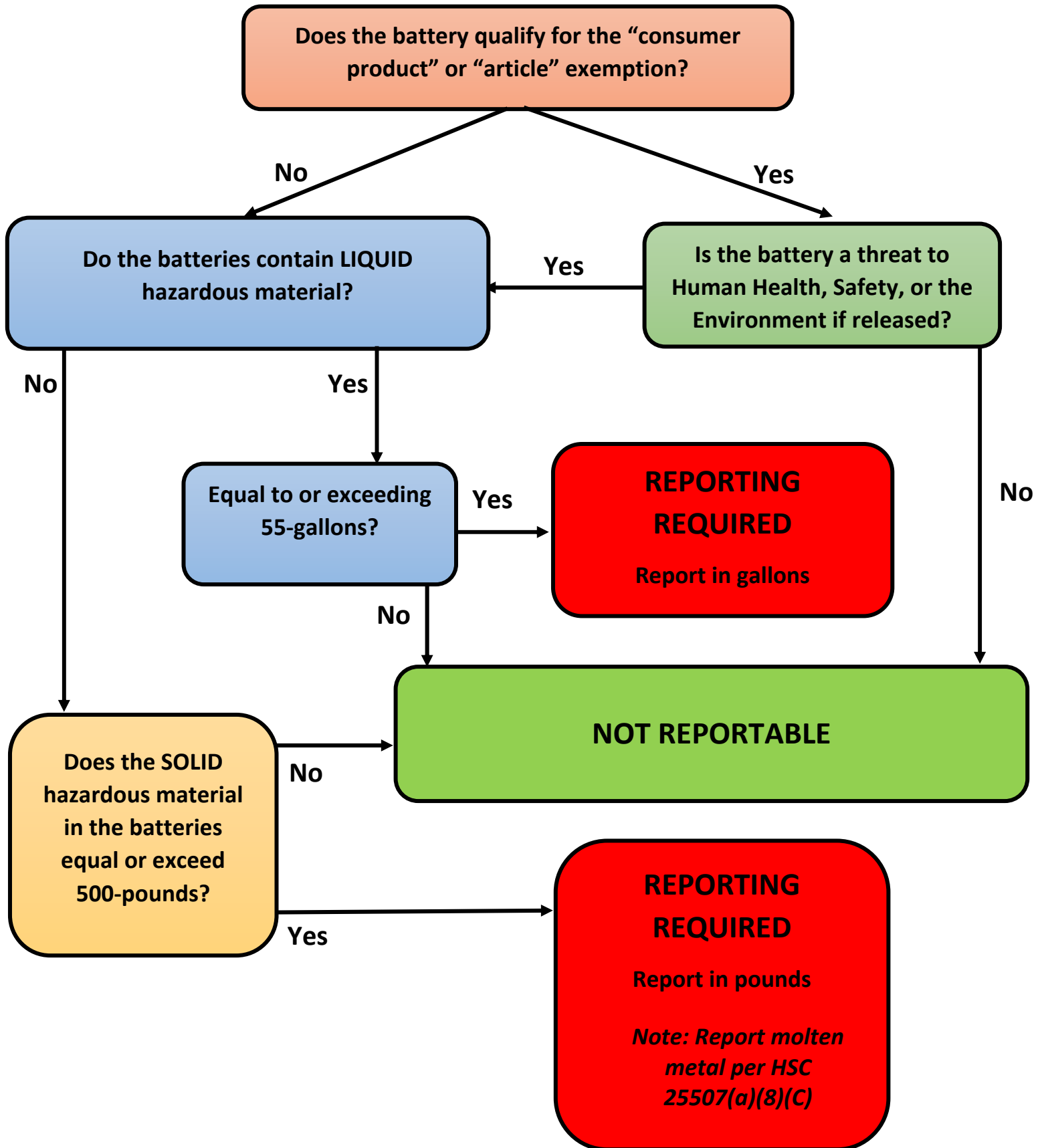
By their nature, batteries are made with a wide variety of materials including solid, liquid, or even molten materials. Although reportable mixtures of hazardous materials in different physical states can occur with some regularity, batteries represent a very frequent example of this reporting issue. Batteries use has continued or increase in many industries for power storage, management, electronic devices, and as a general utility. The battery industry continues to improve and change battery chemistry for residential, commercial, or grid-scale application. This results in significant variation, making it difficult to provide a simple answer as to how batteries should be properly reported on the HMBP.

Another issue is that the manufacturers often state that the battery is an “article” on the data sheet or safety data sheet (SDS). This identification presents a concern because materials determined to be “articles” may not be considered reportable hazardous materials according the California Health and Safety Code (HSC). In addition, consumer products may also be exempt from the definition of a hazardous material. The sections below will explain the exemptions and how to properly report a battery on the HMBP at this time. Section V provides a recommendation from the work group about how the TAG may resolve this concern.

II. REPORTING PROCEDURES

In order to provide concise guidance on how both a regulator and facility should evaluate batteries for proper reporting, this group has created a flow chart, below, which will walk the user through a step-by-step process. The first question determines if the battery is excluded from regulation as a hazardous material. The following questions resolve if the battery should be reported as a solid or liquid and the applicable threshold quantity. Each question on the flow chart is discussed in more detail in section C below. Information about how to calculate the quantity of material is in section B.

Battery Reporting Flow Chart for HMBP



A. How to calculate aggregate solid or liquid hazardous material

Liquid - Aggregate quantity of electrolyte should be used to determine if the batteries have reached the reportable quantity threshold of 55 gallons. To calculate volume, use tables indicating gallons of electrolyte per battery cell from manufacturer/supplier and/or specification sheets. If electrolyte volume is unknown, multiply the fractional weight of electrolyte (from SDS) times the total battery weight (in pounds) and divide by the minimum specific gravity (from SDS) times 8.34 pounds per gallon;

Electrolyte volume= (X %/100)(Y pounds)/(Z Specific Gravity)(8.34 pounds/gallon)

Example: (40%/100)(40 pounds)/(1.285)(8.34 pounds/gallon)= 1.49 gallons

Solid - Total weight of solid hazardous materials in the battery, in pounds, should be used to determine if the batteries have reached the reportable quantity threshold of 500 pounds. Weight of hazardous material can be obtained from the manufacturer or supplier, specification sheets, or safety data sheets. If unknown, fractional weight of inert material can be subtracted from total battery weight to calculate aggregate quantity of hazardous material.

Molten Metals - Report total weight of combustible metal, or metal alloy that poses an explosive potential, when in molten form, at or above the reporting threshold of 500 pounds as required in HSC [25507\(a\)\(8\)\(C\)](#).

Flow Chart Questions

Does the battery qualify for the “consumer product” or “article” exemption?

“Consumer product”:

Consumer products are defined in the Health and Safety Code ([HSC 25501\(j\)](#)) and 29 CFR 1910.1200. They may be excluded from the list of hazardous materials in HSC 25507(n) paragraph 2 because they are excluded from the Hazard Communication Standard in [1910.1200\(b\)\(6\)](#) as defined by section (ix).

The Health and Safety Code also considers consumer products to be exempt from reporting at retail establishments, but not at the facility that manufactures the product, the warehouse or the distribution center as specified in [HSC 25507\(b\)\(5\)](#). However, the definition must be applied properly. According to the Hazard Communication standard, the exemption can only apply if “the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended”.

It is foreseeable that many batteries used for commercial and industrial purposes do not meet the definition of a consumer product. In addition, commercial and industrial uses do not seem to fit the definition referenced by the Hazard Communication standard and found in the Consumer Product Safety Act.

The definition states, “any article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation, or otherwise”

Definitions:

[HSC 25501\(j\)](#) “Consumer product means a commodity used for personal, family, or household purposes, or is present in the same form, concentration, and quantity as a product prepackaged for distribution to and use by the general public”.

[1910.1200\(b\)\(6\)\(ix\)](#) “Any consumer product or hazardous substance, as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, where the employer can show that it is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the use results in a duration and frequency of exposure which is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended”.

[15 USC 2052\(a\)\(5\) Consumer Product safety Act](#) “CONSUMER PRODUCT.--The term “consumer product” means any article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation, or otherwise; but such term does not include—...”

Examples: Consumer type batteries may include the familiar sized AAAA to D batteries and button cells which may be formulated as alkaline, lithium ion, nickel metal hydride and could be single-use or rechargeable. These types of batteries typically power consumer type products such as calculators, clocks, flashlights, remotes, radios, toys, and other electronics used for typical consumer-type activities. Keep in mind that if any product is used with a greater frequency or duration than a consumer product or in a way not intended by the manufacturer, it may not qualify as a consumer product.

“Article”:

“Article” is not defined in the HSC, however, it is excluded from the definition of a hazardous material (HSC 25501(n)(2)) by the [Hazard Communication standard in CFR 1910.1200\(b\)\(6\)\(v\)](#). The key criteria in the definition of an “article” is that, “under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees” (1910.1200(c)). Some batteries have technical or safety data sheets that list them as an “article” and indicate they are exempt from regulation under the hazard communication regulations in 29 CFR 1910.1200. Depending on the type of physical or health hazards the use of a given battery presents, it may or may not be considered an article. The Occupational Health and Safety Administration has provided several interpretations of this, excluding some batteries from the definition of an article including lead-acid batteries and some lithium ion batteries. References to these interpretations can be found below.

[1910.1200\(c\)](#) Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

The “[Enfonde letter of interpretation](#)” on this issue, provided by the Occupational Safety and Health Administration in 2004 provides a succinct explanation of when a battery may be considered an article and how banks of sealed UPS batteries for backup power supply are not considered an article.

The [1997 letter of interpretation](#) also provides some examples of why a lead-acid battery is not considered an article, explaining that under normal conditions of use and in foreseeable emergencies (not accidental fires) batteries have the potential to “leak, spill or break” and “have the potential to emit hydrogen gas, which may result in a fire”.

In a [2015 letter response to Labelmaster](#), recorded on their website, the Occupational Health and Safety Administration stated, “lithium-ion batteries (or lithium battery-powered devices) on a whole, although sealed, have the potential to leak, spill, or break during normal conditions of use and foreseeable emergencies and expose employees to chemicals which can pose health (e.g., lithium cobalt, graphite) and/or physical (e.g., burns, fire) hazards, and therefore, cannot be considered an article”

Examples: Items containing batteries such as laptops, phones, and other devices which employee exposure does not occur. Batteries handled by maintenance employees and contractors may be excluded from the definition of an article. Batteries for backup power are typically not considered articles.

Does the battery pose a threat to human health, safety or the environment if released?

The intent of the Unified Program (UP) Hazardous Material Disclosure Program is to protect public and environmental health and safety from the releases or threatened releases of hazardous materials [HSC 25500(a)]. This is accomplished through the development of business plans that disclose basic information about a hazard posed by chemicals. The various battery types handled by businesses have inherit physical and chemical hazards (e.g. elevated operating temperatures, corrosive electrolytes, generation of flammable gases, thermal runaway etc.). On the basis of the hazards presented, a battery may still be subject to UP’s hazardous materials disclosure requirements listed in HSC 25501(n)(3) which states that, the “unified program agency may adopt an ordinance that provides that, within the jurisdiction of the unified program agency, a material not listed in paragraph (2) is a hazardous material for purposes of this article if a handler... or if the governing body of the unified program agency has a reasonable basis for believing that the material would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.”

If the contents of the battery could pose a threat to human health, safety, or the environment if released, contact your unified program agency to verify that if the battery is required to be reported. If yes, proceed to questions 3.

Does the battery contain liquid hazardous material?

If the battery contains a liquid hazardous material, the flow chart instructs the user to report the battery as a liquid when the aggregate quantity of battery electrolyte on site is 55-gallons or greater. However, if a battery contains a negligible amount of liquid, for example less than 1%, it is recommended that the battery be reported as a solid when the aggregate quantity of solid hazardous materials is equal to or exceeds 500 pounds.

The instruction to report the aggregate quantity of batteries as a liquid is based on the reporting requirements for lead-acid batteries found [in CCR Title 27 § 15186.1](#) instead of the mixture reporting instructions from [HSC 25507\(a\)\(1\)\(A\)](#). The 2011 guidance document for lead-acid battery reporting stated the basis for this determination is, “The quantity of electrolyte, which is the component of the battery which presents the primary immediate hazard to emergency responders, should be used to determine if the batteries have exceeded the reporting threshold”. This is also found to be true for other types of battery electrolyte.

If the physical state of materials contained within the battery is unclear (e.g. some electrolytes are in gel form), definitions to help distinguish between a solid and liquid can be found in the

California Fire Code Ch. 2 and they are provided here for reference. **Solid** – a material that has a melting point and decomposes or sublimates at a temperature greater than 68°F (20°C). **Liquid** – a material having a melting point that is equal to or less than 68°F (20°C) and a boiling point which is greater than 68°F (20°C) at 14.7 pounds per square inch absolute (psia)(101 kPa). Where not otherwise identified, the term “liquid” includes both flammable and combustible liquid. If a battery contains molten metal, HSC defines specific reporting in [25507\(a\)\(8\)\(C\)](#) and states that reporting is required for a, “combustible metal, or metal alloy, that poses an explosive potential, when in molten form, in a quantity at any one time during the reporting year that is equal to, or greater than, 500 pounds”. This definition was not intended for use with batteries, however it may be used if applicable. A few examples of these metals are lithium, sodium, and potassium.

Does the solid hazardous material in the battery exceed 500 pounds?

If the battery is composed of solid hazardous material the battery is to be reported as a solid with the reporting threshold of 500 lbs in aggregate on site.

Additional Reporting Requirements:

Discarded batteries are typically universal or hazardous waste. Once deemed a waste, if stored on site at 55 gallons or 500 pounds, they are reportable. See the citations listed for more details: [25501\(n\)\(2\)\(E\)](#), [HSC 25117\(a\)](#), [HSC 25141](#), and [CCR Title 22 66261.1-66261.126](#).

Inventory Page Guidance

Liquid Example: Chemical Inventory Page for Nickel Metal Hydride batteries

The following inventory sheet was created as a guidance document and will not be representative of all Nickel Metal Hydride (NiMH) or all liquid batteries. Always consult the SDS for your specific product to ensure chemical components and hazards are correct. Refer to the flow chart to determine if your batteries are reportable. The following example is for large NiMH battery cells. Smaller consumer NiMH batteries may be reported as solids and/or have different chemical components. An asterisk (*) below indicates a required field in CERS. Please note that more information than the minimum required fields is typically required. Always fill out the inventory pages as completely as possible.

Chemical Identification and Physical Properties Required Fields:

Chemical Name, Common Name*, Physical State*, Hazardous Material Type, Trade Secret. Note: For the Physical state, if battery contains liquid electrolyte at or above the threshold quantity, check “liquid” and report the amounts in gallons.

Chemical Identification and Physical Properties		
Chemical Name Nickel-Metal Hydride "NiMH" Battery		CERS Chemical Library ID -
Common Name Nickel-Metal Hydride "NiMH" Battery (Large Battery Cells)	CAS Number	US EPA SRS ID
Physical State <input type="radio"/> Solid <input checked="" type="radio"/> Liquid <input type="radio"/> Gas		Trade Secret <input type="radio"/> Yes <input checked="" type="radio"/> No
Hazardous Material Type <input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste		

Chemical Hazard Classification Required Fields:

EHS (Extremely Hazardous Substance)*, Radioactive, Fire Code Hazard Class (If available), DOT Hazard Class (If available), 24 Federal Hazard Categories. Note: Ensure 5 (Obsolete) Federal Hazard Categories on the left are unchecked if they are visible to you.

Chemical Hazard Classification		
EHS ⓘ <input type="radio"/> Yes <input checked="" type="radio"/> No	Fire Code Hazard Classes (by priority) Corrosive ▼ Toxic ▼ View/Edit Additional Firecodes	DOT Hazard Class ⓘ 9 - Misc. Hazardous Materials
Radioactive <input type="radio"/> Yes <input checked="" type="radio"/> No		State Waste Code ⓘ <input type="text"/> Lookup Code
Curies <input type="text"/>		

Federal Hazard Categories	
<input type="checkbox"/> Fire (Obsolete)	<input type="checkbox"/> PHYSICAL: Flammable
<input type="checkbox"/> Reactive (Obsolete)	<input type="checkbox"/> PHYSICAL: Gas Under Pressure
<input type="checkbox"/> Pressure Release (Obsolete)	<input type="checkbox"/> PHYSICAL: Explosive
<input type="checkbox"/> Acute Health (Obsolete)	<input type="checkbox"/> PHYSICAL: Self-heating
<input type="checkbox"/> Chronic Health (Obsolete)	<input type="checkbox"/> PHYSICAL: Pyrophoric
	<input type="checkbox"/> PHYSICAL: Oxidizer
	<input type="checkbox"/> PHYSICAL: Organic Peroxide
	<input type="checkbox"/> PHYSICAL: Self-reactive
	<input type="checkbox"/> PHYSICAL: Pyrophoric Gas
	<input type="checkbox"/> PHYSICAL: Corrosive to Metal
	<input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas
	<input type="checkbox"/> PHYSICAL: Combustible Dust
	<input checked="" type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC)
	<input checked="" type="checkbox"/> HEALTH: Carcinogenicity
	<input type="checkbox"/> HEALTH: Acute Toxicity
	<input type="checkbox"/> HEALTH: Reproductive Toxicity
	<input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation
	<input checked="" type="checkbox"/> HEALTH: Respiratory or Skin Sensitization
	<input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation
	<input type="checkbox"/> HEALTH: Specific Target Organ Toxicity
	<input type="checkbox"/> HEALTH: Aspiration Hazard
	<input type="checkbox"/> HEALTH: Germ Cell Mutagenicity
	<input type="checkbox"/> HEALTH: Simple Asphyxiant
	<input type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)

Inventory Location and Quantity Required Fields:

Chemical Location, Average Daily Amount, Maximum Daily Amount*, Largest Container, Days on Site, Units*. Note: Amounts are an example and will be different for each location. Maximum daily amount should be the total of all containers on site added together ie: 21 batteries that are each contain 3.5 gallons + 1 battery that contains 1.5 gallons = 75 gallons. Average daily amount is the average daily amount stored on site, not the average daily amount used.

Inventory Location and Quantity			
Chemical Location	Average Daily Amount	Maximum Daily Amount	Units <input checked="" type="radio"/> gallons <input type="radio"/> cubic feet <input type="radio"/> pounds <input type="radio"/> tons
North West Shed	70	75	
Chemical Location Confidential EPCRA <input type="radio"/> Yes <input type="radio"/> No	Largest Container	Annual Waste Amount	
Map # (Optional)	Grid # (Optional)	Days on Site	
		365	

All amounts should be calculated and reported in gallons as indicated in section II A.

Inventory Storage Information Required Fields:

Inventory Storage Information*, Storage Pressure, Storage Temperature

Inventory Storage Information			
<input type="checkbox"/> Aboveground Tank	<input type="checkbox"/> Can	<input type="checkbox"/> Box	<input type="checkbox"/> Tank Truck, Tank Wagon
<input type="checkbox"/> Underground Tank	<input type="checkbox"/> Carboy	<input type="checkbox"/> Cylinder	<input type="checkbox"/> Tank Car, Rail Car
<input type="checkbox"/> Tank Inside Building	<input type="checkbox"/> Silo	<input type="checkbox"/> Glass Bottle	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Steel Drum	<input type="checkbox"/> Fiber Drum	<input type="checkbox"/> Plastic Bottle	battery container
<input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Bag	<input type="checkbox"/> Tote Bin	
Storage Pressure <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient		Storage Temperature <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic	

Mixture Components:

Hazardous Component Name, CAS Number (If available), % by Weight, EHS, Additional Mixture Components (If necessary). Note: Refer to Safety Data Sheet Section 3 for this information. % by weight should be reported as the highest percent listed if a range is shown. It is acceptable for the weight to add up to more than 100%.

Mixture Components			
Hazardous Component Name	CAS Number	% by Weight	EHS
Hydrogen Absorbing Alloy		40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel-Cobalt-Zinc oxide		25.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel	7440-02-0	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Iron	7439-89-6	40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Potassium Hydroxide	1310-58-3	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No

Additional Mixture Components
Sodium Hydroxide 1310-73-2 0-15%
Lithium Hydroxide 1310-65-2 0-15%
Carbon Black 1333-86-4 0-1%

(Full inventory page on next page)

Full Inventory with Required Fields Highlighted – NiMH Liquid

Discard
Save
Cancel

Chemical Identification and Physical Properties

Chemical Name
 Nickel-Metal Hydride "NiMH" battery

Common Name
 Nickel-Metal Hydride "NiMH" battery (large battery cells)

Physical State
☐ Solid ☒ Liquid ☐ Gas

Hazardous Material Type ☐ Pure ☒ Mixture ☐ Waste

CERS Chemical Library ID
 -

US EPA SRS ID
 -

Trade Secret
☐ Yes ☒ No

Chemical Hazard Classification

EHS
☐ Yes ☒ No

Fire Code Hazard Classes (by priority)
 Corrosive
 Toxic

DOT Hazard Class
 9 - Misc. Hazardous Materials

State Waste Code
 -

[View/Edit Additional Firecodes](#)
[Lookup Code](#)

Curies
 -

Federal Hazard Categories
☐ Fire (Obsolete)
☐ Reactive (Obsolete)
☐ Pressure Release (Obsolete)
☐ Acute Health (Obsolete)
☐ Chronic Health (Obsolete)

Federal Hazard Categories
☐ PHYSICAL: Flammable
☐ PHYSICAL: Gas Under Pressure
☐ PHYSICAL: Explosive
☐ PHYSICAL: Self-heating
☐ PHYSICAL: Pyrophoric
☐ PHYSICAL: Oxidizer
☐ PHYSICAL: Organic Peroxide
☐ PHYSICAL: Self-reactive
☐ PHYSICAL: Pyrophoric Gas
☐ PHYSICAL: Corrosive to Metal
☐ PHYSICAL: In Contact with Water Emits Flammable Gas
☐ PHYSICAL: Combustible Dust
☒ PHYSICAL: Hazard Not Otherwise Classified (HNOC)
☒ HEALTH: Carcinogenicity
☐ HEALTH: Acute Toxicity
☐ HEALTH: Reproductive Toxicity
☒ HEALTH: Skin Corrosion or Irritation
☒ HEALTH: Respiratory or Skin Sensitization
☒ HEALTH: Serious Eye Damage or Eye Irritation
☐ HEALTH: Specific Target Organ Toxicity
☐ HEALTH: Aspiration Hazard
☐ HEALTH: Germ Cell Mutagenicity
☐ HEALTH: Simple Asphyxiant
☐ HEALTH: Hazard Not Otherwise Classified (HNOC)

Inventory Location and Quantity

Chemical Location
 North West Shed

Average Daily Amount
 70

Maximum Daily Amount
 75

Units
☒ gallons
☐ cubic feet
☐ pounds
☐ tons

Chemical Location Confidential EPCRA
☐ Yes ☒ No

Largest Container
 3.5

Annual Waste Amount
 -

Map # (Optional)
 -

Grid # (Optional)
 -

Days on Site
 365

Inventory Storage Information

☐ Aboveground Tank ☐ Can ☐ Box ☐ Tank Truck, Tank Wagon
☐ Underground Tank ☐ Carboy ☐ Cylinder ☐ Tank Car, Rail Car
☐ Tank Inside Building ☐ Silo ☐ Glass Bottle ☒ Other
☐ Steel Drum ☐ Fiber Drum ☐ Plastic Bottle
☐ Plastic/Non-Metallic Drum ☐ Bag ☐ Tote Bin

Storage Pressure
☒ Ambient ☐ Above Ambient ☐ Below Ambient

Storage Temperature
☒ Ambient ☐ Above Ambient ☐ Below Ambient ☐ Cryogenic

Other
 battery container

Mixture Components

Hazardous Component Name	CAS Number	% by Weight	EHS
Hydrogen Absorbing Alloy		40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel-Cobalt-Zinc oxide		25.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Nickel	7440-02-0	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Iron	7439-89-6	40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Potassium Hydroxide	1310-58-3	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No

Additional Mixture Components
 Sodium Hydroxide 1310-73-2 0-15%
 Lithium Hydroxide 1310-65-2 0-15%
 Carbon Black 1333-86-4 0-1%

A. Solid Example: Chemical Inventory Page for Lithium Ion (Li-ion) batteries

The following inventory sheet was created as a guidance document and will not be representative of all Lithium Ion (Li-ion) or all solid batteries. Always consult the SDS for your specific product to ensure chemical components and hazards are correct. Refer to the flow chart to determine if your batteries are reportable. An asterisk (*) below indicates a required field in CERS. Please note that your CUPA may require more than the minimum required fields. Always fill out the inventory pages as completely as possible.

Chemical Identification and Physical Properties Required Fields:

Chemical Name, Common Name*, Physical State*, Hazardous Material Type, Trade Secret. Note: For the Physical state, if battery does not contain liquid electrolyte, check “solid” and report the amounts in pounds.

Chemical Identification and Physical Properties			
Chemical Name		CERS Chemical Library ID	
Lithium-Ion (li-ion)		-	
Common Name	CAS Number	US EPA SRS ID	
Lithium-Ion Battery			
Physical State	Hazardous Material Type	Trade Secret	
<input checked="" type="radio"/> Solid <input type="radio"/> Liquid <input type="radio"/> Gas	<input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste	<input type="radio"/> Yes <input checked="" type="radio"/> No	

Chemical Hazard Classification Required Fields:

EHS*, Radioactive, Fire Code Hazard Class (If available), DOT Hazard Class (If available), 24 Federal Hazard Categories. Note: Ensure 5 (Obsolete) Federal Hazard Categories on the left are unchecked if they are visible to you.

Chemical Hazard Classification		
EHS	Fire Code Hazard Classes (by priority)	DOT Hazard Class
<input type="radio"/> Yes <input checked="" type="radio"/> No	Toxic	9 - Misc. Hazardous Materials
Radioactive		State Waste Code
<input type="radio"/> Yes <input checked="" type="radio"/> No		
Curies	View/Edit Additional Firecodes	Lookup Code
Federal Hazard Categories		
<input checked="" type="checkbox"/> PHYSICAL: Flammable		
<input type="checkbox"/> PHYSICAL: Gas Under Pressure		
<input checked="" type="checkbox"/> PHYSICAL: Explosive		
<input type="checkbox"/> PHYSICAL: Self-heating		
<input type="checkbox"/> PHYSICAL: Pyrophoric		
<input type="checkbox"/> PHYSICAL: Oxidizer		
<input type="checkbox"/> PHYSICAL: Organic Peroxide		
<input type="checkbox"/> PHYSICAL: Self-reactive		
<input type="checkbox"/> PHYSICAL: Pyrophoric Gas		
<input type="checkbox"/> PHYSICAL: Corrosive to Metal		
<input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas		
<input type="checkbox"/> PHYSICAL: Combustible Dust		
<input type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC)		
<input type="checkbox"/> HEALTH: Carcinogenicity		
<input type="checkbox"/> HEALTH: Acute Toxicity		
<input type="checkbox"/> HEALTH: Reproductive Toxicity		
<input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation		
<input checked="" type="checkbox"/> HEALTH: Respiratory or Skin Sensitization		
<input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation		
<input type="checkbox"/> HEALTH: Specific Target Organ Toxicity		
<input type="checkbox"/> HEALTH: Aspiration Hazard		
<input type="checkbox"/> HEALTH: Germ Cell Mutagenicity		
<input type="checkbox"/> HEALTH: Simple Asphyxiant		
<input type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)		

Inventory Location and Quantity Required Fields:

Chemical Location, Average Daily Amount, Maximum Daily Amount*, Largest Container, Days on Site, Units*. Note: Amounts are an example and will be different for each location. Maximum daily amount should be the total of all containers on site added together (ex. 110 batteries that contain 5 lbs of hazardous materials each = 550 pounds). Average daily amount is the average daily amount stored on site, not the average daily amount used.

Inventory Location and Quantity			
Chemical Location	Average Daily Amount	Maximum Daily Amount	Units <input type="radio"/> gallons <input type="radio"/> cubic feet <input checked="" type="radio"/> pounds <input type="radio"/> tons
Battery rack	500	550	
Chemical Location Confidential EPCRA <input type="radio"/> Yes <input checked="" type="radio"/> No	Largest Container	Annual Waste Amount	
Map # (Optional)	Grid # (Optional)	Days on Site	

Inventory Storage Information Required Fields:

Inventory Storage Information*, Storage Pressure, Storage Temperature

Inventory Storage Information			
<input type="checkbox"/> Aboveground Tank	<input type="checkbox"/> Can	<input type="checkbox"/> Box	<input type="checkbox"/> Tank Truck, Tank Wagon
<input type="checkbox"/> Underground Tank	<input type="checkbox"/> Carboy	<input type="checkbox"/> Cylinder	<input type="checkbox"/> Tank Car, Rail Car
<input type="checkbox"/> Tank Inside Building	<input type="checkbox"/> Silo	<input type="checkbox"/> Glass Bottle	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Steel Drum	<input type="checkbox"/> Fiber Drum	<input type="checkbox"/> Plastic Bottle	battery
<input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Bag	<input type="checkbox"/> Tote Bin	
Storage Pressure <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient		Storage Temperature <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic	

Mixture Components:

Hazardous Component Name, CAS Number (If Available), % by Weight, EHS, Additional Mixture Components (If necessary). Note: Refer to Safety Data Sheet Section 3 for this information. The percent by weight should be reported as the highest percent listed if a range is shown. It is acceptable for the weight to add up to more than 100%.

Mixture Components			
Hazardous Component Name	CAS Number	% by Weight	EHS
Lithium Cobalt Oxide	12190-79-3	35	<input type="radio"/> Yes <input checked="" type="radio"/> No
Carbon, various forms	7440-44-0	30	<input type="radio"/> Yes <input checked="" type="radio"/> No
Polymer Binders		1	<input type="radio"/> Yes <input checked="" type="radio"/> No
Copper	7440-50-8	15	<input type="radio"/> Yes <input checked="" type="radio"/> No
Aluminum	7429-90-5	10	<input type="radio"/> Yes <input checked="" type="radio"/> No

Additional Mixture Components
Organic Carbonates - 10%
Lithium Salts - 6%
Biphenyl - 92-52-4 - .3%

Full Inventory with Required Fields Highlighted - Li-Ion Solid (Next page)

Full Inventory with Required Fields Highlighted - Li-Ion Solid

Chemical Identification and Physical Properties			
Chemical Name	Lithium-Ion (Li-ion)		CERs Chemical Library ID
Common Name	Lithium-Ion Battery	CAS Number	US EPA SRS ID
Physical State	<input checked="" type="radio"/> Solid <input type="radio"/> Liquid <input type="radio"/> Gas		Trade Secret
	Hazardous Material Type <input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste		<input type="radio"/> Yes <input checked="" type="radio"/> No

Chemical Hazard Classification			
EHS	Fire Code Hazard Classes (by priority)	DOT Hazard Class	State Waste Code
<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No Curies	Toxic _____ _____ View/Edit Additional Firecodes	9 - Misc. Hazardous Materials _____ Lookup Code	_____ Lookup Code
Federal Hazard Categories <input checked="" type="checkbox"/> PHYSICAL: Flammable <input type="checkbox"/> PHYSICAL: Gas Under Pressure <input checked="" type="checkbox"/> PHYSICAL: Explosive <input type="checkbox"/> PHYSICAL: Self-heating <input type="checkbox"/> PHYSICAL: Pyrophoric <input type="checkbox"/> PHYSICAL: Oxidizer <input type="checkbox"/> PHYSICAL: Organic Peroxide <input type="checkbox"/> PHYSICAL: Self-reactive <input type="checkbox"/> PHYSICAL: Pyrophoric Gas <input type="checkbox"/> PHYSICAL: Corrosive to Metal <input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas <input type="checkbox"/> PHYSICAL: Combustible Dust <input type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC) <input type="checkbox"/> HEALTH: Carcinogenicity <input type="checkbox"/> HEALTH: Acute Toxicity <input type="checkbox"/> HEALTH: Reproductive Toxicity <input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation <input checked="" type="checkbox"/> HEALTH: Respiratory or Skin Sensitization <input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation <input type="checkbox"/> HEALTH: Specific Target Organ Toxicity <input type="checkbox"/> HEALTH: Aspiration Hazard <input type="checkbox"/> HEALTH: Germ Cell Mutagenicity <input type="checkbox"/> HEALTH: Simple Asphyxiant <input type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)			

Inventory Location and Quantity			
Chemical Location	Average Daily Amount	Maximum Daily Amount	Units
Battery rack	500	550	<input type="radio"/> gallons <input type="radio"/> cubic feet <input checked="" type="radio"/> pounds <input type="radio"/> tons
Chemical Location Confidential EPCRA	Largest Container	Annual Waste Amount	
<input type="radio"/> Yes <input checked="" type="radio"/> No	5		
Map # (Optional)	Grid # (Optional)	Days on Site	
		365	

Inventory Storage Information			
<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Underground Tank <input type="checkbox"/> Tank Inside Building <input type="checkbox"/> Steel Drum <input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Can <input type="checkbox"/> Carboy <input type="checkbox"/> Silo <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Bag	<input type="checkbox"/> Box <input type="checkbox"/> Cylinder <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Tote Bin	<input type="checkbox"/> Tank Truck, Tank Wagon <input type="checkbox"/> Tank Car, Rail Car <input checked="" type="checkbox"/> Other battery
Storage Pressure		Storage Temperature	
<input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient		<input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic	

Mixture Components			
Hazardous Component Name	CAS Number	% by Weight	EHS
Lithium Cobalt Oxide	12190-79-3	35.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Carbon, various forms	7440-44-0	30.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Polymer Binders		1.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Copper	7440-50-8	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Aluminum	7429-90-5	10.00	<input type="radio"/> Yes <input checked="" type="radio"/> No

Additional Mixture Components
Organic Carbonates - 10% Lithium Salts - 6% Biphenyl -92-52-4 - 0.3%

B. Sample Chemical Inventory Page for Nickel Cadmium Batteries

Chemical Identification and Physical Properties

Chemical Name	Nickel Cadmium Batteries	CERS Chemical Library ID	-
Common Name	Nickel Cadmium Batteries	CAS Number	
Physical State	<input type="radio"/> Solid <input checked="" type="radio"/> Liquid <input type="radio"/> Gas	Hazardous Material Type	<input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste
		Trade Secret	<input type="radio"/> Yes <input checked="" type="radio"/> No

Chemical Hazard Classification

EHS	<input type="radio"/> Yes <input checked="" type="radio"/> No	Fire Code Hazard Classes (by priority)	DOT Hazard Class
Radioactive	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Curies		View/Edit Additional Firecodes	State Waste Code
			Lookup Code
Federal Hazard Categories			
<input type="checkbox"/> PHYSICAL: Flammable			
<input type="checkbox"/> PHYSICAL: Gas Under Pressure			
<input type="checkbox"/> PHYSICAL: Explosive			
<input type="checkbox"/> PHYSICAL: Self-heating			
<input type="checkbox"/> PHYSICAL: Pyrophoric			
<input type="checkbox"/> PHYSICAL: Oxidizer			
<input type="checkbox"/> PHYSICAL: Organic Peroxide			
<input type="checkbox"/> PHYSICAL: Self-reactive			
<input type="checkbox"/> PHYSICAL: Pyrophoric Gas			
<input type="checkbox"/> PHYSICAL: Corrosive to Metal			
<input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas			
<input type="checkbox"/> PHYSICAL: Combustible Dust			
<input type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC)			
<input type="checkbox"/> HEALTH: Carcinogenicity			
<input type="checkbox"/> HEALTH: Acute Toxicity			
<input type="checkbox"/> HEALTH: Reproductive Toxicity			
<input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation			
<input type="checkbox"/> HEALTH: Respiratory or Skin Sensitization			
<input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation			
<input type="checkbox"/> HEALTH: Specific Target Organ Toxicity			
<input type="checkbox"/> HEALTH: Aspiration Hazard			
<input type="checkbox"/> HEALTH: Germ Cell Mutagenicity			
<input type="checkbox"/> HEALTH: Simple Asphyxiant			
<input type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)			

Inventory Location and Quantity

Chemical Location	North West Enclosure	Average Daily Amount	80	Maximum Daily Amount	80	Units
Chemical Location Confidential EPCRA	<input type="radio"/> Yes <input checked="" type="radio"/> No	Largest Container	10	Annual Waste Amount		<input checked="" type="radio"/> gallons
Map # (Optional)		Days on Site	365			<input type="radio"/> cubic feet
Grid # (Optional)						<input type="radio"/> pounds
						<input type="radio"/> tons

Inventory Storage Information

<input type="checkbox"/> Aboveground Tank	<input type="checkbox"/> Can	<input type="checkbox"/> Box	<input type="checkbox"/> Tank Truck, Tank Wagon
<input type="checkbox"/> Underground Tank	<input type="checkbox"/> Carboy	<input type="checkbox"/> Cylinder	<input type="checkbox"/> Tank Car, Rail Car
<input type="checkbox"/> Tank Inside Building	<input type="checkbox"/> Silo	<input type="checkbox"/> Glass Bottle	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Steel Drum	<input type="checkbox"/> Fiber Drum	<input type="checkbox"/> Plastic Bottle	NiCad Battery
<input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Bag	<input type="checkbox"/> Tote Bin	
Storage Pressure		Storage Temperature	
<input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient		<input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic	

Mixture Components

Hazardous Component Name	CAS Number	% by Weight	EHS	Additional Mixture Components
Alkaline Electrolyte		40.00	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Nickel	7440-02-0	20.00	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Active Nickel	12054-48-7	15.00	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Active Cadmium (Cadmium Hydroxide)	21041-95-2	12.00	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Cobalt	21041-93-0	2.00	<input type="radio"/> Yes <input checked="" type="radio"/> No	

C. Sample Chemical Inventory for Lead Acid Batteries

Chemical Identification and Physical Properties

Chemical Name Lead Acid Batteries	CERS Chemical Library ID -
Common Name Lead Acid Batteries	CAS Number
	US EPA SRS ID
Physical State <input type="radio"/> Solid <input checked="" type="radio"/> Liquid <input type="radio"/> Gas	Hazardous Material Type <i>?</i> <input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste
	Trade Secret <input type="radio"/> Yes <input checked="" type="radio"/> No

Chemical Hazard Classification

EHS <i>?</i> <input type="radio"/> Yes <input checked="" type="radio"/> No	Fire Code Hazard Classes (by priority) Corrosive	DOT Hazard Class <i>?</i> 8 - Corrosives (Liquids and Solids)
Radioactive <input type="radio"/> Yes <input checked="" type="radio"/> No		State Waste Code <i>?</i> 792 Lookup Code
Curies 	View/Edit Additional Firecodes	
Federal Hazard Categories <input type="checkbox"/> Fire (Obsolete) <input type="checkbox"/> Reactive (Obsolete) <input type="checkbox"/> Pressure Release (Obsolete) <input type="checkbox"/> Acute Health (Obsolete) <input type="checkbox"/> Chronic Health (Obsolete)	Federal Hazard Categories <input type="checkbox"/> PHYSICAL: Flammable <input type="checkbox"/> PHYSICAL: Gas Under Pressure <input type="checkbox"/> PHYSICAL: Explosive <input type="checkbox"/> PHYSICAL: Self-heating <input type="checkbox"/> PHYSICAL: Pyrophoric <input type="checkbox"/> PHYSICAL: Oxidizer <input type="checkbox"/> PHYSICAL: Organic Peroxide <input type="checkbox"/> PHYSICAL: Self-reactive <input type="checkbox"/> PHYSICAL: Pyrophoric Gas <input checked="" type="checkbox"/> PHYSICAL: Corrosive to Metal <input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas <input type="checkbox"/> PHYSICAL: Combustible Dust <input type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC) <input type="checkbox"/> HEALTH: Carcinogenicity <input type="checkbox"/> HEALTH: Acute Toxicity <input type="checkbox"/> HEALTH: Reproductive Toxicity <input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation <input type="checkbox"/> HEALTH: Respiratory or Skin Sensitization <input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation <input type="checkbox"/> HEALTH: Specific Target Organ Toxicity <input type="checkbox"/> HEALTH: Aspiration Hazard <input type="checkbox"/> HEALTH: Germ Cell Mutagenicity <input type="checkbox"/> HEALTH: Simple Asphyxiant <input type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)	

Inventory Location and Quantity

Chemical Location Shop area	Average Daily Amount <i>?</i> 250	Maximum Daily Amount <i>?</i> 500	Units <i>?</i> <input checked="" type="radio"/> gallons <input type="radio"/> cubic feet <input type="radio"/> pounds <input type="radio"/> tons
Chemical Location Confidential EPCRA <input type="radio"/> Yes <input checked="" type="radio"/> No	Largest Container 5	Annual Waste Amount <i>?</i> 	
Map # (Optional) 	Days on Site 365		
Grid # (Optional) 			

Inventory Storage Information

<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Underground Tank <input type="checkbox"/> Tank Inside Building <input type="checkbox"/> Steel Drum <input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Can <input type="checkbox"/> Carboy <input type="checkbox"/> Silo <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Bag	<input type="checkbox"/> Box <input type="checkbox"/> Cylinder <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Tote Bin	<input type="checkbox"/> Tank Truck, Tank Wagon <input type="checkbox"/> Tank Car, Rail Car <input checked="" type="checkbox"/> Other Battery
Storage Pressure <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient	Storage Temperature <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic		

Mixture Components

Hazardous Component Name	CAS Number	% by Weight <i>?</i>	EHS	Additional Mixture Components <i>?</i>
Sulfuric Acid	7664-93-9	40.00	<input checked="" type="radio"/> Yes <input type="radio"/> No	
			<input type="radio"/> Yes <input type="radio"/> No	
			<input type="radio"/> Yes <input type="radio"/> No	
			<input type="radio"/> Yes <input type="radio"/> No	

D. Sample Chemical Inventory for Alkaline Batteries

Chemical Identification and Physical Properties			
Chemical Name Alkaline Batteries (Potassium Hydroxide electrolyte)		CERS Chemical Library ID -	
Common Name Alkaline Batteries	CAS Number	US EPA SRS ID	
Physical State <input type="radio"/> Solid <input checked="" type="radio"/> Liquid <input type="radio"/> Gas	Hazardous Material Type <input type="radio"/> Pure <input checked="" type="radio"/> Mixture <input type="radio"/> Waste	Trade Secret <input type="radio"/> Yes <input checked="" type="radio"/> No	

Chemical Hazard Classification			
EHS <input type="radio"/> Yes <input checked="" type="radio"/> No	Fire Code Hazard Classes (by priority) Corrosive	DOT Hazard Class 9 - Misc. Hazardous Materials	
Radioactive <input type="radio"/> Yes <input checked="" type="radio"/> No		State Waste Code	
Curies	View/Edit Additional Firecodes	Lookup Code	
Federal Hazard Categories <input type="checkbox"/> Fire (Obsolete) <input type="checkbox"/> Reactive (Obsolete) <input type="checkbox"/> Pressure Release (Obsolete) <input type="checkbox"/> Acute Health (Obsolete) <input type="checkbox"/> Chronic Health (Obsolete)		Federal Hazard Categories <input type="checkbox"/> PHYSICAL: Flammable <input type="checkbox"/> PHYSICAL: Gas Under Pressure <input type="checkbox"/> PHYSICAL: Explosive <input type="checkbox"/> PHYSICAL: Self-heating <input type="checkbox"/> PHYSICAL: Pyrophoric <input type="checkbox"/> PHYSICAL: Oxidizer <input type="checkbox"/> PHYSICAL: Organic Peroxide <input type="checkbox"/> PHYSICAL: Self-reactive <input type="checkbox"/> PHYSICAL: Pyrophoric Gas <input checked="" type="checkbox"/> PHYSICAL: Corrosive to Metal <input type="checkbox"/> PHYSICAL: In Contact with Water Emits Flammable Gas <input type="checkbox"/> PHYSICAL: Combustible Dust <input type="checkbox"/> PHYSICAL: Hazard Not Otherwise Classified (HNOC) <input type="checkbox"/> HEALTH: Carcinogenicity <input type="checkbox"/> HEALTH: Acute Toxicity <input type="checkbox"/> HEALTH: Reproductive Toxicity <input checked="" type="checkbox"/> HEALTH: Skin Corrosion or Irritation <input checked="" type="checkbox"/> HEALTH: Respiratory or Skin Sensitization <input checked="" type="checkbox"/> HEALTH: Serious Eye Damage or Eye Irritation <input type="checkbox"/> HEALTH: Specific Target Organ Toxicity <input type="checkbox"/> HEALTH: Aspiration Hazard <input type="checkbox"/> HEALTH: Germ Cell Mutagenicity <input type="checkbox"/> HEALTH: Simple Asphyxiant <input checked="" type="checkbox"/> HEALTH: Hazard Not Otherwise Classified (HNOC)	

Inventory Location and Quantity			
Chemical Location Loading Dock Storage Area	Average Daily Amount 27	Maximum Daily Amount 55	Units <input checked="" type="radio"/> gallons <input type="radio"/> cubic feet <input type="radio"/> pounds <input type="radio"/> tons
Chemical Location Confidential EPCRA <input type="radio"/> Yes <input checked="" type="radio"/> No	Largest Container 0.005	Annual Waste Amount	
Map # (Optional)	Grid # (Optional)	Days on Site 365	

Inventory Storage Information			
<input type="checkbox"/> Aboveground Tank <input type="checkbox"/> Underground Tank <input type="checkbox"/> Tank Inside Building <input type="checkbox"/> Steel Drum <input type="checkbox"/> Plastic/Non-Metallic Drum	<input type="checkbox"/> Can <input type="checkbox"/> Carboy <input type="checkbox"/> Silo <input type="checkbox"/> Fiber Drum <input type="checkbox"/> Bag	<input type="checkbox"/> Box <input type="checkbox"/> Cylinder <input type="checkbox"/> Glass Bottle <input type="checkbox"/> Plastic Bottle <input type="checkbox"/> Tote Bin	<input type="checkbox"/> Tank Truck, Tank Wagon <input type="checkbox"/> Tank Car, Rail Car <input checked="" type="checkbox"/> Other battery
Storage Pressure <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient		Storage Temperature <input checked="" type="radio"/> Ambient <input type="radio"/> Above Ambient <input type="radio"/> Below Ambient <input type="radio"/> Cryogenic	

Mixture Components			
Hazardous Component Name	CAS Number	% by Weight	EHS
Graphite	7782-42-5	6.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Manganese Dioxide	1313-13-9	45.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Potassium Hydroxide	1310-58-3	8.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
Zinc	7440-66-6	25.00	<input type="radio"/> Yes <input checked="" type="radio"/> No
			<input type="radio"/> Yes <input checked="" type="radio"/> No

Additional Chemical/Material Description
Additional Chemical Description Information Non-Hazardous Components: Steel (iron CAS# 7439-89-6) Water, Paper, Plastic and Other Note: 200 batteries per gallon of potassium hydroxide or 11,000 batteries = 55 gallons

Fire Code

This guidance document is intended to standardize the reporting requirements for batteries as required in the Hazardous Materials Business Plan Program (HMBP) of the California Health & Safety Code. For fire-based Unified Program Agencies that also enforce the California Fire Code, it is important to note that recent changes to the Fire Code impact the quantity of batteries allowed in an occupancy which may have an effect on the reporting of these hazardous substances.

The growth and diversity of energy storage systems (ESS), along with recent fire incidents resulting in injuries to firefighters, has necessitated the development and update of fire-life safety codes to establish a minimum set of criteria to safeguard these systems. Both the California Fire Code (Chapter 12 - *Energy Systems*) and NFPA 855 (*Standard for the Installation of Stationary Energy Storage Systems*), establishes the minimum safety criteria required to mitigate the hazards associated with battery energy systems as it relates to their design, installation, operation, and maintenance. Whereas previous fire codes used the battery's weight or volume of electrolyte to determine code applicability; starting with the 2019 California Fire Code, the energy capacity of the battery system is now used for this purpose with battery storage systems capacities exceeding the Threshold Quantities listed below required to comply with additional fire code requirements.

**2019 California Fire Code Table 1206.2
Battery Storage System Threshold Quantities**

Battery Technology	Capacity
Flow batteries	20 kWh
Lead acid, all types	70 kWh
Lithium, all types	20 kWh
Nickel cadmium (Ni-Cd)	70 kWh
Sodium, all types	20 kWh
Other battery technologies	10 kWh

Analysis of the Health and Safety Code:

The intent of the HSC 25500 is to provide information about hazardous materials to first responders. However, items that are not specifically contained in HSC [25501\(n\)](#) may not be reportable without an ordinance according to paragraph 3 of that section. The battery work group for the TAG gathered and reviewed a significant amount of information about many different types of batteries in use and available on the market. It was found that most batteries contain hazardous materials in liquid, solid or both forms. It is also determined that these hazardous materials may “pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment” (HSC 25501(n)). It would seem they fit the definition of a reportable hazardous material. In some cases, however, these batteries have been excluded from the list of hazardous materials in 25501(n)(2) due to being listed by the manufacturer as an article.

This group considered several different options that could resolve this issue and concluded that the best option may be that the TAG provide guidance that batteries are not considered an “article” for the purposes of HMBP reporting.