



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

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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.

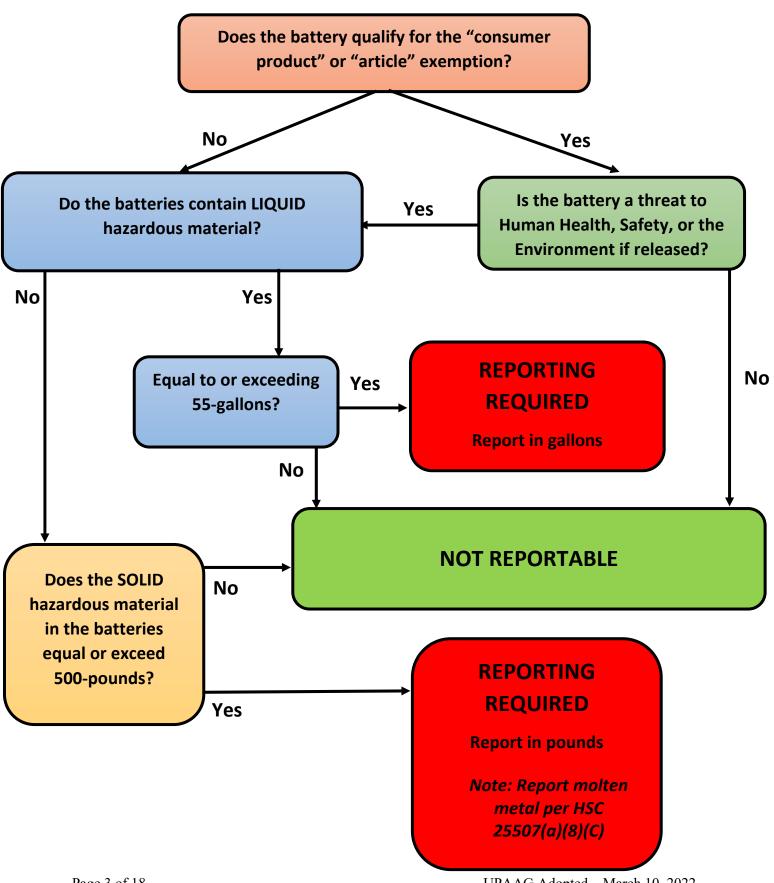
By their nature, batteries are made with a wide variety of materials including solid, liquid, or even molten materials. Although reportable mixtures of hazardous materials in different physical states can occur with some regularity, batteries represent a very frequent example of this reporting issue. 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 my the manufacturer, it may not quality 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 "<u>Enfonde letter of interpretation</u>" 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 <u>1997 letter of interpretation</u> 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., bums, 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 sublimes 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: <u>25501(n)(2)(E)</u>, <u>HSC 25117(a)</u>, <u>HSC 25141</u>, and <u>CCR Title 22 66261.1-66261.126</u>.

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 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 Cla	ssification—————		
	EHS @	Fire Code Hazard Classes (by priority)		DOT Hazard Class 🖗
	OYes ●No	Corrosive		9 - Misc. Hazardous Materials
	Radioactive	Toxic •		
	Yes No	TOXIC T		State Waste Code @
ø	Curies	View/Edit Additional Firecodes		Lookup Code
	Curies	View/Luit Additional Firecodes		<u></u>
	Federal Hazard Categories	.	Fe	deral Hazard Categories
	Fire (Obsolete)			PHYSICAL: Flammable
	Reactive (Obsolete)			PHYSICAL: Gas Under Pressure
	Pressure Release (Obs	solete)		PHYSICAL: Explosive
	Acute Health (Obsolete			PHYSICAL: Self-heating
	Chronic Health (Obsol	ete)		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
ø				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
			1	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 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.



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 Inform	nation			
inventory otorage inform	lation			
Aboveground Tank	☐ Can	Вох	☐ 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			Storage Temperature	
Ambient Above Ambi	ent Below	Ambient	■Ambient ○Above Ambient ○Below Ambient ○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%.



(Full inventory page on next page)

Full Inventory with Required Fields Highlighted – NiMH Liquid

Chemical Identification and Physical Pro		Disca	rd		Save Cancel
Onomical Identification and Filysical Fit	perties-				
Chemical Name				CERS Chemical Libra	ry ID
Nickel-Metal Hydride "NiMH" battery				-	
Common Name	hotton, collo)	CAS Number	r	US EPA SRS ID	
Nickel-Metal Hydride "NiMH" battery (large	Dattery Cells)				
Physical State Ha	azardous Material Type 🕡			Trade Secret	
	Pure Mixture Waste			○Yes No	
Chemical Hazard Classification—					
Fire Code Hazard Class Yes No Corrosive		class azardous Materials		•	
Radioactive Toxic	▼ 3 - WISC. TR	azardous iviateriais		•	
Yes ●No	▼ State Waste C	ode 🕶			
Curies View/Edit Additional	<u>Firecodes</u> <u>Loc</u>	okup Code			
Fodoral Uppered Ontonosia	Fodorel House	Onto monitor			
Federal Hazard Categories Fire (Obsolete)	Federal Hazard PHYSICAL: F	-			
Reactive (Obsolete)		Gas Under Pressure			
Pressure Release (Obsolete)	PHYSICAL:				
Acute Health (Obsolete)	PHYSICAL: S	-			
Chronic Health (Obsolete)	PHYSICAL: F				
		Oxidizer Organic Peroxide			
	PHYSICAL: S	•			
	PHYSICAL: F	Pyrophoric Gas			
		Corrosive to Metal			
		In Contact with Water Emits	Flammable Gas		
		Combustible Dust Hazard Not Otherwise Classi	ified (HNOC)		
	HEALTH: Car		illed (HNOC)		
	HEALTH: Ac				
	HEALTH: Re	productive Toxicity			
		in Corrosion or Irritation			
		spiratory or Skin Sensitization rious Eye Damage or Eye Irr			
		ecific Target Organ Toxicity			
	HEALTH: AS				
		rm Cell Mutagenicity			
		mple Asphyxiant			
	U HEALTH: Ha	zard Not Otherwise Classifie	ed (HNOC)		
Inventory Location and Quantity					
Chemical Location	Average Daily A		y Amount ₩	Units @	
Chemical Location North West Shed	70	75		• gallons	<u> </u>
Chemical Location North West Shed Chemical Location Confidential EPCRA	70 Largest Contain	75			
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No	70 Largest Contain 3.5	75		gallons cubic feet	
Chemical Location North West Shed Chemical Location Confidential EPCRA	70 Largest Contain	75		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	70 Largest Contain 3.5 Days on Site	75		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information	70 Largest Contain 3.5 Days on Site 365	75 er Annual Waste		gallons cubic feet pounds	l
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can	70 Largest Contain 3.5 Days on Site 365	75 eer Annual Waste		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy	70 Largest Contain 3.5 Days on Site 365 Box Tank Truck, Tank Cylinder Tank Car, Rail Car	75 eer Annual Waste		gallons cubic feet pounds	l
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Underground Tank Tank Inside Building Slio	70 Largest Contain 3.5 Days on Site 365 Box Tank Truck, Tank Cylinder Tank Car, Rail Car Glass Bottle	75 eer Annual Waste		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Starboy Tank Inside Building Silo Steel Drum	70 Largest Contain 3.5 Days on Site 365 Box Tank Truck, Tank Cylinder Tank Car, Rail Car	75 eer Annual Waste		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag	Box Cylinder Glass Bottle Plastic Bottle Tote Bin	75 Annual Waste Wagon		gallons cubic feet pounds	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin 70 Largest Contain 3.5 Days on Site 365 Tank Truck, Tank Cylinder Tank Car, Rail Car Ø Other battery container Storage	75 er Annual Waste Wagon r	Amount @	egalions cubic feet pounds tons	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information -Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin 70 Largest Contain 3.5 Days on Site 365 Tank Truck, Tank Cylinder Tank Car, Rail Car Ø Other battery container Storage	75 Annual Waste Wagon	Amount @	egalions cubic feet pounds tons	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin 70 Largest Contain 3.5 Days on Site 365 Tank Truck, Tank Cylinder Tank Car, Rail Car Ø Other battery container Storage	75 er Annual Waste Wagon r	Amount @	egalions cubic feet pounds tons	
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Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am Mixture Components Hazardous Component Name	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin CAS Number 70 Largest Contain 3.5 Days on Site 365 Tank Truck, Tank Cylinder Tank Car, Rail Car Dattery container Storage © Amt CAS Number % by Weight	Wagon r e Temperature bient Above Ambient E EHS Addi	Amount ® Below Ambient	©gallons Cubic feet Dounds Tons Cryogenic	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am Mixture Components Hazardous Component Name Hydrogen Absorbing Alloy	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin CAS Number Weight 40.00 Largest Contain 3.5 Days on Site 365 Tank Truck, Tank Cylinder Tank Car, Rail Car Battery container Storage Amt	Wagon r e Temperature bient	■ Below Ambient itional Mixture Compilium Hydroxide 1 hium Hydroxide 1	©gallons Cubic feet Dounds Tons Cryogenic Cryogenic	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am Mixture Components Hazardous Component Name Hydrogen Absorbing Alloy Nickel-Cobalt-Zinc oxide	Days on Site 365 Box Cylinder Glass Bottle Plastic Bottle Tote Bin CAS Number CAS Number Weight 40.00 25.00	Wagon r e Temperature bient Above Ambient iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	Below Ambient	©gallons Cubic feet Dounds Tons Cryogenic Cryogenic	
Chemical Location North West Shed Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am Mixture Components Hazardous Component Name Hydrogen Absorbing Alloy Nickel-Cobalt-Zinc oxide Nickel	Days on Site 365 Box Cylinder Glass Bottle Tote Bin CAS Number CAS Number CAS Number Weight 40.00 25.00 7440-02-0 13.5 Days on Site 365 Tank Truck, Tank Dattery container Storage And 40.00 25.00 7440-02-0 15.00	Wagon r e Temperature bient Above Ambient Pyes No Yes No Yes No Yes No	■ Below Ambient itional Mixture Compilium Hydroxide 1 hium Hydroxide 1	©gallons Cubic feet Dounds Tons Cryogenic Cryogenic	
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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.

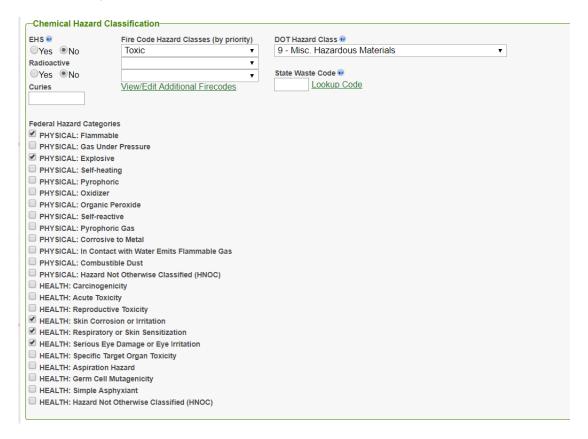
Chemical Identification and Physical Properties Required Fields:

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 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.



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 🕶
Battery rack	500	550	gallons
Chemical Location Confidential EPCRA	Largest Container	Annual Waste Amount @	Cubic feet
Yes ●No	5		poundstons
Map # (Optional) Grid # (Optional)	Days on Site		Clons

Inventory Storage Information Required Fields:

Inventory Storage Information*, Storage Pressure, Storage Temperature

Inventory Storage Inform	nation		
inventory otorage inform	iddoll		
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
Plastic/Non-Metallic Drum	■ Bag	☐ Tote Bin	
Storage Pressure			Storage Temperature
Ambient	ient OBelow	Ambient	●Ambient ○Above Ambient ○Below Ambient ○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%.



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					CERS Chemical Library ID		
Lithium-Ion (Li-ion)					-		
Common Name				CAS Number	US EPA SRS ID		
Lithium-Ion Battery							
Physical State	Hazardous Materia	I Type 🕶			Trade Secret		
●Solid ○Liquid ○Gas	○Pure ●Mixtu	re Waste			○Yes ●No		
Chemical Hazard Classification							
EHS P Fire Code F	lazard Classes (b	v priority)	DOT Hazard	Class 🕡			
OYes ●No Toxic	interior ordinates (b)	y priority/ ▼		azardous Materials	v		
Radioactive		▼	0 111130.11	azaraoas matoriais			
Yes No			State Waste (Code 🕶			
	Additional Fires	▼		okup Code			
Curies <u>view/Edit i</u>	Additional Fireco	<u>oues</u>		okup oodo			
Federal Hazard Categories PHYSICAL: Flammable PHYSICAL: Explosive PHYSICAL: Self-heating PHYSICAL: Pyrophoric PHYSICAL: Oxidizer PHYSICAL: Organic Peroxide PHYSICAL: Self-reactive PHYSICAL: Self-reactive PHYSICAL: Pyrophoric Gas PHYSICAL: Pyrophoric Gas PHYSICAL: Corrosive to Metal PHYSICAL: Corrosive to Metal PHYSICAL: Carboid Gas PHYSICAL: Corrosive to Metal PHYSICAL: The Contact with Water Emits Flammable Gas PHYSICAL: Carboid Gas PHYSICAL: Hazard Not Otherwise Classified (HNOC) HEALTH: Carcinogenicity HEALTH: Respiratory or Skin Sensitization							
✓ HEALTH: Serious Eye Damage or E → HEALTH: Specific Target Organ To: → HEALTH: HEALTH: Specific Target Organ To: → HEALTH: HEALTH							
HEALTH: Aspiration Hazard							
HEALTH: Germ Cell Mutagenicity							
HEALTH: Simple Asphyxiant							
HEALTH: Hazard Not Otherwise Cla	assified (HNOC)						
Inventory Location and Quantity							
Chemical Location		Average Daily Am		um Daily Amount 🕡	Units @		
Battery rack		500	550		○gallons ○cubic feet		
Chemical Location Confidential EPCRA		Largest Container	r Annua	Waste Amount 🕶	o pounds		
○Yes ●No		5			otons		
Map # (Optional) Grid # (Optional)	_ !	Days on Site			0.013		
		365					
Inventory Storage Information							
- 1 1 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1		ank Truck, Tank W	/agon				
	-,	ank Car, Rail Car					
	Glass Bottle 🗹 Of						
	Plastic Bottle batte	ery					
Plastic/Non-Metallic Drum Bag	Tote Bin						
Storage Pressure Ambient Above Ambient Below An	nbient	_	Temperature ent OAbove Am	nbient OBelow Ambient	Cryogenic		
Mixture Components							
	CACHUSTS	0/ by 18/a:b4 @	FUE	Additional Mixture Compo	nents 🕡		
Hazardous Component Name Lithium Cobalt Oxide	12100 70 2	% by Weight @	EHS	Organic Carbonates			
	12190-79-3	35.00	○Yes ●No	Lithium Salts - 6%			
Carbon, various forms	7440-44-0	30.00	OYes ●No	Biphenyl -92-52-4			
Polymer Binders		1.00	OYes ●No				
Copper	7440-50-8	15.00	OYes ●No				
			-				
Aluminum	7429-90-5	10.00	OYes ●No		[1]		

B. Sample Chemical Inventory Page for Nickel Cadmium Batteries

Chemical Identification and Physical Properties	
Chemical Name	CERS Chemical Library ID
Nickel Cadmium Batteries	- US EPA SRS ID
Common Name CAS Number	US EPA SKS ID
Nickel Cadmium Batteries	
Physical State Hazardous Material Type 💀	Trade Secret
Solid • Liquid • Gas • Pure • Mixture • Waste	○Yes ●No
Chemical Hazard Classification	
EHS Prire Code Hazard Classes (by priority) DOT Hazard Class Prire Code Hazar	
Yes ●No ▼ Radioactive ▼	▼
Radioactive ▼ ■Yes ■No ▼ State Waste Code ●	
Curies View/Edit Additional Firecodes Lookup Code	
Federal Hazard Categories PHYSICAL: Flammable PHYSICAL: Gas Under Pressure PHYSICAL: Explosive PHYSICAL: Self-heating PHYSICAL: Pyrophoric PHYSICAL: Oxidizer PHYSICAL: Oxidizer PHYSICAL: Oxidizer PHYSICAL: Self-reactive PHYSICAL: Self-reactive PHYSICAL: Corrosive to Metal PHYSICAL: Corrosive to Metal PHYSICAL: In Contact with Water Emits Flammable Gas PHYSICAL: Combustible Dust PHYSICAL: Carcinogenicity HEALTH: Carcinogenicity HEALTH: Reproductive Toxicity HEALTH: Reproductive Toxicity HEALTH: Self Corrosion or Irritation HEALTH: Specific Target Organ Toxicity	
HEALTH: Simple Asphyxlant	
☐ HEALTH: Hazard Not Otherwise Classified (HNOC)	
Inventory Location and Quantity—	
Chemical Location Average Daily Amount [®] Maximum Daily Amount [®] North West Enclosure 80 80	Units gallons
Chemical Location Confidential EPCRA Largest Container Annual Waste Amount @	cubic feet
Yes No 10	opounds tons
Map # (Optional) Days on Site	
300	
_Inventory Storage Information	
Aboveground Tank Can Box Tank Truck, Tank Wagon	
☐ Underground Tank ☐ Carboy ☐ Cylinder ☐ Tank Car, Rail Car	
Underground Tank Carboy □ Cylinder □ Tank Car, Rail Car □ Tank Inside Building □ Silo □ Glass Bottle ☑ Other	
Underground Tank	
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Storage Temperature	nt Cryogenic
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Ambient Above Ambient Below Ambient Tank Car, Rail Car Other NiCad Battery Storage Temperature Ambient Above Ambient Below Ambient Below Ambient Below Ambient	nt ©Cryogenic
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Storage Temperature	nt ©Cryogenic
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Ambient Above Ambient Below Ambient Mixture Components Hazardous Component Name CAS Number by Weight EHS Additional Mixture Component Name Tank Car, Rail Car Other NiCad Battery NiCad Battery Storage Temperature Ambient Above Ambient Below Ambient Storage Temperature Ambient Above Ambient Below Ambient Mixture Components Hazardous Component Name CAS Number by Weight EHS Additional Mixture Component	
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Ambient Above Ambient Below Ambient Mixture Components Hazardous Component Name CAS Number by Weight EHS Additional Mixture Com Alkaline Electrolyte Alkaline Electrolyte	
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Ambient Above Ambient Below Ambient Mixture Components Hazardous Component Name CAS Number by Weight EHS Alkaline Electrolyte 40.00 Yes No Nickel 7440-02-0 20.00 Yes No	
Underground Tank Carboy Cylinder Tank Car, Rail Car Tank Inside Building Silo Glass Bottle Steel Drum Fiber Drum Plastic Bottle Plastic/Non-Metallic Drum Bag Tote Bin Storage Pressure Ambient Above Ambient Below Ambient Mixture Components Hazardous Component Name CAS Number % by Weight EHS Alkaline Electrolyte 40.00 Yes No Nickel 7440-02-0 20.00 Yes No Active Nickel 12054-48-7 15.00 Yes No	
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 Below Ambient Above Ambient Below Ambient Above Ambient Below Ambient Above Ambient Below Ambient Below Ambient Above Ambient Below Ambient Above Ambient Below Ambient Below Ambient Above Ambient Below Ambient	

C. Sample Chemical Inventory for Lead Acid Batteries

- Criemical identification	ii aliu Filysicai Fiop	erues.					
Chemical Name Lead Acid Batteries							CERS Chemical Library ID
Common Name					CASN	lumber	US EPA SRS ID
Lead Acid Batteries					CASI	vuilibei	
Physical State		ardous Material Type					Trade Secret
Solid Liquid Ga	s OF	Pure Mixture	Waste				○Yes No
Chemical Hazard Clas							
EHS @	Fire Code Hazard Class	ses (by priority)	DOT Hazard Cla			PIX	
○Yes ●No Radioactive	Corrosive	- ·	8 - Corrosive	s (Liquids	and S	olids)	▼
Yes No		· · ·	State Waste Cod	de 🕶			
	View/Edit Additional I			up Code			
Federal Hazard Categories		1	Federal Hazard Ca	ategories			
Fire (Obsolete)			PHYSICAL: Fla				
Reactive (Obsolete)			PHYSICAL: Ga		essure		
Pressure Release (Obs Acute Health (Obsolete			PHYSICAL: Ex				
Chronic Health (Obsolete			PHYSICAL: Se				
- Control of Control	,		PHYSICAL: Ox				
			PHYSICAL: Or		xide		
			PHYSICAL: Se				
			PHYSICAL: Py				
			PHYSICAL: Co			Emits Flammable Gas	
			PHYSICAL: III			Ellits Flaminable Gas	
						Classified (HNOC)	
		(HEALTH: Carc	inogenicity			
			HEALTH: Acut				
			HEALTH: Repr				
			✓ HEALTH: Skin ✓ HEALTH: Resp				
			HEALTH: Resp				
			HEALTH: Spec				
			HEALTH: Aspir			•	
			HEALTH: Germ				
			HEALTH: Simp				
		(→ HEALTH: Haza	rd Not Othe	erwise C	classified (HNOC)	
Inventory Location an	d Quantity———						
Chemical Location			Average Daily Am	ount 🕶	Maximu	ım Daily Amount 🕶	Units 🕶
Shop area			250		500		gallons
Chemical Location Confide	ential EPCRA		argest Container	•	Annual	Waste Amount @	ocubic feet
○Yes No			5				opounds tons
Map # (Optional)	rid # (Optional)		Days on Site				Cions
]	365				
Inventory Storage Info	ormation-						
Aboveground Tank		вох 🗆 та	nk Truck, Tank W	agon			
Underground Tank			ink fluck, fallk vv ink Car, Rail Car				
☐ Tank Inside Building	Silo	Glass Bottle 🗹 Of	ther				
Steel Drum		Plastic Bottle Batt	ery				
Plastic/Non-Metallic Dru	ım 🗆 Bag 💮	Tote Bin					
Storage Brossess			04	Tommeret			
Storage Pressure Ambient Above Ar	nhient ORelow Amh	nient		Temperatur		bient Below Ambient	Ocryogenic
-Ambient -Above Al	IIDIOIR ODGIOW AITIL	//OIII	AIIDR	JIN OAD	OVO AIII	DOION AIIDIGIT	- or yogoriic
Mixture Components-							
Hazardous Com	ponent Name	CAS Number	% by Weight 🕡	EHS		Additional Mixture Comp	onents 🕡
Sulfuric Acid		7664-93-9	40.00	●Yes ○			
		Ì		○Yes ○	No		
				OYes C			
			<u> </u>		No		
		-			_		
				○Yes ○	NO		

D. Sample Chemical Inventory for Alkaline Batteries

Alkaline Batteries (Potassium Hydroxide el			CERS Chemical Library ID			
ruranne Datteries (Fotassium Hydroxide el	ectrolyte)		-			
Common Name		CAS Number	US EPA SRS ID			
Alkaline Batteries						
Dhymiael State	navdaus Material Tra		Trade Secret			
	zardous Material Typ Pure Mixture		Yes No			
O Solid O Elquid O Gus	Ture Swintere	· viusio	0103 0140			
Chemical Hazard Classification						
EHS P Fire Code Hazard Cla	usses (by priority)	DOT Hazard Class 🕡				
Yes No Corrosive	sses (by priority) ▼	9 - Misc. Hazardous Materials	▼			
Radioactive	▼					
○Yes ●No	*	State Waste Code @				
Curies View/Edit Additiona	I Firecodes	Lookup Code				
Federal Hazard Categories Fire (Obsolete)		Federal Hazard Categories PHYSICAL: Flammable				
Reactive (Obsolete)		PHYSICAL: Gas Under Pressure				
Pressure Release (Obsolete)		PHYSICAL: Explosive				
Acute Health (Obsolete)		PHYSICAL: Self-heating				
Chronic Health (Obsolete)		PHYSICAL: Pyrophoric				
		PHYSICAL: Oxidizer				
		PHYSICAL: Organic Peroxide				
		PHYSICAL: Self-reactive PHYSICAL: Pyrophoric Gas				
		→ PHYSICAL: Pyrophoric Gas → PHYSICAL: Corrosive to Metal				
		PHYSICAL: In Contact with Water Emits Flamma	ible Gas			
		PHYSICAL: Combustible Dust				
		PHYSICAL: Hazard Not Otherwise Classified (Hit	NOC)			
		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: Aspiration Hazard				
		HEALTH: Aspiration Hazard HEALTH: Germ Cell Mutagenicity				
		HEALTH: Germ Cell Mutagenicity	(c)			
		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant	(c)			
Inventory Location and Quantity		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant	(c)			
Inventory Location and Quantity		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO)				
Chemical Location		HEALTH: Germ Cell Mutagenicity □ HEALTH: Simple Asphyxiant □ HEALTH: Hazard Not Otherwise Classified (HNO	t			
Chemical Location Loading Dock Storage Area		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amoun 7	t			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA	ļ	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amoun T Annual Waste Amount	t			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO verage Daily Amount Maximum Daily Amoun 7 55 argest Container Annual Waste Amount	t Units g gallons cubic feet			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amoun T Annual Waste Amount	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount .005	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information		HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount .005	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can	Вох	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount T Annual Waste Amount 005 ays on Site 65	t Units O Gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy	Box Ta	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Maximum Daily Amount Annual Waste Amount Maximum Daily	t Units O Gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo	Box Tale Cylinder Glass Bottle	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount 55 Annual Waste Amount 005 als Truck, Tank Wagon als Car, Rail Car let	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	Box Ta Cylinder Ta Cylinder Datte Plastic Bottle Datte	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount 55 Annual Waste Amount 005 als Truck, Tank Wagon als Car, Rail Car let	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	Box Tale Cylinder Glass Bottle	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount 55 Annual Waste Amount 005 als Truck, Tank Wagon als Car, Rail Car let	t Units 0 0 gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	Box Ta Cylinder Ta Cylinder Datte Plastic Bottle Datte	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount 55 Annual Waste Amount 005 als Truck, Tank Wagon als Car, Rail Car let	t Units O Gallons Cubic feet pounds			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag	Box Table Flastic Bottle Flastic Bottle Tote Bin	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount 1005 ays on Site 65 Annual Waste Amount 105 Annual Waste Amount 107 Annual Waste Amount 108 Annual Waste Amount 109 Annual Waste	t Units			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am	Box Table Flastic Bottle Flastic Bottle Tote Bin	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount T Maximum Daily Amount 55 Annual Waste Amount 005 als Truck, Tank Wagon als Car, Rail Car ter Ty Storage Temperature	t Units			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage Information Aboveground Tank Underground Tank Carboy Tank Inside Building Steel Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am Mixture Components	Box Ta Cylinder Glass Bottle Glass Bottle Tote Bin Tote Bin	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container Annual Waste Amount .005 ays on Site 65 Ak Truck, Tank Wagon ak Car, Rail Car ter Ty Storage Temperature Maximum Daily Amount 65 Maximum Daily Amount 7 55 argest Container Annual Waste Amount .005 By Storage Temperature Maximum Daily Amount 65 Maximum Daily Amount 7 55 By Storage Temperature Maximum Daily Amount 65 Bo Storage Temperature Maximum Daily Amount 7 55 By Storage Temperature Maximum Daily Amount 65 By Storage Temperature Maximum Daily Amount 7 65 By Storage Temperature Maximum Daily Amount 8 65 By Storage Temperature 8 65	e Gallons Cubic feet pounds tons WAmbient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name	Box Ta Cylinder Ta Glass Bottle Plastic Bottle Tote Bin CAS Number	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 Annual Waste Amount005 ays on Site 65 ak Truck, Tank Wagonk Car, Rail Carerererererererererex	t Units O gallons Cubic feet pounds tons			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite	Box Ta Cylinder Glass Bottle Glass Bottle Tote Bin Tote Bin	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 argest Container005 argest Container005 Annual Waste Amount005 avys on Site 65 Struck, Tank Wagonk Car, Rail Car Storage Temperature Ambient Above Ambient Belov Storage Temperature Additional Mi 6.00 Yes No Additional Mi	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Plastic/Non-Metallic Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name	Box Ta Cylinder Ta Glass Bottle Plastic Bottle Tote Bin CAS Number	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 Annual Waste Amount005 ays on Site 65 ak Truck, Tank Wagonk Car, Rail Carerererererererererex	e gallons cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite	Box Ta Ta Cylinder Glass Bottle Plastic Bottle Tote Bin CAS Number 7782-42-5	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount 1005 Annual Waste Amount 105 As Truck, Tank Wagon 116 Car, Rail Car 117 Storage Temperature Above Ambient Belov Maximum Daily Amount 105 Annual Waste Amount 106 Annual Waste Amount 107 Annual Waste Amount 105 Annual Waste Amount 107 Annual Waste Amount 108 Annual Waste Amoun	e gallons cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) Inventory Storage InformationAboveground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below AmMixture Components Hazardous Component Name Graphite Manganese Dioxide	Box Table Total Bin CAS Number 7782-42-5 1313-13-9	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount 1005 Annual Waste Amount 105 Asys on Site 105 Ask Truck, Tank Wagon 116 126 137 138 148 159 159 160 160 170 160 170 160 170 160 170 17	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Storage Information Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite Manganese Dioxide Potassium Hydroxide	Box Tylinder Glass Bottle Plastic Bottle Tote Bin CAS Number 7782-42-5 1313-13-9 1310-58-3	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 ays on Site 65 Annual Waste Amount005 ays on Site 65 Storage Temperature Ambient Above Ambient Belov Storage Temperature Additional Mi 6.00 Yes No 8.00 Yes No 25.00 Yes No 25.00 Yes No	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Storage Information Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite Manganese Dioxide Potassium Hydroxide	Box Tylinder Glass Bottle Plastic Bottle Tote Bin CAS Number 7782-42-5 1313-13-9 1310-58-3	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount Maximum Daily Amount Annual Waste Amount 1005 Annual Waste Amount 105 Asys on Site 105 Ask Truck, Tank Wagon 116 126 137 138 148 159 159 160 160 170 160 170 160 170 160 170 17	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Can Underground Tank Carboy Storage Information Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite Manganese Dioxide Potassium Hydroxide	Box Tame Cylinder Tame Glass Bottle Communication of Comm	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 ays on Site 65 Annual Waste Amount005 ays on Site 65 Storage Temperature Ambient Above Ambient Belov Storage Temperature Additional Mi 6.00 Yes No 8.00 Yes No 25.00 Yes No 25.00 Yes No	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	Box Tame Cylinder Tame Glass Bottle Communication of Comm	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 ays on Site 65 Annual Waste Amount005 ays on Site 65 Storage Temperature Ambient Above Ambient Belov Storage Temperature Additional Mi 6.00 Yes No 8.00 Yes No 25.00 Yes No 25.00 Yes No	e gallons cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional) -Inventory Storage Information Aboveground Tank Carboy Tank Inside Building Silo Steel Drum Fiber Drum Bag Storage Pressure Ambient Above Ambient Below Am -Mixture Components Hazardous Component Name Graphite Manganese Dioxide Potassium Hydroxide Zinc -Additional Chemical/Material Description Additional Chemical Description Information	Box Cylinder Glass Bottle Plastic Bottle Tote Bin CAS Number 7782-42-5 1313-13-9 1310-58-3 7440-66-6	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005 ays on Site 65 Annual Waste Amount005 ays on Site 65 Storage Temperature Ambient Above Ambient Belov Storage Temperature Additional Mi 6.00 Yes No 8.00 Yes No 25.00 Yes No 25.00 Yes No	e Gallons Cubic feet pounds tons w Ambient Cryogenic			
Chemical Location Loading Dock Storage Area Chemical Location Confidential EPCRA Yes No Map # (Optional) Grid # (Optional)	Box Ta Ta Cylinder Glass Bottle Datter Tote Bin Datter Tote Bin CAS Number 7782-42-5 1313-13-9 1310-58-3 7440-66-6	HEALTH: Germ Cell Mutagenicity HEALTH: Simple Asphyxiant HEALTH: Hazard Not Otherwise Classified (HNO Werage Daily Amount Maximum Daily Amount 7 55 argest Container005	w Ambient Cryogenic			

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.