SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

1.1.1. Trade name/designation

Valve Regulated Lead Battery

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

NP, NPH, NPX, PE, PX, PXL, PYL, PWL, SLR, SLX, SWL, SWU, FXH, GOLDTOP and ECO R Series, VALVE REGULATED LEAD ACID (VRLA) BATTERY, ABSORBED ELECTROLYTE (AGM) CONSTRUCTION

1.2.2. Uses advised against

Any other not listed above

1.3. Details of the supplier

1.3.1. Supplier:

GS Yuasa Energy Solutions, Inc.

1.3.2. Website

www.gsyuasa-es.com

1.3.3. Information contact

1150 Northmeadow Parkway
Suite 110
Roswell, GA 30076-3886

1.3.4. National contact

GS Yuasa Energy Solutions, Inc.: (678) 762-4818

1.4. Emergency Telephone Number

CHEMTREC:	Domestic:	(800) 424-9300
	International:	1(703) 527-3887

SECTION 2. HAZARDS IDENTIFICATION

Material is an article. No health effects are expected during normal use of this product as sold. Hazardous exposure may occur when the product is heated, oxidized or otherwise processed, damaged or subjected to misuse. Follow manufacturer's instructions for installation, service and use.

2.1. Classification of the substance or mixture:

2.1.1. Health Hazards

Not classified.

2.1.2 Physical Hazards

Not classified.

2.2. Label elements

Emergency Overview

Appearance	Physical State	Odor
Not available.	Solid	Odorless

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Description of the mixture:

CAS No	EC No	Weight (%)	Name	WHMIS Classifications	Classification according to CLP (1272/2008)
7439-92-1	231-100-4	63-78%	Lead	D2A	Xn, N, T; R20/22, R33, R50, R50/53, R53, R61, R62; Repr. Cat. 1, Repr. Cat. 3; S53, S45, S60, S61 except those specified elsewhere in the annex
7664-93-9	231-639-5	10-30%	Sulfuric Acid	D1A, E (including >51%, <=51%)	C; R35; S1/2, S26, S30, S45
7440-36-0	231-146-5	0.2%	Antimony	Uncontrolled product accord-ing to WHMIS classification criteria; D1B (powder)	Xn, N; R20/22, R51/53;S2, S61 except tetroxide, pentoxide, trisulphide, pentasulphide, and those specified elsewhere in the annex
7440-31-5	231-141-8	0.006%	Tin	Uncontrolled product accord-ing to WHMIS classification criteria	Not Listed
7440-38-2	231-148-6	0.003%	Arsenic	D1A, D2A	T, N; R23/25, R50/53; S1/2, S20/21, S28, S45, S60, S61
7440-70-2	231-179-5	0.002%	Calcium	B6, E	F; R15; S2, S8, S24/25, S43

Case material composes 5-6% of the article. Case material includes the following components: 1-Propene, homopolymer (9003-07-0); Polystyrene (9003-53-6); Acrylonitrile, polymer with styrene (9003-54-7); Acrylonitrile, polymer with 1,3-butadiene and styrene (9003-56-9); Styrene polymer with 1,3-butadiene and styrene (9003-56-9); Styrene polymer with 1,3-butadine (Kraton) (9003-55-8); Ethylene, chloro-, polymer (9003-86-2); Hard Rubber; Polycarbonate; Polyethylene.

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

4.1.1 Eye contact:

First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If contact with material occurs flush eyes with water. Get medical attention.

4.1.2 Inhalation:

First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If signs/symptoms develop, move person to fresh air. Administer oxygen if breathing is difficult. Get medical attention.

4.1.3 Skin contact:

First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If exposure to electrolyte (sulfuric acid) occurs, flush with large quantities of water for 15 minutes. Immediately remove contaminated clothing and shoes. If exposure to lead component occurs, wash contaminated skin with plenty of soap and water.

4.1.4 Ingestion:

First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

If electrolyte (sulfuric acid) portion of battery is ingested give large quantities, DO NOT induce vomiting. Get medical attention immediately. If lead portion of battery is ingested get medical attention immediately.

4.1.5 Self-protection of the first aider:

If artificial respiration is required use a pocket mask equipped with a one-way valve or other proper respiratory medical device.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1 Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability. Lead absorption may cause nausea, weight loss, abdominal spasms, and pain in arms, legs and joints.

Effects of chronic lead exposure may include central nervous system (CNS) damage, kidney dysfunction, anemia, neuropathy particularly of the motor nerves with wrist drop, and potential reproductive effects. Acute exposure to sulfuric acid causes severe irritation, burns and permanent tissue damage to all routes of exposure.

4.2.2 Chronic exposure to sulfuric acid may cause erosion of tooth enamel, inflammation of nose, throat and respiratory system.

SECTION 5. FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1 Suitable extinguishing media:

CO_2, dry chemical or foam

5.1.2 Unsuitable extinguishing media:

Avoid using water

5.2. Special hazards arising from the substance or mixture

5.2.1 Hazardous combustion products:

Lead portion of battery will likely produce toxic metal fume, vapor or dust.

5.3. Advice for fire-fighters:

If batteries are on charge, shut off power. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries.
Wear a positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

5.4. Additional information:

Highly flammable hydrogen gas is generated during charging and operation of batteries. Water applied to electrolyte generates heat and causes it to splatter.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel Protective equipment:

Wear chemical gloves

6.1.2 For emergency responders

Personal protective equipment:
Wear chemical gloves, goggles, acid resistant clothing and boots, respirator if insufficient ventilation.

6.2. Environmental precautions:

Prevent entry into waterways, sewers, basements or confined areas. Runoff from fire control and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

6.3. Methods and material for containment and cleaning up

6.3.1 For containment:

In the event of a battery rupturing; stop the leak if you can do it without risk. Absorb with earth, sand or other non-combustible material. Cautiously neutralize spilled liquid.

6.3.2 For cleaning up:

Dispose of in accordance with local, State, and national regulations.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1 Protective measures:

Handle batteries cautiously. Do not tip to avoid spills (if filled with electrolyte). Avoid contact with internal components. Wear protective clothing when filling or handling batteries. Follow manufacturer's instructions for installation and service. Do not allow conductive material to touch the battery terminals. Short circuit may occur and cause battery failure and fire.

7.1.2 Advice on general occupational hygiene

Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Eyewash stations and safety showers should be provided with unlimited water supply. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:
Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources. Batteries should be stored under roof for protection against adverse weather conditions. Place cardboard between layers of stacked batteries to avoid damage and short circuits. Store batteries on an impervious surface.
Storage class:
Class 8B: Non-flammable corrosive materials

SECTION 8. XPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1 Occupational exposure limits:

Limit value type (Country of origin)	Sub-stance name	EC-No.	CAS-No	Limit value	Monitoring and observation processes
TWA(ACGIH USA) TWA (CA) TWA (FI) STEL(ME) TWA (ME) TWA (NIOSH USA)	Tin	231-141-8	7440-31-5	2 mg/m^3 2 mg/m^3 2 mg/m^3 4 mg/m^3 2 mg/m^3 2 mg/m^3	
STEL (CH) TWA (CH) TWA (ACGIH USA) TWA (CA) TWA (FI) TWA (JP) TWA(ME) TWA(NIOSH USA) TWA (OSHA USA)	Antimony	231-146-5	7440-36-0	1.5 mg/m^3 0.5 mg/m^3 0.5 mg/m^3 0.5 mg/m^3 0.5 mg/m^3 0.1 mg/m^3 0.5 mg/m^3 0.5 mg/m^3 0.5 mg/m^3	
TWA (ACGIH) TWA (CA ON) STEL(CA QU) TWA(CA QU) STEL (CH) TWA(CH) STEL(FI) TWA(FI)	Sulfuric Acid	231-639-5	7664-93-9	0.2 mg/m^3 0.2 mg/m^3 3 mg/m^3 1 mg/m^3 2 mg/m^3 1 mg/m^3 1 mg/m^3 0.2 mg/m^3	Thoracic fraction Thoracic
Ceiling(DE) MAK(DE) Ceiling(JP) TWA(ME) TWA(NIOSH) TWA(OSHA)				0.1 mg/m^3 peak 0.1 mg/m^3 1 mg/m^3 1 mg/m^3 1 mg/m^3 1 mg/m^3	Inhalable fraction Inhalable fraction
TWA (ACGIH) TWA(CA ON) TWA(CA QU) STEL(CH) TWA(CH) TWA(FI) Biological Limit Value (FI) TWA(JP) TWA(ME) TWA(NIOSH) TWA(OSHA)	Lead	231-100-4	7439-92-1	0.05 mg/m^3 0.05 mg/m^3 0.05 mg/m^3 0.15 (0.09) mg/m^3 0.05(0.03)mg/m^3 0.1 mg/m^3 1.4 umol/L 0.1 mg/m^3 0.15 mg/m^3 0.05 mg/m^3 50 ug/m^3	Designated substance regulation Dust (fume) Dust (fume) Dust As Pb, dust and fume

8.2. Exposure controls

8.2.1 Appropriate engineering controls:

Store and charge in a well-ventilated area. General dilution ventilation is acceptable.

8.2.2 Personal protective equipment:

8.2.2.1 Pictograms:

8.2.2.2 Eye/Face protection:

Wear protective eyewear (goggles, face shield or safety glasses with side shields).

8.2.2.3 Skin protection:

Wear protective gloves.

No skin protection is ordinarily required under normal conditions of use. In accordance with industrial hygiene practices. If contact with leaking battery is expected, precautions should be taken to avoid skin contact. Under severe exposure or emergency conditions, wear acid resistant clothing and boots.

8.2.2.4 Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

9.1.1. Appearance

Physical state: Solid Color: Clear (Electrolyte) Odor: Odorless Odor threshold: No Data

9.1.2. Safety relevant basic data

pH (20 ˚C):	No Data
Melting point/range(˚C):	No Data
Initial boiling point/range (˚C):	95-115.555 (Electrolyte)
Decomposition temperature (˚C):	No Data
Flash point (˚C):	No Data
Ignition temperature (˚C):	No Data
Vapor pressure (mm Hg):	10 (Electrolyte)
Vapor density (air = 1):	1 (Electrolyte)
Bulk density (kg/m^3):	No Data
Specific Gravity/Relative Density (Water=1):	1.215-1.350 (Electrolyte) 9.6-11.3 (Lead)
Water solubility (20˚C in g/l):	100% (Electrolyte)
Solubility(ies):	No Data
Partition coefficient:	No Data

N-Octanol/Water (log Po/w):	No Data
Viscosity, dynamic (mPa s):	No Data

9.1.3. Physical hazards:

Flammable gases
Metal corrosion

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity:

Not reactive

10.2. Chemical stability:

Stable under normal temperatures and pressures

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid:

Prolonged overcharge, sources of ignition.

10.5. Incompatible materials:

Sulfuric acid: Contact with combustible and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.
Lead compounds: Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, reducing agents and water.

10.6. Hazardous decomposition products:

Lead compounds exposed to high temperatures will likely produce toxic metal fume, vapor or dust; contact with strong acid/base or presence of nascent hydrogen may generate highly toxic arsine gas.
Sulfuric acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide and hydrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Lead (7439-92-1)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	155 mg/kg	Human	LDLo	
Acute oral toxicity	1050 ug/kg	Rat	TDLo	30 Weeks(int.)
Acute inhalative toxicity (dust/mist)	0.011 mg/m3	Human	LCLo	26 Weeks (int.)
Mutagen	23 ug/m3	Rat	Inhalation	16 Weeks
Reproductive	790 mg/kg	Rat	TDLo (Oral)	
Reproductive	3 mg/m3	Rat	TCLo (Inhalation)	1-21 Days preg.

Antimony (7440-36-0)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	100 mg/kg	Rat	LD50	
Acute inhalative toxicity (dust/mist)	13.5 mg/m3	Human	LCLo	4 Hours
Tumorigen/Carcinogen	50 mg/m3	Rat	TCLo	7 hours 52 weeks (int.)

Sulfuric Acid (7664-93-9)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	2140 mg/kg	Rat	LD50	
Acute inhalative toxicity (vapor)	30 mg/m3	Guinea Pig	LCLo	7 Days (con.)
Acute inhalative toxicity (vapor)	510 mg/m3	Rat	LC50	2 Hours
Acute inhalative toxicity (vapor)	3 mg/m3	Human	LCLo	24 Weeks
Irritation	5 mg	Rabbit	SEV (eye)	30 second rinse
Irritation	250 ug	Rabbit	SEV (eye)	

Arsenic (7440-38-2)	Effect dose / Concentration	Species	Method	Time
Acute oral toxicity	763 mg/kg	Rat	LD50	
Acute oral toxicity	5 mg/kg	Rat	LDLo	
Mutagen	0.211 mg/L	Human	Oral	15 Years
Reproductive	605 ug/kg	Rat	TDLo	35 weeks preg.

11.2. Other information:

11.2.1 Carcinogenic Effects:

The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. **This classification does not apply to liquid for**ms of sulfuric acid or sulfuric acid solutions contained within a battery. Batteries subjected to abusive charging at excessively high currents for prolonged periods without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Carcinogenic Effects			
	CAS	IARC	NTP
Sulfuric acid	7664-93-9	Group 1-Carcinogenic	Not established
Lead	7439-92-1	Group 2A–Probable Carcinogen	Reasonably anticipated to be human carcinogen

11.2.2 Routes of exposure:

11.2.2.1 In case of ingestion:

Acute (Immediate): Under normal conditions of use, no health effects are expected. Lead ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping.

Chronic (Delayed): No data available

11.2.2.2 In case of skin contact:

Acute (Immediate): Under normal conditions of use, no health effects are expected.

Chronic (Delayed): No data available

11.2.2.3 In case of inhalation:

Acute (Immediate): Under normal conditions of use, no health effects are expected. Contents of an open battery can cause respiratory irritation.

Chronic (Delayed): Repeated and prolonged exposure may cause irritation.

11.2.2.4 In case of eye contact:

Acute (Immediate): Under normal conditions of use, no health effects are expected. Exposure to dust may cause irritation.

Chronic (Delayed): No data available

SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity:

Aquatic toxicity

12.1.1 Substances

Acute (short-term) toxicity: No Data

Effect dose	Exposure time	Species	Method	Evaluation	Remark
82 mg/L	24 Hours	Brachydanio rerio	LC50		
22 mg/L	96 Hours	Cyprinus carpio	LOEC		Lowest observable effect concentration

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment method

13.1.1 Product/packaging disposal:

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

13.1.2 Waste codes/waste designations according to EWC/AVV:

16 06 01*

13.2. Additional information:

Any waste marked with an asterisk (*) is considered as a hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

SECTION 14. TRANSPORT INFORMATION

14.1. Land transport (CFR 49: DOT)

These batteries have been tested and meet the non-spillable criteria listed in CFR49, 173.159 (d) (3) (i) and (ii). Non-spillable batteries are excepted from CFR 49, Subchapter C requirements, provided that the following criteria are met:

1.) The batteries must be protected against short circuits and securely packaged.

2.) The batteries and their outer packaging must be plainly and durably marked "NON-SPILLABLE" or "NONSPILLABLE BATTERY".

UN-No: UN2800
Proper shipping name: Batteries, wet, non-spillable
Class(es): 8
Packing group: III
Hazard label(s): 8
Special provision(s)/Exceptions: 159a

14.2. Land transport (ADR/RID/GGVSEB):

Non-spillable batteries are not subject to the requirements of ADR if, at a temperature of 55C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, as packaged for carriage, the terminals are protected from short circuit.

UN-No: UN2800
Proper shipping name: Batteries, Wet, Not-Spillable
Class(es): 8
Classification Code: C11
Packing group: Hazard label(s): 8
Special provision(s): 238, 295, 598

14.3. Land transport (TDG):

These batteries have been tested and meet the non-spillable criteria. Non-spillable batteries are excepted provided that the following criteria are met:

1.) The batteries must be protected against short circuits and securely packages.

2.) The batteries and their outer packaging must be plainly and durably marked "NON-SPILLABLE" or "NONSPILLABLE BATTERY".

UN-No: UN2800
Proper shipping name: Batteries, Wet, Non-Spillable
Class(es): 8
Packing group: III
Hazard label(s): 8
Special provision(s): 39

14.4. Sea transport (IMDG-Code/GGVSee):

These batteries have been tested and meet the non-spillable criteria listed in IMDG Code Special Provision 238.1 and .2; therefore, are not subject to the provisions of the IMDG Code provided that the battery terminals are protected against short circuits when packaged for transport.
UN No: UN2800
Proper shipping name: Batteries, Wet, Non-Spillable
Class(es): 8
Packing group: III
Marine Pollutant: No
Special provision(s): 29, 238

14.5. Air transport (ICAO-IATA/DGR):

GS Yuasa Energy Solutions, Inc. batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 872 and Special Provision A67. These batteries are accepted from all IATA regulations provided that the battery terminals are protected against short circuits. The words "Not Restricted, as per Special Provision A67" must be included in the description on the Air Waybill.
UN No: UN2800
Proper shipping name: Batteries, Wet, Non-Spillable
Class(es): 8
Packing group: III
Special provision(s): A48, A67, A164, A183

SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the mixture

15.1.1 National regulations (Canada):

WHMIS Classification:
Class E: Corrosive materials present at greater than 1%
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Controlled Products Regulations.

Canada DSL:

The following substances are listed on the Canadian DSL:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

Canada NDSL:

None of the components on this SDS are listed on the Canadian NDSL:

WHMIS: Ingredient Disclosure List

Substance	CAS No.	Wt. %	Disclosure Limit %
Calcium	7440-70-2	0.002%	Not Listed
Sulfuric Acid	7664-93-9	10-30%	1%
Lead	7439-92-1	63-78%	0.1%
Lead as Lead compounds		63-78%	Not Listed
Lead as Lead, inorganic		63-78%	1%
Tin	7440-31-5	0.006%	1%
Antimony	7440-36-0	0.2 %	1%
Antimony as Antimony compounds		0.2%	1%
Arsenic	7440-38-2	0.003%	0.1%

CEPA: Priority Substances List

Substance	CAS No.	Wt. %	Disclosure Limit %
Calcium	7440-70-2	0.002%	Not Listed
Sulfuric Acid	7664-93-9	10-30%	Not Listed
Lead	7439-92-1	63-78%	Not Listed
Lead as Lead compounds		63-78%	Not Listed
Lead as Lead, inorganic		63-78%	Not Listed
Tin	7440-31-5	0.006%	Not Listed
Antimony	7440-36-0	0.2 %	Not Listed
Antimony as Antimony compounds		0.2%	Not Listed
Arsenic	7440-38-2	0.003%	Not Listed

15.1.2 National regulations (China):

The following components are listed on the Inventory list for China:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

15.1.3 National regulations (European Union):

Classification:

Xi; C

Risk Phrases: R35, R36, R38

Safety Phrases: S1/2, S26, S30, S45

The following components are listed on the EU EINECS:

Lead (7439-92-1); Sulfuric acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

None of the above mentioned components are listed on the EU ELNICS.

CLP (1272/2008) Concentration Limits

Substance	CAS	WT %	Concentration Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	15%<=C: C; R35 5%<=C<15%: Xi; R36/38
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	2.5% ≤ C: Repr. Cat. 3; R62 1% ≤ C: Xn; R20/22 0.5% ≤ C: R33
Lead as Lead, inorganic		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	0.25% ≤ C: Xn; R20/22
Arsenic	7440-38-2	0.003	Not Listed

Substance	CAS	WT %	Substances and Preparations
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	B
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	A, E, 1(except those specified elsewhere in the annex)
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	A, 1 (except tetroxide, pentoxide, trisulphide, pentasulphide and those specified elsewhere in the annex)
Arsenic	7440-38-2	0.003	Not Listed

Germany

Lead Restrictions:

Lead concentration in the blood above 300 µg/L in male employees and 100 µg/L in female employees requires additional training for personal hygiene and vigilance. Lead concentration in the blood above 350 µg/L in male employees and 200 µg/L in female employees requires additional training for personal hygiene and vigilance; Lead concentration in the blood above 400 µg/L in male employees and 300 µg/L in female employees requires additional training for personal hygiene and vigilance; See TRGS 505 for detailed regulations regarding lead and lead compounds.

Employment restrictions for employees below the age of 18 years; Employment restrictions for pregnant or breastfeeding women; Prohibited for use at home based workplaces; Restrictions apply for use of lead compounds in packaging material, drinking water systems, cars, electrical and electronical devices; See TRGS 505 for detailed regulations regarding lead and lead compounds.

Emission Limits for Inorganic Dusts

Substance	CAS	WT %	Emission Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	2.5 g/h Mass flow (class II); 0.5 mg/m^3 mass concentration (Class II)
Lead as Lead compounds		63-78	2.5 m/h Mass flow (Class II, as Pb); 0.5 mg/m^3 Mass concentration (Class II, as Pb)
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	5 g/h Mass flow (Class III); 1 mg/m^3 Mass concentration (Class III)
Antimony	7440-36-0	0.2	5 g/h Mass flow (Class III); 1 mg/m^3 Mass concentration (Class III)
Antimony as Antimony compounds		0.2	5 g/h Mass flow (Class III, as Sb); 1 mg/m^3 Mass concentration (Class III, as Sb)
Arsenic	7440-38-2	0.003	Not Listed

15.1.4 National regulations (Japan):

The following chemicals are on the Japanese ENCS:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

Substance	CAS	WT %	Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	0.1% weight
Lead as Lead compounds		63-78	0.1% weight
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	0.1% weight

ISHL Prevention of Lead Poisoning

Substance	CAS	WT %	Status
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	Not Listed

ISHL Notifiable Substances

Substance	CAS	WT %	Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	1% weight
Lead	7439-92-1	63-78	0.1% weight
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	0.1% weight
Tin	7440-31-5	0.006	0.1% weight
Antimony	7440-36-0	0.2	0.1% weight
Antimony as Antimony compounds		0.2	0.1% weight
Arsenic	7440-38-2	0.003	0.1% weight

Air Pollution Control Law: Emission Standards for Air Pollutants

Substance	CAS	WT %	Emission Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	10-30 mg/Nm^3
Lead as Lead compounds		63-78	10-30 mg/Nm^3
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	Not Listed

Pollutant Release Transfer Register (PRTR): Class 1 Substances

Substance	CAS	WT %	Emission Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	304
Lead as Lead compounds		63-78	305(Designated class 1 substance)
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	31
Antimony as Antimony compounds		0.2	31
Arsenic	7440-38-2	0.003	332(Designated class 1 substance)

ISHL Working Environment Evaluation Standards: Administrative Control Levels

Substance	CAS	WT %	Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	0.05 mg/m3 ACL
Lead as Lead compounds		63-78	0.05 mg/m3 ACL (as Pb)
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	
Arsenic	7440-38-2	0.003	0.003 mg/m3 ACL

15.1.5 National regulations (Korea):

The following substances are listed on the Korean KECL:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

15.1.6 National regulations (Mexico):

Pollutant Release and Transfer Register: Reporting Emissions

Substance	CAS	WT %	Threshold Quantities
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	1 kg/yr TQ
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	1 kg/yr TQ

15.1.7 National regulations (United States):

The following substances are on the MA, NJ, and PA Right To Know Lists:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

The following substances are on the TSCA inventory:

Lead (7439-92-1); Sulfuric Acid (7664-93-9); Antimony (7440-36-0); Tin (7440-31-5); Arsenic (7440-38-2); Calcium (7440-70-2)

OSHA: Specifically Regulated Chemicals

Substance	CAS	WT %	Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	30 µg/m3 Action Level (Poison, See 29 CFR 1910.1025); 50 µg/m3 TWA
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	30 µg/m3 Action Level (Poison, See 29 CFR 1910.1025, as Pb); 50 µg/m3 TWA (as Pb)
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	Not Listed

CAA: 1990 Hazardous Air Pollutants

Substance	CAS	WT %	Limit
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	(includes any unique chemical substance that contains Lead as part of its infrastructure)
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	(includes any unique chemical substance that contains Lead as part of its infrastructure)
Arsenic	7440-38-2	0.003	Not Listed

CERCLA/SARA
Hazardous Substances and Their Reportable Quantities

Substance	CAS	WT %	Reportable Quantity
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	1000 lb final RQ; 454 kg final RQ
Lead	7439-92-1	63-78	10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	1 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 0.454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

Section 302 Extremely Hazardous Substances TPQs

Substance	CAS	WT %	Reportable Quantity
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	1000 lb EPCRA RQ
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	Not Listed

RCRA

Basis for Listing: Appendix VII

Substance	CAS	WT %	Basis
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K064, K065, K066, K069, K086, K100, K176
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Included in waste streams: F039, K021, K161, K177
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	Included in waste streams: F032, F034, F035, F039, K031, K060, K084, K101, K102, K161, K171, K172, K176

D Series Wastes: Max Concentration of Contaminants for the Toxic Characteristic

Substance	CAS	WT %	Regulatory Level
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	5.0 mg/L
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	5.0 mg/L

Hazardous Constituents: Appendix VIII to 40 CFR 261

Substance	CAS	WT %	Status
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Hazardous constituent – no waste number
Lead as Lead compounds		63-78	Hazardous constituent – no waste number
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Hazardous constituent – no waste number
Antimony as Antimony compounds		0.2	Hazardous constituent – no waste number
Arsenic	7440-38-2	0.003	Hazardous constituent – no waste number

California: California Proposition 65

Substance	CAS	WT %	Status
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Carcinogen(initial date 10/1/92); developmental toxicity(initial date 2/27/87); 0.5 µg/day(Maximum Allowable Dose Level); 15 µg/day oral(No Significant Risk Level); female reproductive toxicity(initial date 2/27/87); male reproductive toxicity(initial date 2/27/87)
Lead as Lead compounds		63-78	Carcinogen(initial date 10/1/92)
Lead as Lead, inorganic compounds		63-78	Developmental toxicity(initial date 2/27/87)
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	0.06µg/day inhalation(No Significant Risk Level); 10µg/day except inhalation(No Significant Risk Level)

Pennsylvania
Environmental Hazard list

Substance	CAS	WT %	Regulatory Level
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	
Lead	7439-92-1	63-78	
Lead as Lead compounds		63-78	
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	
Antimony as Antimony compounds		0.2	
Arsenic	7440-38-2	0.003	

Special hazardous Substances

Substance	CAS	WT %	Regulatory Level
Calcium	7440-70-2	0.002	Not Listed
Sulfuric Acid	7664-93-9	10-30	Not Listed
Lead	7439-92-1	63-78	Not Listed
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Not Listed
Antimony	7440-36-0	0.2	Not Listed
Antimony as Antimony compounds		0.2	Not Listed
Arsenic	7440-38-2	0.003	

Rhode Island: Hazardous Substances List

Substance	CAS	WT %	Regulatory Level
Calcium	7440-70-2	0.002	Flammable
Sulfuric Acid	7664-93-9	10-30	Toxic; Flammable
Lead	7439-92-1	63-78	Toxic (dust and fume)
Lead as Lead compounds		63-78	Not Listed
Lead as Lead, inorganic compounds		63-78	Not Listed
Tin	7440-31-5	0.006	Toxic
Antimony	7440-36-0	0.2	Toxic
Antimony as Antimony compounds		0.2	Toxic
Arsenic	7440-38-2	0.003	Toxic; Carcinogen

SECTION 16. OTHER INFORMATION

16.1. Relevant R-, H- and EUH-phrases (number and full text):

Hazard Abbreviations:

Xi: Irritant
Xn: Harmful
N: Dangerous for the environment
T: Toxic
C: Corrosive
F: Highly Flammable

Risk Phrases:

R15: Contact with water liberates extremely flammable gases
R20/22: Harmful by inhalation and if swallowed
R23/25: Toxic by inhalation and if swallowed
R33: Danger of cumulative effects
R35: Causes severe burns
R36: Irritating to eyes
R38: Irritating to skin
R50: Very toxic to aquatic organisms
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53: May cause long-term adverse effects in the aquatic environment
R61: May cause harm to the unborn child

R62: Possible risk of impaired fertility

Safety Phrases:

S1/2: Keep locked up and out of the reach of children
S2: Keep out of the reach of children
S8: Keep container dry
S20/21: When using do not eat, drink, or smoke
S24/25: Avoid contact with skin and eyes
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S28: After contact with skin, wash immediately with plenty of water
S30: Never add water to this product
S43: In case of fire use CO2, dry chemical, or foam. Never use water
S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S53: Avoid exposure – obtain special instructions before use
S60: This material and its container must be disposed of as hazardous waste
S61: Avoid release to the environment. Refer to special instructions/safety data sheet

Hazard statements:

H313: May be harmful in contact with skin
H315: Causes skin irritation
H335: May cause respiratory irritation
EUH201A: Warning! Contains lead

Precautionary statements:

P102: Keep out of reach of children.
P233: Keep containers tightly closed.
P210: Keep away from heat, sparks, and open flame while charging batteries.

16.2. Further information:

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. GS Yuasa Energy Solutions, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, GS Yuasa Energy Solutions, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.