# Safety Data Sheet
*acc. to OSHA HCS*

*Printing date 04/30/2015* *Reviewed on 04/30/2015*

## * 1 Identification

- ***Product Identifier***
  - ***Trade name:*** Vibra-TITE® Threadlocker
    - ***Synonyms:*** 121 Medium Strength Threadlocker
    - ***Part number:*** VT121
  - ***Relevant identified uses of the substance or mixture*** Thread locker
- ***Details of the supplier of the safety data sheet***
  - ***Manufacturer/Supplier:***
    ND Industries, Inc
    1000 North Crooks Road
    Clawson, MI 48017
    USA
    Telephone: +1-248-288-0000
    Email: info@ndindustries.com
    Website: www.ndindustries.com
  - ***Information department:*** Product safety department
  - ***Emergency telephone number:***
    United States: 1-800-424-9300
    International: +1-703-527-3887

21130012
21130010
21130013
21130011
21130449
21130451
21130450
21130448

## * 2 Hazard(s) identification

- ***Classification of the substance or mixture***


GHS07

| | | |
|---|---|---|
| Skin Irrit. 2 | H315 | Causes skin irritation. |
| Eye Irrit. 2A | H319 | Causes serious eye irritation. |
| Skin Sens. 1B | H317 | May cause an allergic skin reaction. |

- ***Label elements***
  - ***GHS label elements*** The product is classified and labeled according to the Globally Harmonized System (GHS).
    - ***Hazard pictograms***


GHS07

- ***Signal word*** Warning
- ***Hazard-determining components of labeling:***
  Polyglycol dioctanoate
- ***Hazard statements***
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H317 May cause an allergic skin reaction.
- ***Precautionary statements***

| | |
|---|---|
| P261 | Avoid breathing dust/fume/gas/mist/vapors/spray |
| P280 | Wear protective gloves. |
| P280 | Wear eye protection / face protection. |
| P264 | Wash thoroughly after handling. |
| P305+P351+P338 | If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P363 | Wash contaminated clothing before reuse. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P337+P313 | If eye irritation persists: Get medical advice/attention. |
| P302+P352 | If on skin: Wash with plenty of water. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |

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***Trade name:*** Vibra-TITE® Threadlocker

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- ***Classification system:***
  - ***NFPA ratings (scale 0 - 4)***


Health = 1
Fire = 1
Reactivity = 0

  - ***HMIS-ratings (scale 0 - 4)***


Health = *1
Fire = 1
Reactivity = 0

- ***Other hazards***
  - ***Results of PBT and vPvB assessment***
    - ***PBT:*** Not applicable.
    - ***vPvB:*** Not applicable.

## * 3 Composition/information on ingredients

- ***Chemical characterization: Mixtures***
  - ***Description:*** Mixture of the substances listed below with nonhazardous additions.
  - ***Dangerous components:***

| | | |
|---|---|---|
| 18268-70-7 | Polyglycol dioctanoate | 20-30% |
| 27813-02-1 | Hydroxypropyl methacrylate | 5-10% |
| 67762-90-7 | Synthetic amorphous silica (fumed) | 1-5% |
| 80-15-9 | Cumene hydroperoxide | 1-5% |
| 128-44-9 | Saccharin | 1-5% |

## * 4 First-aid measures

- ***Description of first aid measures***
  - ***After inhalation:***
    Supply fresh air and to be sure call for a doctor.
    In case of unconsciousness place patient stably in side position for transportation.
    Supply fresh air; consult doctor in case of complaints.
  - ***After skin contact:*** Immediately wash with water and soap and rinse thoroughly.
  - ***After eye contact:*** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - ***After swallowing:*** If symptoms persist consult doctor.
  - ***Information for doctor:***
    - ***Most important symptoms and effects, both acute and delayed*** No further relevant information available.
    - ***Indication of any immediate medical attention and special treatment needed***
      No further relevant information available.

## * 5 Fire-fighting measures

- ***Extinguishing media***
  - ***Suitable extinguishing agents:***
    CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- ***Special hazards arising from the substance or mixture*** No further relevant information available.
- ***Advice for firefighters***
  - ***Protective equipment:***
    Wear self-contained respiratory protective device.
    Wear fully protective suit.

## * 6 Accidental release measures

- ***Personal precautions, protective equipment and emergency procedures***
  Ensure adequate ventilation
  Wear protective clothing.
- ***Environmental precautions:*** Do not allow to enter sewers/ surface or ground water.
- ***Methods and material for containment and cleaning up:***
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Ensure adequate ventilation.
  Dispose of the collected material according to regulations.
- ***Reference to other sections***
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

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***Trade name:*** Vibra-TITE® Threadlocker

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## * 7 Handling and storage

- ***Handling:***
  - ***Precautions for safe handling***
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
    No special precautions are necessary if used correctly.
  - ***Information about protection against explosions and fires:*** No special measures required.
- ***Conditions for safe storage, including any incompatibilities***
  - ***Storage:***
    - ***Requirements to be met by storerooms and receptacles:*** No special requirements.
    - ***Information about storage in one common storage facility:*** Not required.
    - ***Further information about storage conditions:***
      Keep receptacle tightly sealed.
      Store in cool, dry conditions in well sealed receptacles.
- ***Specific end use(s)*** No further relevant information available.

## * 8 Exposure controls/personal protection

- ***Additional information about design of technical systems:*** No further data; see item 7.
- ***Control parameters***
  - ***Components with limit values that require monitoring at the workplace:***

**80-15-9 Cumene hydroperoxide**
WEEL Long-term value: 6 mg/m³, 1 ppm
Skin
- ***Additional information:*** The lists that were valid during the creation were used as basis.

- ***Exposure controls***
  - ***Personal protective equipment:***
    - ***General protective and hygienic measures:***
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes and skin.
    - ***Breathing equipment:***
      Not required.
      In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
    - ***Protection of hands:***


Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- ***Material of gloves***
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- ***Penetration time of glove material***
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
    - ***Eye protection:***


Tightly sealed goggles

- ***Body protection:*** Protective work clothing

## 9 Physical and chemical properties

- ***Information on basic physical and chemical properties***
  - ***General Information***
    - ***Appearance:***
      - ***Form:*** Liquid
      - ***Color:*** Blue
    - ***Odor:*** Characteristic
    - ***Odour threshold:*** Not determined.

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***Trade name:*** Vibra-TITE® Threadlocker

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- ***pH-value:*** Not determined.
- ***Change in condition***
  - ***Melting point/Melting range:*** Undetermined.
  - ***Boiling point/Boiling range:*** 200 °C (392 °F)
- ***Flash point:*** 95 °C (203 °F)
- ***Flammability (solid, gaseous):*** Not applicable.
- ***Ignition temperature:***
  - ***Decomposition temperature:*** Not determined.
- ***Auto igniting:*** Product is not selfigniting.
- ***Danger of explosion:*** Product does not present an explosion hazard.
- ***Explosion limits:***
  - ***Lower:*** Not determined.
  - ***Upper:*** Not determined.
- ***Vapor pressure:*** Not determined.
- ***Density:*** Not determined.
  - ***Relative density*** Not determined.
  - ***Vapour density*** Not determined.
  - ***Evaporation rate*** Not determined.
- ***Solubility in / Miscibility with***
  - ***Water:*** Not miscible or difficult to mix.
- ***Partition coefficient (n-octanol/water):*** Not determined.
- ***Viscosity:***
  - ***Dynamic:*** Not determined.
  - ***Kinematic:*** Not determined.
- ***Solvent content:***
  - ***Organic solvents:*** 0.4 %
  - ***Water:*** 1.1 %
  - ***VOC content:*** 0.4 %
    4.4 g/l / 0.04 lb/gl
  - ***Solids content:*** 87.1 %
- ***Other information*** No further relevant information available.

## *10 Stability and reactivity

- ***Reactivity***
  - ***Chemical stability***
    - ***Thermal decomposition / conditions to be avoided:*** No decomposition if used according to specifications.
- ***Possibility of hazardous reactions*** No dangerous reactions known.
- ***Conditions to avoid*** No further relevant information available.
- ***Incompatible materials:*** No further relevant information available.
- ***Hazardous decomposition products:***
  Aldehyde
  Hydrocarbons
  Carbon monoxide and carbon dioxide

## *11 Toxicological Information

- ***Information on toxicological effects***
  - ***Acute toxicity:***
    - ***LD/LC50 values that are relevant for classification:***

**18268-70-7 Polyglycol dioctanoate**

| | | |
|---|---|---|
| Oral | LD50 | 2500 mg/kg (rat) |

**80-15-9 Cumene hydroperoxide**

| | | |
|---|---|---|
| Oral | LD50 | 382 mg/kg (rat) |
| Dermal | LD50 | 500 mg/kg (rat) |
| Inhalative | LC50/4 h | 220 mg/l (rat) |

**128-44-9 Saccharin**

| | | |
|---|---|---|
| Oral | LD50 | 1280 mg/kg (rat) |

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***Trade name:*** Vibra-TITE® Threadlocker

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- ***Primary irritant effect:***
  - ***on the skin:*** Irritant to skin and mucous membranes.
  - ***on the eye:*** Irritating effect.
- ***Sensitization:*** Sensitization possible through skin contact.
- ***Additional toxicological information:***
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- ***Carcinogenic categories***
  - ***IARC (International Agency for Research on Cancer)***

None of the ingredients is listed.

  - ***NTP (National Toxicology Program)***

None of the ingredients is listed.

  - ***OSHA-Ca (Occupational Safety & Health Administration)***

None of the ingredients is listed.

## 12 Ecological information

- ***Toxicity***
  - ***Aquatic toxicity:*** No further relevant information available.
- ***Persistence and degradability*** No further relevant information available.
- ***Behavior in environmental systems:***
  - ***Bioaccumulative potential*** No further relevant information available.
  - ***Mobility in soil*** No further relevant information available.
- ***Additional ecological information:***
  - ***General notes:***
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- ***Results of PBT and vPvB assessment***
  - ***PBT:*** Not applicable.
  - ***vPvB:*** Not applicable.
- ***Other adverse effects*** No further relevant information available.

## 13 Disposal considerations

- ***Waste treatment methods***
  - ***Recommendation:*** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- ***Uncleaned packagings:***
  - ***Recommendation:*** Disposal must be made according to official regulations.

## 14 Transport information

- ***UN-Number***
  - ***DOT, ADN, IMDG, IATA*** not regulated
- ***UN proper shipping name***
  - ***DOT, ADN, IMDG, IATA*** not regulated
- ***Transport hazard class(es)***
  - ***DOT, ADN, IMDG, IATA***
    - ***Class*** not regulated
- ***Packing group***
  - ***DOT, IMDG, IATA*** not regulated
- ***Environmental hazards:***
  - ***Marine pollutant:*** No
- ***Special precautions for user*** Not applicable.
- ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code*** Not applicable.
- ***UN "Model Regulation":*** -

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## 15 Regulatory information

- ***Safety, health and environmental regulations/legislation specific for the substance or mixture***
  - ***Sara***
    - ***Section 355 (extremely hazardous substances):***

None of the ingredients is listed.

- ***Section 313 (Specific toxic chemical listings):***

80-15-9 Cumene hydroperoxide

- ***TSCA (Toxic Substances Control Act):***

Polyethylene glycol dimethacrylate
Polyglycol dioctanoate
Hydroxypropyl methacrylate
Synthetic amorphous silica (fumed)
Cumene hydroperoxide
Saccharin
Propylene glycol
2'-phenylacetohydrazide
1,4-naphthoquinone
Deionized water

- ***Proposition 65***
  - ***Chemicals known to cause cancer:***

None of the ingredients is listed.

- ***Chemicals known to cause reproductive toxicity for females:***

None of the ingredients is listed.

- ***Chemicals known to cause reproductive toxicity for males:***

None of the ingredients is listed.

- ***Chemicals known to cause developmental toxicity:***

None of the ingredients is listed.

- ***Carcinogenic categories***
  - ***EPA (Environmental Protection Agency)***

None of the ingredients is listed.

- ***TLV (Threshold Limit Value established by ACGIH)***

None of the ingredients is listed.

- ***NIOSH-Ca (National Institute for Occupational Safety and Health)***

None of the ingredients is listed.

- ***Chemical safety assessment:*** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- ***Department issuing SDS:*** ND Industries, Inc. - Safety, Health and Environmental Affairs
- ***Contact:*** Safety, Health and Environmental Affairs
- ***Date of preparation / last revision*** 04/30/2015 / 6
- ***Abbreviations and acronyms:***

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Skin Sens. 1B: Sensitisation - Skin, Hazard Category 1B

- **** Data compared to the previous version altered.***
- ***Disclaimer***

The information set forth is based on information that ND Industries, Incorporated believes to be accurate. No warranty, expressed or implied, is intended. The information is provided solely for your information and consideration and ND Industries Inc. assumes no legal responsibility for use or reliance thereon. In the event of a discrepancy between the information on the non-English document and its

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English counterpart, the English version shall supersede.

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# Safety Data Sheet

**According to Regulation (EC) No 1907/2006 (REACH)**

Trade name: Valve Regulated Lead Battery
MSDS No. 853023
Print date: 08DEC2011 Revision date: 08DEC2011



## 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:
Power sport batteries

1.2.2 Uses advised against:
Any other not listed above

*1.3 Details of the supplier*

1.3.1 Supplier:
Yuasa Battery, Inc.

1.3.2 Website:
www.yuasabatteries.com

1.3.3 Information contact
2901 Montrose Ave.
Laureldale, PA 19605
United States

1.3.4 National contact
Yuasa Battery Environmental Resources: (610)929-5781

*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.*

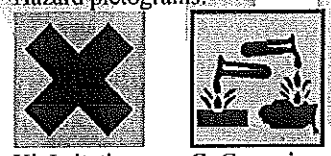
*2.1 Classification of the substance or mixture:*

2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]
8B: Non flammable corrosive materials

2.1.2 Classification according to 67/548/EEC or 1999/45/EC
Xi: Irritating

*2.2 Label elements*

2.2.1 Labeling according to Regulation (EC) No 1272/2008
Product identifier:
Valve Regulated Lead Battery
Hazard pictograms:



Xi: Irritating C: Corrosive

YUASA

NFPA:


WHMIS:

Signal word:
CAUTION
Hazard statements:
Contact with internal components may cause irritation or severe burns.
Irritating to eyes, respiratory system, and skin.
Precautionary statements:
Keep out of reach of children.
Keep containers tightly closed.
Avoid heat, sparks, and open flame while charging batteries.
Avoid contact with internal acid.

2.3 Other hazards

Adverse human health effects and symptoms:

**Inhalation:** (Acute): Under normal conditions of use, no health effects are expected. Contents of an open battery can cause respiratory irritation.
(Chronic): Repeated and prolonged exposure may cause irritation.

**Skin:** (Acute): Under normal conditions of use, no health effects are expected.
(Chronic): No data available

**Eye:** (Acute): Under normal conditions of use, no health effects are expected. Exposure to dust may cause irritation.
(Chronic): No data available.

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

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

## 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 according 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 according 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, NO 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.

## 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.

YUASA

## 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: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits:

| Limit value type (country of origin) | Substance name | EC-No. | CAS-No | Limit value | Monitoring and observation processes |
|---|---|---|---|---|---|
| TWA(ACGIH USA)<br>TWA (CA)<br>TWA (FI)<br>STEL(ME)<br>TWA (ME)<br>TWA (NIOSH USA) | Tin | 231-141-8 | 7440-31-5 | 2 mg/m3<br>2 mg/m3<br>2 mg/m3<br>4 mg/m3<br>2 mg/m3<br>2 mg/m3 | |
| STEL (CH)<br>TWA (CH)<br>TWA (ACGIH USA)<br>TWA (CA)<br>TWA (FI)<br>TWA (JP)<br>TWA(ME)<br>TWA(NIOSH USA)<br>TWA (OSHA USA) | Antimony | 231-146-5 | 7440-36-0 | 1.5 mg/m3<br>0.5 mg/m3<br>0.5 mg/m3<br>0.5 mg/m3<br>0.5 mg/m3<br>0.1 mg/m3<br>0.5 mg/m3<br>0.5 mg/m3<br>0.5 mg/m3 | |
| TWA (ACGIH)<br>TWA (CA ON)<br>STEL(CA QU)<br>TWA(CA QU)<br>STEL (CH)<br>TWA(CH)<br>STEL(FI)<br>TWA(FI) | Sulfuric Acid | 231-639-5 | 7664-93-9 | 0.2 mg/m3<br>0.2 mg/m3<br>3 mg/m3<br>1 mg/m3<br>2 mg/m3<br>1 mg/m3<br>1 mg/m3<br>0.2 mg/m3 | Thoracic fraction<br>Thoracic |

| | | | | | |
|---|---|---|---|---|---|
| Ceiling(DE)<br>MAK(DE)<br>Ceiling(JP)<br>TWA(ME)<br>TWA(NIOSH)<br>TWA(OSHA) | | | | 0.1 mg/m3 peak<br>0.1 mg/m3<br>1 mg/m3<br>1 mg/m3<br>1 mg/m3<br>1 mg/m3 | Inhalable fraction<br>Inhalable fraction |
| TWA (ACGIH)<br>TWA(CA ON)<br>TWA(CA QU)<br>STEL(CH)<br>TWA(CH)<br>TWA(FI)<br>Biological Limit Value (FI)<br>TWA(JP)<br>TWA(ME)<br>TWA(NIOSH)<br>TWA(OSHA) | Lead | 231-100-4 | 7439-92-1 | 0.05 mg/m3<br>0.05 mg/m3<br>0.05 mg/m3<br>0.15 (0.09) mg/m3<br>0.05(0.03)mg/m3<br>0.1 mg/m3<br><br>1.4 umol/L<br>0.1 mg/m3<br>0.15 mg/m3<br>0.05 mg/m3<br>50 ug/m3 | Designated substance regulation<br>Dust (fume)<br>Dust (fume)<br>Dust<br><br><br><br>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): 95-95.555
Decomposition temperature (°C): No Data
Flash point (°C): No Data

Ignition temperature (°C): No Data
Vapor pressure (hPa): 10 mmHg
Vapor density (air = 1): 1
Density (g/cm3)at °C: 75.8523-84.2803 lbs/ft3
Bulk density (kg/m3): No Data
Water solubility (20°C in g/l): 100%
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

9.2 Other safety information:
Properties of explosive atmospheres (mixtures):
Gases and vapors: No Data
Dusts: No Data
Physical chemical properties of nanoparticles: No Data
Limiting oxygen concentration: No Data
Bulk density: No Data
Solubility in different media: No Data
Stability in organic solvents and identity of relevant degradation products: No Data
Evaporation rate: No Data
Conductivity: No Data
Surface tension: No Data
Dissociation constant in water (pKa): No Data
Oxidation-reduction Potential: No Data
Fat solubility (solvent – oil to be specified): No Data
Critical temperature: No Data

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## 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 product 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. |
| **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) | |
| **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.) |

| 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 forms 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: Sulfuric Acid

| 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 methods

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

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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):
Yuasa VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 806 and Special Provision A67. These batteries are excepted 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 compounds | | 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 % | 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 |

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 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 | 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/m3 mass concentration (Class II) |
| Lead as Lead compounds | | 63-78 | 2.5 m/h Mass flow (Class II, as Pb); 0.5 mg/m3 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/m3 Mass concentration (Class III) |
| Antimony | 7440-36-0 | 0.2 | 5 g/h Mass flow (Class III); 1 mg/m3 Mass concentration (Class III) |
| Antimony as Antimony compounds | | 0.2 | 5 g/h Mass flow (Class III, as Sb); 1 mg/m3 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)

ISHL Harmful substances whose names are to be indicated on the label

| 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/Nm3 |
| Lead as Lead compounds | | 63-78 | 10-30 mg/Nm3 |
| 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 % | Status |
|---|---|---|---|
| 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 | Not Listed |
| 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 |

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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 Antimony 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) |

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Section 302 Extremely Hazardous Substances EPCRA RQs

| 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 |

Section 302 Extremely Hazardous Substances TPQs

| Substance | CAS | WT % | Threshold Planning Quantity |
|---|---|---|---|
| Calcium | 7440-70-2 | 0.002 | Not Listed |
| Sulfuric Acid | 7664-93-9 | 10-30 | 1000 lb TPQ |
| 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 |

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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

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**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 $CO_2$, 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. Yuasa, 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, Yuasa, 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.*

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