Valve Regulated Lead-Acid (VRLA) Industrial Battery

Safety Data Sheet

According to REACH Regulation (EC) No 1907/2006, as retained and amended in UK law.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	:	Article
Product name	:	Valve Regulated Lead-Acid (VRLA) Industrial Battery
Trade name	:	EN & ENL, NP, NPC, NPH, NPL, NPW, RE, REC, REW, SW, SWL, SWL+, TEV, FXH, UXH, UXL, Yucel, YuVolt, YPC and YFT Series of Industrial VRLA Batteries
Type of product	:	Batteries and accumulators

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

1.2.1. Relevant identified uses

Main use category	:	Industrial use,Professional use
Use of the substance/mixture	:	Standby: Telecoms; UPS; alarm and security systems; emergency lighting; utility switching Cyclic: Golf Trolleys, portable tools, portable lighting, wheelchairs, remote telemetry Energy storage: Photovoltaic energy systems (PVES); wind turbines

1.2.2. Uses advised against

Restrictions on use	:	Automotive, commercial, and agricultural SLI applications Reason why uses advised against: High starting and ignition current demands beyond the design of internal and external current carrying components

1.3. Details of the supplier of the safety data sheet

Only representative:
GS Yuasa Battery GmbH
Europark Fichtenhain B 17
47807 Krefeld
Germany
Telephone: +49 (0) 2151 82095 00
E-mail: info@gs-yuasa.de

Supplier:
GS Yuasa Battery Europe Limited
Unit 8, Ignition Park, Swindon, Wiltshire
SN3 5FB
E-mail: tech.info@gs-yuasa.uk

1.4. Emergency telephone number

Emergency number	:	United Kingdom GS Yuasa Battery Sales UK Ltd. Telephone: (+44) 01793-833-560 E-mail: matthew.elwick@gs-yuasa.uk Language: English language only Monday - Friday 9:00am – 5:00pm (09:00 - 17:00)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to GB CLP (SI 2019:720 as amended)

Acute toxicity (oral), Category 4	H302
Skin corrosion/irritation, Category 1, Sub-Category 1A	H314
Serious eye damage/eye irritation, Category 1	H318
Carcinogenicity, Category 1B	H350
Reproductive toxicity, Category 1B	H360D

Specific target organ toxicity – Repeated exposure, Category 1	H372
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Classification provided in the event of the internal battery components being exposed.

2.2. Label elements

Labelling according to GB CLP (SI 2019:720 as amended)

Hazard pictograms (GB CLP) :



GHS05 GHS07 GHS08 GHS09

Signal word (GB CLP) : Danger

Contains : sulphuric acid … %; Lead (Pb); Lead dioxide; Tetrabromobisphenol-A

Hazard statements (GB CLP) :
H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.
H350 - May cause cancer.
H360D - May damage the unborn child.
H372 - Causes damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (GB CLP) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501 - Dispose of contents and container to a hazardous or special waste collection point, in accordance with local, regional, national and international regulations.

Extra phrases (GB CLP) : Tetrabromobisphenol-A: *Ony contained in Fire Retardant (FR) product.

2.3. Other hazards

Other hazards which do not result in classification :

Mechanical

VRLA Batteries can be heavy. Correct manual handling techniques and/or mechanical lifting aides (e.g. Fork Lift Truck) must be used.

Electrical

VRLA Batteries can contain large amounts of electrical energy which can give very high discharge currents and severe electrical shock if the terminals are short circuited.

Chemical

• The VRLA Battery presents no chemical hazards during the normal operation provided the recommendations for handling, storage, transport and usage are observed.
• VRLA Batteries emit hydrogen gas which is highly flammable and will form explosive mixtures in air from approx. 4% to 76%. This can be ignited by a spark at any voltage, naked flames or other sources of ignition.
• If the battery is broken and the internal components exposed, hazards may exist which require careful attention.

Results of PBT and vPvB assessment

This substance does not meet the PBT criteria of UK REACH regulation, annex XIII
This substance does not meet the vPvB criteria of UK REACH regulation, annex XIII

Results of Endocrine Disruptor assessment

The substance is not included in the list established in accordance with Article 59(1) of UK REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in GB BPR and GB PPP

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to GB CLP (SI 2019:720 as amended)
Lead (Pb) substance listed on UK REACH candidate (Lead) substance with workplace exposure limit(s)	CAS-No.: 7439-92-1 EC-No.: 231-100-4	40 – 50	Repr. 1A, H360FD Lact., H362 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Lead dioxide	CAS-No.: 1309-60-0 EC-No.: 215-174-5	15 – 25	Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Acute Tox. 4 (Inhalation:vapour), H332 (ATE=11 mg/l/4h) Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
sulphuric acid … % substance with workplace exposure limit(s)	CAS-No.: 7664-93-9 EC-No.: 231-639-5	10 – 20	Skin Corr. 1A, H314
Fiber Glass Wool	CAS-No.: 65997-17-3 EC-No.: 266-046-0	1 – 3	Carc. 2, H351
Tetrabromobisphenol-A (See comment below*) substance listed on UK REACH candidate (2,2',6,6'-Tetrabromo-4,4'-isopropylidenediphenol)	CAS-No.: 79-94-7 EC-No.: 201-236-9	0 – 1.2	Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tin (Sn) substance with workplace exposure limit(s)	CAS-No.: 7440-31-5 EC-No.: 231-141-8	0 – 1	Not classified
Antimony trioxide (See comment below*)	CAS-No.: 1309-64-4 EC-No.: 215-175-0	0 – 0.3	Carc. 2, H351

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
Lead (Pb)	CAS-No.: 7439-92-1 EC-No.: 231-100-4	(0.3 ≤ C ≤ 100) Repr. 1A; H360D
sulphuric acid … %	CAS-No.: 7664-93-9 EC-No.: 231-639-5	(5 ≤ C < 15) Eye Irrit. 2; H319 (5 ≤ C < 15) Skin Irrit. 2; H315 (15 ≤ C ≤ 100) Skin Corr. 1A; H314

Comments :

Components	Substances
Plate Grid	Lead (Pb)
	Calcium
	Tin (Sn)
Active Materials	Lead monoxide
	Lead dioxide
Battery Electrolyte	sulphuric acid … %
Case Material	**Standard Grade, UL94:HB**
	Poly(acrylonitrile-co-butadiene-co-styrene)
	Flame Retardant (FR) Grade, UL94:V0
	Poly(acrylonitrile-co-butadiene-co-styrene)
	Tetrabromobisphenol-A
	Antimony trioxide
Separator Material	Glass, oxide, chemicals

*Ony contained in Fire Retardant (FR) product

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : **This information is of relevance only if the VRLA Battery has suffered damage, is broken and persons have direct contact with the internal components**. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Those administering first aid treatment should wear suitable protective clothing to prevent exposure (See Section 8).

First-aid measures after inhalation : If a battery ruptures, move to fresh air in case of accidental inhalation of mist. Remove person to fresh air and keep comfortable for breathing. If symptoms develop, obtain medical attention.

First-aid measures after skin contact : Remove contaminated clothing immediately. Wash immediately with lots of water (15 minutes)/shower. Immediately call a POISON CENTRE or doctor/physician.

First-aid measures after eye contact : Rinse immediately with plenty of water (for at least 15 minutes). Ensure that folded skin of eyelids is thoroughly washed with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Give 100 - 200 ml of water to drink. Immediately call a POISON CENTRE or doctor/physician.

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

Symptoms/effects : Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion.

Symptoms/effects after skin contact : Causes severe burns. Direct contact with internal components of a battery can be severely irritating to the skin and may result in redness, swelling, burns and severe skin damage.

Symptoms/effects after eye contact : Causes serious eye damage. If a battery ruptures, direct contact with the liquid or exposure to vapours or mists may cause tearing, redness, swelling, corneal damage and irreversible eye damage.

Chronic symptoms : Causes damage to organs through prolonged or repeated exposure. May cause cancer. May damage fertility or the unborn child.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire. If a battery ruptures, use dry chemical, soda ash, lime, sand or carbon dioxide.

Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Lead compounds and sulfuric acid fume may be released during a fire involving the product. Battery may rupture due to pressure buildup when exposed to excessive heat and may be result in the release of corrosive materials.

Explosion hazard : Risk of explosion if heated under confinement. VRLA Batteries emit hydrogen gas which is highly flammable and will form explosive mixtures in air from approx. 4% to 76%. This can be ignited by a spark at any voltage, naked flames or other sources of ignition. Batteries in use will be part of an electrical circuit and must be isolated from the power source before attempting to put out a fire. Switch the power OFF before disconnecting the batteries from the power source. Damaged batteries may expose negative plates, grey in colour, which may ignite if allowed to dry out. These plates may be wetted down with water after the battery has been removed from all electrical circuits.

Hazardous decomposition products in case of fire : Thermal decomposition can lead to release of irritating and toxic gases and vapours. Carbon oxides (CO, CO2). Sulphur oxides. Lead fumes.

5.3. Advice for firefighters

Precautionary measures fire : Keep away from combustible materials. Keep container closed when not in use.

Firefighting instructions : Exercise caution when fighting any chemical fire. Keep upwind. Avoid fire-fighting water entering the environment. Eliminate all ignition sources if safe to do so. Contain the extinguishing fluids by bunding.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Use self-contained breathing apparatus and chemically protective clothing.

Other information : Do not allow run-off from fire fighting to enter drains or water courses. High temperature decomposition products are harmful by inhalation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : **This information is of relevance only if the VRLA Battery has suffered damage and is broken**. Keep public away from danger area.

6.1.1. For non-emergency personnel

Protective equipment : Do not attempt to take action without suitable protective equipment. Wear suitable protective clothing, gloves and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Do not get in eyes, on skin, or on clothing. Do not breathe vapour. Do not touch or walk on the spilled product. Notify fire brigade and environmental authorities.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Wear suitable protective clothing, gloves and eye or face protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area. Do not get in eyes, on skin, or on clothing. Do not breathe vapours.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if large amounts of the product enters sewers or public waters. Do not allow contact with water.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Do not touch or walk on the spilled product.

Methods for cleaning up : Small spills: collect all released material in a plastic lined metal container. Take up liquid spill into absorbent material or Neutralize with sodium bicarbonate. Large spills: Take up liquid spill into absorbent material, e.g.: sand/earth. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Dispose in a safe manner in accordance with local/national regulations.

6.4. Reference to other sections

Personal protective equipment: see section 8. For disposal of residues refer to section 13 : Disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not get battery contents in eyes, on skin, or on clothing. Do not puncture, crush, disassemble, or incinerate the battery. Do not short-circuit terminals or expose the battery to excessive heat or open flame. Avoid breathing fumes or vapours that may be released if the battery is damaged. Wear suitable protective clothing, gloves, and eye or face protection when handling damaged or leaking batteries. Ensure good ventilation of the work station. Wash hands, forearms and face thoroughly after handling.

Hygiene measures : Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Take precautionary measures against static discharge. Provide local exhaust or general room ventilation.

Storage conditions : Store locked up. Store in a dry, cool and well-ventilated place.

Incompatible products : Strong acids. Strong bases. Strong oxidising agents.

Incompatible materials : Extremely high or low temperatures.

Heat and ignition sources : Keep away from heat and direct sunlight. Keep away from sources of ignition.

Information on mixed storage : Keep away from food, drink and animal feeding stuffs.

Storage area : Store, if possible, in a cool, well ventilated place away from incompatible materials.

7.3. Specific end use(s)

Batteries and accumulators.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

sulphuric acid … % (7664-93-9)	
United Kingdom - Occupational Exposure Limits	
Local name	Sulphuric acid
WEL TWA (mg/m³)	0.05 mg/m³ mist
WEL STEL (OEL STEL)*	0.15 mg/m³
Remark (WEL)	The mist is defined as the thoracic fraction
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
	*STEL value is calculated based on the TWA limit

Lead (Pb) (7439-92-1)	
United Kingdom - Occupational Exposure Limits	
Local name	Lead
WEL TWA (mg/m³)	0.15 mg/m³
WEL STEL (OEL STEL)*	0.45 mg/m³
Regulatory reference	The Control of Lead at Work Regulations 2002 (CLAW). HSE
	*STEL value is calculated based on the TWA limit
United Kingdom - Biological limit values	
BMGV	60 µg Pb/100 mL blood (adult males) 30 µg Pb/100 mL blood (adult females) 50 µg Pb/100 mL blood (young persons under 18)
Regulatory reference	The Control of Lead at Work Regulations 2002 (CLAW). HSE

Tin (Sn) (7440-31-5)	
United Kingdom - Occupational Exposure Limits	
Local name	Tin
WEL TWA (mg/m³)	2 mg/m³ compounds, inorganic, except SnH4, (as Sn4) 0.1 mg/m³ compounds, organic, except Cyhexatin (ISO), (as Sn)
WEL STEL (mg/m³)	4 mg/m³ compounds, inorganic, except SnH4, (as Sn4) 0.2 mg/m³ compounds, organic, except Cyhexatin (ISO), (as Sn)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
There are no special exposure controls for the handling, storage, installation or use of VRLA Batteries.

8.2.2. Personal protection equipment

Personal protective equipment:
Not required for normal conditions of use. If battery ruptures: Wear recommended personal protective equipment, Avoid all unnecessary exposure.

8.2.2.1. Eye and face protection

Eye protection:
Eye protection should only be necessary where liquid could be splashed or sprayed. Chemical goggles or safety glasses. (EN 166)

8.2.2.2. Skin protection

Skin and body protection:
Impervious clothing. EN 13034. Large quantities: EN 14605. Corrosionproof suit. Rubber apron, boots. Long sleeved clothing recommended

Hand protection:
Wear chemically resistant protective gloves according to EN 374-1. The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed. Gloves should be removed and replaced if there are any signs of degradation or breakthrough.

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear a respirator conforming to EN140 with Type A/P2 filter or better

8.2.2.4. Thermal hazards

Thermal hazard protection:

Not required for normal conditions of use.

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment. Do not allow to enter drains or water courses.

Consumer exposure controls:

Avoid contact during pregnancy/while nursing. Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Batteries and accumulators.
Odour	:	Not available
Odour threshold	:	Not available
pH	:	Not available
pH solution	:	Not available
Melting point	:	Not available
Freezing point	:	Not available
Boiling point	:	Not available
Flash point	:	Not applicable
Flammability	:	Not available
Explosive limits	:	Not applicable
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Relative vapour density at 20°C	:	Not applicable
Relative density	:	Not available
Density	:	Not available
Solubility	:	Not available
Log Kow	:	Not available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not available
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not available

9.2. Other information

	Plate Grids and Active materials:	Battery Electrolyte:	Case Material:	Separator Material:
Physical state:	Solid	Liquid	Solid	Fibrous Material
Colour:	Grey or brown	Colourless	Grey or Black	White
Odour:	Odourless	slight odour	slight odour	Odourless
Melting point:	327°C	35 to 60 °C	>100°C (DIN 53460)	Not applicable
Boiling point:	>600°C	~ 108 to 114 °C	Does not boil but degrades >270°C	>2500°C
Flammability:	Non flammable	Non flammable	Standard ABS: UL 94 HB, Fire-Retardant (FR) ABS UL 94 V-0 rating.	Not classified for flammability; not ignitable
Lower and upper explosion limit:	Not applicable	Non flammable	Not applicable	Not applicable
Flash point:	Non flammable	Non flammable	>330°C	Non flammable
Auto-ignition temperature:	Non flammable	Non flammable	>460°C	Non flammable
Decomposition temperature:	Not applicable	>700°C	>400°C	>800°C
pH:	Not applicable	1	Not applicable	Not applicable
Kinematic viscosity:	Not applicable	~ 4.4 cp	Not applicable	Not applicable
Solubility:	Water: Insoluble	100% in water	Insoluble	Insoluble
Partition coefficient n-octanol/water:	Not applicable	Not relevant for inorganic substances	ABS behaves as a strongly hydrophobic material, suggesting a high value	Not relevant for inorganic substances
Vapour pressure:	Not applicable	10-20 mmHg	Acrylonitrile Butadiene Styrene (ABS) is a thermoplastic polymer, not a liquid	Undetectable
Density and/or relative density:	11.35 g/cm3	Variable up to 1.350 g/cm3	1.07-1.4 g/cm3 (DIN 53479)	2.23g/cm3
Relative vapour density:	Not applicable	3.4	Not applicable	Not applicable
Particle characteristics:	Substance is a solid in massive form	When released into the atmosphere which not normal for battery applications, it forms aerosols or droplets, often in the sub micrometer to 4um size range	Substance is a solid	Substance is a solid

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under recommended handling and storage conditions (see section 7). The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4. Conditions to avoid

Overcharging. Remove all sources of ignition. Avoid excessive heat for prolonged periods of time. If battery ruptures, avoid contact with organic materials and alkaline materials. Mechanical impacts.

10.5. Incompatible materials

Strong bases. Strong acids. Strong oxidising agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2). Lead compounds and sulfuric acid fume may be released during a fire involving the product.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : **This information is of relevance only if the VRLA Battery has suffered damage and is broken**

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

sulphuric acid … % (7664-93-9)	
LC50 inhalation, rat (mg/l)	375 mg/m³ air

Lead (Pb) (7439-92-1)	
LD50 oral, rat	> 2000 mg/kg bodyweight
LD50 dermal, rat	> 2000 mg/kg bodyweight
LC50 inhalation, rat (mg/l)	> 5.05 mg/l (4 hours)

Tin (Sn) (7440-31-5)	
LD50 oral, rat	> 2000 mg/kg bodyweight (OECD 423 method)
LD50 dermal, rat	> 2000 mg/kg bodyweight (OECD 402 method)
LC50 inhalation, rat (mg/l)	> 4.75 mg/l 4 Hours (OECD 403 method)

Tetrabromobisphenol-A (79-94-7)	
LD50 oral, rat	> 5000 mg/kg (OECD 401 method)
LD50 dermal, rabbit	> 2000 mg/kg (OECD 402 method)

Skin corrosion/irritation : Causes severe skin burns.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : May cause cancer.

Lead (Pb) (7439-92-1)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : May damage the unborn child.

STOT-single exposure : Not classified

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Lead (Pb) (7439-92-1)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Lead dioxide (1309-60-0)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Other information

Endocrine disrupting properties

No additional information available

Other information

Potential adverse human health effects and symptoms : Causes severe skin burns and eye damage.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long–term (chronic) : Very toxic to aquatic life with long lasting effects.

Additional information : **This information is of relevance only if the VRLA Battery has suffered damage and is broken**.

sulphuric acid … % (7664-93-9)	
LC50 fish	16 – 28 mg/l - 96 Hours (Lepomis macrochirus)
EC50 Daphnia	> 100 mg/l - 48 Hours (Daphnia magna)
NOEC chronic fish	0.31 mg/l - 213 days (Salvelinus fontinalis)
NOEC chronic crustacea	0.15 mg/l - (Tanytarsus dissimilis)

Lead (Pb) (7439-92-1)	
LC50 fish	107 µg/l - 96 Hours (Oncorhynchus mykiss)
EC50 - Other aquatic organisms [1]	NOEC: 3.4 µg/L: 48 Hours (Mytilus trossolus)
NOEC chronic fish	29.3 µg/L - 30 days (Pimephales promelas)
NOEC chronic crustacea	153.8 µg/L - 25 days (Alona rectangula)

Tin (Sn) (7440-31-5)	
LC50 fish	> 12.4 µg/l 96 Hours (OECD 203 method) (Salmo gairdneri)
EC50 72h - Algae [1]	> 19.2 µg/L 72 Hours (OECD 201 method) (Raphidocelis subcapitata)

Lead dioxide (1309-60-0)	
EC50 Daphnia	2100 µg/l 96 Hours (Daphnia magna)

Tetrabromobisphenol-A (79-94-7)	
LC50 fish	1.1 mg/l - 96 Hours (OECD 203 method) (Oncorhynchus mykiss)
EC50 Daphnia	> 1.8 mg/l - 48 Hours (OECD 202 method) (Daphnia magna)

Fiber Glass Wool (65997-17-3)	
LC50 fish	> 1000 - 96 Hours (Danio rerio), (OECD 203 method)
EC50 Daphnia	> 1000 mg/l - 72 Hours (Daphnia magna, Mobility), (OECD 202 method)
ErC50 algae	> 1000 mg/l - 72 Hours (Pseudokirchneriella subcapitata), (OECD 201 method)

12.2. Persistence and degradability

Valve Regulated Lead-Acid (VRLA) Industrial Battery	
Persistence and degradability	Not relevant for inorganic substances.

sulphuric acid … % (7664-93-9)	
Persistence and degradability	Not relevant for inorganic substances.

Lead (Pb) (7439-92-1)	
Persistence and degradability	Not relevant for inorganic substances.

Tin (Sn) (7440-31-5)	
Persistence and degradability	Not relevant for inorganic substances.

Lead dioxide (1309-60-0)	
Persistence and degradability	Not relevant for inorganic substances.

Antimony trioxide (1309-64-4)	
Persistence and degradability	Not relevant for inorganic substances.

Tetrabromobisphenol-A (79-94-7)	
Persistence and degradability	Not readily biodegradable.

Fiber Glass Wool (65997-17-3)	
Persistence and degradability	Not relevant for inorganic substances.

12.3. Bioaccumulative potential

sulphuric acid … % (7664-93-9)	
Bioaccumulative potential	Not relevant for inorganic substances.

Lead (Pb) (7439-92-1)	
Bioaccumulative potential	Not relevant for inorganic substances.

Fiber Glass Wool (65997-17-3)	
Bioaccumulative potential	Not relevant for inorganic substances.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Valve Regulated Lead-Acid (VRLA) Industrial Battery
This substance does not meet the PBT criteria of UK REACH regulation, annex XIII
This substance does not meet the vPvB criteria of UK REACH regulation, annex XIII

12.6. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Spent (Used) VRLA Batteries are subject to the requirements of Regulation (EU) *2023/1542 on batteries and waste batteries. At the end of their service life, spent (used) VRLA batteries must be collected and sent for recycling through an authorised and approved contractor, in accordance with the Regulation's provisions on waste management and extended producer responsibility.

Waste disposal recommendations : The WEEE Directive 2002/96/EC (Waste Electrical and Electronic Equipment) applies. Spent (used) VRLA Batteries MUST be removed from electrical and electronic equipment at the end-of-life.

Additional information : Completely empty the packaging prior to decontamination. Recycle the material as far as possible. Comply with local regulations for disposal.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

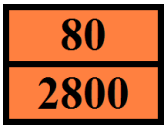
In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 2800	UN 2800	UN 2800	UN 2800	UN 2800
14.2. UN proper shipping name				
BATTERIES, WET, NON-SPILLABLE	BATTERIES, WET, NON-SPILLABLE	Batteries, wet, non-spillable	BATTERIES, WET, NON-SPILLABLE	BATTERIES, WET, NON-SPILLABLE
Transport document description				
UN 2800 BATTERIES, WET, NON-SPILLABLE, 8, (E), ENVIRONMENTALLY HAZARDOUS	UN 2800 BATTERIES, WET, NON-SPILLABLE, 8, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 2800 Batteries, wet, non-spillable, 8, ENVIRONMENTALLY HAZARDOUS	UN 2800 BATTERIES, WET, NON-SPILLABLE, 8, ENVIRONMENTALLY HAZARDOUS	UN 2800 BATTERIES, WET, NON-SPILLABLE, 8, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 2R

Transport by sea
Special provisions (IMDG) : 238
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P003
Special packing provisions (IMDG) : PP16
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : A

Air transport
PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : 872
PCA max net quantity (IATA) : No limit
CAO packing instructions (IATA) : 872
CAO max net quantity (IATA) : No limit
Special provisions (IATA) : A48, A67, A183
ERG code (IATA) : 8L

Inland waterway transport
Classification code (ADN) : C11
Special provisions (ADN) : 238, 295, 598
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

Rail transport
Classification code (RID) : C11
Special provisions (RID) : 238, 295, 598
Limited quantities (RID) : 1L
Excepted quantities (RID) : E0
Packing instructions (RID) : P003, P801
Special packing provisions (RID) : PP16
Transport category (RID) : 3
Special provisions for carriage – Bulk (RID) : VC1, VC2, AP8
Colis express (express parcels) (RID) : CE8
Hazard identification number (RID) : 80

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. National regulations

UK REACH Annex XVII (Restriction List)

UK restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
3(b)	sulphuric acid … % ; Antimony trioxide ; Tetrabromobisphenol-A	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

UK restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
3(c)	Tetrabromobisphenol-A	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
63.	Lead (Pb)	Lead and its compounds

UK REACH Annex XIV (Authorisation List)

This product contains no substance(s) listed on UK REACH Annex XIV (Authorisation List) equal to or above the 0.1% level of disclosure

UK REACH Candidate List (SVHC)

This product contains substance(s) listed on the UK REACH Candidate list (SVHC) at or above the 0.1% level of disclosure: Lead - Toxic for reproduction (Article 57c), Tetrabromobisphenol-A - Carcinogenic (Article 57a).

GB PIC Regulation (Prior Informed Consent)

This product contains no substance(s) listed on the GB PIC List equal to or above the level of SDS disclosure

POP Regulation (Persistent Organic Pollutants)

This product contains no substance(s) listed on the GB POP List equal to or above the level of SDS disclosure

Ozone Regulation (S.I. No. 168 of 2015)

This product contains no substance(s) listed on the GB Ozone Depletion List equal to or above the level of SDS disclosure

Control of Poisons and Explosives Precursors Act

This product contains no substance(s) listed as a reportable poison on the Control of Poisons and Explosives Precursors Regulations equal to or above the level of SDS disclosure
This product contains substance(s) listed on the Control of Poisons and Explosives Precursors Regulations equal to or above the level of SDS disclosure
This product contains no substance(s) listed as a reportable explosive precursor on the Control of Poisons and Explosives Precursors Regulations equal to or above the level of SDS disclosure
This product contains substance(s) listed on the Control of Poisons and Explosives Precursors Regulations equal to or above the level of SDS disclosure

Drug Precursors Regulation (EC 273/2004)

This product contains substance(s) listed on the GB Drug Precursors List equal to or above the level of SDS disclosure (Sulphuric acid - 7664-93-9)

15.1.2. Other Information

British National Regulations : The Waste Batteries and Accumulators Regulations 2009.
The Control of Lead at Work Regulations 2002 (CLAW).

Other information : Regulation (EU) 2023/1542 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS-No.	Chemical Abstracts Service number
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level

Abbreviations and acronyms:	
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
IOELV	Indicative Occupational Exposure Limit Value
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
WGK	Water Hazard Class
vPvB	Very Persistent and Very Bioaccumulative

Data sources : The GB mandatory classification and labelling list (GB MCL List).

Other information : Classification procedure according to Regulation (EC) No. 1272/2008 [CLP]: Physical hazards: On basis of test data. Health hazards: Calculation method. Environmental hazards: Calculation method.

Full text of H- and EUH-statements:	
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Carc. 1B	Carcinogenicity, Category 1B
Carc. 2	Carcinogenicity, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2

Full text of H- and EUH-statements:	
Lact.	Reproductive toxicity, Additional category, Effects on or via lactation
Repr. 1A	Reproductive toxicity, Category 1A
Repr. 2	Reproductive toxicity, Category 2
Skin Corr. 1	Skin corrosion/irritation, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H361f	Suspected of damaging fertility.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Safety Data Sheet (SDS), UK

To ensure the safe use of all batteries supplied by GS YUASA, the following precautions must be observed:
• Warning: Risk of fire, explosion, or burns. Do not disassemble, heat above 50°C, or incinerate.
• Never short-circuit battery terminals since sparks and arcs produced can injure personnel and are a fire and explosion hazard.
• Batteries must always be charged on a voltage-regulated charging system with adequate ventilation provided to avoid the build-up of ignitable gases and to promote good heat dissipation.
• Do not charge Batteries above + 50 °C, discharge or store above + 60 °C.
• Under extreme conditions of charging equipment malfunction and/or battery failure, high voltage and high temperature conditions may occur causing the evolution of Hydrogen Sulphide (H2S) gas, which is toxic. If detected by its odour of rotten eggs (at extremely low concentrations), switch off the charging equipment, evacuate all personnel from the area and ventilate well. Seek advice before attempting to re-start charging
• NEVER PLACE BATTERIES INSIDE SEALED OR GAS-TIGHT ENCLOSURES DURING OPERATION, TRANSPORT AND STORAGE
Batteries emit hydrogen gas which is highly flammable and will form explosive mixtures in air from approximately 4% to 76%. This can be ignited by a spark at any voltage, naked flames, or other sources of ignition

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.