Safety Data Sheet (SDS)

Section 1: Identification of the product and of the Company

- **Product Name**: Sealed Valve Regulated Lead Acid (VRLA) Battery.
- **Product Identifier**: 862120 – 862160 – 862018 – 862440 – 862550 – 862660 – 862407 – 862760 – 862900 – 8626V4 – 862520 – 862500.
- **Importer**:

  Schumacher Europe
  ZI – Rue de la Baronnerie 3
  B-4920 Harzé
  BELGIUM
  Tel : 0032 4 388 20 17

Section 2: Hazards Identification

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity		Aquatic Chronic 1	Explosive Chemical, Division 1.3
(Oral/Dermal/Inhalation)	Category 4	Aquatic Acute 1	
Skin Corrosion/Irritation	Category 1A		
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ	Category 2		
Toxicity (repeated exposure)			
GHS LABEL:			
HEALTH 		ENVIRONMENTAL 	PHYSICAL 
Hazard Statements: DANGER!		**Precautionary Statements**	
Causes severe skin burns and serious eye damage.		Wash thoroughly after handling.	
May damage fertility or the unborn child if ingested or inhaled.		Do not eat, drink or smoke when using this product.	
May cause cancer if ingested or inhaled.		Wear protective gloves/protective clothing, eye protection/face protection.	
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.		Avoid breathing dust/fume/gas/mist/vapors/spray.	
May form explosive air/gas mixture during charging.		Use only outdoors or in a well-ventilated area.	
Extremely flammable gas (hydrogen).		Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.	
Explosive, fire, blast, or projection hazard.		Irritating to eyes, respiratory system, and skin.	
May cause harm to breast-fed children Harmful if swallowed, inhaled, or contact with skin Causes skin irritation, serious eye damage.		Obtain special instructions before use.	
		Do not handle until all safety precautions have been read and understood	
		Avoid contact during pregnancy/while nursing	

	Keep away from heat./sparks/open flames/hot surfaces. No smoking
Other Hazards	
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. -While in use or in charge, 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.

Section 3: Composition/Information on Ingredients

COMPONENTS	Approx. % by Wt.	CAS Number	Air Exposure Limits (µg/m3)		LD50 ORAL (mg/kg)
			ACGIH TLV	OSHA	
Inorganic Lead/ Lead Compounds	65%-75%	7439-92-1			--
Tin	<0.5%	7440-31-5			--
Calcium	<0.1%	7440-70-2	--	--	--
Dilute Sulfuric Acid	~20%	7664-93-9	1000	1000	2.14
Fiberglass Separator	~5%	65 997-17-3	--	--	--
Case Material: Acrylonitrile Butadiene Styrene (ABS)	~5%	9003-56-9	--	--	--

Section 4: First Aid Measures

This information is of relevance only if the VRLA Battery has suffered damage, is broken and persons have direct contact with the internal components.

Plate Grids and Active materials

Inhalation	Remove the person from exposure to fresh air. Seek advice from a medical doctor
Ingestion	Wash out mouth with water and give plenty of water to drink. Do not induce vomiting. Seek advice from a medical doctor
Skin Contact	Wash off with plenty of water and soap to prevent accidental ingestion or inhalation. Seek medical advice if pain or rash does not reduce
Eye Contact	Immediately irrigate with eyewash solution or clean water for at least 10 minutes, holding the eyelids apart. Then take the person to hospital without further delay
Self-protection for the first aider	Eye protection (safety glasses or face shield), and heavy-duty gloves are required. In case of inhalation, a face mask or respirator may be required.

Battery Electrolyte - SPEED IS ESSENTIAL - OBTAIN IMMEDIATE MEDICAL ATTENTION.

Inhalation	Remove the person from exposure to fresh air. If the person continues to feel unwell seek advice from a medical doctor.
Ingestion	Wash out mouth with water and give plenty of water to drink. Do not induce vomiting. If the person continues to feel unwell seek advice from a medical doctor.
Skin Contact	Drench with large quantities of water. Remove contaminated clothing and place in water to dilute the acid. Continue to wash the affected area for at least 10 minutes. Seek advice from a medical doctor

Eye Contact	SPEED IS ESSENTIAL - OBTAIN IMMEDIATE MEDICAL ATTENTION Immediately irrigate with eyewash solution or clean water for at least 10 minutes, holding the eyelids apart. Then take the person to hospital without further delay.
Self-protection for the first aider	Eye protection (safety glasses or face shield), and heavy-duty gloves are required. In case of inhalation, a face mask or respirator may be required.

Case Material

Inhalation	Material can burn in a fire with toxic smoke and decomposition products. Upon inhalation of decomposition products, keep patient calm, remove to fresh air, and seek advice from a medical doctor. If a large quantity is inhaled take the person to hospital. Note to physician: Treat according to symptoms (decontamination, vital functions), no known specific antidote.
Ingestion	Wash out mouth with water and give plenty of water to drink. Do not induce vomiting. If the person continues to feel unwell seek advice from a medical doctor.
Skin Contact	Areas affected by molten material should be quickly placed under cold running water and a sterile protective dressing applied. Seek advice from a medical doctor.
Eye Contact	May cause irritation or injury due to mechanical action and traces of Battery Electrolyte. Immediately irrigate with eyewash solution or clean water for at least 10 minutes, holding the eyelids apart. Then take the person to hospital without further delay
Self-protection for the first aider	Eye protection (safety glasses or face shield), and disposable gloves are required. In case of inhalation, a face mask or respirator may be required.

Separator Material

Inhalation	Remove patient from exposure to fresh air. If irritation persists, seek advice from a medical doctor.
Ingestion	Wash out mouth with water and give plenty of water to drink. Do not induce vomiting. If the person continues to feel unwell seek advice from a medical doctor.
Skin Contact	After contact with skin, wash immediately with plenty of soap and water. If irritation persists, seek advice from a medical doctor.
Eye Contact	May cause irritation or injury due to mechanical action and traces of Battery Electrolyte. Immediately irrigate with eyewash solution or clean water for at least 10 minutes, holding the eyelids apart. Then take the person to hospital without further delay
Self-protection for the first aider	Eye protection (safety glasses or face shield), and disposable gloves are required. In case of inhalation, a face mask or respirator may be required.

Section 5: Firefighting Measures

Flash Point: N/A	
General Information: Explosion Hazard 	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.
Suitable Extinguisher types	CO2; Foam; Dry Powder.
Unsuitable Extinguisher types	Water extinguishers must never be used to put out an electrical fire.
Hazardous combustion & decomposition products	Carbon monoxide, Sulphur Dioxide, Sulphur Trioxide, Lead fume and vapour, toxic fumes from decomposition of battery case materials.
Advice for fire-fighters	Full face visor or safety goggles; Respiratory equipment or self-contained breathing apparatus (SCBA); Full acid resistant protective clothing must be worn in fire-fighting conditions.

Section 6: Accidental Release Measures

This information is of relevance only if the VRLA Battery has suffered damage and is broken
VRLA Battery - VRLA batteries are designed to be safe to handle and not to leak battery electrolyte under normal conditions. In case of accidental damage heavy-duty gloves are required

Plate Grids and Active Materials

Personal Precautions	Eye protection (safety glasses or face shield), and heavy-duty gloves are required. If the material is wet, a face mask or respirator is not required If the material is dry, a face mask or respirator is required
Clean-up Methods	Large, solid pieces may be picked up and bagged for recycling. Never use a brush to sweep up debris; it may create Lead-dust in the air. Wet clean the spill area to remove all traces of debris. Battery debris and cleaning materials must be collected and placed in an inert sealed container (e.g. self-seal plastic bag or bucket) for disposal.
Environmental Precautions	Do not allow material to enter a watercourse. Exposed Lead materials must be placed in an inert sealed container (e.g. self-seal plastic bag or bucket) for disposal,

Battery Electrolyte

Personal Precautions	Ensure suitable, acid resistant personal protective clothing (including heavy-duty gloves, safety glasses and respiratory protection) is worn during removal and clean-up of spillages.
Clean-up Methods: Small spillages	Neutralise and absorb the spillage using soda ash, sodium bicarbonate (available from supermarkets), sodium carbonate or calcium carbonate powder. Wet clean the spill area to remove all traces of debris. Battery debris and cleaning materials must be collected and placed in an inert sealed container (e.g. self-seal plastic bag or bucket) for disposal.
Clean-up Methods: Large spillages	Large amounts of electrolyte spillage are unlikely with VRLA batteries since the electrolyte is fully absorbed in the active materials and separator. Bund the spillage area using dry sand, earth, sawdust or other inert material. Neutralise the electrolyte using soda ash, sodium bicarbonate (available from supermarkets), sodium carbonate or calcium carbonate powder. Wet clean the spill area to remove all traces of debris and electrolyte. Cleaning materials must be collected and placed in an inert sealed container (e.g. self-seal plastic bag or bucket) for disposal.
Environmental Precautions	Battery electrolyte must not be allowed to enter any drains or sewage system or water course.

Case Material

Clean-up Methods	Assume battery case material is contaminated and proceed as for Plate Grids and Active Materials above.

Separator Material

Clean-up Methods	Assume battery case material is contaminated and proceed as for Plate Grids and Active Materials above.

Section 7: Handling and Storage

Handling	Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
	Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
	Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
	Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.
Storage	Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging	There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.
	Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
	Wear face and eye protection when near batteries being charged.

Section 8: Exposure Controls/Personal Protection

Control Parameters	There are no special control parameters for the handling, storage, installation of VRLA Batteries.
	VRLA Batteries emit hydrogen gas which is highly flammable and will form explosive mixtures in air from approximately 4% to 76%. Never install VLRA Batteries in a gas-tight enclosure during storage, transport or usage.
Exposure Control	There are no special exposure controls for the handling, storage, installation or use of VRLA Batteries.
Personal Protection	When there is no evidence of damage or visible traces of liquid (electrolyte) or solid deposits on the batteries they may be handled safely without extra personal protective equipment.
	Ensure electrical insulation equipment is used when installing batteries. (e.g. insulated mats and covers; insulated tools)
	Remove ALL metallic objects from the person when working with VRLA Batteries: e.g. Jewellery (rings, watches, bracelets, necklaces), pens, torches, etc. Where there are signs of damage or liquid (electrolyte) or solid deposits, rubber gloves and acid resistant clothing must be worn when handling the batteries and affected packaging to protect against the effects of any electrolyte that may be present.
	If it is suspected that free electrolyte is present, then safety glasses must be worn, and if large amounts are present, chemical goggles or face shield should be used.

Section 9: Physical and chemical properties

VRLA Battery	The main components are listed in SECTION 2 above			
	The undamaged product is a manufactured article in an inert plastic (ABS) case, which will burn if subjected to high temperatures or sources of ignition. Some battery types are made with Flame Retardant ABS cases, see technical specification. These batteries carry the suffix 'FR' after the battery type.			
The information below refers to the physical and chemical properties of the main VRLA Battery components and substances. This information is published for reference only.				
Plate Grids and Active materials	Appearance		Safety-related data	
	Form	Solid	Solidification point	327 °C
	Colour	Grey or brown	Boiling point	1740 °C
	Odour	Odourless	Solubility in water	Very low (0.15mg/l)
			Solubility in acid or alkaline solutions	Yes, dependant on the strength of solution
			Density (at 20°C)	11.35 g/cm3
			Vapour pressure (at 20°C)	Undetectable
Battery Electrolyte	Form	Liquid	Solidification point	-35 to -60 °C
	Colour	Colourless	Boiling point	Approx. 108 to 114 °C
	Odour	Odourless	Solubility in water	Complete
			Density (at 20°C)	Variable up to 1.350 g/cm3
			Vapour pressure (at 20°C)	10-20 mmHg
Case Material	Appearance			
	Form	Solid	Softening point	> 100 °C
	Colour	Grey or black	Flash Point	>330 °C
	Odour	Slight Odour	Solubility in water	Insoluble
			Solubility in other solvents	Soluble in polar solvents, aromatic solvents, chlorinated hydrocarbons.
			Density (at 20°C)	1.07-1.4 g/cm3
			Vapour pressure (at 20°C)	Undetectable

Separator Material:	Form	Fibrous material	Solidification point	820°C
	Colour	White	Boiling point	>2500°C
	Odour	Odourless	Solubility in water	Insoluble
			Density (at 20°C)	2.23g/cm3
			Vapour pressure (at 20°C)	Undetectable

Section 10: Stability and reactivity

VRLA Battery	Stability	Within the operational temperature range -20 to +50 °C the undamaged product is stable
Plate Grids and Active materials	Materials & Conditions to Avoid	Powdered Lead reacts violently with fused ammonium nitrate and sodium acetylide. Reacts violently when in contact with chlorine trifluoride.
Battery Electrolyte	Possibility of Hazardous Reactions	Dilution of the higher concentrated grades with water may liberate excessive heat.
		Highly reactive with metals and organic materials.
		On contact with metals, may generate hydrogen which forms explosive mixtures with air.
		Destroys organic materials such as cardboard, wood, textiles, etc.
	Hazardous decomposition product	Sulphur oxides
Case Material:	Materials & Conditions to Avoid	To avoid thermal decomposition, do not overheat.
		Starts to decompose at temperatures >275°C
		Powerful oxidising agents.
	Hazardous decomposition products	Monomers, other degradation products, traces of hydrogen cyanide.
Separator Material:	Stability	Stable material.
	Materials & Conditions to Avoid	Incompatible with Hydrofluoric acid and concentrated Sodium Hydroxide.
	Hazardous decomposition product	No hazardous polymerisation expected.

Section 11: Toxicological information

This information is of relevance only if the VRLA Battery has suffered damage and is broken

Plate Grids: Metallic Lead, Lead alloys.	Acute Toxicity	Toxic by ingestion or inhalation
		Chronic poison
		Lead is a poison that affects virtually every system in the body
		Symptoms include fatigue, headaches, constipation, aching bones and muscles, gastrointestinal tract disturbances and reduced appetite
		Symptoms include fatigue, headaches, constipation, aching bones and muscles, gastrointestinal tract disturbances and reduced appetite
Active materials: Lead dioxide.	Acute Toxicity	Toxic by ingestion or inhalation
		Toxic by ingestion or inhalation
		Chronic exposure to Lead compounds may lead to a build-up of Lead in the body, giving rise to a variety of health problems, including anaemia, kidney and liver damage, impaired eyesight, memory loss and CNS2 damage
Battery Electrolyte:	Corrosive	Corrosive, the more concentrated solutions can cause serious burns to the mouth, eyes and skin
		Harmful by ingestion and through skin contact
	Inhalation	Mist is a severe irritant to the respiratory tract. Fluid build-up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal
	Ingestion	Will immediately cause severe corrosion of and damage to the gastrointestinal tract
	Skin Contact	Causes severe chemical burns
	Eye Contact	Risk of serious damage to eyes. Causes severe burns. May cause prolonged or permanent damage or even total loss of sight. Mist will cause irritation

Case Material:	According to information available the product is not harmful to health provided it is correctly handled and processed according to the given recommendations.
Separator Material	Based on animal implantation and epidemiologic studies glass microfibers are thought to have some limited carcinogenic potential and as such are designated as Group 2B materials (IARC, US). The material should be treated as a category 3 carcinogen (Europe). Limited evidence of carcinogenic effect.

Section 12: Ecological Information

This information is of relevance only if the VRLA Battery has suffered damage and is broken

Plate Grids and Active materials	Metallic Lead, Lead alloys and Lead dioxide	Chemical and physical treatment is required for the elimination of Lead from water. Waste water containing Lead must not be disposed of in an untreated condition.
	Ecotoxicity	Lead metal in massive form is not classified as hazardous to the aquatic environment, due to its low solubility and rapid removal from the water column. Inorganic lead compounds are considered to be acutely toxic in the environment and also to present a long-term hazard to aquatic organisms
	Effect in the aquatic environment	Toxicity for fish: 96 h LC 50 > 100 mg/l Toxicity for daphnia: 48 h EC 50 > 100 mg/l Toxicity for alga: 72 h IC 50 > 10 mg/l
Battery Electrolyte	Ecotoxicity	In order to avoid damage to the sewerage system, the acid has to be neutralised by means of soda ash, sodium bicarbonate or sodium carbonate before disposal.
		Ecological damage is possible by change of pH. The electrolyte solution reacts with water and organic substances, causing damage to flora and fauna.
		The electrolyte may also contain components of Lead that can be toxic to aquatic environments.
	Persistence and Degradation	Remains indefinitely in the environment as sulphate.
Case Material	Elimination information:	No data available: insoluble in water
	Behaviour and environmental fate	Due to the consistency of the product, and its insolubility in water, it will apparently not be bio-available.
Separator Material	No data available: insoluble in water Not thought to pose any risk to the environment.	

Section 13: Disposal Considerations

VRLA Battery	Spent (used) VRLA Batteries are subject to the requirements of the Batteries Regulation 2023/1542 on batteries and accumulators and waste batteries and accumulators. Spent (used) VRLA Batteries MUST be sent for recycling through an authorised contractor at the end-of-life. The WEEE Directive 2012/19/UE (Waste Electrical and Electronic Equipment) applies. Spent (used) VRLA Batteries MUST be removed from electrical and electronic equipment at the end-of-life.
Plate Grids and Active materials	Metallic Lead and active materials (Lead Oxides) must be recycled. Disposal must be carried out in accordance with the European Hazardous Waste Directive 2008/98/EC
Battery Electrolyte	Disposal must be carried out in accordance with the European Hazardous Waste Directive 2008/98/EC on the protection of the environment through criminal law Battery electrolyte is dilute Sulphuric Acid, the strength of which depends on the state of charge of the batteries. It must be neutralised before disposal. See SECTION 6 for clean-up and disposal advice.
Case Material	Do not dispose of this product into sewers, any ocean or water course in order to prevent marine animals and birds from ingesting. Recycling is encouraged. Disposal by controlled incineration or source landfill in accordance with local national laws and regulations may be acceptable. Constitutes a special waste by virtue of hazardous substance content.

Separator Material	Dispose of via approved landfill site. Disposal by controlled source landfill in accordance with local national laws and regulations may be acceptable.

Section 14: Transport Information

Proper Shipping Name : Batteries, wet, non-spillable

Wet, non-spillable batteries do not need to be shipped and transported as fully-regulated Class 8 Corrosive hazardous materials / dangerous goods when tested, packaged and marked in accordance with the following regulations:

ADR / RID	Land Transport: Not applicable
IATA Dangerous Goods Regulations DGR	Excepted from the dangerous goods regulations for transport by air because the batteries meet the SPECIAL PROVISION A67". Battery terminals must be protected against short circuits.
IMDG	Excepted from the dangerous goods regulations for transport by sea because the batteries meet the requirements of Special Provision 238 of the International Maritime Dangerous Goods (IMDG CODE). Battery terminals must be protected against short circuits.
IMO	The product is not subject to IMO IMDG Code according to special provision 238.
If the regulations listed above are not met, then Batteries nonspillable (UN2800) are regulated as Class 8 Corrosive hazardous materials / dangerous goods by the international dangerous goods regulatory authorities pursuant to the IATA Dangerous Goods Regulations and IMDG Code.	

Section 15: Regulatory Information

Compliant with European Directives and Regulation:

- Batteries (2023/1542).
- WEEE (2012/19/UE)
- Hazardous Waste (2008/98/EC).
- REACH (EC 1907/2006).

Compliant with the UK regulation:

- SI 2008/2164
- SI 2011/988
- UK REACH

Section 16: Other Information

Issue Date: January 28, 2025.
Disclaimer: The information provided complies with European and UK regulations and reflects current knowledge.

The document follows the 2020/878 Regulation.