IZYX SYSTEMS
9, rue de la Forêt Noire
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Téléphone : 03 88 75 32 32
Site : www.izyx-systems.com

Material Safety Data Sheet N° FX-MSDS-EN210531-A

SECTION 1: Identification of the product and of the manufacturer/supplier

Product identifier	Valve Regulated Lead-Acid (VRLA) Battery
Manufacturer/supplier	IZYX SYSTEMS 9, rue de la forêt noire - 67720 WEYERSHEIM Tel & Emergency : +33 388 753 232 e-mail : sav@izyx-systems.com
Models	FX
References	FX120.8 / FX121.3 / FX122.1 / FX123.2 / FX1204 / FX1207 / FX1212 / FX1218 / FX1224 / FX1238 / FX1265

SECTION 2: Hazards identification

The VRLA battery present non chemical hazards during the normal operation provided the recommendations for handling, storage, transport and usage are observed. If the battery is broken and the internal components exposed hazards may exist wich require careful attention.

2.1	Adverse physicochemical, human health and environmental effects	Category
Health	Acute Toxicity (Oral/Dermal/Inhalation)	4 Skin
	Corrosion/Irritation	1A
	Eye Damage	1
	Reproductive	1A
	Carcinogenicity (lead compounds)	1B
	Carcinogenicity (arsenic)	1A
	Carcinogenicity (acid mist)	1A
	Specific Target Organ	2
	Toxicity (repeated exposure)	2
Environmental	Aquatic Chromic	1
	Aquatic Acute	1
Physical	Explosive Chemical	Division 1.3

2.2	Label Elements

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2.3	Signal Word (CLP) - DANGER
Hazard Statements	Harmful if swallowed, inhaled, or in contact with skin
	Acid causes severe skin burns and eye damage
	May damage fertility or the urborn child if ingested or inhaled
	May cause harm to breast-fed children
	May cause cancer if ingested or inhaled
	Causes skin irritation, serious eye damage
	Contact with internal components may cause irritation or severe burns
	Cause damage to central nervous system, blood and kidneys through prologed or repeated exposure if ingested or inhaled
	Irrating to eyes, repiratory systems, and skin
	May form explosive air/gaz mixture during charging
	Extremely flammable gaz (hydrogen)
	Explosive, fire, blast or projection hazard
Precautionary Statements	Wash thoroughly after handling
	Do not eat, drink, or smoke when usig this product
	Wear protective gloves/protective clothing, eye protection/face protection
	Avoid breathing dust/fume/gas/mst/vapors/spray
	Use only outdoors or in a well-ventilated area
	Contact with internal components may cause irritation or severe burns.
	Avoid contact with internal acid
	Irritation to eyes, respiratory systems, and skin
	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
Hazard not otherwise classified	HNOC : Not applicable
	Unknown Toxicity : 0.6% of the mixture consists of ingredient(s) of unknown toxicity
	Other information: Very toxic to aquatic life with long lasting effects
	Interactions with other Chemicals : Use of alcoholic beverages may enhance toxic effects

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SECTION 3: Composition / Information on ingredients

Components	Substances	% BY Wt.	Chemical Symbol	CAS N°
Electrode plate	Metallic lead	66.2%	Pb	7439-92-1
Battery Electrolyte	Dilute sulphuric acid	24.5%	H_2SO_4	7664-93-9
Separator material	Fiberglass	2.7%		65997-17-3
Battery shell	ABS	6.6%		9003-56-9

SECTION 4: First aid measures for acute exposure

Under normal conditions of battery use, internal components will not present a health hazard. The following information is provided for battery electrolyte (acid) and lead for exposures that may occur during battery production or container breakage or under extreme heat conditions such as fire.

Inhalation Sulfuric Acid	Supply fresh air. If necessary give oxygen. Keep warm. Seek immediate medical advice. Lead : Remove from exposure, gargle, wash nose ans lips. Consult physician
Skin contact Sulfuric Acid	Whash off skin thoroughly water. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.
Eye Contact	Sulfuric Acid and lead : Irrigate thoroughly with water for least 15 minutes. Seek immediate medical attention if eyes have been ecposed directly to acid.
Ingestion	Sulfuric Acid : Give large quantities of water. Do not induce vomiting or aspiration into the lungs may occur can cause permaent injury or death. Lead. Consult physician immediately

SECTION 4: First aid measures for acute exposure

Flash Point	Not applicable
Flammable limits	LEL 4.1% (hydrogefl gas in air), UEL 74.2%.
Extinguishing media	C02, extinguishing powder or water spray. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.
Fire Fighting Procedures	Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.
Hazardous Combustion Products	In operation, batteries generate and release flammable hydrogen gas. They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive termiflals of a baftery.

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SECTION 5: Composition / Information on ingredients

Flash Point	Not applicable
Flammable limits	LEL 4.1% (hydrogefl gas in air), UEL 74.2%.
Extinguishing media	C02, extinguishing powder or water spray. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.
Fire Fighting Procedures	Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.
Hazardous Combustion Products	In operation, batteries generate and release flammable hydrogen gas. They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive termiflals of a baftery.

SECTION 6: Accidental Release Measures

Protective Measures to be Taken if Material is Released or Spilled:	Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of un-neutralized acid to sewer. Acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.
Waste Disposal Method	Dispose of as a hazardous waste. Dispose of in accordance with applicable local, state and federal regulations.

SECTION 7: Handling and Storage ingredients

Handling	Do not carry battery by therminals. Do not drop battery, puncture, or attemps to open battery case. Avoid contact with the internal components of a battery. Do not subject product to open flame or fire ans avoid situations that could cause arcing between terminals.
Storage	Store batteries under roof in cool, dry, well-ventilated areas separated from incompatible materials and from activities that may create flames, spark, or heat. Store sealed lead acid batteries at ambient temperature.
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 may generate and release flammable hydrogen gas. Charging space should be ventilated. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged
Other	Follow Manufacturers Recommendations regarding maximum recommended currents and operating temperature range. Do not overcharge beyond the recommended upper charging voltage limit. Applying pressure or deforming the battery may lead to disassembly followed by eye, skin and throat irritation.

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SECTION 8: Exposure Controls and Personal protection

Engineeting Controls (Ventilation)	Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries.
Hygiene Practices	Wash hands thoroughly before eating, drinking or smoking after handling batteries.
Respiratory Protection	None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed PEL, use NIOSH or MSHA-approved respiratory protection.
Skin Protection	None required under normal conditions. If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing, and boots.
Eye Protection	None required under normal conditions. If battery case is damaged, chemical goggles or face shield.
Other Protection	In areas where water and sulfuric acid solutions are handled in concentrations

SECTION 9: Physical and Chemical Properties

Form	Battery
Color	Black
Odor	Odorless
Voltage	12V
Capacity	0.8 Ah à 65Ah
pH	Not applicable unless indiviclual components exposed.
Flash point	Not applicable unless indiviclual components exposed.
Flammability	Not applicable unless indiviclual components exposed.
Relative density	Not applicable unless indiviclual components exposed.
Solubility (water)	Not applicable unless indiviclual components exposed.
Solubility (other)	Not applicable unless indiviclual components exposed.

SECTION 10: Stability and Reactivity

Stability	Stable
Condition to Avoid	Prolonged overcharging and overheating current; spails and other sources of ignition.
Incompatibilities	Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. No further concern for mechanical impact.Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen Products: sulfide. Temperatures above the melting point are likely to pro~iuce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.
Hazardous Decomposition Products	Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide.Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas
Hazardous Polymerization	Will Not Occur

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SECTION 11: Toxicological Information

Routes of Entry	
Sulfuric Acid	Harmful by all routes of entry
Lead Compounds	Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas
Inhalation	
Sulfuric Acid	Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation
Lead Compounds	Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs
Ingestion	
Sulfuric Acid	May cause severe irritation of mouth, throat, esophagus and stomach
Lead Compounds	Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic and must be treated by a physician
Skin contact	
Sulfuric Acid	Severe irritation, burns and ulceration
Lead Compounds	Not absorbed through the skin
Arsenic compounds	Contact may cause dermatitis and skin hyperpigmentation
Eye contact	
Sulfuric Acid	Severe irritation, burns, cornea damage, and blindness
Lead Compounds	May cause eye irritation
Effects of Overexposure - Acute	
Sulfuric Acid	Severe skin irritation, damage to cornea, upper respiratory irritation
Lead Compounds	Symptoms of toxicity include headache, fatigue, abdomminal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability
Effects of Overexposure - chronic	
Sulfuric Acid	Possible erosion of tooth enamel, inflammation of nose, throat & bronchial tubes
Lead Compounds	Anemia, neuropathy, particularly of the motor nerves, with wrist drop, kidney damage, reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50µg/100 ml or higher. Heavy lead exposure may result in central nervous system damage. Encephalopathy and damage to the bloodforming (hematopoietic) tissues.
Carcinogenicity	
Sulfuric Acid	The internation Agency for Research on Cancer (IARC) has classified «strong inorganic acid mist containing sulfuric acid» as a group | carcinogen, a substance that is carcinogenic ti humans. Per the guidance found un OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A. This classification does not apply to the liquid forms of sulfuric acid ou sulfuric acid contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misure of the product, such as overcharging, may result in the generation of sulfuric acid mist.
Lead Compounds	Lead is listed by IARC as a Group 2A - likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present

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SECTION 11: Toxicological Information / suit

Arsenic	Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F. this a approximately equivalent to GHS Catagory 1A
Medical Conditions Generally Aggravated By Exposure	Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead ans tits compounds can aggravate some froms of kidney, liver and neurologic diseases.
Acite Toxicity	
Inhalation LD50	
Electrolyte	LC50 rat: 375 mg/m3; LC50: guinea pig:510 mg/m3
Elemental Lead	Acute Toxicity Point Estimate = 4500 ppm V (based on lead bullion)
Elemental arsenic	
Oral LD50	
Electrolyte rat	2140 mg/kg
Elemental Lead	Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental arsenic	LD50 moudr : 145 mg/kg
Elemental Antimony	LD50 rat: 100mg/kg
Additional Health Data	All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in section 8. Follow good personal hygiene to avoid inhalation ans ingestion : Wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated clothing. This product is intended for industrial use only ans should be isolated from children ant their environment. The 19th amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form. As possibly toxic to reproduction. Rosk phrase 61 : May cause harm to the unborn child, applies to lead compounds especially soluble forms

SECTION 12: Ecological Information

Environmental Fate: Lead is very persistent in soil and sediments. No data on environmental degration. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.	
Environmental Toxicity:	
Aquatic Toxicity:	Sulfuric acid: 24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L 96-hr-LOEC, freshwater fish (Cyprinus carpio): 22 mg/L Lead: 48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Additional information:	No known effects on stratospheric ozone depletion Volatile organic compounds: 0 % (by Volume) Water Endangering Class (WGK): NA

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13. Disposal Considerations

Sulfuric Acid	Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazrdous waste. If uncertain about labelling procedures, call your local battery distributor or listed contact. DO NOT FLUSH LEAD CONTAMINED ACID TO SEWER.
Spent batteries	Send to secondary lead smelter for recycling. Follow applicable federal, state and local regulations. Neutralize as in preceding step. Collect neutralized material in sealed container and handle as hazardous waste as applicable. A copy of this MSDS must be supplied to any scrap dealer or secondary lead smelter with the battery.

14. Transport Information

GROUND-US-DOT/CAN-TDG/EU-ADR/APEC-ADR	No proper shipping name therefore is not regulated as hazardous material. Label: « NON-SPILLABLE » or « NON-SPILLABLE BATTERY » For US, refer to 49 CFR 173.159(f)(1) & (2) for details. Non-spillable batteries are expected from 49 CFR if the following criteria are met: - The battery must be protected against short circuits and securely packaged - Each battery and the outer packaging must be plaily and durably marked « NON-SPILLABLE » or « NON-SPILLABLE BATTERY » AIRCRAFT – ICAO-IATA(IATA DGR 62nd Edition 2021): No proper shipping name therefore is not regulated as hazardous material. Label: « NON-SPILLABLE » or « NON-SPILLABLE BATTERY » For air shipments, reference IATA Dangerous Goods Regulations Special Provision A67 and Packing Instruction 872. Non-spillable batteries are expected from IATA-IATA regulations provided that the battery terminals are protected against short circuits.
VESSEL – IMO-IMDG	No proper shipping name therefore is not regulated as hazardous material. Label: « NON-SPILLABLE » or « NON-SPILLABLE BATTERY » For shipments by water, reference IMDG Special Provision 238.1 & .2 and Packing instruction P0003. Non spillable batteries are expected from all IMDG Code provided that the battery terminals are protected against short circuits.
ADDITIONNAL INFORMATION	- Non Spillable Battery complies with the provisions listed in 49 CFR 173.159. Does not require marking with an identification number or hazardous label and is not subject to hazardous shipping paper requirements. - Non-Spillable Battery complies with the provisions listed in ICAO- IATA. The words « Not restricted » and the Special Previsions number must be included in the description of the substance on the Air Waybill. - Each battery and the outer packaging must be plainly and durably marked « NON-SPILLABLE » or « NON-SPILLABLE BATTERY ». - Batteries must be kept upright at all times and packaged as required to prevent short circuits. - Transport may require packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as -shipped.
US DOT	SHIPPING NAME: Battery, Wet, Non-Spillable, Class 8, UN 2800, PG, III. Shipping Name: Batteries, Wet, Non spillable.

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15. Regulations

Section 302 EPCRA Extremely Hazardous Substances (EHS):	Sulfuric acid is a listed « Extremely Hazardous Substance » under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 500 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). An average automotive/commercial battery contains approximately 5 lbs of sulfuric acid. Contact your GNB representative for additional information.
Section 304 CERCLA	Reporatble Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.
Section 311/312 Hazard Categorization:	EPCRA Section 312 Tier Two reporting is required for non-automative batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is presnet in quantities of 10,000 lbs more.
Section 313 EPCRA Toxic Substances:	Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. Chemical — CAS — Percent by Weight Lead (Pb) — 7439-92-1 — 65-69 Electrolyte: Sulfuric Acid (H2SO4) — 7664-93-9 — 17-30

16. Other Information

DISCLAIMER OF LIABILITY
The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsability and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable. Accordingly, EBO Testing Center will not be responsible for damages resulting from use of or reliance upon this information.

Lieu et date de validation / Place and date of validation

Weyersheim 31/05/2021

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