

BATTERY LITHIUM-FER-PHOSPHATE INFORMATION SHEET
MATERIAL SAFETY DATA SHEET

ARTS-Energy Part

Issue C on July 19, 2024

According to REACH regulation (EC 1907/2006, Art 31) and to OSHA regulation (29 CFR 1910.1200), batteries are ARTICLES with no intended release. As such, they are not covered by legal requirements to generate and supply an SDS or an MSDS. This Battery Information Sheet is provided solely as an information document for the purpose of assisting our customers.

1. Identification of the Company

Batteries production sites	ARTS Energy 10 rue Ampère - Zone Industrielle 16440 Nersac FRANCE Tel. No. +33 (0)5 45 90 35 50 Fax No. +33 (0)5 45 90 37 65
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Emergency contacts ARTS Energy local dealer

2. Composition & Information on components

Each cell consists of a hermetically sealed metallic container containing a number of chemicals and materials of construction of which the following could potentially be hazardous upon release.0

Component	Content (%)	CAS No.	CHIP Classification
Lithium Iron Phosphate (active material)	20~30%	15365-14-7	N/A
Polyvinylidene Fluoride (binder)	1~4%	24937-79-9	N/A
Carbon black (conductive material)	0.1~2.0%	1333-86-4	N/A
Graphite (active material)	10~20%	7782-42-5	N/A
Organic Solvent (non-aqueous liquid)	10~15%	N/A	N/A

Amount varies depending on cell size



3. Hazards Identification

Emergency Overview

May explode in a fire, which could release hydrogen fluoride gas.
Use extinguishing media suitable for materials burning in fire.

Primary routes of entry

Skin contact : No
Skin absorption : No
Eye contact : No
Inhalation : No
Ingestion : No

Symptoms of exposure

Skin contact : No effect under routine handling and use.
Skin absorption : No effect under routine handling and use.
Eye contact : No effect under routine handling and use.
Inhalation : No effect under routine handling and use. Reported as carcinogen

Not applicable

Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

4. First Aid Measures

THE CELL OR BATTERY ITSELF

Inhalation	Not a health hazard.
Skin contact	Not a health hazard.
Eye contact	Not a health hazard.
Ingestion	If the product is swallowed, obtain medical attention immediately.

IF EXPOSURE TO INTERNAL MATERIALS

Inhalation	Remove from exposure and move to fresh air immediately. Use oxygen if available
Skin contact	Remove contaminated clothes and rinse skin with plenty of water or showed for 15 minutes. Get medical aid
Eye contact	Flush eyes plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid
Ingestion	Give at least 2 glasses of mil or water. Induce vomiting unless patient is unconscious. Get medical aid



5. Firefighting Measures

Dust at sufficient concentrations can form an explosive mixture with air. Combustion generates toxic fumes.

Hazardous combustion products

Carbon dioxide

Extinguishing Media and Fire-extinguishing Methods

For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Attention in Fire-extinguishing

Wear self-contained breathing apparatus in pressure-demand NIOSH/MSHA (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

In case of rupture. Attention! Corrosive material. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

Prevent product from contaminating soil and entering sewers or waterways.

Methods and materials for containment

Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

Methods and materials for cleaning up





Absorb spilled material with inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbents and dispose of them according to directions in section 13. Scrub the area with detergent and water; collect all wash water for proper disposal

7. Handling and Storage

	<i>Do not allow children to replace batteries without adult supervision.</i>
Handling	In case of rupture, handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Use personal protective equipment.
Storage	Store in a cool, dry, well-ventilated area away from incompatible substances. Store locked up. Keep out of reach of children
Other	The battery may explode or cause burns if disassembled, crushed or exposed to fire or high temperatures. Do not short-circuit or install with incorrect polarity



8. Exposure Controls & Personal Protection

Occupational exposure standard	Use adequate ventilation to keep airborne concentrations low. When used under conditions that generate particulates, the ACGIH TLV-TWA of 3mg/m ³ respirable fraction (10mg/m ³ total) must be observed.	
	Respiratory protection	No protective equipment is needed under normal conditions of use. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
	Hand & Feet protection	None required for consumer use. If there is a risk of contact: Wear protective gloves and protective clothing.
	Eye protection	None protection for consumer use. If there is a risk of contact: Tight sealing safety goggles and/or face protection shield.
	Other	In case of spillage, wear a chemical apron.

9. Physical and Chemical Properties

Appearance	Cylindrical or Prismatic Pack, with or without external wires and connector – casings can be added for specific applications
Odour	If leaking, smells of medical ether
pH	Not Applicable
Flash point	Not applicable unless individual components exposed
Flammability	Not applicable unless individual components exposed
Relative density	Not applicable unless individual components exposed
Solubility (water)	Not applicable unless individual components exposed
Solubility (other)	Not applicable unless individual components exposed

10. Stability and Reactivity

Product is stable under conditions described in Section 7.	
Conditions to avoid	Flames, sparks and other sources of ignition, incompatible materials
Materials to avoid	Oxidizing agents, acid base
Hazardous decomposition Products	Carbon monoxide, carbon dioxide, lithium oxide fumes



11. Toxicological Information

Irritation	In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin
Sensitization	Not Available.
Reproductive Toxicity	Not Available.
Toxicologically Synergistic Materials	Not Available.

12. Ecological Information

General note	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system
Anticipated behavior of a chemical product in environment / possible environmental impact / ecotoxicity	Not Available.

13. Disposal Considerations

Recycle or dispose of in accordance with government, state and local regulations.
Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature.
Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

14. Transport Information

The persons in charge of the transport of dangerous goods must be instructed in the contents of dangerous goods according to their responsibilities (chapter 1.3, UN recommendations on the transport of dangerous goods).

To verify that ARTS Energy cells or batteries have been tested for transport in accordance with the UN Model Regulations, Manual of Tests and Criteria, Part III, sub-section 38.3, please contact us with the cell or battery reference number on the transport documents (waybill or packing slip) in order to receive a PDF copy of the UN 38.3 test summary report for the product being shipped.

UN Class 9 Other hazardous materials

Nom d'expédition	Classe	UN number
Li-ion batteries	9	3480
Li-ion batteries contained in the equipment	9	3481
Li-ion batteries packed with the equipment	9	3481

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Applicable UN transport regulations must be observed.



15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200)

Risk phrases	Non-hazardous.
UK regulatory references	Classified under CHIP

16. Other information

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein.

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