



Section 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer:

**Valence Technology, Inc.
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**Preparation Date: 08/09/01
Revision Date: 02/17/07
Emergency Phone No.: CHEMTREC
1-800-424-9300**

Chemical Name and Synonyms: Valence P1a Battery, Liquid Cell and Polymer
Commercial name (if different): Saphion[®] I Battery, Phosphate-based Lithium-ion
Chemical Formula: N/A
Chemical Abstract No. (CAS): Mixture

Section 2 – COMPOSITION AND INGREDIENT INFORMATION

This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA hazard communication standard requirement.

Section 3 – HAZARDS IDENTIFICATION

PREPARATION HAZARDS AND CLASSIFICATION:

None under normal use. The battery should not be opened or burned. Exposure to the ingredients contained within and/or their combustion products could be harmful.

In the event of exposure to the battery contents the following potential health effects could occur:

Acute effects: Vapor or mist is irritating to the eyes, mucous membranes and Respiratory tract. Can cause eye and skin irritation. Exposure can cause nausea, dizziness and headache. The electrolyte solution contained within the battery would be corrosive and can cause burns.

Chronic effects: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Target organs affected could be kidneys, central nervous system, eyes, and male reproductive system.

PRIMARY ROUTE(S) OF EXPOSURE:

These chemicals are contained in a sealed enclosure. Risk of exposure occurs only if the battery is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the battery electrolyte solution within can occur by inhalation, ingestion, eye contact and skin contact.

INHALATION:

Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a compromised battery may cause respiratory irritation.

INGESTION:

Swallowing of a sealed battery is not an expected route of exposure. In the event that swallowing of materials from a compromised battery occurs, serious chemical burns of the mouth, esophagus and gastrointestinal tract can occur.

SKIN:

Contact between the skin and battery will not cause harm. Contact with the contents of an opened battery, mainly the electrolyte solution, can cause severe irritation or burns to the skin.

EYE:

Only contact with the contents of an opened battery can cause severe irritation or burns to the eye.

Section 4 – FIRST AID MEASURES

INHALATION:

If contents of an opened battery are inhaled, remove source of contamination and move victim to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and obtain medical assistance.

EYE CONTACT:

If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with copious amounts of water (or normal saline) for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with finger and thumb.

SKIN CONTACT:

Immediately flush thoroughly with soap (or mild detergent) and copious amounts of water until no evidence of substance remains (typically 15-20 minutes). Remove and wash contaminated clothing promptly. If irritation or pain persists, seek medical attention.

INGESTION:

If swallowed, wash out mouth with water provided person is conscious. Quickly transport victim to an emergency care facility.

Section 5 – FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat and could result in the release of flammable or corrosive materials.

EXTINGUISHING MEDIA:

Use water, carbon dioxide, dry chemical or appropriate foam to extinguish fire.

SPECIAL FIRE FIGHTING PROCEDURES:

Fires involving lithium batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire. Ruptured cells may emit irritating and/or toxic fumes under fire conditions.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Wear NIOSH/MSHA approved SCBA (Self-Contained Breathing Apparatus) and protective

clothing when fighting chemical fires.

NFPA:

HEALTH 0
FLAMMABILITY 0
INSTABILITY 0

Section 6 – ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in section 8.

ENVIRONMENTAL PRECAUTIONS:

Prevent material from contaminating soil and groundwater. Do not flush down sewers or waterways. Consult federal, state or local authorities for disposal procedures.

METHODS FOR CONTAINMENT:

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

METHODS FOR CLEAN-UP:

Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal. Consult federal, state or local authorities for disposal procedures. Depending on quantity, location and status of user, materials may be considered hazardous as a waste product.

Section 7 – HANDLING AND STORAGE

HANDLING:

Do not open, disassemble, crush or burn battery. Do not expose battery to extreme heat or fire.

STORAGE:

When not being used, store battery in cool, dry, and well-ventillated area. Avoid storing in or near excessive heat. Elevated temperatures can result in shortened battery life. Keep out of reach of children.

Section 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fume and vapor.

PERSONAL PROTECTION: Not required during normal handling. Where protective clothing when handling an open or leaking batttery.

RESPIRATORY PROTECTION: Not required during normal handling. Where concentration may exceed OSHA/ACGIH permissible limits, use approved respiratory protection.

PROTECTIVE GLOVES:

Not required under normal conditions. Wear neoprene or natural rubber gloves if handling an open or leaking battery.

EYE PROTECTION:

Not required under normal conditions. Wear safety glasses or side shields

if handling an open or leaking battery.

OTHER PROTECTIVE EQUIPMENT/WORK PRACTICES:

Handle with care. Do not short positive and negative terminals. Do not eat, drink or smoke in work areas. Maintain good housekeeping.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: SOLID

VAPOR PRESSURE (MMHg @ 20 DEG. C): NOT APPLICABLE

APPEARANCE: BATTERY

VAPOR DENSITY (AIR = 1): NOT APPLICABLE

pH: NOT APPLICABLE

SOLUBILITY IN WATER: INSOLUBLE

RELATIVE DENSITY (WATER = 1): NOT AVAILABLE

WATER / OIL DISTRIBUTION COEFFICIENT: NOT APPLICABLE

BOILING POINT: NOT APPLICABLE

ODOR TYPE: ODORLESS

MELTING POINT: NOT APPLICABLE

ODOR THRESHOLD: NOT APPLICABLE

VISCOSITY: NOT APPLICABLE

EVAPORATION RATE (n-BUTYL ACETATE = 1): NOT APPLICABLE

OXIDIZING PROPERTIES: NOT APPLICABLE

AUTO IGNITION TEMPERATURE (DEG. C): NOT APPLICABLE

FLASH POINT AND METHOD (DEG. C): NOT APPLICABLE

FLAMMABILITY LIMITS (%): NOT APPLICABLE

Section 10 - STABILITY AND REACTIVITY

STABILITY: Stable under normal usage.

CONDITIONS TO AVOID:

Avoid exposing the battery to fire or high temperature. Do not disassemble, open, crush, puncture, incinerate, short across the terminals or install with incorrect polarity. Avoid mechanical or electrical abuse.

INCOMPATIBLE MATERIALS: Organic solvents.

HAZARDOUS DECOMPOSITION PRODUCTS:

This material may release toxic fumes if burned or exposed to fire and release hydrogen fluoride, carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 – TOXICOLOGICAL INFORMATION

IRRITATION:

Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

SENSITIZATION: Not available.

NEUROLOGICAL EFFECTS: Not applicable.

TERATOGENICITY: Not applicable.

REPRODUCTIVE TOXICITY: Not applicable.

MUTAGENICITY (GENETIC EFFECTS): Not applicable.

TOXICOLOGICALLY SYNERGISTIC MATERIALS: Not applicable.

Section 12 – ECOLOGICAL INFORMATION

ECOTOXICITY: Not available.

MOBILITY: Not available.

PERSISTENCE AND DEGRADABILITY: Not available.

BIOACCUMULATIVE POTENTIAL: Not available.

OTHER ADVERSE EFFECTS: Not available.

Section 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

Battery recycling is encouraged. Do not dump into any sewers, on the ground or into any body of water. Store material for disposal as indicated in Section 7 handling and storage. Dispose of in accordance with local, state and federal laws and regulations.

All hazardous waste material containing SAPHION®I should be disposed of in a licensed facility.

Section 14 - TRANSPORT INFORMATION

Lithium-ion batteries comply with all applicable shipping regulations as prescribed by industry and legal standards which includes compliance with the UN recommendations on the transport of dangerous goods; IATA dangerous goods regulations special provision a45, and applicable U.S. DOT regulations for the safe transport of lithium-ion batteries. Each cell or battery has been tested under provisions of the UN manual of tests and criteria, part III, sub-section 38.3.

Section 15 - REGULATORY INFORMATION

USA:

TSCA STATUS:

All ingredients in the product are listed on the TSCA inventory.

CALIFORNIA PROP 65:

This product does not contain chemicals known to the state of California to cause cancer or reproductive toxicity.

Section 16 - OTHER INFORMATION

Disclaimer

The information in the Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and the regulations promulgated thereunder (29 CFR 1910.1200 et. seq.). Valence Technology neither represents

nor warrants that the format and content contained in this document complies with the laws of any other country except the United States of America.

Read all precautionary information. This document is intended only as a guide to the appropriate precautionary handling of this product by a person trained in, or supervised by a person trained in, chemical handling. Exposure to chemicals present in this product may have serious adverse health effects. Valence Technology cannot warn of all the potential dangers of use or interaction with other chemicals or materials. The user is responsible for determining the precautions and dangers of this product for his or her particular application.

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