

SAFETY DATA SHEET

SOLTARO AIO2-BTLV-5KWH/AIO2-BTLV-10KWH Li-ion
Battery

Soltaro Pty. Ltd. ATF Soltaro Unit Trust

Regulation (EC) No.1907/2006 and 1272/2008

SDS

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

· 1.1 Product identifier

· **Trade name:** SOLTARO AIO2-BTLV-5KWH/AIO2-BTLV-10KWH Li-ion Battery

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

· **Application of the substance / the mixture:** Li-ion battery energy storage system

· 1.3 Details of the supplier of the safety data sheet

· **Manufacturer/Supplier:**

Soltaro Pty. Ltd. ATF Soltaro Unit Trust

Level 9/440 Collins Street, Melbourne, VIC, 3000, Australia

Tel: +61 1300 276 582

· **Only Representative/ other EU contact point:** Not available

· **Further information obtainable from:** Soltaro Pty. Ltd. ATF Soltaro Unit Trust

· 1.4 Emergency telephone number:

Service

Tel: +61 1300 276 582

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



GHS08 health hazard

STOT RE 2 H373 May cause damage to the bone tissue and the teeth through prolonged or repeated exposure.



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

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· **Information concerning particular hazards for human and environment:**

The product has to be labeled due to the calculation procedure of Regulation (EC) No. 1272/2008.

· **Classification system:**

The classification is according to the latest edition of EU Regulation (EC) No. 1272/2008, and extended by company and literature data.

· **2.2 Label elements**

· **Labeling according to Regulation (EC) No 1272/2008**

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



GHS05 GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**

Lithium hexafluorophosphate(1-)

· **Hazard statements**

H315 Causes skin irritation.

H318 Causes serious eye damage.

H373 May cause damage to the bone tissue and the teeth through prolonged or repeated exposure.

· **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

*SECTION 3: Composition/information on ingredients

3.2 Mixtures

· **Description:**

Mixture of the substances listed below with nonhazardous additions.

For the wording of the listed hazard statements refer to Section 16.

· Composition:		
CAS: 15365-14-7	lithium iron phosphate	35-37%
CAS: 7782-42-5 EINECS: 231-955-3	Graphite substance with a Community workplace exposure limit	15-18%
CAS: 7429-90-5 EINECS: 231-072-3	Aluminum substance with a Community workplace exposure limit	13-14%
CAS: 623-53-0	ethyl methyl carbonate	10-12%

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	Flam. Liq. 2, H225	
CAS: 96-49-1 EINECS: 202-510-0	ethylene carbonate Eye Irrit. 2, H319	8-10%
CAS: 7440-50-8 EINECS: 231-159-6	copper substance with a Community workplace exposure limit	6-7%
CAS: 21324-40-3 EINECS: 244-334-7	Lithium hexafluorophosphate(1-) Acute Tox. 3, H301; STOT RE 1, H372; Skin Corr. 1A, H314	2-3%
CAS: 9002-88-4	polyethylene	2-3%
CAS: 24937-79-9	Polyvinylidene fluoride	0.7-1.1%
CAS: 1333-86-4 EINECS: 215-609-9	carbon black substance with a Community workplace exposure limit	0.4-1%

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:** Move to fresh air environment, if breathing is difficult, give oxygen, call a physician

· After skin contact:

Wash with soapy water, if chemical burns or irritation persists, a physician should be consulted.

· **After eye contact:** Flush with copious amounts of water for 15 minutes and see physician at once

· **After swallowing:** See physician at once

· **4.2 Most important symptoms and effects, both acute and delayed** Electrolyte may irritate skin and eyes.

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

No further relevant information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media

· Suitable extinguishing agents:

CO₂ powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

· 5.3 Advice for firefighters

· Protective equipment:

Wear fully protective suit.

Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with eyes.

Avoid contact with skin.

Avoid formation of dust.

Ensure adequate ventilation.

Keep away from ignition sources.

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

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· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· **6.3 Methods and material for containment and cleaning up:**

Use neutralising agent.

Dispose contaminated material as waste according to item 13.

· **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**

Avoid contact with eyes and skin.

Ensure good ventilation/exhaustion at the workplace.

Keep away from heat and direct sunlight.

Open and handle receptacle with care.

Prevent formation of dust.

Prevent short cut and movement which could lead to short circuits.

Keep receptacles tightly sealed.

For the general occupational hygienic measures refer to Section 8.

· **Information about fire - and explosion protection:** Keep respiratory protective device available.

· **7.2 Conditions for safe storage, including any incompatibilities**

· **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

Store only in the original receptacle.

· **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from flammable substances.

Do not store together with oxidising and acidic materials.

· **Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

· **7.3 Specific end use(s)** No further relevant information available.

*SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

7782-42-5 Graphite (15-18%)

AGW (Germany)

Long-term value: $1.25 \cdot 10^{**} \text{ mg/m}^3$

2(II);*alveolengängig**eintembar; AGS, DFG

VME (France)

Long-term value: 2 mg/m^3

pour la fraction alvéolaire

7429-90-5 Aluminum (13-14%)

AGW (Germany)

Long-term value: $1.25 \cdot 10^{**} \text{ mg/m}^3$

2(II);*alveolengängig**eintembar; AGS, DFG

VME (France)

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WEL (Great Britain)	Long-term value: 5* 10** mg/m ³ *pulvérulent **métal Long-term value: 10* 4** mg/m ³ *inhalable dust **respirable dust
7440-50-8 copper (6-7%)	
MAK (Germany)	Long-term value: 0.01 A mg/m ³ als Cu
VME (France)	Short-term value: 2** mg/m ³ Long-term value: 0.2* 1** mg/m ³ *fumées **poussières, en Cu
WEL (Great Britain)	Short-term value: 2** mg/m ³ Long-term value: 0.2* 1** mg/m ³ *fume **dusts and mists (as Cu)
21324-40-3 Lithium hexafluorophosphate(1-) (2-3%)	
AGW (Germany)	Long-term value: 0.2 E mg/m ³ 1(I);Y, 10, DFG, als Li
1333-86-4 carbon black (0.4-1%)	
VME (France)	Long-term value: 3.5 mg/m ³
WEL (Great Britain)	Short-term value: 7 mg/m ³ Long-term value: 3.5 mg/m ³

· **Regulatory information**

AGW (Germany): TRGS 900

VME (France): ED 984, 10.2016

WEL (Great Britain): EH40/2011

MAK (Germany): MAK- und BAT-Liste

· **DNELs:** Data not available.

· **PNECs:** Data not available.

· **Ingredients with biological limit values:**

7429-90-5 Aluminum

BGW (Germany)	200 µg/l Untersuchungsmaterial: Urin Probennahmezeitpunkt: Expositionsende bzw. Schichtende Parameter: Aluminium
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· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Based on the composition shown in Section 3, the following measures are suggested for occupational safety measure**

· **Appropriate engineering controls**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

See Section 7 for information about design of technical facilities.

· **Personal protective equipment**

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained

respiratory protective device.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

· **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Environmental exposure controls:**

Control measures must be made in accordance with Community environmental protection legislation.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Solid

Colour: White

· **Odour:** Odourless

· **Odour threshold:** Data not available.

· **pH-value:** Data not available.

· **Change in condition:**

Melting point/freezing point: Data not available.

Initial boiling point and boiling range: Data not available.

· **Flash point:** Data not available.

· **Flammability (solid, gas):** Data not available.

· **Auto-ignition temperature:** Data not available.

· **Decomposition temperature:** Data not available.

· **Self-igniting:** Data not available.

· **Explosive properties:** Data not available.

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· Explosion limits	
Lower:	Data not available.
Upper:	Data not available.
· Oxidizing properties: Data not available.	
· Vapour pressure: Data not available.	
· Density: Data not available.	
· Relative density: Data not available.	
· Vapour density: Data not available.	
· Evaporation rate: Data not available.	
· Solubility in / Miscibility with water: Data not available.	
· Partition coefficient: n-octanol/water: Data not available.	
· Viscosity:	
Dynamic:	Data not available.
Kinematic:	Data not available.
· 9.2 Other information No further relevant information available	

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No decomposition if used according to specifications.
- **10.2 Chemical stability** Stable under recommended storage conditions.
- **10.3 Possibility of hazardous reactions** Leakage, fire, explosion
- **10.4 Conditions to avoid** Overheating, exposed to damp air or water, mechanical vibration and power abuse.
- **10.5 Incompatible materials:** Strong oxidants.
- **10.6 Hazardous decomposition products:** Carbon Monoxide (CO) and other VOC's

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:		
623-53-0 ethyl methyl carbonate		
Oral	LD50	>2,000 mg/kg (rat)
96-49-1 ethylene carbonate		
Oral	LD50	10,000 mg/kg (rat)
Dermal	LD50	>3,000 mg/kg (rabbit)
9002-88-4 polyethylene		
Oral	LD50	>2,000 mg/kg (rat)
1333-86-4 carbon black		
Oral	LD50	15,400 mg/kg (rat)
Dermal	LD50	3,000 mg/kg (rabbit)

- **Skin corrosion/irritation**

Causes skin irritation.

- **Serious eye damage/irritation**

Causes serious eye damage.

- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

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- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure**

May cause damage to the bone tissue and the teeth through prolonged or repeated exposure.

- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.
- **12.7 Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations


- **Recommendation:**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packaging**

- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number	
· ADR/RID/ADN, IMDG, IATA	UN3480
· 14.2 UN proper shipping name	
· ADR/RID/ADN, IMDG, IATA	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
· 14.3 Transport hazard class(es)	
· ADR/RID/ADN, IMDG, IATA	
	
· Class 9	Miscellaneous dangerous substances and articles.
· Label	Not applicable.
· 14.4 Packing group	
· ADR/RID/ADN, IMDG, IATA	II

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· 14.5 Environmental hazards	Not applicable.
· 14.6 Special precautions for user	
· Hazchem code:	4W

*SECTION 15: Regulatory information

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

· MAK(German Maximum Workplace Concentration)	
1333-86-4	carbon black
	3B

· Directive 2012/18/EU

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· National regulations:

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· Other regulations, limitations and prohibitive regulations

· SVHC Candidate List of REACH Regulation Annex XIV Authorisation (27/6/2018)
None of the ingredients is listed.
· REACH Regulation Annex XVII Restriction (18/4/2018)
See Section 16 for information about restriction of use.
None of the ingredients is listed.
· REACH Regulation Annex XIV Authorisation List (13/6/2017)
None of the ingredients is listed.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H319 Causes serious eye irritation.

H372 Causes damage to the bone tissue and the teeth through prolonged or repeated exposure.

· Classification according to Regulation (EC) No 1272/2008	
Skin corrosion/irritation	The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.
Serious eye damage/eye irritation	
Specific target organ toxicity (repeated exposure)	

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The contents and format of this SDS are in accordance with Regulation (EC) No 1907/2006, 1272/2008 and Regulation (EU) No 2015/830.

DISCLAIMER OF LIABILITY :

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· Remark

This sample is likely to be classified as article with substances not intended to be released and is out of scope of a SDS as set out in Regulation (EC) No 1907/2006. This SDS is generated for client's reference only.

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye 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

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· * ***Data compared to the previous version altered.***