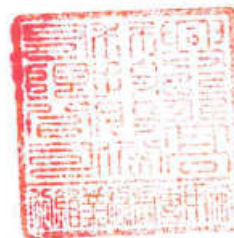


**SYNERGY SCIENTECH CORP. -- Advanced Hybrid Batteries****SAFETY DATA SHEET**

Manufacturer's CAGE: SYNERGY

Part No. Indicator: A

Part Number/Trade Name: **AHB Series- Lithium ion Polymer batteries.**

## 1. General Information

Company's Name: SYNERGY SCIENTECH CORP.

Company's Street: 7F, No. 9, Park Ave. II, Hsinchu Science Park, Hsinchu, Taiwan 30075 R.O.C.

Company's City: HSIN-CHU, TAIWAN

Company's Emerge Ph #: 886-3-564-3700

Company's Info Ph #: 886-3-564-3700

Record No. For Safety Entry: 001

Tot Safety Entries This Sty #: 001

Status: SMJ

Date MSDS Prepared: January 1, 2016 (9<sup>th</sup> Edition)

Safety Data Review Date: January 1, 2016

MSDS Preparer's Name: Dr. Brian Shen

Preparer's Company: SAME

MSDS Serial Number: LIASN

## 2. Ingredients/Identity Information

Material Name. (e.g. Sn alloy)	Substance Name (e.g. Copper (Cu))	CAS No.	Percentage (%)
active material	LiCoO <sub>2</sub>	12190-79-3	32.62
Binder-PVDF	Polyvinylidene difluoride	24937-79-9	1.04
Conductive material	Carbon	1333-86-4	0.78
Conductive material	Carbon	1333-86-4	0.26
Foil	Aluminum	7429-90-5	4.61
active material	Carbon	1333-86-4	15.92
Binder-PVDF	Polyvinylidene difluoride	24937-79-9	1.3
conductive material	Carbon	1333-86-4	0.09
additive	Oxalic acid	144-62-7	0.05
foil	Copper	7440-50-8	7.87
electrolyte-solvent	Ethylene carbonate	96-49-1	5.06
electrolyte-solvent	Diethyl carbonate	105-58-8	3.73
electrolyte-solvent	Ethyl methyl carbonate	623-53-0	3.83
electrolyte-additive	Lithium hexafluorophosphate	21324-40-3	1.82
separator	Polyethylene	9002-88-4	3.62
tape-film	Polyimide	75-55-8	0.1
tape-adhesive	Acrylic	9011-14-7	0.03
tape-film	Polyester	25038-59-9	0.14

tape-adhesive	Acrylic	9011-14-7	0.03
Al bag	Nylon	32131-17-2	3.85
Al bag	Aluminum	7429-90-5	9.75
Al bag	Polypropylene	9003-07-0	2.57
tab lead	Nickel	7440-02-0	0.38
tab lead	polypropylene	9003-07-0	0.05
tab lead	Aluminum	7429-90-5	0.24
tab lead	polypropylene	9003-07-0	0.05
tab	Nickel	7440-02-0	0.22

=====  
3. Hazards Identification  
=====

Route of Entry - Inhalation: YES

Route of Entry - Skin: YES

Route of Entry - Ingestion: YES

Health overexposure Acute and Chronic: UNDER NORM CNDTNS OF USE, THESE CHEMICALS ARE CONTAINED IN SEALED CAN. RISK OF EXPOS OCCURS ONLY IF BATTERY IS MECHANICALLY ABUSED. ACUTE: INHAL: CONTENTS OF OPENED BATTERY CAN CAUSE CONTENTS OF OPENED BATTERY CAN CAUSE IRRIT.

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

=====  
4. First Aid Measures  
=====

Explanation Carcinogenicity: NOT RELEVANT.

Signs/Symptoms of Overexposure: SEE HEALTH HAZARDS.

Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.

WASH WITH SOAP AND WATER. EYES: IMMEDIATELY FLUSH THOROUGHLY WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.

INGESTION: CALL MD IMMEDIATELY (FP N).

=====  
5. Fire Fighting Measures  
=====

Extinguishing Media: IN CASE OF FIRE, USE CARBON DIOXIDE OR DRY CHEMICAL EXTINGUISHERS.

Special Fire Fighting Proc: WEAR NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FPN).

Unusual Fire And Expel Hazards: NONE SPECIFIED BY MANUFACTURER.

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## 6. Accidental Release Measures

Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

## 7. Handling and Storage

Wear suitable chemical resistant gloves, safety glasses and filtered cartridge respirator. Goggles, full face protection and other protective clothing is required if potential exists for direct exposure to liquid battery electrolyte.

In case Material is released or spilled: Carefully recover spillages with appropriate ladle and transfer to a suitably labeled, sealable container for safe disposal. Wash the spillage area neutralized with calcium hydroxide.

Wear suitable personal protection during removal of spillages.

Be stored in clearly labeled, tightly closed exclusive containers in a cool, dry area.

## 8. Exposure Controls/Personal Protection

Ventilation: Use local exhaust.

Protective Gloves: Wear rubber or plastic gloves.

Eye/Face Protection: Wear safety glasses, goggles or full face protections.

Respiratory Protection: Wear filtered cartridge respirator or a respirator of greater protection.

## 9. Physical and Chemical Properties

Product Type: Solid

Appearance: Prismatic

Odor: Odorless

## 10. Stability and Reactivity

Stability: YES

Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.

Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.

Hazardous Decamp Products: NONE SPECIFIED BY MANUFACTURER.

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT.

## 11. Toxicological Information

In case electrolyte is spilled and explored with air, the HF could be released.

May include hydrogen fluoride and carbon oxides gas.

May cause skin and eye irritation when contacted.

=====  
12. Ecological Information  
=====

If the battery scrapped, it should be selected and disposed by professional company.

=====  
13. Disposal Consideration  
=====

Disposal should be in accordance with local, state or national legislation.

=====  
14. Transport Information  
=====

UN No: UN3480 / UN3481

The battery models listed have aggregate equivalent lithium content below the 8g and the Watt hour is not more than 100Wh. And shipment contains no item listed under IATA DGR Packing instruction PI-965 to PI-967 Section II and meets all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3

UN 38.3 Lithium Battery		Test results	Remarks
NO	Test item	OK	Test 1 to 5 must be conducted in sequence on the same cell or battery
T1	Altitude simulation	OK	
T2	Thermal test	OK	
T3	Vibration	OK	
T4	Shock	OK	
T5	External short circuit	OK	
T6	Impact	OK	
T7	Overcharge	OK	Only battery do need this test item
T8	Forced discharge	OK	For cell only

The product is not classified as dangerous under the current edition of the 57<sup>th</sup> Edition IATA dangerous goods regulations. The products are safe for air transportation and not regulated by IATA DGR. Also they comply with the PI-965 to PI-967 Section II accordingly.

=====  
15. Regulatory Information  
=====

See ACGIH exposure limits information as noted in Section 3.

US: This MSDS meets/exceeds OSHA requirements

International: this MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-1993.

## 16. Other Information

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### Reference:

Chemical substances information: Japan Advanced Information center of Safety and Health  
International Chemical Safety Cards (ICSCs): International Occupational Safety and Health  
Information Centre (CIS)

2002 TLVs and BELs: American Conference of Governmental Industrial Hygienists (ACGIH)

Dangerous Goods Regulations-57<sup>th</sup> Edition : International Air Transport  
Association (IATA)

IMDG Code-2014 Edition: International Maritime Organization (IMO)

The European Agreement concerning the International Carriage of Dangerous Goods by Road-2015:

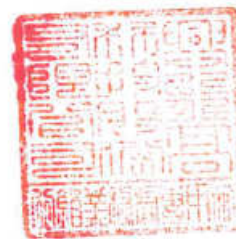
The United Nations Economic Commission for Europe (UNECE)

MSDS of raw materials prepared by the manufactures

**SYNERGY SCIENTECH CORP. -- Advanced Hybrid Batteries****SAFETY DATA SHEET**

Manufacturer's CAGE: SYNERGY

Part No. Indicator: A

Part Number/Trade Name: **AHB Series- Lithium ion Polymer batteries.**

## 1. General Information

Company's Name: SYNERGY SCIENTECH CORP.

Company's Street: 7F, No. 9, Park Ave. II, Hsinchu Science Park, Hsinchu, Taiwan 30075 R.O.C.

Company's City: HSIN-CHU, TAIWAN

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Company's Info Ph #: 886-3-564-3700

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Date MSDS Prepared: January 1, 2016 (9<sup>th</sup> Edition)

Safety Data Review Date: January 1, 2016

MSDS Preparer's Name: Dr. Brian Shen

Preparer's Company: SAME

MSDS Serial Number: LIASN

## 2. Ingredients/Identity Information

Material Name. (e.g. Sn alloy)	Substance Name (e.g. Copper (Cu))	CAS No.	Percentage (%)
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active material	Carbon	1333-86-4	15.92
Binder-PVDF	Polyvinylidene difluoride	24937-79-9	1.3
conductive material	Carbon	1333-86-4	0.09
additive	Oxalic acid	144-62-7	0.05
foil	Copper	7440-50-8	7.87
electrolyte-solvent	Ethylene carbonate	96-49-1	5.06
electrolyte-solvent	Diethyl carbonate	105-58-8	3.72
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electrolyte-additive	Lithium hexafluorophosphate	21324-40-3	1.82
separator	Polyethylene	9002-88-4	3.62
tape-film	Polyimide	75-55-8	0.1
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tape-film	Polyester	25038-59-9	0.14

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Al bag	Aluminum	7429-90-5	9.75
Al bag	Polypropylene	9003-07-0	2.57
tab lead	Nickel	7440-02-0	0.38
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3. Hazards Identification  
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Route Of Entry - Inhalation: YES

Route Of Entry - Skin: YES

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Health Haz Acute And Chronic: UNDER NORMAL CONDITIONS OF USE, THESE CHEMICALS ARE CONTAINED IN SEALED CAN. RISK OF EXPOS OCCURS ONLY IF BATTERY IS MECHANICALLY ABUSED. ACUTE: INHALER: CONTENTS OF OPENED BATTERY CAN CAUSE CONTENTS OF OPENED BATTERY CAN CAUSE IRRIT.

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

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Explanation Carcinogenicity: NOT RELEVANT.

Signs/Symptoms of overleap: SEE HEALTH HAZARDS.

Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.

WASH WITH SOAP AND WATER. EYES: IMMEDIATELY FLUSH THOROUGHLY WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION.

INGESTION: CALL MD IMMEDIATELY (FP N).

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Special Fire Fighting Proc: WEAR NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FPN).

Unusual Fire And Expel Hazards: NONE SPECIFIED BY MANUFACTURER.

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6. Accidental Release Measures  
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Wear appropriate personal protective equipment. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

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### 7. Handling and Storage

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Wear suitable chemical resistant gloves, safety glasses and filtered cartridge respirator. Goggles, full face protection and other protective clothing is required if potential exists for direct exposure to liquid battery electrolyte.

In case Material is released or spilled: Carefully recover spillages with appropriate ladle and transfer to a suitably labeled, sealable container for safe disposal. Wash the spillage area neutralized with calcium hydroxide.

Wear suitable personal protection during removal of spillages.

Be stored in clearly labeled, tightly closed exclusive containers in a cool, dry area.

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### 8. Exposure Controls/Personal Protection

=====

Ventilation: Use local exhaust.

Protective Gloves: Wear rubber or plastic gloves.

Eye/Face Protection: Wear safety glasses, goggles or full face protections.

Respiratory Protection: Wear filtered cartridge respirator or a respirator of greater protection.

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### 9. Physical and Chemical Properties

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Product Type: Solid

Appearance: Prismatic

Odor: Odorless

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### 10. Stability and Reactivity

=====

Stability: YES

Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.

Materials To Avoid: NONE SPECIFIED BY MANUFACTURER.

Hazardous Decamp Products: NONE SPECIFIED BY MANUFACTURER.

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT.

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### 11. Toxicological Information

=====

In case electrolyte is spilled and explored with air, the HF could be released.

May include hydrogen fluoride and carbon oxides gas.



May cause skin and eye irritation when contacted.

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## 12. Ecological Information

=====

If the battery scrapped, it should be selected and disposed by professional company.

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## 13. Disposal Consideration

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Disposal should be in accordance with local, state or national legislation.

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## 14. Transport Information

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With regard to air transport, the Office of Hazardous Materials Safety within the US Department of Transportation's (DOT) Research and Special Programs Administration are cited and considered.

Base on IATA dangerous goods regulations current edition (English) and IMDG Code current Edition, Synergy AHB batteries can fulfil SP188,230,310,957 requirement.

The battery model listed has aggregated equivalent lithium content is not more than 100Wh, and has been tested, basing on Section 38.3 of UN Manual of Tests and Criteria. And the battery is compliance with IMDG Special Provision 188 ,230 & 310 957.And the battery belongs to Non-dangerous goods.

IMDG special provision 188:

Lithium cells and batteries offered for transport are not subject to other provisions of this Code if they meet the following

1. For a lithium ion cell, the equivalent lithium content is not more than 20Wh;
2. For a lithium ion battery, the aggregate equivalent lithium content is not more than 100Wh;
3. Each cell or battery is of the type proved to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3;
4. Cells and batteries are separated so as to prevent short circuits and are packed in strong packaging, except when installed in equipment; and
5. Except when installed in equipment, each package containing more than 24 lithium cells or 12 lithium batteries shall in addition meet the following requirements;
  - a) Each package shall be marked indicating that it contains lithium batteries and that special procedures shall be followed in the event that the package is damaged;
  - b) Each shipment shall be accompanied with a document indicating that packages contain lithium batteries and that special procedures shall be followed in the event a package is damaged;

- c) Each package is capable of withstanding a 1.2m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell ) contact and without release of contents; and
  - d) Except for lithium batteries packed with equipment, packages may not exceed 10 kg gross mass.
- As used above and elsewhere in this Code, “lithium content” means the mass of lithium in the anode of a lithium metal or lithium alloy cell, except in the case of a lithium-ion cell the “equivalent lithium content” in grams is calculated to be 0.3 times the rated capacity in ampere-hours.

IMDG special provision 230:

This entry applies to cells and batteries containing lithium in any form, including lithium –polymer and lithium-ion cells and batteries .Lithium cells and batteries may be transported under this entry if they meet the following conditions:

- a) Each cell or battery is of the type proved to meet the requirements of each test of the UN Manual of Tests and Criteria, Part III ,sub-section 38.3 ;
- b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under normal conditions of transport;
- c) Each cell and battery is equipped with an effective means of preventing external short circuits;
- d) Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent reverse current flow (such as diodes, fuses, etc.)

IMDG special provision 310

Special Provision 310 of the UN Recommendations for small lithium batteries and cells. Thus, we are adopting the following small production run exception for small lithium batteries and cells transported by motor vehicle, rail and vessel:

- (1) The cells and batteries must be transported in an outer packaging that is a metal, plastic, or plywood drum; or metal, plastic, or wooden box meeting the criteria for Packing Group I packaging’s; and
- (2) Each cell and battery must be individually packed in an inner packaging inside the outer packaging and surrounded by non-combustible, non-conductive cushioning material. Consistent with the international standards, the exception will apply to production runs of up to 100 lithium batteries or cells of all types. This exception addresses the need to increase safety standards for these lithium batteries, while not imposing undue costs on the regulated community.

IMDG special provision 957:

Lithium cells and batteries manufactured before 1 January 2003 that have not been tested in accordance with the requirements in chapter 38.3 of the UN Manual of Tests and Criteria, as well as articles which contain such lithium cells or batteries, may be transported until 31 December 2016 if all applicable provisions of this

Code are met.

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### 15. Regulatory Information

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See ACGIH exposure limits information as noted in Section 3.

US: This MSDS meets/exceeds OSHA requirements

International: this MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-1993.

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### 16. Other Information

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Reference:

Chemical substances information: Japan Advanced Information center of Safety and Health

International Chemical Safety Cards (ICSCs): International Occupational Safety and Health Information Centre (CIS)

2002 TLVs and BELs: American Conference of Governmental Industrial Hygienists (ACGIH)

Dangerous Goods Regulations-57<sup>th</sup> Edition : International Air Transport Association (IATA)

IMDG Code-2014 Edition: International Maritime Organization (IMO)

The European Agreement concerning the International Carriage of Dangerous Goods by Road-2015:

The United Nations Economic Commission for Europe (UNECE)

MSDS of raw materials prepared by the manufactures