

## Safety data sheet

### Section 1: Identification

#### 1.1 product identifier

product name: lithium battery  
other name: Briggs & Stratton 82VMax 2Ahr or 4 Ahr  
Specification:

2Ah - 82V Max, 72V Nom, 144 Whr

4Ah - 82V Max, 72V Nom, 288 Whr

5Ah – 82V Max, 72V Nom,360Wh

1.2 Recommended use of the chemical : Lithium ion

restrictions on use: not known

#### 1.3 Details of the Manufacturer or Importer:

Briggs & Stratton Corporation PO Box 702 Milwaukee,  
WI 53201

1.4: Customer Service Number: 800-444-7774

1.5 Emergency Number: 800-424-9300 (US) or +1 703-527-3887 (International)

### Section 2: Hazards identification

#### 2.1 Classification of the chemical:

This product is out of scope of GHS system .

#### 2.2 Hazard summary:

absorbed and inhaled by human body, spilt into eyes, and contacts skin.)	Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract. Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and stimulation on the skin. Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.
Environment impact:	Since a battery cell remains in the environment, do not throw out it into the environment
Physical and chemical harms:	Exposure of damaged battery
Special harm:	If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride. Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

#### 2.3 label

Signal word: None  
Hazard Symbols: None  
Hazard statements: None  
Precautionary statements: Prevention

### Section 3: Composition/ information on ingredients

#### 3.1 Substances

Material Name	Chemical Name	CAS No.	Wt%
FR4	Glass fabric 玻璃纤维	65997-17-3	45
	Epoxy Resin 环氧树脂	26265-08-7	28
	Copper Foin 铜箔	7440-50-8	17
Green paste (绿漆)	O-Cresol novolac epoxy (甲醛与环氧氯丙烷和邻甲基苯酚的聚合物)	29690-82-2	56
	Barium sulfate (硫酸钡)	7727-43-7	25
	Acrylic ester(聚二季戊四醇六丙烯酸酯)	29570-58-9	19
White Ink (白色油墨)	Epoxy Acrylate (环氧丙烯酸酯)	N/A	42
	Pigment (酞菁绿)	1328-53-6	22
	Z-Ethgl-4-methgeimidazole (2-乙基-4-甲基咪唑)	931-36-2	18
	Filler (滑石粉)	14807-96-6	18
Fillers (填充物)	Fillers (滑石粉)	14807-96-6	60
Silicone modified polymer (硅树脂聚合物)	Silicone modified polymer	N/A	30
Paraffin (石蜡)	Paraffin	N/A	5
Carbon black (炭黑)	Carbon black	1333-86-4	5
Solder (焊料)	Tin (锡)	7440-31-7	89
	Silver (银)	7440-22-4	5
	Copper (铜)	7440-50-8	1
	Resin (松香)	65997-05-9	5
Plating (电镀)	Sn (锡) 粉状	7440-31-7	99.5
	others	N/A	0.5
Lead Eire-Dumet (导线)	Ni (镍)	7440-02-0	42.15
	Fe	7439-89-6	57.85
	Cu	7440-50-8	100
Dice	Si (硅)	7440-21-3	70.9
	Al (铝)	7429-90-5	0.1
	Ag	7440-22-4	28.6

	Ni	7440-02-0	0.4
Ink (油墨)	C	7440-44-0	100
BaTiO3 (钛酸钡)	BaTiO3	12047-27-7	69
Nickel (镍)	Nickel	7440-02-0	2.5~7
Copper (铜)	Copper	7440-50-8	21
Tin (锡)	Tin	7440-31-5	0.2~3
MAXBOND 1603HFR - 1 Glue (黄胶)	CR Rubber	9010-98-4	10~20
	Phenolic resins	9003-35-4	10~20
	Flame Retardants	1309-6404	5
	Solvents	108-88-3	60
		1975/9/2	
		78-93-3	
		110-82-7	
110-54-3			
Additive	N/A	1	
Glue (9333 胶)	Cadmium (镉)	7440-43-9	N.D.
	Calcium oxide(氧化镉)	1306-19-0	N.D.
	Dipentyl phthalate (邻苯二甲酸二戊脂)	131-18-0	N.D.
Carbon (碳)	Carbon	N/A	50
CP (化学纯)	Sn (锡 粒状)	7440-31-5	11
	Fe (碳化铁)	12011-67-5	67
	Cu	7440-50-8	22
ALUMINUM CALCIUM SODIUM SILICATE (碳酸铝钙 钠)	SODIUM SILICATE (二氧化硅)	14808-60-7	60
TITANIUM DIOXIDE (二氧化 钛)	TITANIUM DIOXIDE	13463-67-7	30
DIBUTYLBIS(LAUROYLOXY) STANNANE (二月桂酸二丁基 锡)	DIBUTYLBIS(LAUROYLOXY)STANNA NE	77-58-7	10
Conductor (导体)	Copper	7440-50-8	99
	Tin	7440-31-5	1

Insulation (绝缘)	Polyethylene (聚乙烯)	9002-88-4	30
	Magnesium Compound (镁聚合物)	N/A	55
	Other	N/A	15
Tin (锡)	Sn	7440-31-5	99.4
	Cu	7440-50-8	0.6
Positive electrode	Lithium transition metal oxidate(Li[M]m[O]n *2)	12190-79-3	20~60
		12057-17-9	
		182442-95-1	
Positive electrode' s base	Aluminum	7429-90-5	1~10
Negative electrode	Carbon	7782-42-5	10~30
		7440-44-0	
Negative electrode' s base	Copper	7440-50-8	1~15
Electrolyte	Organic electrolyte principally involves ester carbonate	N/A	5~25
Outer case	Iron	7439-89-6	1~30

## Section 4 : First-aid measures

### 4.1 Description of first aid measures

**Inhalation:** Make the victim blow his/her nose, gargle. Seek medical attention if necessary

**Skin contact:** Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately

**Eye contact:** Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

**Most important symptoms/effects, acute and delayed:** finger, Skin and eye burns

**Indication of immediate medical attention and special treatment needed:** ask doctor for help .

## Section 5: Fire-fighting measures

**5.1 Suitable (and unsuitable) extinguishing media:** Plenty of water. carbon dioxide gas. Nitrogen gas .chemical power fire extinguishing medium and fire foam .

**5.2 Specific hazards arising from the chemical:** it can be heated and unstable when press ,drop and other mechanical pressure .fire from the battery may produce irritating, corrosive and/or toxic gases.

**5.3 Special protective equipment and precautions for fire-fighters:**

**Handle protection :** wear gloves

**Eye protection:** Goggle and protective glasses

**Skin and body protection:** protective cloth

**Breath protection:** Wear self-contained breathing apparatus

## Section 6: Accidental release measures

6.1 Personal precautions, protective equipment, and emergency procedures: wear protective gloves and glasses, remove spilled material and do not inhale the gas as much as possible . do not touch as much as possible .

6.2 environmental precaution: Do not throw out into the environment especially water source and sewer.

6.3 Methods and materials for containment and cleaning up: The spilled solid are put into the container, the leaked place is wiped off with dry cloth .

## Section 7: Handling and Storage

### 7.1 Precautions for safe handling:

处置 Handling	<p>Do not wet the battery with water, seawater, drink or acid; or expose to strong oxidizer.</p> <ul style="list-style-type: none"><li>• Do not damage or remove the external tube.</li><li>• Keep the battery away from heat and fire.</li><li>• Do not disassemble or reconstruct the battery; or solder the battery directly.</li><li>• Do not give a mechanical shock or deform.</li><li>• Do not use unauthorized charger or other charging method.</li></ul> <p>Terminate charging when the charging process doesn' t end within specified time.</p>
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### 7.2 Conditions for safe storage, including any incompatibilities:

儲存 Storage	<p>Do not store the battery with water, seawater, strong acid or strong oxidizer. Avoid direct sunlight, high temperature, and high humidity.</p>
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## Section 8: Exposure Control / Personal Protection

### 8.1 Control parameters:

Occupational exposure limits: no exposure limit

Biological limit values: no exposure limit

exposure weather limit : forbidden to exposure in water .

8.2 Appropriate engineering controls: Leak from a damaged or opened battery: Provide adequate ventilation if fumes or vapours are generated

8.3 Individual protection measures, such as personal protective equipment

Hand protection: not necessary under normal condition

Eye protection : not necessary under normal condition

Body protection: not necessary under normal condition

Summarize; personal protective equipment should be used when the battery is

damaged .

## SECTION 9: Physical and chemical properties

### Appearance:

Physical state:	solid	
Form:	solid	
Color:	various	
Odor:	no odor	
Odour threshold	Not applicable	
pH	Not applicable.	
Melting point/freezing point		Not applicable.
Initial boiling point and boiling range		Not applicable.
Flash point		Not applicable.
Evaporation rate		Not applicable.
Flammability (solid, gas)		Not available.
Upper/lower flammability or explosive limits		
Flammability limit - lower(%)		Not available.
Flammability limit - upper(%)		Not available.
Vapour pressure		Not applicable.
Vapour density		Not applicable.
Relative density		Not available.
Solubility(ies)		Insoluble.
Partition coefficient(n-octanol/water)		Not applicable.
Auto-ignition temperature		Not applicable.
Decomposition temperature		Not applicable.
Viscosity		Not applicable.

## Section 10: Stability and reactivity

10.1. Reactivity	Stable under normal use ,storage and transport
10.2. Chemical stability	Stable under normal use ,storage and transport
10.3. Possibility of hazardous reactions	no hazardous
10.4. Conditions to avoid	Prevent static during processing, high humidity.
10.5. Incompatible materials	Conductive materials, water, seawater, strong oxidizers and strong acids
10.6. Hazardous decomposition products	Acrid or harmful gas is emitted during fire.

## Section 11 Toxicological information

Information on the likely routes of exposure:	Expected to be a low hazard for usual industrial or commercial handling by trained personnel
Symptoms related to the physical, chemical and toxicological characteristics:	Skin , eye burns
Delayed and immediate effects and also chronic	

effects from short- and long-term exposure: not applicable  
Numerical measures of toxicity: LD50, oral - Rat 2,000mg/kg or more  
Irritating nature: Irritative to skin and eye

### Section 12 Ecological information

Ecotoxicity : no impact under normal use  
Persistence and degradability : no data available  
Bioaccumulative potential : no data available  
Mobility in soil : no data available

### Section 13: Disposal considerations

Residual waste: Dispose in accordance with applicable federal, state, and local regulations  
Disposal methods/information: Do not dispose in fire. Dispose waste and residues in accordance with applicable federal, state, and local regulations.

### Section 14: Transport information

UN number: UN 3480/UN3481  
UN proper shipping name: Lithium Ion Batteries or Lithium Ion Batteries contained in equipment or Lithium Ion Batteries packed with equipment  
DANGEROUS good class: 9  
Packing group: II  
Environmental hazards: No  
Special precautions: No  
Testing: Batteries have passed UN38.3

US Road: for 2AH and 4Ah batteries are less than 300 Whr and can meet the exception for smaller smaller cells or batteries in 49 CFR 173.185(c) under section (v)

IATA Packing Instructions: 965 Section IA, 966 Section I

### Section 15: Regulatory information

Safety: UL 2054, IEC 62133

### Section 16: Other information, including date of preparation or last revision

Version contained : 1

Training information: follow instruction when handling