

## Material Safety Data Sheet

**Product Name:** : Electric Vacuum Suction Cup

**Applicant:** : Zhejiang Vinon Machinery Co., Ltd.

**Address:** : No. 528 Tongxin Road, Tongxiang City, Zhejiang

Signed by Shanghai ICTS Group



**Written by:** Monica Fan

**Date:** 28<sup>th</sup> October. 2025

## Material Safety Data Sheet (MSDS)

### Part 1 –Identification of the substance and of the company/undertaking

#### 1.1 Product identification:

##### Identification on the label

/Trade name:	Electric Vacuum Suction Cup
Type:	LFBSL 760100X
Trade mark:	Bihui
UFI:	No information

#### 1.2. Relevant identified and recommended uses of the substance or mixture:

Recommended use:	Safely, quickly, and non destructively transport various ceramic tiles, rock slabs, etc. with smooth surfaces and no breathability.
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#### 1.3. Manufacturer Information:

Supplier(Manufacturer):	Zhejiang Vinon Machinery Co., Ltd.
Address:	No. 528 Tongxin Road, Tongxiang City, Zhejiang Province
Zip code:	314500
Contact:	Miss Tong
Telephone:	021-33656129

#### 1.4 Emergency telephone Number:

Contact:	Selina Cao
Telephone:	021-33656129
Mobile phone:	13482576665
Email:	sales@vinongroup.com

### Part 2 –Hazards Identification

#### 2.1 Classification of the substance or mixture:

The lithium-ion battery described in this safety technical manual is sealed and can withstand the temperature and pressure during normal use, without the risk of fire, explosion, or leakage of hazardous chemicals. Only when the integrity of the battery is damaged or the battery is subjected to mechanical, thermal, or electrical abuse, can the materials contained in the battery pose a risk.

GHS label elements:	Acute toxicity (inhalation):	Category 4
	Carcinogenicity:	Category 1B

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Reproductive toxicity: Category 1B

Heterosexual target organ toxicity Repeated exposure: Category 2

Aquatic acute: Category 3

## 2.2 Label elements:

### Hazard Pictograms:



### Signal Word(S):

Danger

### Hazard statement:

H332 Harmful if inhaled

H350 May cause cancer

H360 May damage fertility or the unborn child

H373 May cause damage to organs through prolonged or repeated exposure

H402 Harmful to aquatic life

### Preventive instructions:

#### Preventive measures:

P203 Obtain, read and follow all safety instructions before use.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

#### Incident response:

P304 + P340 If accidentally inhaled: Move the person to fresh air and maintain a comfortable position for breathing.

P317 Please seek medical attention.

P318 If you have been exposed or have any concerns, please seek medical attention.

P319 Get medical help if you feel unwell.

#### Secure storage:

P405 Storage areas must be locked.

#### Waste disposal:

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

## 2.3 Other hazards:

VPvB substance: Not applicable.

PBT substance: Not applicable.

Endocrine disturbance characteristics: the product does not meet the standard.

## Part 3 - Composition/information on ingredients

### 3.1 Substance

### 3.2 mixture

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Web: www.ictsgroup.cn

Name	CAS No.	Specific Concentration limits, M-Factors, Acute Toxicity Estimates (ATE)	Content
Carbon steel	363179-62-8	-	25.55%
PA6	24937-16-4	-	23.90%
ADC12	7429-90-5	-	20.56%
EPDM rubber	9010-79-1	-	11.21%
Polyethylene PE resin	9002-88-4	-	5.54%
Copper	7440-50-8	-	3.11%
Polyvinyl chloride	9002-86-2	-	2.67%
Dibutyl phthalate	84-74-2	-	2.06%
Lithium nickel cobalt manganese oxide	182442-95-1	-	1.6%
Fiberglass fabric	65997-17-3	-	1.22%
TPR	110771-95-4	-	0.98%
Graphite	7782-42-5	-	0.8%
ABS	9003-56-9	-	0.49%
Dimethyl carbonate	616-38-6	-	0.3%

## Part 4 –First aid measures

### 4.1 Description of first aid measures:

- In case of skin contact:** For skin contact, wash with soap and water while removing contaminated clothing; if exposed or concerned: seek medical attention. Wash or discard contaminated clothing before reuse.
- In case of eyes contact:** If in eyes: Rinse carefully with water for a few minutes, remove contact lenses, and continue to rinse if available and easy to do. Wash eyes with water for at least 15 minutes and call the poisoning center or doctor / physician immediately.
- In case of inhalation:** If inhaled: transfer the patient to fresh air, keep comfortable breathing. If breathing is difficult, oxygen should be given by qualified medical personnel. If breathing is irregular or stopped, artificial respiration should be carried out. If you feel unwell, please call the poison center or doctor / doctor.
- In case of ingestion:** If swallowed: if you feel unwell, please call the poisoning center or doctor / doctor, rinse your mouth, do not induce vomiting, do not give anything to the comatose person through your mouth.

### 4.2 The most important symptoms and effects, both acute and chronic

The most important known symptoms and effects are described on the label (see Section 2.2) and/or Section 11.

### 4.3 Signs of need for immediate medical treatment and special treatment

Symptomatic treatment.

After the above measures, contact the doctor and receive the doctor's treatment as needed.

## Part 5 - Fire-Fighting measures

- 5.1 Suitable fire extinguishers:** Cold water and dry powder in large amount are applicable.  
Use metal fire extinction powder or dry sand if only few cells are involved. extinguishing powder.
- 5.2 Specific hazards arising from the substance or mixture:** Fire, overheating or overvoltage conditions may produce hazardous decomposition products. Damaged batteries can cause rapid heating and release flammable vapors.
- 5.3 Special protective equipment for firefighters:** Firefighters should wear appropriate protective equipment and self-contained breathing apparatus, and a full set of protective clothing if necessary.

## Part 6 –Accidental release measures.

- 6.1. Personal precautions, protective equipment and emergency procedures** If the battery leaks, you need to wear rubber gloves and goggles when contacting such products. Victims who inhale the leaked material inside the battery need to move to fresh air, keep breathing, and rest. If you feel unwell, seek medical attention. Remove all contaminated clothing and wash skin/shower with water. In case of skin irritation or burns, seek medical attention. In case of eye contact, wash with water for a few minutes. If it is convenient and easy to operate, remove contact lenses and continue to wash and seek medical attention. If swallowed, seek medical advice and rinse mouth.
- 6.2. Environmental precautions** Prevent products from entering drains, sewers, waterways and soil.  
Emissions to the environment must be avoided.
- 6.3. Methods and material for containment and cleaning up** Measures taken to prevent leakage or release of battery materials: If the internal materials of the battery leak, the testing personnel should immediately evacuate the testing area until the smoke dissipates. Turn on the ventilation equipment to blow away hazardous gases. Wipe the test area clean with a cloth, remove any spilled liquid, place the leaking battery in a plastic bag, and then place it in a steel container. Avoid skin and eye contact or inhalation of harmful gases.
- 6.4 Refer to other sections:** For information on safe operation, refer to section 7.  
For information on personal protective equipment, see Section 8.  
See section 13 for disposal information.

## Part 7 - Handling and storage

- 7.1 Handling:** Lithium-ion batteries should be operated between -30-70 degrees Celsius, and cannot be excessively vibrated to avoid short circuits. However, short-

term accidental short-circuits will not have a serious impact on the battery. A long-term short-circuit can cause the battery to lose energy and generate a lot of heat. Burn the skin or even cause fire and explosion. Do not disassemble or crush the lithium battery.

### 7.2 Storage:

When lithium-ion batteries are stored for a long time, their charging capacity should be between 25% and 75%. It should be stored in a dry, cool, and well ventilated area. Excessive temperature can cause a series of problems with the battery, such as leakage or rusting. Do not place the battery in open flames.

## Part 8 - Exposure control/personal protection

### 8.1 Control parameters:

#### Occupational exposure limits:

Chemical name	Source	Value
Graphite	China	TWA: 4 mg/m <sup>3</sup>
		TWA: 2 mg/m <sup>3</sup>
	Britain	STEL: 8 mg/m <sup>3</sup>
		STEL: 4 mg/m <sup>3</sup>
		STEL: 30 mg/m <sup>3</sup> 15 min
ACGIH TLV	STEL: 12 mg/m <sup>3</sup> 15 min	
	TWA: 10 mg/m <sup>3</sup> 8 hr	
ADC12	OSHA PEL	TWA: 4 mg/m <sup>3</sup> 8 hr
		TWA: 2 mg/m <sup>3</sup>
	NIOSH IDLH	(Vacated) TWA: 2.5 mg/m <sup>3</sup>
		(Vacated) TWA: 10 mg/m <sup>3</sup>
		(Vacated) TWA: 5 mg/m <sup>3</sup>
China	TWA: 15 mg/m <sup>3</sup>	
	TWA: 5 mg/m <sup>3</sup>	
Britain	IDLH: 1250 mg/m <sup>3</sup>	
	TWA: 2.5 mg/m <sup>3</sup>	
	TWA: 3 mg/m <sup>3</sup>	
ADC12	Britain	STEL: 6 mg/m <sup>3</sup>
		STEL: 30 mg/m <sup>3</sup> 15 min
ADC12	Britain	STEL: 12 mg/m <sup>3</sup> 15 min
		TWA: 10 mg/m <sup>3</sup> 8 hr

		TWA: 4 mg/m <sup>3</sup> 8 hr
	ACGIH TLV	TWA: 1 mg/m <sup>3</sup>
	OSHA PEL	(Vacated) TWA: 15 mg/m <sup>3</sup> (Vacated) TWA: 5 mg/m <sup>3</sup> TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>
	NIOSH IDLH	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>
Cu	China	TWA: 1 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup> STEL: 2.5 mg/m <sup>3</sup> STEL: 0.6 mg/m <sup>3</sup>
	Britain	STEL: 0.6 mg/m <sup>3</sup> 15 min STEL: 2 mg/m <sup>3</sup> 15 min TWA: 1 mg/m <sup>3</sup> 8 hr TWA: 0.2 mg/m <sup>3</sup> 8 hr
	ACGIH TLV	TWA: 0.2 mg/m <sup>3</sup> TWA: 1mg/m <sup>3</sup>
	OSHA PEL	(Vacated) TWA: 0.1 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
	NIOSH IDLH	IDLH: 100 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>
Dibutyl phthalate	China	TWA: 2.5 mg/m <sup>3</sup> STEL: 6.25 mg/m <sup>3</sup>
	Britain	STEL: 10 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr
	ACGIH TLV	TWA: 5 mg/m <sup>3</sup>
	OSHA PEL	(Vacated) TWA: 5 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>
	NIOSH IDLH	IDLH: 4000 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>
Fiberglass fabric	ACGIH TLV	TWA: 1 fiber/cm <sup>3</sup>

**8.2 Engineering measures:** Keep away from heat and open fire.

**8.3 Individual protection measures, such as personal protective equipment:**

**Respiratory Protection:** Normally not required. In case of fire, self-contained breathing apparatus must be worn.

**Skin & body protection:** Normally not required. In case of leakage, use chemical resistant rubber gloves when handling.

**Eye protection:** Normally not required. Wear safety glasses when handling leaks.

**Hygienic protection:** Do not eat, drink or smoke in the place where the battery is stored. Wash hands after handling leakage.

## Part 9 - Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Appearance :</b>	Plastic shell solid.
<b>Colour:</b>	Various colors.
<b>Odor:</b>	No irritating odor.
<b>Odor threshold:</b>	Not applicable.
<b>Molecular weight:</b>	Not applicable.
<b>Molecular formula:</b>	Not applicable.
<b>Molar mass:</b>	Not applicable.
<b>PH:</b>	Not applicable.
<b>Specific gravity:</b>	Not applicable.
<b>Melting point/range (°C):</b>	Not applicable.
<b>Boiling point (°C):</b>	Not applicable.
<b>Solidification point:</b>	Not applicable.
<b>Flash point:</b>	Not applicable.
<b>Auto-ignition temperature:</b>	Not applicable.
<b>Ignition temperature:</b>	Not applicable.
<b>Ignition point:</b>	Not applicable.
<b>Flammability:</b>	Not applicable.
<b>Upper/lower flammability or explosion limit:</b>	Not applicable.
<b>Decomposition:</b>	Not applicable.
<b>Relative density (Water=1) :</b>	Not applicable.

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<b>Volume density:</b>	Not applicable.
<b>Solubility:</b>	Not applicable.
<b>Vapor pressure:</b>	Not applicable.
<b>Vapor density:</b>	Not applicable.
<b>Volatilization rate:</b>	Not applicable.
<b>Viscosity:</b>	Not applicable.
<b>Solid content:</b>	Not applicable.
<b>9.2 Other information:</b>	Not applicable.

## Part 10 - Stability and reactivity

<b>10.1 Reactivity:</b>	Usually does not react.
<b>10.2 Stability:</b>	Stable under normal conditions.
<b>10.3 Hazardous reactions:</b>	Hazardous polymerization will not occur.
<b>10.4 Conditions to avoid:</b>	Avoid fire, disassembly, short circuit, immersion in water or overcharge.
<b>10.5 Incompatibility:</b>	Overheating, open fire and corrosive substances.
<b>10.6 Harmful decomposition products:</b>	Unknown, refer to section 5 for hazardous combustion products.

## Part 11 –Toxicological information

### 11.1 Information on toxicological effects:

<b>Acute toxicity:</b>	Harmful if inhaled.
<b>Dibutyl phthalate:</b>	
	LD50 Oral - Rat - Male and Female -6279 mg/kg (OECD Testing Guideline 401)
	LC50 inhalation - rat - male and female -4 hours ->=15.68 mg/l
	Remarks: (ECHA)
	LD50 transdermal rabbit ->21000 mg/kg
	Note: (RTECS)
<b>Dimethyl carbonate:</b>	
	LD50 Oral - Rat - Male and Female ->5000 mg/kg (OECD Testing Guideline 401)
	LC50 inhalation - rats - male and female -4 hours ->5.36 mg/l

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(OECD Testing Guideline 403)

LD50 transdermal rabbit male and female ->2000 mg/kg

**Skin irritation or corrosion:**

According to the available data, the classification criteria are not met.

**Dibutyl phthalate:**

Skin - Rabbit

Result: No skin irritation -4 hours

(OECD Testing Guideline 404)

**Dimethyl carbonate:**

Skin - Rabbit

Result: No skin irritation

(OECD Testing Guideline 404)

**Eye irritation or corrosion:**

According to the available data, the classification criteria are not met.

**Dibutyl phthalate:**

Eyes - Rabbit

Result: No eye irritation -72 hours

(OECD Testing Guideline 405)

**Dimethyl carbonate:**

Eyes - Rabbit

Result: No eye irritation

**Skin sensitization:**

According to the available data, the classification criteria are not met.

**Dibutyl phthalate:**

Maximum Response Test - Guinea Pig

Result: Negative

(OECD Testing Guideline 406)

**Dimethyl carbonate:**

Freund's complete adjuvant test - guinea pig

Result: Negative

(OECD Testing Guideline 406)

**Respiratory sensitization:**

According to the available data, the classification criteria are not met.

**Germ cell mutagenicity:**

According to the available data, the classification criteria are not met.

**Dibutyl phthalate:**

Ames test

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Salmonella typhimurium

Result: Negative

(ECHA)

mouse

Result: Negative

(ECHA)

**Dimethyl carbonate:**

in vitro chromosome aberration test

lymphocyte

Result: Negative

**Carcinogenicity:**

May cause cancer.

**Reproductive toxicity:**

May damage fertility or the unborn child.

**Dibutyl phthalate:**

May cause harm to the fetus.

May cause harm to fertility.

**Specific target organ system toxicity - single exposure:**

According to the available data, the classification criteria are not met.

**Specific target organ system toxicity - repeated exposure:**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard:**

According to the available data, the classification criteria are not met.

**11.2 Additional Notes:**

Endocrine disturbance characteristics: the product does not meet the standard.

**Part 12 –Ecological information**

**12.1 Acute toxicity:**

Harmful to aquatic life.

**Dibutyl phthalate:**

Toxicity to fish

Static test LC50- Lepomis macrochirus - approximately 0.48 mg/l -96 h

(OECD Testing Guidelines 203)

Toxicity to water fleas and other aquatic invertebrates

Static test EC50- Daphnia magna - Approximately 2.99 mg/l -48 hours (US-EPA)

Toxicity to algae

Static test EC50- Pseudokirchneriella subcapita (green algae) -0.75 mg/l -10 days

(US-EPA)

Static test NOEC - Pseudokirchneriella subcapita (green algae) -0.39 mg/l -10 days

(US-EPA)

Toxicity to bacteria

EC50- Tetrahymena pyriformis -2.2 mg/l -24 h

Remarks: (ECHA)

**Dimethyl carbonate:**

Toxicity to fish

Flow test LC50- Danio rerio (zebrafish) ->100 mg/l -96 h

(OECD Testing Guidelines 203)

Toxicity to water fleas and other aquatic invertebrates

Static test EC50- Daphnia magna ->100 mg/l -48 hours

(OECD Testing Guidelines 202)

Toxicity to algae

Static test EC50- Pseudokirchneriella subcapita (green algae) ->100 mg/l -72 hours

(OECD Testing Guidelines 201)

**12.2 Persistence and degradability:**

**Dibutyl phthalate:**

Toxicity to fish

Static test LC50- Lepomis macrochirus - approximately 0.48 mg/l -96 h

(OECD Testing Guidelines 203)

Toxicity to water fleas and other aquatic invertebrates

Static test EC50- Daphnia magna - Approximately 2.99 mg/l -48 hours

(US-EPA)

Toxicity to algae

Static test EC50- Pseudokirchneriella subcapita (green algae) -0.75 mg/l -10 days

(US-EPA)

Static test NOEC - Pseudokirchneriella subcapita (green algae) -0.39 mg/l -10 days

(US-EPA)

Toxicity to bacteria

EC50- Tetrahymena pyriformis -2.2 mg/l -24 h

Remarks: (ECHA)

**Dimethyl carbonate:**

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Biodegradability  
 Aerobic - exposure time 28 days  
 Result: 86% - rapidly biodegradable.  
 (OECD Testing Guideline 301C)

**12.3 Bioaccumulative potential:**

**Dibutyl phthalate:**  
 Bioaccumulation  
 Pimephales promelas (fat headed catfish) -11 days  
 -0.0348 mg/l (plasticizer DBP)  
 Bioaccumulation Factor (BCF): 2165  
 Note: No biological accumulation.

**12.4 Mobility in soil:**

No data available.

**12.5 PBT and vPvB assessment results:**

**PBT:** No data available.

**vPvB:** No data available.

**12.6 Characteristics of endocrine disturbance:**

No data available.

**12.7 Other adverse effects:**

No data available.

**Part 13–Disposal considerations**
**13.1 Waste treatment methods**

Before disposal, please refer to the relevant laws and regulations of the country or region where you are located. The handling of batteries should be carried out by licensed professional handling companies. It is recommended to completely discharge the battery, consume the lithium metal inside the battery, and bury it deeply in the soil.

**13.2 Packaging:**

The packaging can be recycled. Please refer to the requirements of relevant laws and regulations of your country or region.

**Part 14 - Transport information**
**14.1 UN Number:**

UN3171

**ADR, IMDG, IATA**
**14.2 UN proper shipping name:**

BATTERY-POWERED VEHICLE OR BATTERY-POWERED EQUIPMENT

**ADR, IMDG, IATA**
**14.3 Transport hazard class(es):**

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**ADR, IMDG, IATA**
**14.4 Packing group**

Not applicable

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ADR, IMDG, IATA

**Secondary risk:** None

**14.5 Environmental hazard:** IMDG-Marine Pollutants: None.

**14.6 Transportation Notes:**

Warning: Use the charger provided by each manufacturer and follow the operation instructions. Do not open the battery, close to the fire source, or short circuit, which may cause fire, explosion, leakage and personal injury.

Disposal: dispose according to the relevant regulations of the United Nations, the country and the local government.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code:**

Not applicable

## Part 15 –Regulation information

### 15.1 Specific safety, health, and environmental regulations/rules for substances or mixtures:

#### National regulations:

The product should be labeled in accordance with the current regulations on the management of hazardous substances.

**GHS Labelling Elements:** Classification and labelling are carried out according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

### 15.2 Chemical safety assessment

For this mixture, no chemical safety assessment has been carried out.

## Part 16 –Other information

**MSDS Tabulation Date:** 28<sup>th</sup> October. 2025

#### Abbreviations and acronyms:

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
ADR: 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 Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
vPvB: very Persistent and very Bioaccumulative  
ACGIH: American Conference of Governmental Industrial Hygienists (USA)  
OSHA: Occupational Safety and Health Administration (USA)  
NTP: National Toxicology Program (USA)  
IARC: International Agency for Research on Cancer  
EPA: Environmental Protection Agency (USA)

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This MSDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. Products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.



END OF REPORT.