

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Cylindrical Lithium-ion Battery - Model F18650 2600

Print date: 03.09.2015

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

1.1. Product identifier

Cylindrical Lithium-ion Battery - Model F18650 2600

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

Use of the substance/mixture

Electrical batteries and accumulators

1.3. Details of the supplier of the safety data sheet

Company name: Vim Solution GmbH
Street: Im Eck 5
Place: D-79199 Kirchzarten

Telefax: +49 7661 90949-10

Contact person: Bastian Scheil
e-mail: info@vim-solution.com
Internet: www.vim-solution.com

1.4. Emergency telephone number: +49 159 04052409 (08:00 - 17:00 (CEST) + 02 UTC)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Skin Sens. 1

Carcinogenicity: Carc. 2

Reproductive toxicity: Repr. 2

Specific target organ toxicity - repeated exposure: STOT RE 2

Hazard Statements:

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

Suspected of causing cancer.

Suspected of damaging fertility.

May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

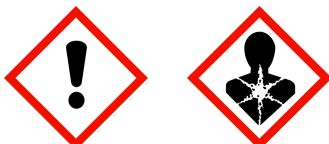
Regulation (EC) No. 1272/2008

Hazardous components which must be listed on the label

cobalt lithium dioxide

nickel

lithium hexafluorophosphate

Signal word: Warning**Pictograms:****Hazard statements**

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

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H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P321	Specific treatment (see General information on this label).
P362	Take off contaminated clothing.
P363	Wash contaminated clothing before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container to Dispose of waste according to applicable legislation.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]	
12190-79-3	cobalt lithium dioxide	10 - < 25 %
	235-362-0	
	01-2119974118-31	
	Repr. 2; H361f	
7440-02-0	nickel	5 - < 10 %
	231-111-4	
	028-002-00-7	
	Carc. 2, STOT RE 1, Skin Sens. 1; H351 H372 ** H317	
96-49-1	ethylene carbonate	2.5 - < 5 %
	202-510-0	
	01-2119540523-46	
	Eye Irrit. 2; H319	
21324-40-3	lithium hexafluorophosphate	1 - < 2.5 %
	244-334-7	
	01-2119962901-34	
	Acute Tox. 3, Skin Corr. 1A, STOT RE 1; H301 H314 H372	

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

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After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

After ingestion

Rinse mouth immediately and drink plenty of water. Induce vomiting when the affected person is not unconscious. Medical treatment necessary.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Non-flammable.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid generation of dust. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid generation of dust. Do not breathe dust.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

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7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations.

Advice on storage compatibility

No special measures are necessary.

7.3. Specific end use(s)

Electrical batteries and accumulators

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
7429-90-5	Aluminium metal, respirable dust	-	4		TWA (8 h)	WEL
					STEL (15 min)	WEL
-	Cobalt and cobalt compounds (as Co)	-	0.1		TWA (8 h)	WEL
					STEL (15 min)	WEL
7440-50-8	Copper, dusts and mists (as Cu)	-	1		TWA (8 h)	WEL
			2		STEL (15 min)	WEL
16984-48-8	Fluoride (inorganic as F)	-	2.5		TWA (8 h)	WEL
					STEL (15 min)	WEL
7439-96-5	Manganese	-	0.5		TWA (8 h)	WEL
					STEL (15 min)	WEL
-	Nickel and its inorganic compounds (except nickel tetracarbonyl): nickel and water-insoluble nickel compounds (as Ni)	-	0.5		TWA (8 h)	WEL
					STEL (15 min)	WEL

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the

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supplier of these gloves.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid	
Colour:	pink	
Odour:	odourless	
		Test method
pH-Value:		not determined
Changes in the physical state		
Melting point:		not determined
Initial boiling point and boiling range:		101,1 °C
Flash point:		22 °C
Flammability		
Solid:		not determined
Gas:		not applicable
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Ignition temperature:		> 400 °C
Auto-ignition temperature		
Solid:		not determined
Gas:		not applicable
Decomposition temperature:		not determined
Oxidizing properties		
Not oxidizing.		
Vapour pressure:		not determined
Density:		not determined
Water solubility:		insoluble
Solubility in other solvents		
not determined		
Partition coefficient:		not determined
Vapour density:		not determined
Evaporation rate:		not determined
Solvent content:		> 3 %
9.2. Other information		
Solid content:		> 71 %

Electrical batteries and accumulators: 3,6V; 2600mAh

SECTION 10: Stability and reactivity

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10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

Oxidising agent, Base, Acid

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
12190-79-3	cobalt lithium dioxide				
	oral	LD50	> 5000 mg/kg	Rat	ECHA
	dermal	LD50	> 2000 mg/kg	Rat	ECHA
7440-02-0	nickel				
	oral	LD50	> 9000 mg/kg	Rat	OECD 401
	inhalative (1 h) aerosol	LC50	> 10,2 mg/l	Rat	IUCLID
96-49-1	ethylene carbonate				
	oral	LD50	10400 mg/kg	Rat	OECD 401
	dermal	LD50	> 2000 mg/kg	Rat	OECD 402
21324-40-3	lithium hexafluorophosphate				
	oral	LD50 mg/kg	50 - 300	Rat	OECD 423

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (nickel)

STOT-single exposure

Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure

May cause damage to organs through prolonged or repeated exposure.

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (nickel)

Suspected of damaging fertility. (cobalt lithium dioxide)

Aspiration hazard

Based on available data, the classification criteria are not met.

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Additional information on tests

This mixture is classified as hazardous according to regulation (EC) No. 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name		Method	Dose	[h] [d]	Species	Source
12190-79-3	cobalt lithium dioxide						
	Acute fish toxicity	LC50	54,1 mg/l	96 h	Pimephales promelas (fathead minnow)	ASTM	
	Acute crustacea toxicity	EC50	3,7 mg/l	48 h	Crassostrea gigas	ASTM	
	Fish toxicity	NOEC	22,32 mg/l	4 d	Pimephales promelas (fathead minnow)	ASTM	
	Algea toxicity	NOEC	32,2 mg/l	3 d	Pseudokirchneriella subcapitata	ECHA	
	Crustacea toxicity	NOEC	9,827 mg/l	2 d	Crassostrea gigas	ASTM	
	Acute bacteria toxicity		(0,12 mg/l)	0,5 h	Activated sludge	ECHA	
7440-02-0	nickel						
	Acute fish toxicity	LC50	15,3 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	IUCLID	
	Acute algae toxicity	ErC50	91,8 mg/l	72 h	Pseudokirchneriella subcapitata	OECD 201	
	Acute crustacea toxicity	EC50	105,1 mg/l	48 h	Ceriodaphnia dubia	OECD	
	Algea toxicity	NOEC	29,4 mg/l	3 d	Pseudokirchneriella subcapitata	OECD 201	
	Acute bacteria toxicity		(33 mg/l)	0,5 h	Activated sludge	ISO 8192	
96-49-1	ethylene carbonate						
	Acute fish toxicity	LC50	49000 mg/l	96 h	Pimephales promelas (fathead minnow)	ASTM	
	Acute crustacea toxicity	EC50	5900 mg/l	48 h	Ceriodaphnia dubia	EPA/600/4-85/013	
21324-40-3	lithium hexafluorophosphate						
	Acute fish toxicity	LC50	369 mg/l	96 h	Oryzias latipes (Ricefish)	NITE	
	Acute algae toxicity	ErC50	> 100 mg/l	96 h	Pseudokirchneriella subcapitata	OECD 201	
	Acute crustacea toxicity	EC50	> 100 mg/l	48 h	Daphnia magna (Big water flea)	OECD 202	
	Fish toxicity	NOEC	2,3 mg/l	5 d	Oncorhynchus mykiss (Rainbow trout)	IUCLID	
	Algea toxicity	NOEC	22 mg/l	4 d	Pseudokirchneriella subcapitata	OECD 201	
	Crustacea toxicity	NOEC	100 mg/l	2 d	Daphnia magna (Big water flea)	OECD 202	

12.2. Persistence and degradability

The product has not been tested.

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CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
96-49-1	ethylene carbonate			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	86,9 %	29	IUCLID
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
96-49-1	ethylene carbonate	0,11

BCF

CAS No	Chemical name	BCF	Species	Source
7440-02-0	nickel	14	Polygonum amphibium	IUCLID
21324-40-3	lithium hexafluorophosphate	< 4,3	Cyprinus carpio (Common Carp)	NITE

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.6. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products

160605 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; batteries and accumulators; other batteries and accumulators

Waste disposal number of used product

160605 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; batteries and accumulators; other batteries and accumulators

Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 3481
14.2. UN proper shipping name:	LITHIUM ION BATTERIES packed with equipments
14.3. Transport hazard class(es):	9
14.4. Packing group:	-

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Hazard label: 9



Classification code: M4
 Special Provisions: 188 230 348 360 376 377 6
 Limited quantity: 0
 Excepted quantity: E0
 Transport category: 2
 Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number: UN 3481
14.2. UN proper shipping name: LITHIUM ION BATTERIES packed with equipments
14.3. Transport hazard class(es): 9
14.4. Packing group: -
 Hazard label: 9



Classification code: M4
 Special Provisions: 188 230 348 360 376 377 6
 Limited quantity: 0
 Excepted quantity: E0

Marine transport (IMDG)

14.1. UN number: UN 3481
14.2. UN proper shipping name: LITHIUM ION BATTERIES packed with equipments
14.3. Transport hazard class(es): 9
14.4. Packing group: -
 Hazard label: 9



Special Provisions: 188, 230, 348, 360, 376, 377
 Limited quantity: 0
 Excepted quantity: E0
 EmS: F-A, S-I

Air transport (ICAO)

14.1. UN number: UN 3481
14.2. UN proper shipping name: LITHIUM ION BATTERIES packed with equipments
14.3. Transport hazard class(es): 9
14.4. Packing group: -
 Hazard label: 9



Special Provisions: A88 A99 A154 A164 A181 A1
 Limited quantity Passenger: Forbidden

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Passenger LQ:	Forbidden	
Excepted quantity:	E0	
IATA-packing instructions - Passenger:		966
IATA-max. quantity - Passenger:		5 kg
IATA-packing instructions - Cargo:		966
IATA-max. quantity - Cargo:		35 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

2004/42/EC (VOC): > 9,8 %

Additional information

To follow: 850/2004/EC, 79/117/EEC, 689/2008/EC

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

Water contaminating class (D): 2 - water contaminating

Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 9,10,14,15.

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 Harmonized 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

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Relevant H and EUH statements (number and full text)

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

H361f Suspected of damaging fertility.

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H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)