ARCALUB-C2.BATTERY

Safety Data Sheet (UK REACH) (UK)

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

1.1 Product identifier

ARCALUB-C2.BATTERY

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

1.2.1 Relevant uses

Battery

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Schaeffler Technologies AG & Co. KG
Georg-Schäfer-Str. 30
97421 Schweinfurt / GERMANY
Phone +49 (0)9721 91 - 0
Homepage www.schaeffler.com

Address enquiries to

Technical information support.is@schaeffler.com

Safety Data Sheet sdb@chemiebuero.de (No dispatch of safety data sheets)
Safety data sheets are available from the supplier.

1.4 Emergency telephone number

Advisory body +49 (0)89-19240 (24h) (English)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

No classification.

2.2 Label elements

This product is an article and therefore it does not require labelling according to regulations REACH/CLP.
Requirements in accordance to directive for batteries must be observed.

2.3 Other hazards

The Lithium-Iron-Disulfide batteries described in this Data Sheet are hermetically sealed units, which are not hazardous when used according to the recommendations of the manufacturer. Under normal condition of use of the batteries, the electrode materials and the liquid electrolyte they contain are non-reactive provided the battery integrity is maintainted.
CAUTION: Batteries may explode or leak, and cause burn injury, if recharged, disposed of in fire, mixed with a different battery type, inserted backwards or disassembled.

Physico-chemical hazards	May rupture violently when heated or when charged. Reactions of the electrolyte and the electrodes with water and humidity possible.
Human health dangers	The contained dangerous materials are not freely available with foreseeable use.
Environmental hazards	The contained dangerous materials are not freely available with foreseeable use.
Other hazards	In case of improper use or in the event of an accident may leak hazardous ingredients named in section 3 and hazards such as in section 5, point 5.2. was available. The section 16 is to be observed.

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is an article.

Range [%]	Substance
30 - 40	Iron
	CAS: 7439-89-6, EINECS/ELINCS: 231-096-4
25 - 40	Pyrit (FeS2)
	CAS: 1309-36-0, EINECS/ELINCS: 215-167-7
< 10	1,3-Dioxolane
	CAS: 646-06-0, EINECS/ELINCS: 211-463-5, EU-INDEX: 605-017-00-2
	GHS/CLP: Flam. Liq. 2: H225
4 - 6	Lithium
	CAS: 7439-93-2, EINECS/ELINCS: 231-102-5, EU-INDEX: 003-001-00-4
	GHS/CLP: Skin Corr. 1B: H314 - Eye Dam. 1: H318 - Water-react. 1: H260
2 - 5	Polypropylene
	CAS: 9003-07-0, EINECS/ELINCS: 618-352-4
2 - 5	Aluminium
	CAS: 7429-90-5, EINECS/ELINCS: 231-072-3, EU-INDEX: 013-002-00-1
< 5	1,2-Dimethoxyethane
	CAS: 110-71-4, EINECS/ELINCS: 203-794-9, EU-INDEX: 603-031-00-3
	GHS/CLP: Flam. Liq. 2: H225 - Acute Tox. 4: H332 - Repr. 1B: H360FD - EUH019
< 5	Propylene carbonate
	CAS: 108-32-7, EINECS/ELINCS: 203-572-1, EU-INDEX: 607-194-00-1
	GHS/CLP: Eye Irrit. 2: H319
1 - 3	Graphite
	CAS: 7782-42-5, EINECS/ELINCS: 231-955-3
0.1 -2	Styrol-Butadien-Block-Copolymer
	CAS: 9003-55-8, EINECS/ELINCS: Polymer
0.1 - 2	Natrium-Carboxylmethylcellulose
1 - 2	Zubereitung
< 1	Lithium perchlorate
	CAS: 7791-03-9, EINECS/ELINCS: 232-237-2
	GHS/CLP: Ox. Sol. 2: H272 - Skin Irrit. 2: H315 - Eye Irrit. 2: H319 - STOT SE 3: H335

Comment on component parts

For full text of H-statements: see SECTION 16.
The structural design of the cells prevents release of the hazardous media contained therein when the unit is used for its intended purpose.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information
Measures are only needed for damaged cells.

Inhalation
Consult a doctor immediately.
Remove the victim into fresh air and keep him calm.

Skin contact
In case of contact with skin wash off immediately with soap and water.
Consult a doctor if skin irritation persists.

Eye contact
In case of contact with eyes rinse thoroughly and immediately with plenty of water and seek medical advice.
Shield unaffected eye.

Ingestion
Consult a doctor immediately.
Do not induce vomiting.

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.
Forward this sheet to your doctor.
A damaged battery will release concentrated and caustic potassium hydroxide.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing
Carbon dioxide.
Metal fire-ex powder.
Dry powder.
Much water.

Extinguishing media that must not be used

5.2 Special hazards arising from the substance or mixture

In the event of fire the following can be released:
Sulphur oxides (SOx).
Risk of formation of toxic pyrolysis products.
Bursting batteries can be forcibly projected from a fire.
Danger of electric shock during fire-fighting of batteries.
With the use of water-based extinguishing agents care is required because hydrogen can be released, which accumulates after extinguishing the fire in poorly ventilated or confined areas and may refire or cause an explosion.

5.3 Advice for firefighters

Use self-contained breathing apparatus.
Wear full protective suit.

Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Lock off contaminated area.
Use personal protective equipment.
Keep people away and stay on the upwind side.
Use breathing apparatus if exposed to vapours/dust/aerosol.

6.2 Environmental precautions

Do not discharge leakages into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up mechanically.
Take up residues with absorbent material (e.g. sand, sawdust, general purpose binder, diatomaceous earth).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures necessary if used correctly.
Accidental short circuit for a few seconds will not seriously affect the battery.
Prolonged short-circuit will cause the battery to lose energy, generate significant heat and cause the safety vent release vent to open.
Sources of short-circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices. Damaging a lithium battery may result in an internal short circuit.
The contents of an open battery, including a vented battery, when exposed to water, may result in a fire and / or
explosion. Crushed or damaged batteries may result in a fire.
Do not charge this batteries! This battery type is manufactured in a ready-to-use-state. It is not designed for recharging. Recharging can cause battery leakage, or in some cases, can cause the safety release vent to open. Inadvertent charging can occur if a battery is installed backwards.

Keep away from all sources of ignition.

Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Do not store with combustible materials.

Protect from heat/overheating.
Protect from sun.
Store in a dry place.
Storage: < 30°C
Ensure battery terminals are protected during storage.

7.3 Specific end use(s)

See product use, SECTION 1.2

ARCALUB-C2.BATTERY

Safety Data Sheet (UK REACH) (UK)

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (UK)

	Substance
	Polypropylene
	CAS: 9003-07-0, EINECS/ELINCS: 618-352-4
	Long-term exposure: 5 mg/m³, TWA
	Aluminium
	CAS: 7429-90-5, EINECS/ELINCS: 231-072-3, EU-INDEX: 013-002-00-1
	Long-term exposure: 10 mg/m³, inhalable dust (respirable dust: 4 mg/m³)
	Graphite
	CAS: 7782-42-5, EINECS/ELINCS: 231-955-3
	Long-term exposure: 10 mg/m³, (inhalable dust)

Ingredients with occupational exposure limits to be monitored EU (2004/37/EG)

not relevant

8.2 Exposure controls

Additional advice on system design: Not required under normal conditions.

Eye protection: Safety glasses. (EN 166:2001)

Hand protection: The details concerned are recommendations. Please contact the glove supplier for further information.
Butyl rubber, >120 min (EN 374-1/-2/-3).

Skin protection: Solvent-resistant protective clothing (EN 340)

Other: Measures are only valid for damaged cells.

Respiratory protection: Not required under normal conditions.

Thermal hazards: No information available.

Delimitation and monitoring of the environmental exposition: not determined

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid
Form	Cylindric
Color	not applicable
Odor	not applicable
Odour threshold	not applicable
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point or initial boiling point and boiling range [°C]	No information available.
Flash point [°C]	not applicable
Flammability	not applicable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	No information available.
Density [g/cm³]	No information available.
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water	not applicable
Solubility other solvents	No information available.
Partition coefficient n-octanol/water (log value)	No information available.
Kinematic viscosity	not applicable
Relative vapour density	No information available.
Melting point [°C]	No information available.
Auto-ignition temperature [°C]	No information available.
Decomposition temperature [°C]	No information available.
Particle characteristics	No information available.

9.2 Other information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

See SECTION 10.3.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

When cell is exposed to an external short-circuit, it will cause heat generation and ignition.
Reactions of the electrolyte and the electrodes with water and humidity possible.
May rupture violently when heated or when charged.

10.4 Conditions to avoid

Excessive heat. Protect from direct sunlight or ultraviolet radiation.
Keep away from dirt, rust, chemicals, alkalis and acids as well as heavy metal salts and amines - Spontaneous decomposition.
Protect from mechanical stress.

10.5 Incompatible materials

Oxidizing agent
Water

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	LD50, oral, Rat, > 3200 mg/kg (Gestis)
	Iron, CAS: 7439-89-6
	LD50, oral, Rat, > 5000 mg/kg
	Graphite, CAS: 7782-42-5
	LD50, oral, Human, > 15000 mg/kg (Lit.)
	Polypropylene, CAS: 9003-07-0
	LD50, oral, Rat, > 5000 mg/kg (Lit.)
	Propylene carbonate, CAS: 108-32-7
	LD50, oral, Rat, 33300 mg/kg (IUCLID)
	Aluminium, CAS: 7429-90-5
	LD50, oral, Rat, > 15900 mg/kg bw

Acute dermal toxicity

	Substance
	Polypropylene, CAS: 9003-07-0
	LD50, dermal, Rabbit, > 2000 mg/kg (Lit.)
	Propylene carbonate, CAS: 108-32-7
	LD50, dermal, Rabbit, > 20000 mg/kg (IUCLID)

Acute inhalational toxicity

	Substance
	Iron, CAS: 7439-89-6
	LC50, inhalative, Rat, 5,05 mg/L/4h

Serious eye damage/irritation not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	Eye, Rabbit, negativ, OECD 405, negativ
	Iron, CAS: 7439-89-6
	non-irritating

Skin corrosion/irritation not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	dermal, Rabbit, OECD 404, negativ

	Iron, CAS: 7439-89-6
	non-irritating

Respiratory or skin sensitisation not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	OECD 429, non-sensitizing
	Iron, CAS: 7439-89-6
	non-sensitizing

Specific target organ toxicity — single exposure not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	No information available.

Specific target organ toxicity — repeated exposure not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	NOAEC, oral, Rat (female), 132 mg/kg bw/day, In vivo study, negativ

Mutagenicity not applicable

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	Ames-test, negativ
	Iron, CAS: 7439-89-6
	in vitro, negativ
	in vivo, negativ

Reproduction toxicity not applicable

- Fertility

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	NOAEL, oral, Rat, 132 mg/kg bw/day, adverse effect observed
	NOAEC, inhalative, Rat, 187 mg/m³, OECD 414, adverse effect observed

- Development No information available.

Carcinogenicity not applicable

Aspiration hazard not applicable

General remarks

Toxicological data of complete product are not available.
The contained ingredients can be harmful to humans, but are hermetically enclosed in article and can not be released.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties Contains no ingredients with endocrine-disrupting properties.

11.2.2 Other information Measures are only valid for damaged systems.

SECTION 12: Ecological information

12.1 Toxicity

	Substance
	1,2-Dimethoxyethane, CAS: 110-71-4
	LC50, (96h), fish, > 5000 mg/L
	EC50, (48h), Daphnia magna, 4000 mg/L
	Graphite, CAS: 7782-42-5
	LC50, (96h), Danio rerio, > 100 mg/l (OECD 203)
	EC50, (48h), Daphnia magna, > 100 mg/l (OECD 202)
	EC50, (72h), Pseudokirchneriella subcapitata, > 100 mg/l (OECD 201)
	Lithium, CAS: 7439-93-2
	EC50, (48h), Invertebrates, 19,1 - 34,3 mg/L
	EC50, (72h), Algae, 41,62 - 153,44 mg/L
	Lithium perchlorate, CAS: 7791-03-9
	LC50, (48h), Leuciscus idus, 1850 mg/L
	EC50, (24h), Daphnia magna, 1077 mg/L
	IC5, (168h), Scenedesmus quadricauda (algea), 360 mg/L
	Propylene carbonate, CAS: 108-32-7
	EC50, (48h), Daphnia magna, > 1000 mg/l (IUCLID)
	EC50, (96h), Cyprinus carpio, > 1000 mg/l (IUCLID)
	Aluminium, CAS: 7429-90-5
	NOEC, (96h), Lepomis macrochirus, > 50 mg/l

12.2 Persistence and degradability

Behaviour in environment compartments

Behaviour in sewage plant not applicable

Biological degradability not applicable

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

Ecological data of complete product are not available.
Not required under normal conditions.
The contained ingredients can be harmful for the environment, but they are hermetically enclosed in article and can not be released.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Coordinate disposal with the disposal contractor/authorities if necessary.
For recycling, consult manufacturer.

Waste no. (recommended) 160604

Contaminated packaging

Uncontaminated packaging may be taken for recycling.

Waste no. (recommended)

SECTION 14: Transport information

14.1 UN number or ID number

Transport by land according to ADR/RID	3090
Inland navigation (ADN)	3090
Marine transport in accordance with IMDG	3090
Air transport in accordance with IATA	3090

14.2 UN proper shipping name

Transport by land according to ADR/RID	Lithium batteries
- Classification Code	M4
- Label	
- ADR LQ	0 l
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 2 (E)
Inland navigation (ADN)	Lithium batteries
- Classification Code	M4
- Label	
Marine transport in accordance with IMDG	Lithium Metal Batteries
- EMS	F-A, S-I
- Label	
- IMDG LQ	-
Air transport in accordance with IATA	Lithium Metal Batteries
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	9
Inland navigation (ADN)	9
Marine transport in accordance with IMDG	9
Air transport in accordance with IATA	9

14.4 Packing group

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

No information available.

SECTION 15: Regulatory information

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

EEC-REGULATIONS	2008/98/EG (2000/532/EC); 2010/75/EU; 2004/42/EG; (EG) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EWG ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014; (EU) 2019/1148; (EU) 2019/1021, (EU) 2023/707
- Comment on component parts	SVHC (Candidate List of Substances of Very High Concern for authorisation) ≥ 0.1% CAS 110-71-4 - 1,2-Dimethoxyethane
- Annex I (REACH)	The product is not subject to Annex I restrictions.
- Annex XIV (REACH)	According to Annex XIV of Regulation (EC) 1907/2006 (REACH) the product does not contain any substances ≥ 0.1% that are subject to authorisation.
- Annex XVII (REACH)	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product contains ≥ 0.1% of substances with the following restrictions. 30, 40, 72, 75 According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product is not subject to any restrictions.
TRANSPORT-	ADR (2023); IMDG-Code (2023, 41. Amdt.); IATA-DGR (2024)
NATIONAL REGULATIONS (UK):	EH40/2005 Workplace exposure limits (Second edition, published December 2011); UK REACH; GB CLP.
- Observe employment restrictions for people	not determined
- VOC (2010/75/CE)	not applicable

15.2 Chemical safety assessment

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H335 May cause respiratory irritation.
H315 Causes skin irritation.
H272 May intensify fire; oxidiser.

H319 Causes serious eye irritation.
EUH019 May form explosive peroxides.
H360FD May damage fertility. May damage the unborn child.
H332 Harmful if inhaled.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H318 Causes serious eye damage.
H314 Causes severe skin burns and eye damage.
H225 Highly flammable liquid and vapour.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.3 Other information

Customs Tariff	not determined
Classification procedure	
Modified position	none