## Safety Data Sheet According to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS



### According to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Trade name: C, G, B, RB 406 Series

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Hazard description: Information references exposures to battery contents, and not exposures to whole units. Exposures to whole units are unlikely to product health hazards. Note: The hazards listed in this document reference only the contents of cells and/or batteries that are leaking and/or ruptured. Undamaged cells and/or batteries possess no expected health or physical hazards during normal use. Intentional abuse of cells or batteries increases the risk of harm or damage to the product, to the user, and to surrounding materials and personnel. Do not attempt to open sealed cells or batteries. Do not intentionally short-circuit cells or batteries. Do not expose these products to temperatures exceeding the maximum manufacturers rating. Do not dispose of cells/batteries in landfills. Please follow all manufacturer guidelines in the use, storage, and disposal of these products. Consult manufacturer in cases of questions involving specific product usage. Do not short circuit, recharge, puncture, incinerate, crush, force discharge or expose to temperatures above the specified range. Upon severe mechanical, electrical or thermal abuse, the cell may vent with the expulsion of some of the content.

#### Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

#### 2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



Signal word: Danger

#### · Hazard-determining components of labeling:

Manganese dioxide 1,2- dimethoxyethane lithium

#### Hazard statements:

H302+H332 Harmful if swallowed or if inhaled.

- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H360FD May damage fertility. May damage the unborn child.
- EUH014 Reacts violently with water.

Safety data sheet available on request.

To avoid risks to human health and the environment, comply with the instructions for use. 38 percent of the mixture consists of component(s) of unknown toxicity

#### Precautionary statements:

P281 Use personal protective equipment as required. P261 Avoid breathing dust.

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#### 3 Composition/information on ingredients

- · 3.2 Mixtures
- Description: Mixture of substances listed below with nonhazardous additions

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Dangerous Components:		
CAS: 1313-13-9 EINECS: 215-202-6 Index number: 025-001-00-3	manganese dioxide Xn R20/22	25-50%
	Acute Tox. 4, H302; Acute Tox. 4, H332	
CAS: 108-32-7 EINECS: 203-572-1 Index number: 607-194-00-1	propylene carbonate Xi R36	<10%
	Eye Irrit. 2, H319	
CAS: 110-71-4 EINECS: 203-794-9 Index number: 603-031-00-3	1,2-dimethoxyethane T Repr. Cat. 2 R60-61; Xn R20; F R11 R19	<10%
maex number, 005 051 00 5	Flam. Liq. 2, H225	
	💑 Repr.n 1B, H360FD	
	💑 Acute Tox. 4, H332	
CAS: 109-99-9 EINECS: 203-726-8 Index number: 603-025-00-0	Tetrahydrofuran Xi R36/37; F R11 R19	<10%
	<ul> <li>Flam. Liq. 2, H225</li> <li>Eye Irrt. 2, H319; STOT SE 3, H335</li> </ul>	
CAS: 7439-93-2 EINECS: 231-102-5 Index number: 003-001-00-4	Lithium C R34; F R14/15	<10%
	Water-react. 1, H260	
	Skin corr. 1B, H314	
CAS: 1333-86-4 EINECS: 215-609-9	Carbon black Substance with a community workplace exposure limit.	<10%
CAS: 7791-03-9 EINECS: 232-237-2	lithium perchlorate Xn R22; Xi R36/37/38; O R9	<10%
	Ox. Sol. 1, H271	
	Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	

• Additional information: For the wording of the listed risk phrases refer to section 16.

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#### **4 First aid measures** 4.1 Description of first aid measures · General information: The hazards listed below reference only the contents of cells and/or batteries that are leaking and/or ruptured, with the exception of ingestions. In the unlikely case where intact cells/batteries are ingested and then release contents, the treatment is the same as for ingestions of device contents. Seek immediate medical advice. After inhalation: Unlikely route of exposure. Supply fresh air. Seek immediate medical advice. In case of unconsciousness, place patient stably in side position for transportation After kin contact: Immediately rinse with water. Do not pull solidified product off the skin. Seek immediate medical advice. After eye contact: Unlikely route of exposure. Protect unharmed eye. Rinse opened eye for several minutes under running water. Remove contact lenses if worn, if possible. Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing: Rinse out mouth and then drink plenty of water. Do not induce vomiting; call for medical help immediately. $\cdot$ 4.2 Most important symptoms and effects, both acute and delayed Gastric or intestinal disorders Breathing difficulty Coughing Nausea Profuse sweating Hazards: Danger of gastric perforation. Danger of pulmonary oedema. 4.3 indication of any immediate medical attention and special treatment needed Note to Physician: Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up xrays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. For information on treatment, telephone (202) 625-3333 collect, day or night. Various corrosive, harmful or toxic substances is possible in certain cases. These substances may include lithium and/or fluoride salts; specific antidotes may be required in cases of

is suspected, calcium salts may be of value in treatment. Do not give ipecac.

ingestion for lithium salts and in cases of oral/dermal/inhalation contact with fluorides. If fluoride contact

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#### **5 Firefighting measures**

#### • 5.1 Extinguishing media

#### Suitable extinguishing agents:

- Water in flooding quantities.
- Sand
- Dry sand
- Limestone powder

#### Cement

#### For safety reasons unsuitable extinguishing agents:

Water haze Carbon dioxide

## • 5.2 Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

#### 5.3 Advice for firefighters

#### · Protective equipment:

Wear self-contained respiratory protective device. Wear fully protective suit.

#### Additional information:

Cool endangered receptacles with water spray.

### 6 Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures:

Use respiratory protective device against the effects of fumes/dust/aerosol. Wear protective equipment. Keep unprotected persons away. Product forms slippery surface when combined with water. Ensure adequate ventilation.

#### 6.2 Environment precautions:

Do not allow to enter sewers/ surface or ground water.

### • 6.3 Methods and material for containment and cleaning up:

Pick up mechanically.

For small content spills, ventilate area and put on gloves and safety glasses. Large spills require special equipment and training to include the use of a respirator. For large spills involving many batteries, contact authorities. Ventilation recommended for spilled contents. Avoid release to the environment. If a spill is small, attempt to contain the leak by carefully transferring leaking battery to plastic bag. Add sodium bicarbonate (baking soda) powder to bag, seal, then place bag inside a second bag. Seal second bag and label appropriately; DO NOT DISCARD INTO HOUSEHOLD TRASH. Carefully neutralize remainder by applying sodium bicarbonate solution SLOWLY, and then allow to cool. Wipe up, then place in a SEPARATE container from the battery as the water will react with the battery contents.

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#### 6.4 Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

#### 7 Handling and storage

#### • 7.1 Precautions for safe handling

Keep away from open flames or temperatures exceeding manufacturer ratings. DO NOT ATTEMPT TO OPEN SEALED CELLS OR BATTERIES – BATTERY CONTENTS MAY PRESENT SERIOUS SAFETY AND HEALTH HAZARDS. SHORT-CIRCUITING THE TERMINALS OF A DEVICE MAY RESULT IN DAMAGE TO DEVICE AND ANY NEARBY OBJECTS OR PERSONNEL.

All ACR/ARTEX batteries and battery packs were tested and meets requirements for shipping per The UN Manual of Tests and Criteria, Part III, Subsection 38.3, UN T1-T8 Tests ST/SG/AC.10/11.

#### Information about fire – and explosion protection:

Emergency cooling must be available in case of nearby fire. Keep ignition sources away - Do not smoke.

## 7.2 Conditions for safe storage, including any incompatibilities

Storage:

## · Requirements to be met by storerooms and receptacles:

Store in a dry, well-ventilated place. Do not use or store near open flame. Avoid extreme temperatures; battery may rupture and release contents. Do not store and transport with incompatible materials. Store individual batteries or cells only in approved packaging in order to avoid inadvertent short circuits, as this may result in damage to device, nearby objects, personnel, or all of the above.

## Information about storage in one common storage facility:

- Store away from water.
- Do not store together with acids.
- Do not store together with alkalis (caustic solutions).

#### • Further information about storage conditions: None

• 7.3 Specific end use(s): No further relevant information available.

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Additional information about	t design of technical facilities: No further data; see item 7
8 1 Control parameters	
Ingredients with limit valu	es that require monitoring at the workplace:
313-13-9 manganese dioxide	1
PEL (USA) REL (USA) TLV (USA)	Short-term value: C 5 mg/m³ as Mn Short-term value: 3 mg/m³ Long-term value: 1 mg/m³ as Mn 0,2 mg/m³ as Mn
EL (Canada)	0,2 mg/m³ as Mn; R
109-99-9 tetrahydrofuran	
IOELV (EU)	Short-term value: 300 mg/m³, 100 ppm Long-term value: 150 mg/m³, 50 ppm Skin
PEL (USA) REL (USA)	590 mg/m³, 200 ppm Short-term value: 735 mg/m³, 250 ppm Long-term value: 590 mg/m³, 200 ppm
TLV (USA)	Short-term value: 295 mg/m³, 100 ppm Long-term value: 147 mg/m³, 50 ppm Skin
EL (Canada)	Short-term value: 100 ppm Long-term value: 50 ppm Skin
EV (Canada)	Short-term value: 100 ppm Long-term value: 50 ppm Skin
110-71-4 1,2-dimethoxyetha	ne
EV (Canada)	18 mg/m³, 5 ppm Skin
1333-86-4 Carbon blac	k
PEL (USA) REL (USA)	3,5 mg/m³ 3,5* mg/m³ *0,1 in presence of PAHs, as PAHs; 10-hr TWA
TLV (USA)	3* mg/m³ *inhalable fraction
EL (Canada)	3 mg/m³ IARC 2B 3,5 mg/m³

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DNELs: No further relevant information available. • **PNECs:** No further relevant information available. • Additional information: The lists valid during the making were used as basis. 8.2 Exposure controls Personal protective equipment: • General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. · Respiratory protection: Not required under normal conditions of use. For spills, respiratory protection may be advisable. Protection of hands: Strong material gloves · Material of gloves: Strong material gloves For the permanent contact gloves made of the following materials are suitable: Strong material gloves Eye protection: Safety glasses Body protection: Not required under normal conditions of use. Limitation and supervision of exposure into the environment: No further relevant information available. Risk management measures: See Section 7 for additional information. No further relevant information available.

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9.1 Information on basic physical and	l chemical properties
General Information	
Appearance:	the sector containing liquid and solid
<ul> <li>Form:</li> </ul>	Impermeable container containing liquid and solid contents plus inert carrier materials.
<ul> <li>Colour</li> </ul>	According to product specification Dark grey
<ul> <li>Odour:</li> </ul>	Normally odourless. Leaking devices may emit action
	or ethereal odours. Not determined.
Odour threshold:	Not applicable
pH-value: Change in condition	
Melting point/Melting range:	Undetermined
Boiling point/Boiling range:	Undetermined
Flash point:	Not applicable
Flammability (solid, gaseous):	Statement refers to device contents only. Contact with water liberates extremely flammable
	gases.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Self-igniting:	Product is not self-ignitng
Danger of explosion:	Product does not represent an explosion hazard
Bunger et en j	during normal use. Leaking contents may react
	with water to produce explosive or flammable gas.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapour pressure:	Not applicable
Density	Not determined
Relative density	Not determined
Vapour density	Not determined
Evaporation rate	Not determined
Solubility in / Miscibility with water:	Insoluble
Partition coefficient (n-octanol/wate	r): Not determined
Viscosity:	
Dynamic:	Not applicable
Kinematic:	Not applicable
Solvent content:	Not determined

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Not determined

Solids Content:

9.2 Other information:

No further relevant information available

## 10 Stability and reactivity

#### 10.1 Reactivity

#### 10.2 Chemical stability

• Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications. To avoid thermal decomposition do not overheat.

#### 10.3 Possibility of hazardous reactions:

Hazardous reactions generally occur with contents of leaking batteries only. Contact with water releases flammable gases.

Violent reaction with air and oxidizing agents. Immediate ignition on contact with air.

Strong exothermic reaction with acids.

May produce violent reactions with bases and numerous organic substances including alcohols and amines.

#### • 10.4 Conditions to avoid:

Store away from oxidizing agents.

- 10.5 Incompatible materials: Contact with acids liberates toxic gases.
- 10.6 Hazardous decomposition products:

Toxic metal compounds Poisonous gases/vapours Carbon monoxide and carbon dioxide Hydrogen chloride (HCI) Hydrogen

## 11 Toxicological information

- 11.1 Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
- On the skin: Caustic effect on skin and mucous membranes
- · On the eye: Strong caustic effect
- Sensitization: No sensitizing effects known.
- Additional toxicological information: Information references exposures to battery contents, and not exposures to whole units. Exposures to whole units are unlikely to product health hazards. When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us. Corrosive, Irritant, Harmful.

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#### **12 Ecological information** 12.1 Toxicity · Aquatic toxicity: The product contains materials that are harmful to the environment. • 12.2 Persistence and degradability The product is partly biodegradale. Significant residuals remain. A part of the components are biodegradable 12.3 Bioaccumulative potential: Does not accumulate in organisms • 12.4 Mobility in soil: No further relevant information available. Additional ecological information: General notes: The product contains materials that are harmful to the environment. This statement was deduced from products with a similar structure or composition. Avoid transfer into the environment. Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water Do not allow product to reach ground water, water course or sewage system. 12.5 Results of PBT and vPvB assessment PBT: Not applicable. . · vPvB: Not applicable. 12.6 Other adverse effects: No further relevant information available. 13 Disposal considerations 13.1 Waste treatment methods . Recommendation Must not be disposed together with household garbage. Do not allow product to reach sewage

system. Contact waste processors for recycling information.

- Uncleaned packaging:
- Recommendation:

Disposal must be made according to official regulations.

1

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Transport information	
14.1 UN-Number DOT, ADR, IMDG, IATA	UN3091
14.2 UN proper shipping nam DOT, IMDG, IATA ADR	NE LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMEN
14.3 Transport hazard class( DOT, IMDG, IATA	(es)
Class: Label:	9 Miscellaneous dangerous substances and articles. 9
ADR	
Class:	9 (M4) Miscellaneous dangerous substances and articles.
Label:	9
14.4 Packing group DOT, ADR, IMDG, IATA	11
14.5 Environmental hazards Marine pollutant:	No
4.6 Special precautions for	user: Warning: Miscellaneous dangerous substance and articles.
Danger code (Kemler): EMS Number:	90 F-A,S-I
14.7 Transport in bulk accor to Annex II of MARPOL73/7	rding 8 and Not applicable.
the IBC CODE:	
the IBC CODE: • Transport/Additional inform	nation:
the IBC CODE: Transport/Additional inform ADR	0
the IBC CODE: Transport/Additional inform ADR	
the IBC CODE: Transport/Additional inform ADR	0 3091, LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT PI970 I
the IBC CODE: Transport/Additional inform ADR	0 3091, LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT

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	the substance	o or mixture
15.1 Safety, healt	th and environmental regulations/legislation specific for the substanc	e or mixture
United States (US)	A)	
SARA		
· Section 355 (E)	xtremely hazardous substances):	
None of the i	ingredients is listed.	
Section 313 (S	pecific toxic chemical listings):	
None of the i	ingredients are listed.	
• TSCA (Toxic S	Substances Control Act):	
All ingredier	nts are listed.	
Proposition 65 (Ca		
Chemicals known	i to cause cancer:	loc
References to o	chemical components listed below are based on unbound respirable partic	les
and are not ger	nerally applicable to product as supplied.	
1333-86-4	Carbon black	
· Chemicals know	wn to cause reproductive toxicity for females:	
None of the	ingredients is listed	
<ul> <li>Chemicals kno</li> </ul>	wn to cause reproductive toxicity for males:	
None of the	ingredients is listed.	
<ul> <li>Chemicals kno</li> </ul>	wn to cause developmental toxicity:	
	ingredients is listed.	
Carcinogenic Cate		
	mental Protection Agency) Manganese dioxide	D
1313-13-9	Lithium perchlorate	NL
7791-03-9	ional Agency for Research on Cancer)	
109-99-9	Tetrahydrofuran	A
1333-86-4	Carbon black	A4
· TIV (Threshold	d Limit Value established by ACGIH)	
	None of the ingredients is listed.	
· NIOSH-Ca (Nat	tional Institute for Occupational Safety and Health)	
1333-86-4	Carbon black	
· OSHA-Ca (Occ	cupational Safety & Health Administration)	
	None of the ingredients is listed.	
· Canada		
· Canadian Dom	nestic Substances Lisa (DSL)	
All ingredie	ents are listed.	
· Canadian Ingr	redient Disclosure list (limit 0.1%)	
None of the	ingredients is listed.	
· Canadian Ingr	redient Disclosure list (limit 1%)	<b></b>
100.007	Propylene carbonate	
108-32-7	T. (h. dashiron	
<u>108-32-7</u> <u>109-99-9</u> 1333-86-4	Tetrahydrofuran Carbon black	

15.2 Chemical safety assessment: A chemical Safety Assessment has not been carried out.

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16 Other in				
This informa	tion is based on our present knowledge. However, this shall not constitute a			
guarantee for any specific product features and shall not establish a legally valid contractual				
relationship.				
· Relevant phrase				
H225	Highly flammable liquid and vapour.			
H260	In contact with water releases flammable gases which may ignite spontaneously.			
H271	May cause fire or explosion; strong oxidiser.			
H302	Harmful if swallowed.			
H314	Causes severe skin burns and eye damage.			
H315	Causes skin irritation.			
H319	Causes serious eye irritation.			
H332	Harmful if inhaled.			
H335	May cause respiratory irritation.			
H360FD	May damage fertility. May damage the unborn child.			
R11	Highly flammable.			
R14/15	Reacts violently with water, liberating extremely flammable gases.			
R19	May form explosive peroxides.			
R20	Harmful by inhalation.			
R20/22	Harmful by inhalation and if swallowed.			
R22	Harmful if swallowed.			
R34	Causes burns.			
R36	Irritating to eyes.			
R36/37	Irritating to eyes and respiratory system.			
R36/37/38	Irritating to eyes, respiratory system and skin.			
R60	May impair fertility.			
R61	May cause harm to the unborn child.			
R9	Explosive when mixed with combustible material.			
Abbreviations and acronyms:				
concerning t	d européen sur le transport des marchandises dangereuses par Route (European Agreement he International Carriage of Dangerous Goods by Road)			
IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation				
IATA: International Air Transport Association				
GHS: Globally Harmonized System of Classification and Labelling of Chemicals ACGIH: American				
Conference of Governmental Industrial Hygienists				
NEPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA				
WHMIS: Workplace Hazardous Materials Information System (Canada) DNEL: Derived No-Effect Level				
(REACH)				
	icted No-Effect Concentration (REACH)			
· Sources				
	ed by: ChemTel Inc.			
1305 North Florida Avenue,				
Tampa, Florida USA 33602-2902				
Toll Free North America 1-888-255-3924				
Intl. +01 813				
Website: www.chemtelinc.com				
Vebaile. WV				