Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Safe Work Australia, December 2011)

SECTION 1: Identification

1.1. Product identifier
Lithium Polymer Battery in 3M™ WorkTunes™ Connect Wireless Hearing Protector with Bluetooth® Technology, 90543

Product Identification Numbers
70-0069-8345-9 AT-0106-2478-4

1.2. Recommended use and restrictions on use

Recommended use
Battery for Hearing Protector

For Industrial or Consumer Use.

1.3. Supplier's details
Address: 3M Australia - Building A, 1 Rivett Road, North Ryde NSW 2113
Telephone: 136 136
E Mail: productinfo.au@mmm.com
Website: www.3m.com.au

1.4. Emergency telephone number
EMERGENCY: 1800 097 146 (Australia only)

SECTION 2: Hazard identification

This product is NOT classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011, in accordance with applicable State and Territory legislation.

This product is an article and is not regulated by the Model Work Health and Safety Regulations (2011) because, it is not classified as hazardous. When used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

2.1. Classification of the substance or mixture
Not applicable.

2.2. Label elements

Signal word
Not applicable.

Symbols
Not applicable.

Pictograms
Not applicable

Precautionary statements

Prevention:
P280E Wear protective gloves.

2.3. Other assigned/identified product hazards
None known.

2.4. Other hazards which do not result in classification
Harmful to aquatic life.
Very toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
Cobalt Lithium Oxide (LiCoO2)	12190-79-3	30 - 40
Graphite	7782-42-5	15 - 25
Lithium Hexafluorophosphate	21324-40-3	15 - 25
Aluminium	7429-90-5	5 - 15
Copper	7440-50-8	5 - 15
Styrene-Butadiene Polymer	9003-55-8	< 10
Poly(Vinylidene Fluoride)	24937-79-9	<= 5
Polyethylene	9002-88-4	< 5
Polypropylene	9003-07-0	< 5
Nickel	7440-02-0	< 2
Carbon black	1333-86-4	< 1

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
No need for first aid is anticipated.

Skin contact
No need for first aid is anticipated.

Eye contact
No need for first aid is anticipated.

If swallowed

No need for first aid is anticipated.

4.2. Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen gas.	During combustion.
Hydrogen Fluoride	During combustion.

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Not applicable. Seal the container.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid inhalation of thermal decomposition products. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. Keep out of reach of children. Avoid release to the environment. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities
Not applicable. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidising agents.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Aluminium		ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin
Aluminium		Australia OELs	TWA(as dust)(8 hours):10 mg/m3;TWA(Al, welding fume)(8 hours):5 mg/m3;TWA(as Al pyrophoric powder)(8 hours):5 mg/m3	
Carbon black		ACGIH	TWA(inhalable fraction):3 mg/m3	A3: Confirmed animal carcinogen.
Carbon black		Australia OELs	TWA(8 hours): 3 mg/m3	
Cobalt, inorganic compounds		ACGIH	TWA(as Co, inhalable fraction):0.02 mg/m3;TWA(as Co):0.02 mg/m3	A3: Confirmed animal carcin., Dermal/Respiratory Sensitizer
Copper		Australia OELs	TWA(as fume)(8 hours):0.2 mg/m3;TWA(as Cu dust or mist)(8 hours):1 mg/m3	
COPPER, DUSTS AND MISTS, AS CU		ACGIH	TWA(as Cu dust or mist):1 mg/m3	
COPPER, FUME AS CU		ACGIH	TWA(as Cu, fume):0.2 mg/m3	
Graphite		ACGIH	TWA(respirable fraction):2 mg/m3	
Graphite		Australia OELs	TWA(as respirable dust)(8 hours):3 mg/m3	
Nickel		ACGIH	TWA(inhalable fraction):1.5 mg/m3	Distillates (petroleum), hydrotreated heavy naphthenic
Nickel		Australia OELs	TWA(8 hours): 1 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles		ACGIH	TWA(inhalable particulates):10 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles		ACGIH	TWA(respirable particles):3 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
CMRG : Chemical Manufacturer's Recommended Guidelines
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling
Sen: Sensitiser
Sk: Absorption through the skin may be a significant source of exposure.

8.2. Exposure controls

8.2.1. Engineering controls
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Eye protection not required.

Skin/hand protection
No chemical protective gloves are required.

Respiratory protection

Respiratory protection is not required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Battery
Colour	Silver
Odour	Odourless
Odour threshold	*No data available.*
pH	*No data available.*
Melting point/Freezing point	*No data available.*
Boiling point/Initial boiling point/Boiling range	*No data available.*
Flash point	No flash point
Evaporation rate	*No data available.*
Flammability (solid, gas)	Not classified
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	*No data available.*
Vapor Density and/or Relative Vapor Density	*No data available.*
Density	*No data available.*
Relative density	*No data available.*
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	130 ºC
Decomposition temperature	*No data available.*
Viscosity/Kinematic Viscosity	*No data available.*
Volatile organic compounds (VOC)	*No data available.*
Percent volatile	*No data available.*
VOC less H2O & exempt solvents	*No data available.*

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3. Conditions to avoid
Heat.

10.4. Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.5 Incompatible materials
Strong oxidising agents.
Reducing agents.
Strong acids.
Strong bases.

10.6 Hazardous decomposition products

Substance	Condition
None known.	

Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material. Dust created by grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
No health effects are expected.

Skin contact
No health effects are expected.

Eye contact
No health effects are expected.

Ingestion
No health effects are expected.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Graphite	Dermal		LD50 estimated to be > 5,000 mg/kg
Graphite	Ingestion	Rat	LD50 > 2,000 mg/kg
Copper	Dermal	Rat	LD50 > 2,000 mg/kg
Copper	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.11 mg/l

Copper	Ingestion	Rat	LD50 > 2,000 mg/kg
Aluminium	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminium	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminium	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l
Styrene-Butadiene Polymer	Dermal	Rabbit	LD50 > 2,000 mg/kg
Styrene-Butadiene Polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
Poly(Vinylidene Fluoride)	Dermal		LD50 estimated to be > 5,000 mg/kg
Poly(Vinylidene Fluoride)	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Polyethylene	Dermal		LD50 estimated to be > 5,000 mg/kg
Polyethylene	Ingestion	Rat	LD50 > 2,000 mg/kg
Polypropylene	Dermal		LD50 estimated to be > 5,000 mg/kg
Polypropylene	Ingestion	Mouse	LD50 > 8,000 mg/kg
Nickel	Dermal		LD50 estimated to be > 5,000 mg/kg
Nickel	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.55 mg/l
Nickel	Ingestion	Rat	LD50 > 9,000 mg/kg
Carbon black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon black	Ingestion	Rat	LD50 > 8,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Graphite	Rabbit	No significant irritation
Copper	Rabbit	No significant irritation
Aluminium	Rabbit	No significant irritation
Styrene-Butadiene Polymer	Professional judgement	No significant irritation
Poly(Vinylidene Fluoride)	Professional judgement	No significant irritation
Polyethylene	Professional judgement	No significant irritation
Polypropylene	Human and animal	No significant irritation
Nickel	Rabbit	Minimal irritation
Carbon black	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Graphite	Rabbit	No significant irritation
Copper	Rabbit	Mild irritant
Aluminium	Rabbit	No significant irritation
Poly(Vinylidene Fluoride)	Professional judgement	No significant irritation
Polypropylene	Professional judgement	No significant irritation
Nickel	Rabbit	Mild irritant
Carbon black	Rabbit	No significant irritation

Skin Sensitisation

Name	Species	Value
Aluminium	Guinea pig	Not classified
Polypropylene	Human and animal	Not classified
Nickel	Human	Sensitising

Respiratory Sensitisation

Name	Species	Value
Aluminium	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Graphite	In Vitro	Some positive data exist, but the data are not sufficient for classification
Aluminium	In Vitro	Not mutagenic
Polypropylene	In Vitro	Not mutagenic
Carbon black	In Vitro	Not mutagenic
Carbon black	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Polyethylene	Not specified.	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Polypropylene	Not specified.	Rat	Some positive data exist, but the data are not sufficient for classification
Nickel	Inhalation	similar compounds	Carcinogenic.
Carbon black	Dermal	Mouse	Not carcinogenic
Carbon black	Ingestion	Mouse	Not carcinogenic
Carbon black	Inhalation	Rat	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects
For the component/components, either no data are currently available or the data are not sufficient for classification.

Target Organ(s)

Specific Target Organ Toxicity - single exposure
For the component/components, either no data are currently available or the data are not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Graphite	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Aluminium	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Nickel	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.001 mg/l	13 weeks
Carbon black	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Exposure Levels
Refer Section **8.1 Control Parameters** of this Safety Data Sheet.

Interactive Effects
Not determined.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 3: Harmful to aquatic life.

Chronic aquatic hazard:
GHS Chronic 1: Very toxic to aquatic life with long lasting effects.

No product test data available.

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
Cobalt Lithium Oxide (LiCoO2)		Fathead minnow	Analogous Compound	34 days	LC10	0.59 mg/l
Cobalt Lithium Oxide (LiCoO2)		Green Algae	Analogous Compound	72 hours	ErC10	0.11 mg/l
Cobalt Lithium Oxide (LiCoO2)		Water flea	Analogous Compound	7 days	EC10	0.013 mg/l
Graphite		Activated sludge	Experimental	3 hours	NOEC	1,012.5 mg/l
Graphite		Green Algae	Experimental	72 hours	EC50	>100 mg/l
Graphite		Water flea	Experimental	48 hours	EC50	>100 mg/l
Graphite		Zebra Fish	Experimental	96 hours	LC50	>100 mg/l
Graphite		Green Algae	Experimental	72 hours	NOEC	100 mg/l
Lithium Hexafluorophosphate		Rainbow trout	Estimated	96 hours	LC50	68 mg/l
Lithium Hexafluorophosphate		Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
Lithium Hexafluorophosphate		Green Algae	Experimental	96 hours	EC50	>100 mg/l
Lithium Hexafluorophosphate		Water flea	Experimental	48 hours	EC50	>100 mg/l
Lithium Hexafluorophosphate		Fathead minnow	Estimated	22 days	NOEC	4.4 mg/l
Lithium Hexafluorophosphate		Water flea	Estimated	21 days	NOEC	4.9 mg/l
Lithium Hexafluoropho		Green Algae	Experimental	96 hours	NOEC	22 mg/l

sphate						
Aluminium		Fish other	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium		Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium		Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium		Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Aluminium		Water flea	Experimental	21 days	NOEC	0.076 mg/l
Copper		Green Algae	Experimental	72 hours	NOEC	0.0003 mg/l
Styrene-Butadiene Polymer			Data not available or insufficient for classification			N/A
Poly(Vinylidene Fluoride)			Data not available or insufficient for classification			N/A
Polyethylene			Data not available or insufficient for classification			N/A
Polypropylene			Data not available or insufficient for classification			N/A
Nickel		Activated sludge	Experimental	30 minutes	EC50	33 mg/l
Carbon black		Activated sludge	Experimental	3 hours	EC50	>=100 mg/l
Carbon black			Data not available or insufficient for classification			N/A

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Cobalt Lithium Oxide (LiCoO2)		Data not available-insufficient	N/A	N/A	N/A	N/A
Graphite		Data not available-insufficient	N/A	N/A	N/A	N/A
Lithium Hexafluorophosphate		Experimental Hydrolysis		Half-life (t 1/2)	<1 minutes (t 1/2)	Non-standard method
Aluminium		Data not available-insufficient	N/A	N/A	N/A	N/A
Copper		Data not available-insufficient	N/A	N/A	N/A	N/A

Styrene-Butadiene Polymer		Data not available-insufficient	N/A	N/A	N/A	N/A
Poly(Vinylidene Fluoride)		Data not available-insufficient	N/A	N/A	N/A	N/A
Polyethylene		Data not available-insufficient	N/A	N/A	N/A	N/A
Polypropylene		Data not available-insufficient	N/A	N/A	N/A	N/A
Nickel		Data not available-insufficient	N/A	N/A	N/A	N/A
Carbon black		Data not available-insufficient	N/A	N/A	N/A	N/A

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Cobalt Lithium Oxide (LiCoO2)		Analogous Compound BCF - Fathead Minnow	63 days	Bioaccumulation factor	190	
Graphite		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Lithium Hexafluorophosphate		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Aluminium		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Copper		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Styrene-Butadiene Polymer		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Poly(Vinylidene Fluoride)		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polyethylene		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polypropylene		Data not	N/A	N/A	N/A	N/A

		available or insufficient for classification				
Nickel		Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Carbon black		Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Dispose of waste product in a permitted industrial waste facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials.

SECTION 14: Transport Information

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: UN3480
Proper shipping name: LITHIUM ION BATTERIES
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: Not applicable.
Special Instructions: Not restricted, as per Special Provision 188, lithium ion batteries or cells contained in equipment.
Hazchem Code: Not applicable
IERG: Not applicable.

International Air Transport Association (IATA) - Air Transport
UN No.: UN3480
Proper shipping name: LITHIUM ION BATTERIES
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: Not applicable.
Special Instructions: IATA: Not subject to these regulations as per Special Provision A46

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: UN3480
Proper shipping name: LITHIUM ION BATTERIES
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: Not applicable.
Marine Pollutant: Not applicable.

Special Instructions: Not restricted, as per Special Provision 188, lithium ion batteries or cells contained in equipment.

SECTION 15: Regulatory information

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

Australian Inventory Status:
Not applicable, as this product/s aligns with the AICIS definition of an article.

SECTION 16: Other information

Revision information:
Complete document review.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Safety Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.
Greenguard ® is a United States based program. The 'Low VOC' reference related to United States Federal and State regulations exemptions for some solvents.

3M Australia SDSs are available at www.3m.com.au