# SAFETY DATA SHEET

**Revision Number 2** 

Issuing Date No data available

Revision Date 22-Jan-2015



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# 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE **COMPANY/UNDERTAKING**

**Product identifier** 

**Product Name** Lithium Ion P11P35-09-N01/P11P35-11-N01

Other means of identification

**Synonyms** None

Recommended use of the chemical and restrictions on use

**Recommended Use** LITHIUM ION BATTERIES

Uses advised against No information available

Details of the supplier of the safety data sheet

**Supplier Name** Texas Instruments Inc **Supplier Address** 13532 N.Central Expressway

> Dallas TX 75243

US

**Supplier Phone Number** Phone:214-567-7927

Fax:214-479-1502

Contact Phone01-972-917-1636

**Supplier Email** rgartman@ti.com

Emergency telephone number

# 2. HAZARDS IDENTIFICATION

### Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 1

### GHS Label elements, including precautionary statements



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### **Emergency Overview**

### Signal word

### **Danger**

### Hazard Statements

Causes severe skin burns and eye damage





This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance This is a battery. In case of rupture: the above hazards exist.

**Appearance** Varies

Physical State Solid

**Odor** Odorless

## **Precautionary Statements - Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product

### **Precautionary Statements - Response**

Immediately call a POISON CENTER or doctor/physician Specific treatment (see supplemental first aid instructions on this label)

#### **Eves**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER or doctor/physician

#### Skin

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse

### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Immediately call a POISON CENTER or doctor/physician

### Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

#### **Precautionary Statements - Storage**

Store locked up

### **Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

# Hazards not otherwise classified (HNOC)

Not applicable

## **Unknown Toxicity**

30% of the mixture consists of ingredient(s) of unknown toxicity



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### Other information

May be harmful in contact with skin Very toxic to aquatic life with long lasting effects

### **Interactions with Other Chemicals**

No information available.

# 3. COMPOSITION/INFORMATION ON INGREDIENTS

.

Chemical Name	CAS No	Weight-%	Trade Secret
Lithium Cobalt Oxide (CoLiO2)	12190-79-3	30 - 60	*
Copper	7440-50-8	7 - 13	*
Aluminum foil	7429-90-5	7 - 13	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	3 - 7	*

<sup>\*</sup>The exact percentage (concentration) of composition has been withheld as a trade secret

# 4. FIRST AID MEASURES

### First aid measures

**General Advice** First aid is upon rupture of sealed battery.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15

minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate

medical attention/advice.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all

contaminated clothes and shoes. Seek immediate medical attention/advice.

**Inhalation** Remove to fresh air. If breathing has stopped, give artificial respiration. Get

medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary

edema may occur. Get medical attention immediately if symptoms occur.

**Ingestion** Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water.

Never give anything by mouth to an unconscious person. Call a physician or

poison control center immediately.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take

precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as

required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

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**Most Important Symptoms and** Burning sensation.

**Effects** 

# Indication of any immediate medical attention and special treatment needed

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is

contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy

sputum, and high pulse pressure.

# 5. FIRE-FIGHTING MEASURES

### **Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

### Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

### **Specific Hazards Arising from the Chemical**

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

### **Hazardous Combustion Products**

Carbon oxides.

**Explosion Data** 

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

## Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.



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# **6. ACCIDENTAL RELEASE MEASURES**

### Personal precautions, protective equipment and emergency procedures

Personal Precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate

ventilation. Use personal protective equipment as required. Evacuate personnel to safe

areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

**Environmental Precautions** 

**Environmental Precautions** Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage

if safe to do so. Should not be released into the environment. Do not allow to enter into

soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

**Methods for Containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Pick up and transfer to properly labeled containers.

# 7. HANDLING AND STORAGE

### Precautions for safe handling

**Handling** In case of rupture: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash

before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from

moisture. Store locked up. Keep out of the reach of children. Store away from other

materials.

Incompatible Products Acids. Bases. Oxidizing agent.

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## **Control parameters**

# **Exposure Guidelines**

Chemical Name	Chemical Name ACGIH TLV		NIOSH IDLH
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>	-	
Copper	TWA: 0.2 mg/m³ fume TWA: 1	TWA: 0.1 mg/m <sup>3</sup> fume	IDLH: 100 mg/m3 dust, fume and
7440-50-8	mg/m³ Cu dust and mist	TWA: 1 mg/m <sup>3</sup> dust and mist	mist
		(vacated) TWA: 0.1 mg/m³ Cu	TWA: 1 mg/m <sup>3</sup> dust and mist
		dust, fume, mist	TWA: 0.1 mg/m³ fume



Aluminum foil	TWA: 1 mg/m³ respirable fraction	TWA: 15 mg/m³ total dust	TWA: 10 mg/m³ total dust
7429-90-5		TWA: 5 mg/m³ respirable fraction	TWA: 5 mg/m <sup>3</sup> respirable dust
		(vacated) TWA: 15 mg/m³ total	
		dust	
		(vacated) TWA: 5 mg/m <sup>3</sup>	
		respirable fraction (vacated)	
		TWA: 5 mg/m³ Al Aluminum	
Phosphate(1-), hexafluoro-, lithium	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F	
21324-40-3		TWA: 2.5 mg/m³ dust	
		(vacated) TWA: 2.5 mg/m <sup>3</sup>	

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962

(11th Cir., 1992) See section 15 for national exposure control parameters

### **Appropriate engineering controls**

Engineering Measures Showers

Eyewash stations Ventilation systems

### Individual protection measures, such as personal protective equipment

**Eye/Face Protection** Face protection shield.

**Skin and Body Protection** Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant

apron. Impervious gloves.

**Respiratory Protection**No protective equipment is needed under normal use conditions. If exposure limits are

exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or

smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all

contaminated protective equipment before re-use.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### **Physical and Chemical Properties**

Physical StateSolidAppearanceVariesOdorOdorless

**Color** No information available **Odor Threshold** No information available

PropertyValuesRemarks MethodpHNo data availableNone knownMelting / freezing pointNo data availableNone known

Melting / freezing pointNo data availableNone knownBoiling point / boiling rangeNo data availableNone knownFlash PointNo data availableNone known

Evaporation RateNo data availableNone knownFlammability (solid, gas)No data availableNone known

Flammability Limit in Air
Upper flammability limit
Lower flammability limit
No data available
No data available



No data available Vapor pressure None known Vapor density No data available None known **Specific Gravity** No data available None known Insoluble **Water Solubility** None known Solubility in other solvents No data available None known Partition coefficient: n-octanol/waterNo data available None known **Autoignition temperature** No data available None known **Decomposition temperature** No data available None known Kinematic viscosity No data available None known **Dynamic viscosity** No data available None known **Explosive properties** No data available

No data available

Other Information

**Oxidizing Properties** 

Softening Point
VOC Content (%)
Particle Size
No data available
No data available
No data available

**Particle Size Distribution** 

# 10. STABILITY AND REACTIVITY

### Reactivity

No data available.

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of Hazardous Reactions**

None under normal processing.

# **Hazardous Polymerization**

Hazardous polymerization does not occur.

### Conditions to avoid

Exposure to air or moisture over prolonged periods.

## Incompatible materials

Acids. Bases. Oxidizing agent.

## **Hazardous Decomposition Products**

Carbon oxides.

# 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Product Information** Product does not present an acute toxicity hazard based on known or supplied information.

In case of rupture:.

**Inhalation** Specific test data for the substance or mixture is not available. Corrosive by inhalation.

(based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs.

Pulmonary edema can be fatal. May cause irritation of respiratory tract.



**Eye Contact** Specific test data for the substance or mixture is not available. Causes burns. (based on

components). Corrosive to the eyes and may cause severe damage including blindness.

Causes serious eye damage. May cause irreversible damage to eyes.

**Skin Contact** Specific test data for the substance or mixture is not available. Corrosive. (based on

components). Causes burns.

**Ingestion** Specific test data for the substance or mixture is not available. Causes burns. (based on

components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea,

vomiting and diarrhea.

### **Component Information**

### Information on toxicological effects

**Symptoms** Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Sensitization** No information available.

Mutagenic Effects No information available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	A3	Group 2B		Х

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive Toxicity

No information available.

STOT - single exposure

No information available.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR

classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from

chronic or repeated exposure. (STOT RE).

Chronic Toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw

necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May

cause adverse liver effects.



Target Organ Effects Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS).

Kidney. Liver. Lungs.

**Aspiration Hazard** No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

**ATEmix (oral)** 7,000.00 mg/kg **ATEmix (dermal)** 4,200.00 mg/kg (ATE)

# 12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT

### **Ecotoxicity**

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to	Daphnia Magna (Water
			Microorganisms	Flea)
Copper	96h EC50: 0.031 - 0.054	96h LC50: 0.0068 - 0.0156		48h EC50: = 0.03 mg/L
7440-50-8	mg/L (Pseudokirchneriella	mg/L (Pimephales promelas)		
	subcapitata) 72h EC50:	96h LC50: = 0.112 mg/L		
	0.0426 - 0.0535 mg/L	(Poecilia reticulata) 96h		
	(Pseudokirchneriella	LC50: = 0.3 mg/L (Cyprinus		
	subcapitata)	carpio) 96h LC50: = 0.8		
		mg/L (Cyprinus carpio) 96h		
		LC50: = 1.25 mg/L (Lepomis		
		macrochirus) 96h LC50: =		
		0.052 mg/L (Oncorhynchus		
		mykiss) 96h LC50: = 0.2		
		mg/L (Pimephales promelas)		
		96h LC50: < 0.3 mg/L		
		(Pimephales promelas)		

## Persistence and Degradability

No information available.

# **Bioaccumulation**

### Other adverse effects

No information available.



## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

Disposal methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40)

CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local

regulations for additional requirements.

**Contaminated Packaging** Dispose of contents/containers in accordance with local regulations.

## California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder

# 14. TRANSPORT INFORMATION

Note:

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule)

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

**DOT**Proper Shipping Name
NOT REGULATED
NON REGULATED

Hazard Class N//

Marine Pollutant This product contains a chemical which is listed as a severe marine pollutant according to

DOT

TDG Not regulated

Marine Pollutant This product contains a chemical which is listed as a severe marine pollutant according to

TDG.

MEX Not regulated

<u>ICAO</u> Not regulated

IATA Not regulated



Proper Shipping Name NON REGULATED

Hazard Class N/A

IMDG/IMO Not regulated

Hazard Class N/A EmS-No. F-A, S-I

RID Not regulated

ADN Not regulated

Not regulated

# 15. REGULATORY INFORMATION

### **International Inventories**

TSCA Complies

DSL All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

### **US Federal Regulations**

### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Lithium Cobalt Oxide (CoLiO2) - 12190-79-3	12190-79-3	30 - 60	0.1
Copper - 7440-50-8	7440-50-8	7 - 13	1.0
Aluminum foil - 7429-90-5	7429-90-5	7 - 13	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard No
Chronic Health Hazard No
Fire Hazard No
Sudden release of pressure hazard No
Reactive Hazard No

# **CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8		X	X	

## **CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
Aluminum foil 7429-90-5			

## **US State Regulations**



### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

Chemical Name	California Proposition 65
Cobalt(II) oxide - 1307-96-6	Carcinogen
Nickel oxide - 1313-99-1	Carcinogen

## **U.S. State Right-to-Know Regulations**

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Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Cobalt(II) oxide 1307-96-6			Х	Х	Х
Manganese dioxide 1313-13-9			Х	Х	Х
Nickel oxide 1313-99-1	Х	Х	Х	Х	Х
Carbon 7440-44-0			Х		
Copper 7440-50-8	Х	Х	Х	Х	Х
Aluminum foil 7429-90-5		Х		Х	

# International Regulations

### Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Copper		Mexico: TWA= 1 mg/m <sup>3</sup>
7440-50-8 ( 7 - 13 )		Mexico: TWA= 0.2 mg/m <sup>3</sup>
		Mexico: STEL= 2 mg/m <sup>3</sup>
Aluminum foil		Mexico: TWA 10 mg/m <sup>3</sup>
7429-90-5 ( 7 - 13 )		

Mexico - Occupational Exposure Limits - Carcinogens

## Canada

## **WHMIS Hazard Class**

Non-controlled

16. OTHER INFORMATION
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NFPA Health Hazards 2 Flammability 0 Instability 0 Physical and Chemical Hazards - HMIS Health Hazards 0 Flammability 0 Physical Hazard 0 Personal Protection

Prepared By Product Stewardship

23 British American Blvd. Latham, NY 12110 1-800-572-6501

Revision Date 22-Jan-2015

Revision Note No information available



### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet** 



