

Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau

Item no. 101138

## Material Safety Data Sheet

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### 1. Product & Company Identification:

<b>Product:</b>	Conductivity Solution
<b>Manufacturer:</b>	Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue:</b>	08.09.2014

Type: Conductivity Solution, 1413  $\mu\text{S}/\text{cm}$  @ 25°C/77°F.

Application: For calibrating electrodes.

### 2. Composition / Information on Ingredients:

Aqueous solution.

### 3. Hazard Identification:

No hazardous product as specified in Directive 67/548/EEC.

### 4. First Aid Measures:

**After inhalation :**

if inhaled remove to fresh air. If breathing becomes difficult, call a physician.

**After skin contact :**

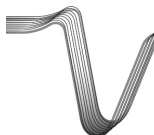
wash off with water and soap.

**After eye contact :**

rinse out with plenty of water for at least 15 minutes. If pain persists, summon medical advice.

**After swallowing :**

wash out mouth with plenty of water, provided person is conscious. Obtain medical attention if feeling unwell.



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### 5. Fire-Fighting Measures:

**Suitable extinguishing media**

Water spray, foam, dry powder or carbon dioxide.

**Special risks:**

Non combustible.

**Special protective equipment for fire fighting:**

Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.

**Additional information:**

Contain escaping vapors with water.

### 6. Accidental Release Measures:

**Personal precautions:**

None

**Environmental precautions:**

None

### 7. Handling and Storage:

**Handling:**

No restrictions

**Storage:**

Keep container closed and protected from direct sunlight.

Store at room temperature (+15°C to +25°C).

### 8. Exposure Control / Personal Protection:

**Personal protective equipment:**

As appropriate to quantity handled.

**Respiratory protection:**

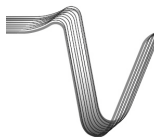
Required when vapors/aerosols are generated.

**Protective gloves:**

Rubber or plastic.

**Eye protection:**

Goggles or face mask.



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### 9. Physical / Chemical Properties:

Appearance :	colorless liquid
Odor :	odorless
Solubility in water :	soluble
Melting point :	NA
Boiling point :	> 100 °C
pH value at 20°C :	~7
Density at 20°C :	~1 g/cm <sup>3</sup>
Flash point :	NA
Explosive properties :	NA
Explosion limits :	NA
Ignition temperature :	NA

### 10. Stability and Reactivity:

**Conditions to be avoided:**

Strong heating (above boiling point).  
Stable in the recommended storage conditions.

**Hazardous decomposition products:**

In the event of fire: see section 5.

**Substances to be avoided:**

The generally known reaction partners of water.

**Hazardous Polymerization:**

Will not occur.

### 11. Toxicological Information:

**Acute toxicity**

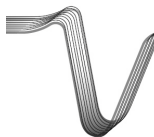
Quantitative data on the toxicity of this product are not available.

**Further toxicological information**

Hazardous properties cannot be excluded, but are relatively unlikely because of the low concentration of the dissolved substances and to the data of the components, when the product is handled appropriately.

**Further data**

The product should be handled with the care usual when dealing with chemicals.



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### **12. Ecological Information:**

**Ecotoxic effects:**

Quantitative data on the ecological effect of this product are not available.

**Further ecological data:**

No ecological problems are to be expected when the product is handled and used with due care and attention.

### **13. Disposal Considerations:**

**Waste disposal:**

Can be safely disposed off as an ordinary refuse.

### **14. Transport Information:**

Not subject to transport regulations.

### **15. Regulatory Information:**

Labeling according to EC Directives:

Symbol: -

R-phrases: -

S-phrases: -

Contains: -

### **16. Other Information:**

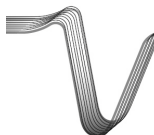
**Legend :**

NA = Not Applicable

ND = Not Determined

**Note:**

THE INFORMATION CONTAINED HEREIN IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE. IT CHARACTERIZES THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT.



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## Material Safety Data Sheet

### 1. Product & Company Identification:

<b>Product:</b>	Coin-type Manganese Dioxide Lithium Battery CR2032
<b>Manufacturer:</b>	Conrad Electronic SE. Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Nominal voltage:</b>	3 V
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue:</b>	09.09.2014

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. However, we makes no warranty expressed or Implied.

CHEMICAL SYSTEM : Lithium Manganese Dioxide

Approximate Weight : 3.2 g

Designed for Recharge : NO

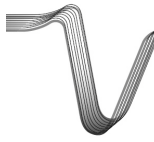
### 2. Composition, Information on Ingredients:

Ingredient	CAS NO.	Content (wt%)
Lithium	7439-93-2	2.0
Propylene Carbonate	108-32-7	6.1
Manganese dioxide	1313-13-9	29
1,2-Dimethoxyethane	110-71-4	4.2
Lithium perchlorate	7791-03-9	0.9
Graphite	7782-42-5 1333-86-4	3.4
Polypropylene	9003-07-0	0.30

### 3. Hazards Identification:

This contains lithium, organic solvent, and other combustible materials. For this reason, Improper handling of the battery could lead to distortion, leakage\*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(\*Leakage is defined as an unintended escape of liquid from a battery.)



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### **4. First Aid Measures:**

None unless internal materials exposure. If contents are leaked out, observe following Instructions:

#### **Inhalation**

Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.

#### **Skin**

Immediately flush skin plenty of water. If itch or irritation by chemical burn persists, consult a physician.

#### **Eyes**

Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately.

#### **Ingestion**

If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

### **5. Fire Fighting Measures:**

#### **Extinguishing Media**

Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space, use a smothering agent.

#### **Fire fighting procedure**

Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

### **6. Accidental Release Measures:**

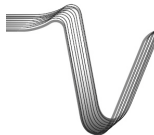
Individual is in conformity with the precautions: Can't dismantle, flatten, short out, heat, pile up battery, etc.

#### **Environmental precautions:**

Can't heat and put the battery into the fire, can't place on very moist place.

#### **Clear up the method:**

Can't pile up and deal with in a large amount, can't put into the fire, other can deal with according to the routine



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### **7. Handling and Storage:**

#### **1) Handling**

Never swallow. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery. Never bring fire close to battery liquid. Never keep in touch with battery.

#### **2) Storage**

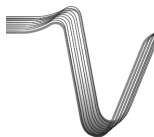
Never let the battery contact with water. Never store the battery in hot and high humid place. Don't push the battery excessively and destroy the battery packaging, often wet and ventilating the dry place to keep in the normal atmospheric temperature, find the unusual battery is dealt with in time

### **8. Exposure Controls, Personal Protection:**

Respiratory Protection :	NA
Ventilation Local Exhaust :	NA
Mechanical :	NA
Special :	NA
Other :	NA
Eye Protection :	NA
Protective Gloves :	NA
Other protective clothing :	NA

### **9. Physical/Chemical Characteristics:**

State of matter :	Solid state
Form :	Button type
Color :	True quality of stainless steel
Smell :	Tasteless (At the time of the fullness)
Hydrogen ion index :	NA
Boiling point :	NA
Resolve temperature :	NA
Flash point :	NA
Method of testing :	(NA)Open the cup (NA)Close the cup
Spontaneous combustion temperature :	NA
Explosion demarcation line :	Higher than 170 degrees Centigrade of batteries will be burnt
The vapour is pressed :	NA
The density of vapour :	NA
To the density (Water =1) :	NA
Dissolving :	NA



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### **10. Stability and Reactivity:**

Stability	Stable
Incompatibility	Water
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Hazardous Decomposition or Byproducts	Hydrogen

### **11. Toxicological Information:**

Urgent toxicity:Suck:	-
Skin:	-
Eyes:	-
LD50 (test animals, absorb the way):	-
LC50 (test animals, absorb the way):	-
Some effect:	-
Cause the sensitiveness:	-
Slow toxicity or long-term toxicity:	-
Special effect:	-

### **12. Ecological Information:**

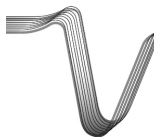
Possible environmental impact / environment:	-
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### **13. Disposal condition:**

#### **Discard the method of handling:**

After the used battery is put for 10 days in water of the rate of certain conductance had, can press general garbage disposal.





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### **14. Transportation Information:**

Shipping Name                    Lithium Batteries  
 UN Number                      UN3090 (UN3091 for lithium batteries in equipment)  
 Hazard Classification        Class 9 (Miscellaneous)

#### **Organizations governing the transport of lithium batteries**

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-970
International	Marine	IMO	SP188
U.S.A	Air, Rail, Road, Marine	DOT	49 CFR Section 173.185

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for shipping lithium batteries. All our CR batteries meet all special provisions.

Ref) Summary of Packing Instruction (IATA Dangerous Goods Regulations 50th Edition)

1) Lithium weight or equivalent lithium content must be less than value in table.

	Lithium Cell/Battery (Lithium weight)
Cell	1g or less
Battery	2g or less

\*Equivalent lithium content (g) is calculated as 0.3(g/Ah) times the rated capacity (Ah).

2) Each cell or battery is of the type proven to meet the requirement of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.

3) Each package must be displayed a battery handling label. (Telephone number must be printed for emergency call on the handling label.)

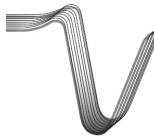
4) Each consignment must be accompanied with a declaration of non-dangerous goods document. (Telephone number must be printed for emergency call on the document.)

5) Each package must be capable of withstanding a 1.2 m drop test. We will offer the certificate of 1) and 2). If our package is used for transport, we offer the certificate of 5).

a) Transportation of batteries installed in equipment as non-restricted goods If each package contains no more than 4 cells or 2 batteries, the requirement is the same as current. But for other cases of cell or battery quantity, the requirements are 1), 2), 3) and 4).

b) Transport of batteries packed with equipment as non-restricted goods Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied. Also the battery quantity within one package is restricted in air transport to the minimum quantity to operate the application and 2 batteries as spares.

c) Transportation of batteries only as non-restricted goods Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied. Also the maximum weight of one package is restricted in air transport, 2.5kg or less for lithium metal cells or batteries.



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### **15. Regulatory Information:**

Use the regulation: «Original battery The 4th part : Security demand for the lithium battery » GB 8897.4-2002

### **16. Other Information:**

Note: The symbol in above-mentioned materials " - " representative consult at present it materials not relevant, but symbol "NA" represent field the getting more suitable for material.