

GHS-0051E

SAFETY DATA SHEET

PRODUCT NAME Inner solution	Data of issue 01/30/2012
[1mol/L Lithium chloride solution (Acetic Acid solvent)]	Date of revision 11/28/2015

1 Identification of the substance or mixture and the supplier

Product name:	Inner solution [1mol/L Lithium chloride solution (Acetic Acid solvent)]	
Name of supplier:	Kyoto Electronics Manufacturing Co., Ltd.	
Address:	68 Ninodan-cho, Shinden, Kisshoin, Minami-ku, Kyoto, Japan	
Division:	Quality Assurance Department	
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MSDS No.	GHS-0051E	

2 Hazard identification

GHS hazard class and category

Physical hazards;	Flammable liquids:	Category 3
Health hazards;	Acute toxicity (oral):	Category 5
	Acute toxicity (dermal):	Category 4
	Skin corrosion/irritation:	Category 1A
	Eye damage/irritation:	Category 1
	Sensitization – respiratory:	Category 1
	Specific target organ systemic toxicity (single exposure):	Category 1 (Blood) Category 2 (Respiratory system)
Environmental hazard;	hazardous to the aquatic environment –Acute hazard:	Category 3

Other hazard identification are not shown above because of the reasons below;
Not applicable / Classification not possible

Label elements

Pictogram



Signal word

Danger

Hazard statements	<p>Flammable liquid and vapour</p> <p>May be harmful if swallowed</p> <p>Harmful in contact with skin</p> <p>Causes severe skin burns and eye damage</p> <p>Causes serious eye damage</p> <p>May cause allergy or asthma symptoms or breathing difficulties if inhaled</p> <p>Cause damage to organs (Blood)</p> <p>May cause damage to organs (Respiratory system)</p> <p>Harmful to aquatic life</p>
Precautionary statements	
Prevention	<p>Keep container tightly closed. Keep away from ignition sources such as heat/sparks/open flame. –No smoking. Wear protective gloves/clothing/eye/face protection. Ground/bond container and receiving equipment. Use explosion–proof. Take precautionary measures against static discharge. Use only non–sparking tools.</p> <p>In case of inadequate ventilation wear respiratory protection.</p> <p>Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Do not breathing dust/fume/gas/mist/vapours/spray.</p> <p>Avoid release to the environment.</p>
Response	<p>In case of fire, use for extinction appropriate media.</p> <p>IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before re–use.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses. If present and easy to do. Continue rinsing.</p> <p>Immediately call a POISON CENTRE or doctor/physician.</p> <p>IF Swallowed: Rinse mouth. Do NOT induce vomiting.</p> <p>IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.</p> <p>Call a POISON CENTRE or doctor/physician if exposed or if you feel unwell.</p>
Storage	<p>Store in cool/well–ventilated place.</p> <p>Store locked up.</p>
Disposal	<p>Dispose of contents and container in accordance with regulation.</p>

3 Composition/Information on ingredients

Substance/Mixture:	Mixture
Chemical identity (or common name):	1mol/L Lithium chloride solution (Acetic Acid solvent)

Ingredient name	Composition (%)	Chemical formula	CAS No.
Lithium Chloride	4.2	LiCl	7447-41-8
Acetic Acid	–	CH ₃ COOH	64-19-7

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance;

None

4 First-aid measures

General description of necessary first aid measures:	<p>Move victim to fresh air.</p> <p>Keep victim warm and quiet.</p> <p>Call emergency medical service.</p> <p>Apply artificial respiration if victim is not breathing.</p> <p>Administer oxygen if breathing is difficult.</p> <p>Do not use mouth-to-mouth method if victim ingested or inhaled substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.</p> <p>Remove and isolate contaminated clothing and shoes.</p> <p>In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.</p> <p>Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.</p>
Inhalation:	<p>In case of accident by inhalation: remove casualty to fresh air and keep at rest.</p> <p>If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and administer artificial respiration.</p>
Skin contact:	<p>Take off immediately all contaminated clothing.</p> <p>After contact with skin, wash immediately with plenty of water.</p>
Eye contact:	<p>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</p>
Ingestion:	<p>If swallowed, seek medical advice immediately and show this container or label.</p> <p>Immediately give the person one or two glasses of milk or water, to dilute the chemical, do not attempt the victim vomit.</p>
Protections for first-aid persons:	<p>Protect yourself by wearing rubber gloves and air-tight safety goggles.</p>
Information for the physician:	<p>Effect of exposure (inhalation, ingestion or skin contact) to substance may be delayed. (Acetic Acid) [ACGIH 2004] Irritation</p>

5 Fire-fighting measures

Extinguishing media:	<p>In case of fire, use water mist, foam, dry powder, carbon dioxide, and dry sand.</p>
Incompatible extinguishing media:	<p>Nothing particular</p>
Specific hazards arising from the chemical (and with regard to fire-fighting measures):	<p>Fire may produce irritating, corrosive and/or toxic gases.</p> <p>Run off from fire control or dilution water may cause pollution.</p> <p>Toxic gases will form upon combustion of: carbon monoxide/chlorine /hydrogen chloride.</p>

Specific fire-fighting measures:	Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area. Fight the fire from a windward direction. Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Form extinguisher is effective for a large scale fire.
Special protective equipment and precautions for fire-fighters:	Fire-fighters should wear proper protective equipment.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Evacuate non-essential personnel. Wear appropriate protective clothing.
Environmental precautions:	Attention should be given not to cause damage to the environment by flowing of spillage to rivers.
Measures and materials for containment and clean up:	Shut off the leakage source to stop the leakage. For small spill, absorb spill with absorbent and move to a chemical waste container. For large spill, prevent leakage by surrounded with earth and lead the spill to a safety place to collect.
Preventive measures for secondary accident:	Keep unauthorized personnel away. Eliminate all sources of ignition and ventilate the area. Prepare extinguishers before catching fire.

7 Handling and storage

Precautions for safe handling:	
Countermeasure technique(s):	(Exposure control for handling personnel) Wear proper equipment not to contact with skin or inhale the vapour. Pay attention to fire. (Protective measures against fire & explosion) Shut off all gas pilot and electrical (spark or hot wire) igniters and other sources of ignition during use and until all vapours (odors) are gone.
Preventive measures:	Use with an enclosed system or a local exhaust ventilation.
Safety measures/ incompatibility:	Do not shock, overturn, drop, or drag containers.
Conditions for safe storage, including any incompatibilities:	
Incompatibilities:	See [10. Stability and reactivity]
Storage:	(Recommendation for storage) Keep tightly closed in dark cool place.
Recommendation on container and packaging materials:	Glass, Teflon, etc.

8 Exposure controls/Personal protection

Appropriate engineering controls:	Keep source tightly closed or install local exhaust ventilation. Provide shower and vanity unit nearby and make clear the location of these.
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Control value:	Japan control value (2005) Not established.
Adopted value:	(Acetic Acid) [JSOH 1978] 10ppm; 25 mg/m ³ (Acetic Acid) [ACGIH 2004] TWA: 10 ppm STEL: 15 ppm

Individual protection measures, such as personal protective equipment (PPE):

Respiratory protector:	Wear positive pressure self-contained breathing apparatus (SCBA). Gas masks for organic compounds
Hand protection:	Wear impervious glove made from chloroprene, as appropriate.
Eye/face protection:	Wear protective eyeglasses or chemical safety goggles. Wear face protection.
Skin and body protection:	To prevent any contact, wear impervious clothing such as apron, boots, or whole-body suits made from chloroprene, as appropriate.

9 Physical and chemical properties

Appearance, color:	Colorless liquid
Odor:	Irritant odor
pH:	(1.0M); 2.9(0.1M); 3.4(0.01M) (Acetic Acid)
Melting point/ freezing point:	>15.0C (Acetic Acid)
Boiling point:	118C (Acetic Acid)
Flash point:	39C (Acetic Acid)
Auto-ignition temperature:	427C (Acetic Acid)
Upper/lower flammability or explosive limits:	Lower limit; 5.4% (Acetic Acid) Upper limit; 16% (Acetic Acid)
Vapour pressure:	1.5kPa (20C) (Acetic Acid)
Vapour density (Air = 1):	2.1 (Acetic Acid)
Specific gravity (Density):	1.05 (Acetic Acid)
Solubility:	Solubility in water; Freely soluble (Acetic Acid) Solubility in solvent; Freely soluble in ethanol and diethyl ether (Acetic Acid)
Octanol/water partition coefficient (log Pow):	-0.31 (Acetic Acid)
Decomposition temperature:	Not available
Viscosity:	Not available
Other data:	Not available

10 Stability and reactivity

Chemical stability:	Flammable and may catch fire at room temperature. vapours may catch fire and explode. This product is considered a stable material under normal and anticipated storage and handling conditions.
Possibility of hazardous reactions:	May react with alkaline substance.
Conditions to avoid:	Sunlight, heat, contact with incompatible materials.
Incompatible materials:	Not available
Hazardous decomposition products:	Toxic fumes of chloride/hydrogen chloride. (except for carbon monoxide, carbon dioxide and water)

11 Toxicological information

No data as this product.

For reference, the information of each Lithium chloride and Acetic Acid is as follows.

Information on ingredients <Lithium chloride>

Acute toxicity:	Harmful if swallowed.	
Oral:	rat	LD50 1530 mg/kg
	mouse	LD50 1165 mg/kg
	rabbit	LD50 775 mg/kg
Irritant properties:	Irritant severely to eyes and skin.	
	Irritant properties to skin;	
	rabbit	500 mg/24H:Severe
	Irritant properties to eyes;	
	rabbit	100 mg/24H:Moderate

Allergenic and sensitizing effects:
Not available

Chronic toxicity:
Not available

Carcinogenic effects:
Not available

Mutagenic effects:
Not available

Toxicity for reproduction
Not available

Information on ingredients < Acetic Acid >

Acute toxicity:	[Emergency Response Guidebook] Vapours may cause dizziness or suffocation. May cause toxic effects if inhaled or ingested/swallowed.	
Oral:	rat	LD50 3530 mg/kg
	human	TDLO 1470 µg/kg
Dermal:	rabbit	LD50 1060 mg/kg

Inhalation:	mouse	LC50/1H 5620 ppm
	rat	LCL0/4H 16000 ppm
	human	TCL0/3M 816 ppm
Irritant properties:	Contact with substance may cause severe burns to skin and eyes.	
Irritant properties to skin /eye:	(skin)	
	rabbit	525 mg open; Severe
	rabbit	50 mg/24H; Mild
	(eye)	
	rabbit	50 µg; Severe
	rabbit	100 mg rinse; Mild
Allergenic and sensitizing effects:	Not available	
Chronic toxicity:	Five workers who had been exposed 80–200 ppm of vapour of this substance for 7–12 years had symptoms of bronchitis, inflammation of throat, acid erosion of teeth, darkened skin of hands.	
Carcinogenic effects:	Listed on neither IARC nor NTP.	
Mutagenic effects:	Reverse–mutation assay in bacteria (Ames test); Positive Escherichia coil Chromosome aberration test: Positive hamster ovary	
Teratogenic effects:	Not available	
Toxicity for reproduction:	Not available	

12 Ecological information

No data as this product.

For reference, the information of each Lithium chloride and Acetic Acid is as follows.

Information on ingredients <Lithium chloride>

Biotransportability:

Not available

Persistence and degradability:

Not available

Bioaccumulative potential:

Not available

Ecotoxicity:

Not available

Fish toxicity:

Not available

Information on ingredients < Acetic Acid >

Biotransportability:



Not available

Persistence and degradability:

High biodegradability

Bioaccumulative potential:

Low or non residuality in fish or shells.

Ecotoxicity:

Slightly harmful to aquatic organisms.

Fish toxicity:

TLm96; 100 ppm

13 Disposal considerations

Contact a licensed professional waste disposal service to dispose of this material. Comply with all country, national and local regulations. Do not dump this product into sewers, on the ground or into any body of water.

14 Transport information

Basic classification information for the transporting/shipment:

UN Number: 2789

Class or Division: 8

Sub. Risk 3

Packing group: II

UN Proper shipping name: ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80% acid, by mass

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

Protection from direct sun light in transportation, and confirm the container does not leak.

Carefully load it onto a transporter without dropping, overturning or damaging so that it will stably stays on the transporter.

15 Regulatory information

Follow all laws and regulations in your country.

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.