

Safety Data Sheet

Electrolytic solution K-51

Preparation date : Aug. 05, 2010

Revision data : Sep. 27, 2018

1. Identification

Product Name ;	K-51
Product Code ;	
Reference No. ;	
Manufacture ;	Elec Fine Instruments Co., Ltd.
Zip Code ;	164-0011
Address ;	2-31-5 Chuo, Nakano-ku, Tokyo Japan
Dept. in Charge ;	Technical Department
Phone no. ;	81-3-3365-4411
Fax no. ;	81-3-3371-1287
Emergency call ;	as above
E-mail address ;	eigyo@densoku.com
Recommended use ;	Film thickness measurement such as plating

2. Hazard identification

Physical Hazards

Flammable Liquid ;	Not classified
Pyrophoric Liquid ;	Not classified
Self-heating Substance ;	Not classified
Substance which, in contact with water, emits flammable gases ;	Not classified

Health Hazards

Acute Toxicity (Oral) ;	Not classified
Acute Toxicity (Dusts and Mists) ;	Category 4
Skin Corrosion / Irritation ;	Category 1A
Serious Eye-damage / Eye-irritation ;	Category 1
Skin Sensitization ;	Not classified
Reproductive Toxicity ;	Not classified
Specific target organ toxicity (Single Exposure) ;	Category 2 (respiratory)
Specific target organ toxicity (Repeated Exposure) ;	Category 2 (respiratory)

Environmental hazards

Short-term (acute) aquatic hazard ;	Not classified
Long-term (chronic) aquatic hazard ;	Not classified

*In case of no record as above-mentioned, it means Out of classification or not Classification not possible

GHS Label Elements

Symbol



Signal Word

Danger

Hazard statement

Harmful if inhaled

Causes severe skin burns and eye damage
 May cause damage to respiratory
 May cause damage to respiratory through prolonged or repeated exposure

Precautionary statements

Prevention

-Do not breathe mist/vapours/spray.
 -Wash the hands thoroughly after handling.
 -Do not eat, drink or smoke when using this product.
 -Use only outdoors or in a well-ventilated area.
 -Wear protective gloves/protective clothing/eye protection/face protection.

Response

-IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 -IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 -IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 -IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

-Get medical advice/attention if you feel unwell.

Disposal

-Wash contaminated clothing before reuse.

-Store locked up.

-Dispose contents/container to industrial wasted specialists getting permission by Prefectural Governor.

3.Composition/information on ingredients

Classification of single / mixture : Mixture

Chemical name	Concentration	Chemical Formula	CAS No.
Sulfuric Acid	7.0%	H ₂ SO ₄	7664-93-9
Water	93.0%	H ₂ O	7732-18-5

Impurities and Stabilizing Additives, concerned in the classification ;

No information

4.First-aid measures

IF INHALED : Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN (or hair) : Take off immediately all contaminated clothing. Rinse skin with water [or shower].

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED : Rinse mouth. Do NOT induce vomiting.

5.Fire-fighting measures

Fire fighting chemicals :

-Big fire : Powder fire extinguishing chemicals, Carbon dioxide, Watering.

-Small fire : Watering, Water atomizing, Bubble fire extinguisher.

-It is not self-heating substance.

-Use suitable extinguisher, according to the situation.

Prohibited chemicals :

-Cylindrical irrigation.

Specific hazard :

-Possibility to cause stimulus, corrosive, or toxic gas due to the fire.

-When contacting to the mtals, possibility to cause flammable hydrogen gas.

-In case of heating, the bottle (container) would be exploded.

- Specific method of extinguishing :
- If not in danger, the bottle (container) should move from the scene of fire.
 - When extinguishing, use an uninhabited hose w/holding fixture or a nozzle with a monitor from the furthest distance that can be performed effectively.
 - After extinguishing, cool the bottle (container) exactly by a lot of water.
 - Shift movable bottle (container) speedily from circumference fire to safe place.
 - After taking refuge, extinguish the fire from a safe place. If heated, exploding, causing serious toxic steam or decomposition material would be released.
- Protection :
- When extinguishing, put the air inhaler or protective clothes for chemicals on.

6.Accidental release measures

- Precaution for the human body, protection and emergency
- Necessary to isolate the leakage area, by having appropriate distance onto all the directions
 - Don't bring close except the persons concerned.
 - The worker must put on appropriate protection in order to avoid to contact skin and eyes or inhale (refer to Section 8 ; exposure preventing measure and protection).
 - Don't touch leaking material or damaged bottle (container) when not wearing appropriate protective clothing.
 - Stay at the windward.
 - Leave the low grounds.
 - Before entering, ventilate the sealed place.
- Precaution for environment
- Don't discharge to aquatic life cycle in order to avoid environmental influence.
 - Don't discharge to environmental life cycle.
- Neutralization, collection
- In case of small quantity, absorb by dry sand, and nonflammable material, or collect to sealed container. After that, disposal of them.
 - In case of big quantity, build a dam in front of the liquid. After that, disposal of them.
- Method and tool for shutting in or purifying
- Stop the leakage, when not in danger.
 - In case of small quantity, cover by dry sand, and nonflammable material, or avoid to scatter by plastic sheet and get wet by the rain.
- Prevention measure of second disaster
- Avoid to flow into drain, basement or closing place.

7.Handing and storage

- Handling :
- Technical measure :
- Put on protective tools and do equipment measure, written in "8.Exposure controls/personal protection".
- General and regional ventilation :
- Do general and regional ventilation, written in "8.Exposure controls/personal protection".
- Safety measure for handling :
- Caution flammable.
 - Do not contact, inhale and swallow.
 - Do ventilation to keep the air density below the exposure limit.
 - Wash hands thoroughly after handling.
 - Use only outdoors or well ventilated area.
 - Wear protective gloves/protective clothing/eye protection/face protection.
- Contact evasion :
- Refer to clause "10.Stability and reactivity"

Storage :

- Technical measure :
 -Settle the necessary lighting and ventilation equipment in the storage to store and handle.
 -Be sure for the ceiling structure for storage not to be flooded to ceiling surface.
- Mixture to prohibit :
 -Refer to clause "10.Stability and reactivity".
- Storage condition :
 -Store locked up.
- Packing material for Container (bottle) :
 -Use the regular container (bottle) by the United Nations transportation regulation.

8.Exposure controls/personal protection

Chemical name	Density to manage	Density allowance (Exposure limit value/biological exposure index)	
		Japan Association of Industrial & Health(2009vr)	ACGHI (2009vr)
Sulfuric acid	No setting	Max. density allowance 1mg/m3	TWA 0.2mg/m3(T)
Water	No setting	No setting	No setting

Facilities measure :

- When handling or storing, eyewashing tools and safety shower should be settled in the workshop.
- Handling should be done in the place with general ventilation.
- In order to control the air density, it is enough by a general and suitable ventilation.
- When causing steam, hume, mist by the high temperature treatment, in order to keep air pollution material below the limit of control density & density allowance, ventilator should be set up.

Protection :

- Protection for inhalator :
 -In case of not enough for ventilating, wear suitable protective inhalator.
- Hands protection :
 -Wear hand protection.
- Eye protection :
 -Wear eye protection.
 -Wear goggle for chemical spray and standard face protectors.
- Skin & body protection :
 -Wear suitable protective clothing or face mask.
 -In case of causing spray, the overall chemical resistance protective wear (for instance, acid suit) and boots are necessary.
 -After handling, wash the hands exactly.

9.Physical and chemical properties

Physical condition

- Form : Liquid
- Color : Colorless
- Smell : Unknown
- pH : No record
- Melting point/coagulating point : No record
- Boiling point, an initial boiling point or the boiling range : 100°C (Water)
- Ignition point : Nonflammable
- Flammability/explosion range : Nonflammable
- Pressure of the steam : No record
- Density of steam pressure (air=1) : No record
- Specific gravity (density) : No record
- Solubility : Water solubility
- Octanols/water distribution coefficient : No record
- Spontaneous ignition temperature : Nonflammable
- Decomposition temperature : No record
- Evaporation speed (Acetic buthyl = 1) : No record
- Flammability (solid/gas) : Not applicable

Adhesion : No record

10.Stability and reactivity

Stability : Stable on the ordinary conditions
 Harzard reaction possibility : Reacting to a base
 Genarating hydrogen by reacting to metal
 Prohibition : High temperature
 Dangerous mixing material : Base, metals
 Dangerous & harmful decomposition material : Generating SOx by burning

11.Toxicological information

Acute toxicity
 Oral
 Acute toxicity estimated value on ingredients are ;
 Sulfuric acid : 2140mg/kg
 Water : 99999mg/kg (estimate value)
 Acute toxicity estimated value : 23803mg/kg
 Therefore, GHS : Not classified

Dermal
 Classification not possible (due to lack of data)

Inhalation (vapour)
 Classification not possible (due to lack of data)

Inhalation (mist)
 Classification not possible (due to lack of data)

Skin corrosion/irritation
 Sulfuric acid : Category 1B
 Ingredients density in total : More than 5%, GHS : Category 1,
 applicable in "Serious eye damage"

Serious eye damage/irritation
 Sulfuric acid : Category 1
 Ingredients density in total : More than 3%, GHS : Category 1,
 applicable in "Serious eye damage"

Respiratory or skin sensitization
 Classification not possible (due to lack of data)

Germ cell mutagenicity
 Classification not possible (due to lack of data)

Carcinogenicity
 Classification not possible (due to lack of data)

Reproductive toxicity
 Classification not possible (due to lack of data)

Specific target organ toxicity
 - Single exposure
 Ingredients density on density limits for Sulfuric acid (for
 respiratory) $\geq 1.0\% < 10\%$,
 GHS : Category 2 (for respiratory)
 "Possibility for respisratory damage"

Specific target organ toxicity
 - Repeated exposure
 Ingredients density on density limits for Sulfuric acid (for
 respiratory) $\geq 1.0\% < 10\%$,
 GHS : Category 2 (for respiratory)
 "Possibility for respisratory damage by long-term or repeated
 exposure"

Aspiration hazard
 Classification not possible (due to lack of data)

12.Ecological information

Acute toxicity for aquatic
 environment
 Sulfuric acid : Category 3
 Ingredients density limit in total : below 25%,
 Other ingredients, not applicable
 GHS : Not classified

Chronic toxicity for aquatic
 environment
 All ingredients are not applicable
 GHS : Not classified

13.Disposal consideration

Remaining waste

- Before disposal, hazardous level should be lower by processing the detoxification, stabilization, and neutralizing, etc. as much as possible.
- When doing disposal, should be applied to relative regulation and standards by local government.
- When the industrial waste disposal agent or local public body by premission from the prefectural governor does processing, it is necessary to trust them with that processing.

- When trusting the waste disposal to agents, notice for the possibilities of toxicity or hazards to the agents should be done.
 - Because this product is for specific managing industrial waste (spent acid ; ph below 2.0), when doing disposal, it should be applied to "Specific managing industrial waste processing standards" by Regulations of Waste Disposal and Public Cleaning.
- Contaminated container (bottle) and packing
- Container (bottle) must be rinsed and recycled or done appropriate disposal according to relative regulation and standards by local government.
 - In order to dispose of an empty container (bottle), remove the contents exactly.

14. Transport information

International regulations

Seafreight regulation information	Applicable to IMO
UN No.	2796
Proper shipping name	Battery fluid, acid
Class	8
Packing group	II
Marine pollutant	Not applicable
Airfreight regulation information	Applicable to ICAO/IATA
UN No.	2796
Proper shipping name	Battery fluid, acid
Class	8
Packing group	II

Specific safety measure

- Before transportation, confirm the package condition by damage, corrosion, leakage.
- When transporting, avoid direct sunshine, load the goods note cause container's damage, corrosion leakage and ensure to prevent a load shift.
- Don't transport this products with food and fodder.
- Don't load thisproducts with other hazardous goods.
- Don't pile this products up with other hazardous goods or flammable goods.
- Carry the yellow card when transporting.

Guidance No. of emergency measure 157

15. Regulatory information

Work Health (Hygiene) Act ----

16. Other information

Emergency Call Elec Fine Instruments Co., Ltd.
 Quoted from Literature NITE GHS Public data from GHS Classification
 EU CLP Regulation Annex VI
 RTECS (2006-2009)

-Description Contents are applied to general obtainable information or based on own information, however, as chemical or technical all informations are not investigated at the present, so any guarantees are not done exactly. More ever, precautions are based on ordinary handlings.

In any case of special handlings, pay attention to handle this products.

End of MSDS