SAFETY DATA SHEET

PRODUCT NAME **45% Ethanol Solution**

Data of issue 19/1/2011

Date of revision/ Last confirmation 3/4/2025

1. Identification of the substance or mixture and the supplier

Product name	45% Ethanol Solution
SDS No.	GHS-0136E
Name of supplier	Kyoto Electronics Manufacturing Co., Ltd.
Address	68 Ninodan-cho, Shinden, Kisshoin, Minami-ku, Kyoto, Japan
Division	Quality Assurance Department
Phone	+81-75-691-4121
Fax	+81-75-691-4127
Emergency phone	+81-75-691-4125

Recommended uses and restrictions on use

Recommended use	For analysis
Restrictions on use	When using for purposes other than those recommended, consult a specialist.

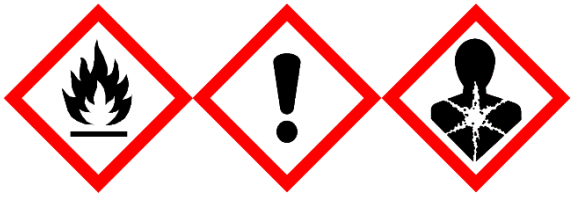
2. Hazard identification

GHS classification

Physical hazards	
Flammable liquids	Category 3
Health hazards	
Serious eye damage / Eye irritation	Category 2B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3(airway irritation, anesthetic effects)
Specific target organ toxicity (repeated exposure	Category 2(central nervous system)
	Category 1(liver)

GHS label elements

Hazard pictograms



Signal words Danger

Hazard statements :	H226 Flammable liquids and vapors. H320 Eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H350 May cause cancer. H360 May cause adverse effects on fertility or the unborn child. H372 Causes damage to organs (Central nervous system, Visual organs) through prolonged or repeated exposure. H373 May cause damage to Central Nervous System through prolonged or repeated exposure.
Precautionary statement	
Prevention	P201 Obtain special instructions before use. P210 Keep away from heat / sparks / open flames / hot ignition sources. No smoking. P233 Keep container tightly closed. P260 Do not breathe dust / fume / gas / mist / vapors / spray. P280 Wear protective gloves / protective clothing/eye protection / face protection.
Response	P308+P313 IF exposed or concerned: Get medical advice/attention. P370+P378 In case of fire: Use appropriate extinguishing media to extinguish.
Storage	P403 + P235 Store in a well-ventilated place. Keep cool.
Other hazards which do not result in classification	None known.

3. Composition/Information on ingredients

substance / mixture mixture

Components

No.	Chemical name	CAS No.	Concentration (% w/w)	ENCS / ISHL number
1	Ethanol	64-17-5	39.2	2-202
2	Water	7732-18-5	60.8	–

4. First-aid measures

General advice	Evacuate danger area. Consult a doctor/physician. Show this Safety Data Sheet to the doctor/physician. Do not leave victim alone.
If inhaled	Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if you feel unwell.
In case of skin contact	Wash with soap and plenty of water. Wash contaminated clothing before reuse. Remove contaminated clothing and shoes. If skin irritation or rash occurs: Get medical advice/attention.
In case of eye contact	If product gets into eyes, rinse immediately with plenty of water and seek medical attention. Protect uninjured eyes. Keep eyes wide open while rinsing. If eye irritation persists, consult a medical specialist. Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed	Rinse mouth. Do not induce vomiting. Take victim to hospital immediately.
Most important symptoms and effects, both acute and delayed	Eye irritation
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	Spray water, carbon dioxide (CO_2), dry sand, fire retardant
Unsuitable extinguishing media	Solid/strong water stream
Specific hazards during fire fighting	In case of fire, prevent water for firefighting from flowing into drains or waterways.
Specific extinguishing methods	Contaminated fire wastewater must be collected. Do not discharge into drainage systems. Fire residues and contaminated fire wastewater must be disposed of in accordance with applicable regulations.
Special protective equipment for fire-fighters	Wear self-contained breathing apparatus when fighting fires, if necessary.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Use protective equipment. Ensure good ventilation. Remove nearby ignition sources. Evacuate to a safe area.
Environmental precautions	Do not pour this product into drains. Stop any leaks or spills only when safe to do so. If product contaminates rivers, lakes or drains, notify relevant authorities.
Methods and materials for containment and cleaning up	Contain spillage and collect with non-combustible absorbent material (sand, earth, diatomaceous earth, vermiculite, etc.) and place in container for disposal in accordance with local/national regulations (see section 13).

7. Handling and storage

Handling

Technical measures	Do not spray onto open flames or hot surfaces. Take necessary measures to prevent static discharges (which may ignite organic vapours). Keep away from flames, heat and sources of ignition.
Precautions for safe handling	Do not breathe vapour/dust. Avoid contact with skin and eyes. Smoking, eating and drinking are prohibited in work area. Take precautionary measures against static discharge. Ensure that work room is well ventilated and exhausted. Wash skin thoroughly after handling.
Avoiding incompatibilities	No information
Hygiene measures	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

Storage

Conditions for safe storage	Keep container tightly closed in a dry, well-ventilated place. Store at room temperature. To maintain product quality, store away from heat and direct sunlight.
Further information on storage stability	No decomposition will occur if stored and used as directed.

8. Exposure controls/Personal protection

Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Reference concentration / Permissible concentration	Basis
Ethanol	64-17-5	STEL	1000 ppm	ACGIH

Personal protective equipment

Respiratory protection	Suitable respiratory equipment
Hand protection material	Protective gloves
Eye protection	Safety glasses
Skin and body protection	Protective suit

9. Physical and chemical properties

Physical state	Liquid
Color	Colorless and transparent
Odor	Peculiar odor
Melting point / Freezing point	No data available
Initial boiling point and boiling range	No data available
Flammability (liquids)	No data available
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit / Upper flammability limit	No data available
Lower explosion limit / Lower flammability limit	No data available
Flash point	26.5 ℃ (40 % w/w)
Decomposition temperature	No data available
pH	No data available
Autoignition temperature	No data available
Self-Accelerating decomposition temperature (SADT)	No data available
Viscosity	
Viscosity, kinematic	No data available
Solubility(ies)	
Water solubility	Easily soluble
Partition coefficient: n-octanol/water	No data available
Vapor pressure	No data available
Density and / or relative density Relative density	0.940（15 ℃）
Relative vapor density	No data available

Particle characteristics Particle size	No data available

10. Stability and reactivity

Reactivity	No data available
Chemical stability	May be altered by light.
Possibility of hazardous reactions	No data available
Conditions to avoid	Avoid contact with heat, flames, sparks, high temperatures and direct sunlight, static electricity and sparks.
Incompatible materials	No data available
Hazardous decomposition products	Carbon monoxide, carbon dioxide

11. Toxicological information

Acute toxicity	
Ethanol	
Acute oral toxicity	LD50 (Rat) 15,010 mg/kg
Acute inhalation toxicity	LC50 (Rat) 124.7 mg/L , Exposure time 4 h , test environment vapor
Acute dermal toxicity	LDLo (Rabbit) 20,000 mg/kg
Skin corrosion/irritation	Not classified based on available information.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Skin sensitization	Not classified based on available information.
Respiratory sensitization	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Suspected of causing cancer.
Reproductive toxicity	May damage fertility or the unborn child.
STOT-single exposure	May cause respiratory irritation. May cause drowsiness or dizziness. This substance or mixture is classified as a specific target organ toxicant, single exposure, category 3 with airway irritation. This substance or mixture is classified as a specific target organ toxicant, single exposure, category 3 with anesthetic effects.
STOT-repeated exposure	May cause organ (central nervous system) damage through prolonged or repeated exposure. May cause damage to organs (liver) due to long-term or repeated exposure.
Aspiration toxicity	Not classified based on available information.
Remarks	Possible symptoms of overexposure include headache, dizziness, fatigue,

nausea, and vomiting.
Concentrations significantly higher than the TLV may cause coma effects.
Solvents may debride the skin.

12. Ecological information

Ecotoxicity	
Ethanol	
Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 13,000 mg/L, Exposure time 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 12,340 mg/L, Exposure time 48 h
Toxicity to algae/aquatic plants	EC50 (Lemna minor (duckweed)) 3,690 mg/L, End point Growth inhibition, Exposure time 7 Days NOEC (Lemna gibba (gibbous duckweed)) 280 mg/L, End point Growth inhibition, Exposure time 7 Days
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	NOEC (Ceriodaphnia dubia (Water flea)) 9.6 mg/L, End point Reproductive inhibition, Exposure time 10 Days
Persistence and degradability	
Ethanol	Biochemical oxygen demand rapidly biodegradable, Biodegradation 89 %,
Bioaccumulative potential	
Ethanol	Partition coefficient: n-octanol/water log Pow = - 0.31
Mobility in soil	No data available
Hazardous to the ozone layer	Not applicable
Other adverse effects	In case of non-professional handling or disposal, environmental hazards cannot be excluded.

13. Disposal considerations

Waste from residues	Do not pour this product into drains, waterways or on the ground. Do not contaminate ponds, waterways or ditches with chemicals or used containers. Transfer to a licensed waste disposal company.
Contaminated packaging	Empty remaining container. Dispose of as with full container. Do not reuse empty container.

14. Transport information

International Regulations

IATA-DGR

UN / ID No.	UN1170
Proper shipping name	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
Class	3
Packing group	Ⅱ

IMDG-Code

UN No.	UN1170
Proper shipping name	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
Class	3
Packing group	Ⅱ
Marine pollutant	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation: Please refer to the law and local regulations, etc. in each country

Special precautions for user: Not applicable

15. Regulatory information

16. Other information

Citations/References

NITE-Gmiccs (National Institute of Technology and Evaluation)

NITE-CHRIP (National Institute of Technology and Evaluation)

Workplace Safety Site (Ministry of Health, Labor and Welfare)

SDS from various upstream manufacturers

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.