PRODUCT SAFETY DATA SHEET
H_2S Sensor (Model ES-1827i)

This product is not subject to the SDS systems due to its enclosed structure.
This sheet does not guarantee the safety, but is provided only as information for safe use of the sensor.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name :	H_2S sensor
Product model :	Model ES-1827i
Company :	Riken Keiki Co., Ltd.
Address :	2-3 Minamisakae-cho, Kasukabe, Saitama 344-0057 Japan
Department :	Quality Control Department, division 2
Telephone :	+81-48-878-8047 (Quality Control Department, division 2)
FAX number :	+81-48-761-1181

2. HAZARDS IDENTIFICATION

GHS classification : Not applicable

Health hazards : There is no hazard as a sensor since the chemical components are sealed in an enclosure. The electrolyte in a sensor contains sulfuric acid. The sulfuric acid is to be with the chemical property of "acute toxicity," "skin corrosivity and irritation," "serious eye damage or irritation," and "specific target organs/systemic toxicity (single and repeated exposure)". Skin contact with electrolyte leaked from sensor may cause dermopathy, and eye contact may lead to impairment such as sight loss.

Physical hazards : Throwing into fire or heating over 100 ℃ may cause explosion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Part	Chemical name or general name	CAS No.	Content ratio to sensor weight
Electrode	Ruthenium oxide (RuO_2) + platinum black (Pt)	12036-10-1(RuO_2) 7440-06-4(Pt)	0.5 wt%
	Iridium (Ⅳ) oxide (IrO_2)	12030-49-8	0.5 wt%
Electrolyte	Sulfuric acid (H_2SO_4)	7664-93-9	23 wt%
Other component	Resin	-	62 wt%
	Stainless steel (SUS)	-	8.5 wt%
	Rubber	-	3.5 wt%
	Platinum wire (Pt)	7440-06-4	1.5 wt%
	Glass fiber	-	0.1 wt%

4. FIRST AID MEASURES

In case of electrolyte leak from product

Inhalation of vapor :	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor immediately. If the victim feels unwell, get medical advice/attention.
Skin contact :	Take off or remove immediately contaminated clothing. Call a doctor immediately. Wash skin immediately. Rinse skin with running water or shower. If the victim feels unwell, get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact :	Call a doctor immediately. Wash carefully with water for a few minutes, then remove contact lenses if present and easy to do. Continue rinsing. If the victim feels unwell, get medical advice/attention.
Ingestion :	Call a doctor immediately. Rinse mouth. Do NOT induce vomiting. If the victim feels unwell, get medical advice/attention.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media :	This product is not combustible by itself. Use fire extinguisher suitable for the fire conditions.
Special extinguish method :	Remove enclosure from the fire area if not dangerous. Continue to cool the enclosure with much water even after the fire extinguished. In case of fire around the product, move enclosures to a safe area if possible.

6. ACCIDENTAL RELEASE MEASURES

In case of electrolyte leak from product

Personal precautions, protective equipment and emergency procedures :	Worker must wear protective equipment.
Environmental precautions :	Prevent from entering drains. Do not release to the environment.
Methods and materials for containment and clearing up :	Absorb leakage with wet mop or wet sponge to prevent further spread.

7. HANDLING AND STORAGE

Handling :	Pack up with materials strong enough to prevent damage due to vibration, impact, drop, and/or stack during transportation. Avoid deformation by pressing, fire exposure and decomposition. Do not mix with other sensors, used and unused ones.
Storage :	Keep dry (avoid wet with rain) during storage and transportation.

Keep the sensor from high temperature, direct sunlight, heat exposure (ex. stove), high humidity, condensing, waterdrop or freezing during storage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Facility measures :	No need in normal use.
Acceptable level :	Not set up for normal use.
＜Protective equipment＞	(In case of leak from product)
Respiratory protection :	No need in most cases.
Hand protection :	Protective gloves.
Eye protection :	Safety goggles with side plates.
Skin and body protection :	Impermeable protective equipment such as appropriate boots or protective clothing, to avoid any contact.

9. PHYSICAL AND CHEMICAL STATE

Appearance :	Cylindrical

10. STABILITY AND REACTIVITY

This sensor is a chemical product using chemical reaction, and the performance degradation, therefore, will occur due to long-term storage as well as use. Inappropriate environment (ex. temperature) in actual use may cause performance degradation or/and damage which come(s) from life deterioration and/or leakage.

11. TOXICOLOGICAL INFORMATION

No toxicity since the content is sealed in an enclosure of the sensor.

12. ECOLOGICAL INFORMATION

No ecological information.

Ecotoxicity

Aquatic environmental toxicity (acute) :	No data available.
Aquatic environmental toxicity (chronic) :	No data available.

Information from SDS for sulfuric acid

Ecotoxicity

Aquatic environmental toxicity (acute) :	Harmful to aquatic life. GHS classification category 3.
Aquatic environmental toxicity (chronic) :	Not classified.

13. DISPOSAL CONSIDERATIONS

Dispose appropriately in accordance with local/national regulation, or return to our distributors.

14. TRANSPORT INFORMATION

Precaution :	Avoid leaving at high temperature, condensing, etc. Avoid transportation that may cause collapse or packaging damage.
UN No. and UN classification :	Not applicable
International regulations	
Marine transport :	Comply with IMO regulations.
Air transport :	Comply with ICAO/IATA regulations.
National regulations	
Marine transport :	Comply with Ship Safety Law.
Air transport :	Comply with Aviation Law.

15. REGULATORY INFORMATION

No data available.

16. OTHER INFORMATION

＊ This safety data sheet was prepared on the basis of some literature/documents. However, be extra careful when handling since it does not necessarily cover all the information. The description for physical, chemical function and hazardous toxicity, etc. is given only for reference purposes and, therefore, does not provide any warranty.
The stated cautions are for normal handling only. In case of special handling required, take sufficient safety measures for intended use/usage.