



INSTRUMENTS

Safety Data Sheet

Oxygen Sensor with Potassium Hydroxide Based Electrolyte

SECTION 1: Identification

Product identifier

Product name Oxygen Sensor

Recommended use of the chemical and restrictions on use

Oxygen sensor

Supplier's details

Name RKI Instruments, Inc.
Address 33248 Central Ave.
Union City, CA 94587
USA

Telephone (510) 441-5656

Fax (510) 441-5650

Emergency phone number(s)

(800) 424-9300 Chemtrec

SECTION 2: Hazard identification

Classification of the substance or mixture

GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)

- Acute toxicity, oral (chapter 3.1), Cat. 4
- Eye damage/irritation (chapter 3.3), Cat. 1
- Skin corrosion/irritation (chapter 3.2), Cat. 1A
- Specific target organ toxicity, repeated exposure (chapter 3.9), Cat. 2

GHS label elements, including precautionary statements

Pictogram



Signal word

Danger

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Hazard statement(s)

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H373	May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a doctor if you feel unwell
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310	Immediately call a doctor.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with applicable regional, national and local laws and regulations

SECTION 3: Composition/information on ingredients

Mixtures

Components

1. Water

Concentration	52.6 % (weight)
EC no.	231-791-2
CAS no.	7732-18-5

2. Potassium hydroxide

Concentration	21.5 % (weight)
EC no.	215-181-3
CAS no.	1310-58-3
Index no.	019-002-00-8

3. Ethylene glycol

Concentration	21.3 % (weight)
EC no.	203-473-3
CAS no.	107-21-1
Index no.	603-027-00-1

4. Ethylenediaminetetraacetic acid tetrasodium salt dihydrate

Concentration	2.4 % (weight)
EC no.	200-573-9
CAS no.	10378-23-1

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5. Sodium alginate

Concentration

1.2 % (weight)

CAS no.

9005-38-3

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled	Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell. Acute and delayed symptoms and effects: May cause respiratory irritation. Signs/symptoms may include burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.
In case of skin contact	Wash with plenty of soap and water for at least 15 minutes. Call a poison center or doctor if you feel unwell. Acute and delayed symptoms and effects: Causes severe skin burns. Signs/symptoms may include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.
In case of eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. Acute and delayed symptoms and effects: Causes serious eye damage. Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.
If swallowed	Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Never give anything by mouth to an unconscious person. Acute and delayed symptoms and effects: Harmful if swallowed. Causes burns to nose, mouth, throat, and digestive tract. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11

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SECTION 5: Fire-fighting measures

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Carbon oxides, Nitrogen oxides (NO_x), Sodium oxide

Special protective actions for fire-fighters

Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protection recommended in Section 8.

As an immediate precautionary measure, isolate spill or leak area in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate enclosed areas.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Stop leak if you can do it without risk. Sweep up and shovel into suitable containers for disposal.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling

Do not swallow. Do not breathe mist, vapors, or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. See Section 8 for information on Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities

Store locked up. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.

Specific end use(s)

Apart from the uses mentioned in section 1 no other specific uses are stipulated.

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SECTION 8: Exposure controls/personal protection

Control parameters

CAS: 107-21-1 (EC: 203-473-3)

Ethylene glycol

ACGIH (USA): 100 mg/m³ PEL-C inhalation; 100 mg/m³ PEL-C inhalation; 100 mg/m³ PEL-C inhalation;

Cal/OSHA (USA): 40 ppm

100 mg/m³ PEL-C inhalation

CAS: 1310-58-3 (EC: 215-181-3)

Potassium hydroxide

ACGIH (USA): 2 mg/m³ PEL-C inhalation; 2 mg/m³ PEL-C inhalation; Cal/OSHA (USA): 2 mg/m³ PEL-C inhalation; NIOSH (USA): 2 mg/m³ PEL-C inhalation

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

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

Eye/face protection

Tightly fitting safety goggles. If splash hazard, wear face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Ensure that eyewash stations and/or safety showers are close to the workstation location if working with concentrated product.

Skin protection

Wear protective gloves. Consult manufacturer specifications for further information.

Body protection

Wear protective clothing. Clothing with full length sleeves and pants should be worn. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal hazards

No data available.

Environmental exposure controls

Do not let product enter drains.

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SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Liquid
Odor	Odorless
Odor threshold	No data available.
pH	No data available.
Melting point/freezing point	360 degrees C
Initial boiling point and boiling range	180 degrees C
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	No data available.
Upper/lower flammability limits	No data available.
Upper/lower explosive limits	No data available.
Vapor pressure	No data available.
Vapor density	No data available.
Relative density	1.5
Solubility(ies)	Appreciable
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

SECTION 10: Stability and reactivity

Reactivity

Contact with incompatible materials. Sources of ignition. Exposure to heat.

Chemical stability

Stable under normal storage conditions.

Possibility of hazardous reactions

No data available.

Conditions to avoid

Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible materials

Nitro compounds, Organic materials, Magnesium, Copper, Water, reacts violently with: Metals, Light metals, Contact with Aluminum, Tin and Zinc liberates Hydrogen gas. Contact with Nitromethane and other similar nitro compounds causes formation of shock-sensitive salts., vigorous reaction with: Alkali metals, Halogens, Azides, Anhydrides, Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Strong oxidizing agents, Strong acids.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Potassium oxides.
In the event of fire: see section 5

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SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion.

Symptoms (including delayed and immediate effects):

Inhalation: May cause respiratory irritation. Signs/symptoms may include burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.

Ingestion: Causes burns to nose, mouth, throat, and digestive tract. Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea, blood in the feces and/or vomitus may also be seen.

Components:

Ethylene glycol

LD50 Oral - Rat - 4,700 mg/kg

LD50 Skin - Rabbit - 10,626 mg/kg

Potassium hydroxide

LD50 Oral - Rat - 333 mg/kg

Sodium alginate

LD50 Oral - Rat - >5,000 mg/kg

Tetrasodium EDTA

LD50 Oral - Rat - 630 - 1,260 mg/kg

Skin corrosion/irritation

Acute and delayed symptoms and effects: Causes severe skin burns. Signs/symptoms may include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

Serious eye damage/irritation

Acute and delayed symptoms and effects: Causes serious eye damage. Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

ARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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Reproductive toxicity

No data available.

STOT-single exposure

No data available.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure

Aspiration hazard

No data available.

Additional information

Potassium hydroxide:

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

SECTION 12: Ecological information

Toxicity

No data available on product

Components

Ethylene glycol

LC50 - Oncorhynchus mykiss (rainbow trout) - 18,500 mg/l - 96 h

LC50 - Leuciscus idus (golden orfe) - >10,000 mg/l - 48 h

Result: Bioconcentration factor (BCF): 0.60l

NOEC - Pimephales promelas (fathead minnow) - 32,000 mg/l - 7 d

NOEC - Pimephales promelas (fathead minnow) - 39,140 mg/l - 96 h

EC50 - Daphnia magna (water flea) - 74,000 mg/l - 24 h

NOEC - Daphnia magna (water flea) - 24,000 mg/l - 48 h

LC50 - Daphnia magna (water flea) - 41,000 mg/l - 48 h

Potassium hydroxide

LC50 - Gambusia affinis (mosquito fish) - 80 mg/l - 96 h

Persistence and degradability

No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

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SECTION 13: Disposal considerations

Disposal of the product

Disposal should be in accordance with applicable Federal, State and local laws and regulations. Local regulations may be more stringent than State or Federal requirements.

Disposal of contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN Number: 1760

Class: 8

Packing Group: II

Proper Shipping Name: Corrosive liquid, n.o.s. (Potassium hydroxide)

IMDG

UN Number: 1760

Class: 8

Packing Group: II

EMS: F-A, S-B

Proper Shipping Name: Corrosive liquid, n.o.s. (Potassium hydroxide)

IATA

UN Number: 1760

Class: 8

Packing Group: II

Proper Shipping Name: Corrosive liquid, n.o.s. (Potassium hydroxide)

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ethylene glycol

CAS number: 107-21-1

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Potassium hydroxide

CAS-No. 1310-58-3

Ethylene glycol

CAS number: 107-21-1

Pennsylvania Right To Know Components

Potassium hydroxide

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CAS-No. 1310-58-3

Ethylene glycol
CAS number: 107-21-1

Ethylenediaminetetraacetic acid tetrasodium salt dihydrate
CAS-No. 10378-23-1

Sodium alginate
CAS Number: 9005-38-3

New Jersey Right To Know Components

Potassium hydroxide
CAS-No. 1310-58-3

Ethylene glycol
CAS number: 107-21-1

Ethylenediaminetetraacetic acid tetrasodium salt dihydrate
CAS-No. 10378-23-1

Sodium alginate
CAS Number: 9005-38-3

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ethylene glycol
CAS number: 107-21-1

SECTION 16: Other information

Further information/disclaimer

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of information for their particular purposes. In no event shall RKI Instruments, Inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, whatsoever arising, even if RKI Instruments, Inc. has been advised of the possibility of such damages.