Maxtec

Safety Data Sheet

Section 1: Identification

Product Name: Maxtec KOH Oxygen Sensors
Synonyms: UN1814: Potassium hydroxide solution
CAS Number(s): 1310-58-3, 7439-92-1
Product Use: Oxygen Sensor
Manufacturer/Supplier: Maxtec
Address: 2305 South 1070 West, Salt Lake City, Utah 84119

General Information: 800-748-5355 (Toll Free), +1-801-266-5300 (International)
Transportation Emergency Number:

Section 2: Hazard(s) Identification

Note
The oxygen sensors contain a strong basic solution encapsulated in a plastic housing. Under normal operating conditions the solution (electrolyte) is never exposed. In case of a leak please observe the following information:

GHS Classification:

Potassium Hydroxide

Health	Environment	Physical
Corrosive to Metals – Category 1 Acute Toxicity – Category 4 (oral) Skin Corrosion – Category 1A Serious Eye Damage – Category 1	Acute aquatic Toxicity – Category 3	Not Available

Lead

Health	Environment	Physical
Acute Toxicity – Category (inhalation) Acute Toxicity – Category 4 (oral/dermal) Carcinogenicity – Category 2 Reproductive/Developmental – Category 2 Target organ Toxicity (Repeated) – Category 2	Acute Aquatic Toxicity – Category 1 Chronic Aquatic Toxicity – Category 1	Not Available

GHS Label:

Potassium Hydroxide Solution

Symbols:

Hazard Statements	*Precautionary Statements*
• Danger • May be corrosive to metals. • Harmful if swallowed • Causes severe skin burns and eye damage. • Harmful to aquatic life.	• Wash skin thoroughly after handling. • Do not eat, drink or smoke when using this product. • Avoid release to the environment. • Wear protective gloves/ protective clothing/ eye protection/ face protection. • IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. • IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. • IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER for doctor/ physician. • Wash contaminated clothing before reuse. • Absorb spillage to prevent material damage. • Store in corrosive resistant stainless steel container with a resistant inner liner. • Dispose of contents/ container to an approved waste disposal plant.

Lead

Symbols:

Hazard Statements	*Precautionary Statements*
• Warning! • Harmful if swallowed. • Suspected of causing cancer. • Suspected of damaging fertility or the unborn child. • May cause damage to organs through prolonged or repeated exposure. • Very toxic to aquatic life with long lasting effects.	• If breathed in, move person into fresh air. In not breathing, give artificial respiration. Consult a physician. • In case of skin contact, wash off with soap and plenty of water. • In case of eye contact, flush eyes with water as a precaution. • If swallowed, rinse mouth with water.

Section 3: Composition/Information on Ingredients

Substance	Formula	Mol. Weight	CAS Number	Weight %
Potassium Hydroxide	KOH	56.11 g/mol	1310-58-3	~10-20% (of total electrolyte weight)
Lead	Pb	207.2 g/mol	7439-92-1	~10-45% (of total sensor weight)

Section 4: First-Aid measures

4.1 Description of first aid measures

General Description
The oxygen sensors contain a strong basic solution encapsulated in a plastic housing. Under normal operating conditions the solution is never exposed. In case of a leak please observe the following instructions:

General Advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture
Lead oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for the firefighting if necessary.

5.4 Further information
Gives off hydrogen by reaction with metals.

Section 6: Accidental Release Measures

Note
The oxygen sensors contain a strong basic solution encapsulated in a plastic housing. Under normal operating conditions the solution (electrolyte) is never exposed. In case of a leak please observe the following instructions:

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage. Neutralize spill with soda ash or lime. Carefully place material into clean dry container and cover. Flush spill area with water. Avoid creating dust.

6.4 Reference to other sections
For disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling
Avoid rough handling.
Avoid exposing sensor(s) to rapid changes in pressure.
Avoid puncturing or damaging sensor membrane(s).
In case of sensor leakage see section 6.

7.2 Conditions for safe storage, including any incompatibilities
Store sensors in a cool, dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1 no other specifics uses are stipulated.

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Potassium hydroxide	1310-58-3	C	2 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye, skin, & Upper Respiratory Tract irritation		
		See 1910.1025		

		C	2 mg/m^3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
		C	2 mg/m^3	USA. NIOSH Recommended Exposure Limits

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	See 1910.1025		
Lead	7439-92-1	WTA	0.05 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		WTA	0.05 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Hematologic effects Peripheral Nervous System Impairment Substance for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans varies		
		TWA	0.05 mg/m^3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Lead	7439-92-1	Lead	0.3 µg/mL	In blood	ACGIH – Biological Exposure Indices (BEI)
		Remarks	Not critical		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields or googles conforming to appropriate government standards such as ANSI (US) or EN 166(EU)

Skin protection
Handle with nitrile loves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory and body protection
Wear respiratory protection and full protective clothing tested and approved under appropriate government standards such as ANSI (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties of <u>sensor solution (electrolyte)</u>

a)	Appearance	Form: liquid Color: clear/translucent
b)	Odor	none
c)	Odor Threshold	no data available
d)	pH	>13
e)	Melting point/freezing point	no data available
f)	Initial Boiling point and boiling range	no data available
g)	Flash point	> 100°C
h)	Evaporation rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapor pressure	no data available
l)	Vapor density	no data available
m)	Relative density	no data available
n)	Water Solubility	100% (Water based solution)
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

Section 10: Stability and Reactivity

Note
The oxygen sensors contain a strong basic solution (electrolyte) encapsulated in a plastic housing. Under normal operating conditions the solution is never exposed. In case of a leak please observe the following information:

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage and usage conditions. Heat of solution is high, addition of water to leaked solution may cause heating.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flame and sparks.

10.5 Incompatible materials

Strong acids, Nitro compounds, organic materials, magnesium, copper. 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.

10.6 Hazardous decomposition products

Other decomposition products – no data available
In the event of fire: see section 5

Section 11: Toxicological Information

11.1 Information on toxicological effects (Potassium Hydroxide)

Acute toxicity
LD50 Oral – rat – 333 mg/kg

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation
Skin – rabbit
Results: Severe skin irritation – 24 h

Serious eye damage/eye irritation
Eyes – rabbit
Results: Corrosive to eyes
(OECD Test Guideline 405)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human 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.

Reproductive toxicity
No data available

Specific target organ toxicity – single exposure
No data available

Specific target organ toxicity – repeated exposure
No data available

Additional Information

RTECS: TT2100000

11.2 Information on toxicological effects (Lead)

Acute toxicity
Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Rat
Cytogenetic analysis

Carcinogenicity
Limited evidence of carcinogenicity in animal studies

IARC:	2B – Group 2B: Possibly carcinogenic to humans (Lead)
NTP:	Reasonably anticipated to be a human carcinogen (Lead)
	Reasonably anticipated to be a human carcinogen. The reference note have been added by TD based on the background information of NTP. (Lead)
OSHA:	1910.1025 (Lead)

Reproductive toxicity
Suspected human reproductive toxicant

Reproductive toxicity – rat – Inhalation
Effects on Newborn: Biochemical metabolic.

Reproductive toxicity – rat – Oral
Effects on Newborn: Behavioral.

Reproductive toxicity – mouse – Oral
Effect on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Development Toxicity – rat – Inhalation
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Developmental Toxicity – rat – Oral
Specific Developmental Abnormalities: Blood and lymphatic system (including sleep and marrow). Effects on Newborn: Growth statistics (e.g., reduced weight gain)

Developmental Toxicity – rat – Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity – mouse – Oral
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.

Specific target organ toxicity – single exposure
No data available

Specific target organ toxicity – repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: OF7525000

Anemia
Stomach – Irregularities – Based on Human Evidence

Section 12: Ecological Information

12.1 Toxicity

Potassium Hydroxide Solution
No data available

Lead

Toxic to fish	mortality LOEC – Oncorhynchus mykiss (rainbow trout) – 1.19 mg/L – 96 h LC50 – Micropterus dolomieui – 2.2 mg/L – 96 h Mortality NOEC – Salvelinus fontinalis – 1.7 mg/L – 10 d
Toxicity to daphnia and other aquatic invertebrates	mortality LOEC – Daphnia – 0.17 mg/L – 24 h mortality NOEC – Daphnia – 0.099 mg/L – 24 h
Toxic to algea	mortality EC50 – Skeletonema costatum – 7.94 mg/L – 10 d

12.2 Persistence and degradability

Potassium Hydroxide Solution
No data available

Lead
No data available

12.3 Bioaccumulative potential

Potassium Hydroxide
No data available

Lead

Bioaccumulation	Oncorhynchus kisutch – 2 Weeks – 150 µg/L
	Bioconcentration factor (BCF): 12

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

Section 13: Disposal Considerations

Product
Offer used or surplus oxygen sensors to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Section 14: Transport Information

IATA: Regulated. Refer to IATA dangerous goods in **De Minimis Quantities**, Sec 2.6.10. Sensors contain ≤1 mL of electrolyte. Maximum of 100 sensors (100 mL) are allowed per outer packaging. Packaging must follow provisions 2.6.5 and 2.6.6 of the IATA handbook. Gross mass of completed package must not exceed 29 kg (64 lb).

U.S. Department of Transportation (DOT)
Proper Shipping Name: Potassium hydroxide solution
Hazard Class: 8
UN Number: UN1814
Packaging Group: II
Labels Required: No labels required if shipped as **De Minimis Quantities**

International Maritime Organization (IMDG)
Proper Shipping Name: Potassium hydroxide solution
Hazard Class: 8
UN Number: UN1814
Packaging Group: II
Labels Required: Marine Pollutant

IATA
Proper Shipping Name: Potassium hydroxide solution
Hazard Class: 8
UN Number: UN1814
Packaging Group: II
Labels Required: No labels required if shipped as **De Minimis Quantities**

Section 15: Regulatory Information

SARA 302 Components
SARA 302: 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:

	CAS-No.	Revision Date
Lead	7439-92-1	1994-04-01

SARA 311/312 Components
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components

	CAS-No.	Revision Date
Potassium Hydroxide	1310-58-3	2007-03-01
Lead	7439-92-1	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium Hydroxide	1310-58-3	2007-03-01
Lead	7439-92-1	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium Hydroxide	1310-58-3	2007-03-01
Lead	7439-92-1	1994-04-01

California Prop. 65 Components
WARNING! This product contains a chemical know to the State of California to cause cancer.

	CAS-No.	Revision Date
Lead	7439-92-1	1989-07-10

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

	CAS-No.	Revision Date
Lead	7439-92-1	1989-07-10

Section 16: Other Information

HMIS Rating

Health Hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard:	0

NFPA Rating

Health Hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

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