10 Safety Data Sheet

I. Product Identification

Product Name:	Oxygen Sensor (Series AII, GPR, PSR, Private Label derivations)
Standard:	Hazard Communication Standard: 29 CFR 1910.1200 (g) Revised 2012
Manufacturer:	Analytical Industries Inc. 2855 Metropolitan Place, Pomona, CA 92767 USA
Contact Information:	Tel: 909-392-6900, Fax: 909-392-3665, email: info@aii1.com
Date Prepared:	January 1, 1995
Date Revised:	January 1, 2013; June 8, 2015

II. Hazardous Ingredients / Composition

Material	C.A.S. #	Quantity	OSHA PEL	ACGIH
Lead (Pb)	7439-92-1	5-25 gms	0.05 mg/m^3	0.15 mg/m^3
Potassium Hydroxide (KOH)	1310-58-3	1-10 ml	2 mg/m^3	2 mg/m^3

III. Health Hazard Data

	Lead (Pb) - Anode	Potassium Hydroxide (KOH) - Electrolyte
Routes of Entry: Inhalation:	Very unlikely.	Very unlikely.
Ingestion:	May be harmful or fatal if swallowed.	May be harmful or fatal if swallowed.
Skin:	NA	Contact may cause irritation or chemical burns.
Eyes:	NA	Contact may cause irritation or chemical burns.
Acute Effects:	NA	Corrosive, harmful if swallowed, inhaled or absorbed through the skin. Very destructive to tissue of the mucous membranes, stomach, mouth, upper respiratory tract, eyes and skin.
Chronic Effects:	Very unlikely due to product content. May cause disease of blood and blood organs, kidneys, liver, a decrease in fertility, damage to the reproductive system and damage to the fetus of a pregnant woman.	Prolonged exposure is destructive to tissue.
Symptoms of Exposure:	Loss of sleep and appetite, metallic taste and fatigue. For detail information refer to 29 CFR 1910.1025, Appendix A	Slippery to touch, burning sensation to skin and eyes.
Carcinogenicity:	IARC class 2B (lead is possibly carcinogenic to human beings)	NA
OSHA:	If airborne exposure exceed action level refer to OSHA Lead Standard 1910.1025	NA
NTP:	NA	NA
Medical Conditions Generally Aggravated by Exposure:	Disease of the blood and blood forming organs, hypertension, kidneys, nervous and possibly reproductive systems.	Preexisting skin or eye disorders may be more susceptible to the effects of the electrolyte.

IV. Emergency First Aid Procedures

Lead (Pb) - Anode	NA
Potassium Hydroxide (KOH) - Electrolyte	Following any event: Obtain medical attention immediately.
	Skin or eye contact: Immediately flush with generous amounts of water. Continue flushing with water for 15 minutes. Remove all contaminated clothing.
	Ingestion: Drink generous amounts of water. DO NOT INDUCE VOMITING.
	Inhalation: Relocate to source of clean ambient air.

V. Fire and Explosion Hazard Data

Material	Flash Point	Flammable Limits	LEL	UEL
Lead (Pb)	NA	NA	NA	NA
Potassium Hydroxide (KOH)	NA	NA	NA	NA

Unusual Fire / Explosion Hazards: NA

Extinguishing Media: No specific agents recommended, use media appropriate to fire conditions.

Special Equipment: NIOSH / OSHA approved self-contained breathing apparatus, protective clothing to prevent contact with skin and eyes.

VI. Cleanup Procedures

Saturate a paper towel with tap water and wipe down the area.
Repeat several times with a new paper towel.
Used or contaminated paper towels are considered hazardous waste, refer to section XIII. Disposal Considerations.

VII. Precautions for Safe Handling and Use

Attention: Under normal circumstances the lead anode and potassium hydroxide electrolyte are sealed inside the oxygen sensor which is then\ sealed in a polyethylene bag and placed in a cardboard box for shipment) and do not present a health hazard. The following guidelines are provided in the event an oxygen sensor leaks electrolyte.

Protective Measures: Before installing (initially or replacement) a new oxygen sensor, open the cardboard box and check for electrolyte leakage inside the polyethylene bag. Some bags are clear and easily inspected,

Other bags are not clear and like sensor housings inside analyzers must be opened to be inspected. A clear liquid inside the clear polyethylene bag indicates an electrolyte leak, do not open the bag.

Anytime the oxygen sensor is not readily visible always open slowly and visually inspect for evidence of a clear liquid indicating an electrolyte leak.

Refer to section VIII. Personal Protection recommendations for hand, skin and eye protection when handling oxygen sensors that have leaked electrolyte.

VIII. Personal Protection Exposure Controls

Eye Protection:	Chemical splash goggles.
Hand Protection:	Rubber or latex gloves.
Other Protective Clothing:	Apron, face shield.
Ventilation:	NA

IX. Physical / Chemical Characteristics

Material / Component:	Lead (Pb) - Anode	Potassium Hydroxide (KOH) - Electrolyte
Boiling Point (°C):	1744	1320
Specific Gravity:	11.34	2.04
Vapor Pressure:	NA	NA
Melting Point (°C):	328	360
Density:	NA	NA
Evaporation Rate:	NA	NA
Solubility in Water:	Insoluble	Complete
Odor / Physical Appearance:	Odorless, solid, silver gray	Odorless, crystals, white or slightly yellow (When combined with H2O - odorless, clear liquid)

X. Stability and Reactivity

Material / Component:	Lead (Pb) - Anode	Potassium Hydroxide (KOH) - Electrolyte
Stability:	Stable	Stable
Incompatibilities:	NA	Aluminum, organic materials, acid chlorides, acid anhydrides, magnesium, copper. Avoid contact with acids and hydrogen peroxide >52%.
Hazardous Decomposition:	NA	Toxic fumes.
Hazardous Polymerization:	NA	Will not occur.

XI. Toxicological Information

Toxicity to Animals:	Calculated value for KOH electrolyte solution - acute oral toxicity (LD50): 2730 mg/kg (Rat)
Mutagenicity:	Lead tested positive as a mutagen in the Ames test.

XII. Ecological Information

Ecotoxicity:	The LC50 of lead for the daphnia magna is 3.6 mg/l, and 5.1 mg/l for the daphnia pulex.
Environmental Fate:	Lead is bioaccumulative in most aquatic life and mammals. It is highly mobile as dust or fumes (30 mesh is the smallest particle size found inside the oxygen sensor), yet forms complexes with organic material which limits its mobility.

XIII. Disposal Considerations

Waste must be disposed of in accordance with Federal, State and Local environmental control regulations. If discarded in its purchased form, this product is hazardous by its characteristics of toxicity and corrosivity under RCRA.

EPA Waste Number: D008, D002

DOT Information: Corrosive liquid, basic, inorganic, n.o.s. (potassium hydroxide, lead), 8, UN 3266, II.
Follow all Federal, State and Local regulations.

XIV. Transport Information

DOT: Regulated. Meets criteria for Small Quantity Exceptions of 49 CFR 173.4

IATA: Regulated. Meets criteria for IATA Dangerous Goods in Excepted Quantities, Section 2.7

XV. Regulatory Information

U.S. Federal Regulations

1) OSHA: Hazardous by definition of Haz Com Std. 29 CFR 1910.1200

2) SARA TITLE III:

Sec 302 (40 CFR Part 365): **Not Applicable** as to chemical name, CAS#, %, TPQ lbs., RQ

Sec 311 & 312: **YES** as to Acute and Chronic Health Hazard;
NO as to Fire and Sudden Release of Pressure Hazard, Reactive

Sec 313 (40 CFR Part 372): This product contains the following toxic chemicals subject to the reporting requirements of Section 313, of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372

Chemical Name	CAS #	Lead Content
Lead	7439-92-1	5-25 gms

3) TSCA (Toxic Substances Control Act): Components of this product are listed on the TSCA inventory.

4) CERCLA Section 102(A) (40 CFR Part 302) - Hazardous Substances and Reportable Quantities

Chemical Name	CAS #	RQ
Lead	7439-92-1	10 lbs.
Potassium Hydroxide (solid)	1310-58-3	1,000 lbs.

5) State Regulations:

California Proposition 65: WARNING: This product contains lead, a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Massachusetts: Potassium Hydroxide is a listed chemical.

Pennsylvania: Potassium Hydroxide is a listed chemical.

International Regulations

Canada:	Canadian Environmental Protection Act (CEPA)	Potassium Hydroxide, liquid, is on the Domestic Substances List (DSL) and is acceptable for use under the provisions of CEPA.	
	WHMIS:	Chemical Name	Class
		Potassium Hydroxide	D-2A: Material causing other VERY TOXIC effects. E: Corrosive liquid
		Lead	D-2A: Material causing other VERY TOXIC effects.
European Community:	Potassium Hydroxide (liquid)	R35 - Causes severe burns. R42 - May cause sensitization by inhalation. R36/37/38 - Irritating to eyes, respiratory system and skin.	

XVI. Other Information

All chemicals may pose unknown hazards and should be used with caution. While the information contained in this Material Safety Data Sheet is believed to be correct and is offered for your information, consideration and investigation, Analytical Industries Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.