

Material Safety Data Sheet

Vandagraph Oxygen Sensors

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Oxygen Sensor/s:

Part number/s: 0110232 Oxygen sensor R-22VAN

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture

Oxygen measurement

1.3 Details of the supplier of the safety data sheet

Address

Vandagraph Ltd.

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification information

This product is in the sense of article 3 of the Regulation (EC) 1907/2006 (REACH) an article and not subject to the labelling obligations according to:

- Art. 1, Regulation (EC) 1272/2008 (CLP).

To provide a safety data sheet is not mandatory for articles and is done on a voluntary basis.

2.2 Label elements

Not relevant

2.3 Other hazards

Contains sensor encapsulated by a housing, lead (Pb), lead oxide (PbO) and concentrated potassium hydroxide solution (between 2 and 5 mol / L). Lead and lead oxide are toxic and dangerous for the environment. Concentrated potassium hydroxide is corrosive (see section 3.2).

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SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable. The product is not a substance.

3.2 Mixtures

Hazardous ingredients

No.	Substance name			Additional information	
	CAS / EC / Index/REACH No.	Classification 67/548/EEC	Classification (EC) 1272/2008 (CLP)	Concentration	%
	Lead				
	439-92-1	pr.Cat.1; R60	pr. 1A; H360FD	> 30.0 - < 50.00	% b.w.
	31-100-4	pr.Cat.1; R61	TOT RE 1; H372		
		n; R48/20/22	quatic Acute 1; H400		
		; R50/53	quatic Chronic 1; H410		
	Potassium Hydroxide				
	310-58-3	n; R22	cute Tox. 4*; H302	> 0.50 - < 2.00	% b.w.
	15-181-3	R35	kin Corr. 1A; H314		
	19-002-00-8				
	Full Text for all R-phrases, H-phrases and EUH-phrases: pls. see section 16				
	*, **, ***, *****) Detailed explanation pls. refer to CLP regulation No. 1272/2008, annex VI, 1.2				
	Note	Specific concentration limits		M-factor (acute)	M-factor (chronic)
	-	kin Irrit. 2; H315: C >= 0.5%		-	-
		ve Irrit. 2; H319: C >= 0.5%			
		kin Corr. 1B; H314: C >= 2%			
		kin Corr. 1A; H314: C >= 5%			

3.3 Other information

Listed in Section 3.2 the % by weight is based on the total mass of the sensor.

Quantity / Sensor:

Lead (CAS No. 7439-92-1.) 10-25 g

KOH (CAS No. 1310-58-3.) 1-2 mL (2 mol / L - 5 mol / l of KOH)

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

In all cases of doubt, or when symptoms persist, seek medical attention.

After inhalation

Remove to fresh air, keep patient warm and at rest.

After skin contact

Rinse with plenty of water. Get medical attention if pain still persists.

After eye contact

Separate eyelids, wash the eyes thoroughly with water (15 min.). Seek medical assistance.

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Effects

The following applies to lead compounds in general: Due to the poor absorbability via the gastrointestinal tract, only very high doses lead to acute cases of intoxication. After a latency period of several hours, metallic taste, nausea, vomiting and colic occur, in many instances followed by shock. Chronic uptake causes peripheral muscular weakness ("drop-wrist"), anaemia and central-nervous disorders. Women of child-bearing age should not be exposed to the substance over long period of time.

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

Extinguishing measures to suit surroundings.

Unsuitable extinguishing media

No data available.

5.2 Special hazards arising from the substance or mixture

In case of fires, hazardous combustion gases are formed: Lead fumes; Lead oxide

5.3 Advice for fire fighters

Appropriate breathing apparatus may be required. Wear protective clothing.

DO NOT ALLOW RUN-OFF FROM FIRE FIGHTING TO ENTER DRAINS OR WATER COURSES

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

For emergency responders

No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Collect mechanically (preferably in dry condition). Send in suitable containers for recovery or disposal. When picked up, treat material as prescribed under heading "Disposal considerations".

6.4 Reference to other sections

No data available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Not mechanically damage the case. Do not use damaged products. Do not misused. See Technical Data Sheet. Do not use liquid disinfectant solution. Remove dirt with a damp disposable cloth.

General protective and hygiene measures

Keep separated from food-stuffs and feed-stocks. Do not eat or drink during work - no smoking. Wash hands before breaks and after work. Avoid contact with eyes and skin. Do not inhale dust/fumes/aerosols.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Store in a dry place. Store at aired place. Keep under lock and key or accessible only to specialists or people who are authorized.

Recommended storage temperature

Value: -20 °C to 50 °C

Requirements for storage rooms and vessels

Keep the product in the original packing.

7.3 Specific end use(s)

No data available



SECTION 8: Exposure controls/personal protection

8.1 Control parameters

No parameters available for monitoring.

8.2 Exposure controls

Appropriate engineering controls

No data available.

Personal protective equipment

Respiratory protection

No data available.

Eye / face protection

No data available.

Hand protection

No data available.

Other

Protective clothing must be selected according to the type of work and the respective conditions of risk.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form colour
moulded element

Odour
No data available

Odour threshold
No data available

pH value
Value: ≥ 14
Reference substance: potassium-hydroxide

Boiling point / boiling range
No data available

Decomposition point / decomposition range
No data available

Flash point
Not applicable

Flash point
Not applicable



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Flash point

Not applicable

Auto-ignition temperature

Not applicable

Oxidising properties

No data available

Explosive properties

No data available

Flammability (solid, gas)

No data available

Lower flammability or explosive limits

No data available

Upper flammability or explosive limits

No data available

Vapour pressure

No data available

Vapour density

No data available

Evaporation rate

No data available

Relative density

No data available

Density

No data available

Solubility in water

No data available

Solubility(ies)

No data available

Partition coefficient: n-octanol/water

No data available

Viscosity

No data available

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SECTION 10: Stability and reactivity**Reactivity**

Dangerous reactions are not expected when handling the product according to its intended use.

10.2 Chemical stability

stable if stored and handled properly.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

None, if handled according to order.

10.5 Incompatible materials

No data available.

10.6 Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed.

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute oral toxicity**

No data available

Acute dermal toxicity

No data available

Acute inhalation toxicity

No data available

Skin corrosion/irritation

No data available

Serious eye damage/irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Reproduction toxicity

No data available

Carcinogenicity

No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Other information

No health-damaging effects to be expected if used properly

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)

No data available

Toxicity to fish (chronic)

No data available

Toxicity to Daphnia (acute)

No data available

Toxicity to Daphnia (chronic)

No data available

Toxicity to algae (acute)

No data available

Toxicity to algae (chronic)

No data available

Bacteria toxicity

No data available

12.2 Persistence and degradability

No data available.

12.3 Bio-accumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

No data available.



12.6 Other adverse effects

No data available.

12.7 Other information

Other information
Ecological data is not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company. Dispose of in accordance with local regulations.

Alternatively depleted oxygen sensors may be returned to Vandagraph Sensor Technologies for safe disposal, in accordance with Hazardous Waste Regulations 2005 through a fully licensed waste management company. For further details see separate Environmental and Recycling Information, which is available upon request.

Packaging

Dispose of in accordance with federal, state and local regulations.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN

The product is not subject to ADR/RID/ADN regulations.

14.2 Transport IMDG

The product is not subject to IMDG regulations.

14.3 Transport ICAO-TI / IATA

The product is not subject to ICAO-TI / IATA regulations.

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

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

Not relevant

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU regulations.

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances considered as substances requiring authorisation as listed on Annex XIV of the REACH regulation (EC) 1907/2006.

REACH candidate list of substances of very high concern (SVHC) for authorisation

According to available data and the information provided by preliminary suppliers, the article does not contain substances that are considered substances meeting the criteria for inclusion in annex XIV (List of Substances Subject to Authorisation) as laid down in Article 57 and article 59 of REACH (EC) 1907/2006.

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS

ON THE MANUFACTURE, PLACING ON

THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, PREPARATIONS AND ARTICLES

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances requiring authorisation as listed on Annex XIV of the REACH regulation (EC) 1907/2006.

Restriction of occupation

Adhere to the national sanitary and occupational safety regulations when using this product.

Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances

Remarks: Annex I, part 1 + 2: not mentioned. With regard to possibly appropriate decomposition products see Chapter 10.

15.2 Chemical safety assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Sources of key data used to compile the data sheet:

EC Directive 67/548/EC resp. 1999/45/EC as amended in each case.

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case. EC Directives 2000/39/EC, 2006/15/EC, 2009/161/EU

National Threshold Limit Values of the corresponding countries as amended in each case. Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

Full text of the R-, H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections).

R22	Harmful if swallowed.
R35	Causes severe burn.
R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60	May impair fertility.
R61	May cause harm to the unborn child.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Data is based on our present knowledge. However, it shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.