

## Product Safety Information Sheet

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### 1. Identification of the substance/preparation and of the company/undertaking

**1.1 Identification of the substance or preparation:**

Trade name: **DrägerSensors™ (classified as hazardous material according to UN 1814)**  
 Part nos. : miscellaneous, see section 1.5

**1.2 Use of the substance/preparation:**

Detection of gases, measuring of gas concentrations.

**1.3 Company/undertaking name:**

Dräger Safety AG & Co. KGaA  
 Revalstr. 1  
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**1.4 Emergency telephone:** +49 451/882-2395

**1.5 Relevant products:**

Part-No.	Tradename	Part-No.	Tradename
6450525	O <sub>2</sub> -Sensor Element (BES)	6809720	DrägerSensor™ O <sub>2</sub>
6805915	O <sub>2</sub> -Sensor capsule	6850645	O <sub>2</sub> -Sensor (capsule)

### 2. Hazards identification

**2.1 Classification:**

Nature of hazard: n/a

**2.2 Particular hazards for man and environment:**

Improper handling, leaks, destruction of and/or damage to the electrochemical DrägerSensors™ may release caustic potassium hydroxide solution.

### 3. Composition/Information on ingredients

**3.1 Chemical characterisation (constituent):**

n/a

**3.2 Chemical characterisation (preparation):**

The Dräger Oxygen Sensors normally contain very small amounts (<2 ml) of a solution of potassium hydroxide as an electrolyte, partially fixed in a matrix of lead. The sensor housings are made from polyamide.

EINECS / ELINCS-No.	CAS-No.	Designation acc. to EC Regulation	Content	Unit	GHS-Pictogram	R-Phrases
215-181-3	1310-58-3	Potassium hydroxide	n. a.	---	GHS05	H302, H314
231-100-4	7439-92-1	Lead	n. a.	---	GHS06	H360D, H361f, H332, H302, H331, H373

**3.3 Other information:**

The electrochemical DrägerSensors™ with potassium hydroxide solutions are products which are not subject to identification. The requirements of EC regulations 1907/2006 (Reach) and 1272/2008 (GHS/CLP) do not apply to such products. Hence the following information is purely voluntary.

## 4. First-aid measures

- 4.1 After inhalation:**  
n/a
- 4.2 After contact with skin:**  
Wash with plenty of water. Then dab with polyethylene glycol 400.
- 4.3 After contact with the eyes:**  
Flush open eye with plenty of water (for at least 15 minutes). Consult ophthalmologist immediately. Danger of corneal clouding.
- 4.4 After ingestion:**  
Make victim drink plenty of water (if necessary several litres). Avoid vomiting (danger of perforation). Immediately consult doctor. Do not attempt to neutralize.
- 4.5 Information for the doctor:**  
n/a

## 5. Fire-fighting measures

- 5.1 Suitable extinguishing media:**  
Electrochemical DrägerSensors™ do not normally burn. Use extinguishing media appropriate to the environment, preferably water, foam or CO<sub>2</sub>.
- 5.2 Extinguishing media which must not be used for safety reasons:**  
n/a
- 5.3 Special exposure hazards arising from substances or preparation itself, combustion products, resulting gases:**  
Thermal decomposition or combustion of the plastic components and ingredients of the electrochemical DrägerSensors™ may release small amounts of harmful or toxic gases (CO<sub>2</sub>, CO etc.).
- 5.4 Special protective equipment for fire-fighters:**  
For fire fighting respiratory protection with a compressed air breathing apparatus is recommended.

## 6. Accidental release measures

- 6.1 Personal precautions:**  
Take care to avoid eye and skin contact with released/leaked electrolyte; use safety goggles. Use protective gloves resistant to acids (gloves made of nitrile rubber are recommended). Avoid skin contact with electrode material containing lead.
- 6.2 Environmental precautions:**  
Do not discharge electrolyte into the sewer system.
- 6.3 Methods for cleaning up:**  
Bind released/leaked electrolyte with suitable absorbent (silica gel) and dispose of correctly. Wash away residues with large amounts of water.
- 6.4 Additional information:**  
n/a

## 7. Handling and storage

- 7.1 Handling:**  
Precautions for safety handling: Closely follow the instructions in the relevant sensor data sheets/instructions for use when handling electrochemical DrägerSensors™. This also applies for all calibration activities and

Information for protection against fire and explosion: when handling calibration gases. Calibration activities should always be carried out in areas which are well-ventilated or provided with an exhausting device. Observe hazard information. Electrochemical DrägerSensors™ are not combustible

## 7.2 Storage:

Requirements for storage and containers: Electrochemical DrägerSensors™ must be stored under the conditions stated in the sensor data sheets (Oxygen Sensors: -20°C - +40 °C) and in their original packaging. Observe the use-by date indicated on the packaging.

Information on storage together with other materials: Observe VCI concept for storing chemicals

Further information on storage conditions: n/a

Storage class: 10-13 (recommendation)

## 7.3 Certain application:

n/a

## 8. Exposure controls/Personal protection

### 8.1 Exposure limit values:

With normal handling of the DrägerSensors™ there should be no exposure to contents. However, if exposure does occur, keep exposure as low as possible and follow the national exposure limits for the relevant chemicals.

EC, Land	CAS-No.	Description of material	Type	Content	Unit
D	(1310-58-3)	(Potassium hydroxide) Sodium hydroxide	TLV/ TWA	C 2	mg/m <sup>3</sup>
D	7439-92-1	Lead	MAC*	0,1	mg/m <sup>3</sup>
			*German TLV		

### 8.2 Exposure controls:

Additional information on plant design: Handling according to the Instructions for Use.

#### 8.2.1 Occupational exposure controls:

General protection and hygiene measures:

With normal handling of the DrägerSensors™ there should be no exposure to contents. However, if exposure does occur, keep exposure as low as possible and follow the national exposure limits for the relevant chemicals.

#### Personal protection:

##### 8.2.1.1 Respiratory protection:

Not necessary when handled according to the Instruction for Use.

##### 8.2.1.2 Hand protection:

With normal handling of the DrägerSensors™ there should be no exposure to contents. In case of accidents use suitable protective gloves made from PE/ PP, Latex, butyl or nitrile rubber. Please observe the glove manufacturers instructions on permeability and rupture times as well as the specific workplace conditions. Prophylactic skin protection is recommended. Wash hands before breaks and after work.

##### 8.2.1.3 Eye protection:

Not necessary when electrochemical DrägerSensors™ are handled correctly. Use safety goggles if electrolyte is released from the DrägerSensors™.

##### 8.2.1.4 Skin protection:

Prophylactic skin protection is recommended. Wash thoroughly after handling. Skin care.

#### 8.2.2 Environmental exposure controls:

n/a

## 9. Physical and chemical properties

### 9.1 General information:

Form: DrägerSensors™ containing colourless liquids.  
Colour: colourless  
Odour: odourless

### 9.2 Important information about the protection of health, safety and the environment:

#### Method (67/548/EEC):

Solubility: n/a  
pH-value: 13-14 (electrolyte potassium hydroxide)  
Boiling point: n/a  
Melting point: n/a  
Flame point: n/a  
Inflameability: n/a  
Explosion limits:  
    lower: n/a  
    upper: n/a  
Ignition temperature: n/a  
Vapour pressure: n/a  
Mass density: n/a  
Further information: see relevant sensor data sheet and section 2/3

### 9.3 Other information

cf. relevant sensor data sheet and section 2/3

## 10. Stability and reactivity

### General information:

n/a

### 10.1 Conditions to be avoided:

n/a

### 10.2 Materials to be avoided:

n/a

### 10.3 Hazardous decomposition products:

Possibility of a dangerous exothermic reaction:

Avoid contact with acids/water. Sensor contents/electrolyte may react with acids and water in an exothermic reaction.

Dangerous products of decomposition at contact with water:

Corrosive solutions of potassium hydroxides.

### 10.4 Further information:

n/a

## 11. Toxicological information

### 11.1 Toxicity tests:

Classification-relevant LD/LC<sub>50</sub>-values: n/a

#### 11.1.1 Specific symptoms in animal studies:

n/a

#### 11.1.2 Irritant/corrosive effects:

n/a

#### 11.1.3 Sensitization:

n/a

#### 11.1.4 Subacute and chronic toxicity:

Experiments: n/a

Species: n/a

**11.1.5 Carcinogenic, mutagenic and reproductive toxic effects:**  
n/a

**11.1.6 Further information:**  
n/a

**11.2 Effects on human body/Experiments made in practice:**  
n/a

**after inhalation:**

n/a

**after ingestion:**

n/a

**after eye contact:**

n/a

**after skin contact:**

n/a

**11.3 Additional toxicological information:**  
n/a

**Further information:**  
n/a

## 12. Ecological information

**12.1 Ecotoxicity:**  
n/a

**12.2 Mobility:**  
n/a

**12.3 Persistence and degradability:**  
Biological decompositionability: n/a  
Behaviour in purification plants: n/a

**12.4 Bioaccumulative potential:**  
n/a

**12.5 Other adverse effects:**  
n/a

**12.6 Additional information:**  
Electrochemical DrägerSensors™ contain electrolytes which are classified in WGK 1 (German water hazard class)

## 13. Disposal considerations

**13.1 Product (recommendations):**  
Utilized and exhausted electrochemical DrägerSensors™ must not be disposed of as household waste. They must be disposed of in accordance with local waste disposal regulations or by hiring an appropriate disposal company. Disposal is regulated by federal and state waste disposal laws and the corresponding regulations or other national regulations. Dräger Safety AG & Co. KGaA takes back expired and exhausted electrochemical DrägerSensors™ and ensures correct recycling or disposal after separating off usable materials (a charge is made to cover costs).  
Waste category: EWL (European waste list): 160215\*  
Waste designation: Hazardous components removed from discarded equipment  
Obligation to prove correct disposal: yes

**13.2 Not cleaned packaging material (recommendations):**  
The disposal of plastic containers and flexible packages is possible by EWL 150102, and fibre board boxes by EWL 150101.

## 14. Transport information

#### 14.1 Road transport ADR/RID and GGVSE (cross-border/domestic):

UN-No.: 1814 Class: 8 Packing group: II  
Name: POTASSIUM HYDROXIDE SOLUTION Classification code: C5

Remarks: Dräger recommends that the option of transport in "Excepted Quantities" should be used.

#### 14.2 Marine transport IMDG-Code/GGVSee:

UN-No. 1814 Correct technical name: POTASSIUM HYDROXIDE SOLUTION  
Class: 8 Sub risk: n/a Packing group: II  
EmS-No.: F-A, S-B MFAG: n/a  
Marine pollutant: n/a  
Remarks: n/a

#### 14.3 Air transport ICAO-TI and IATA-DGR:

UN-No. 1814 Proper shipping Name: POTASSIUM HYDROXIDE SOLUTION  
Class 8 Sub risk: n/a PG: II  
Remarks: Dräger recommends that the option of air shipment in "Excepted Quantities" should be used.

#### 14.4 Transport/further information:

n/a

### 15. Regulatory information

#### 15.1 Labelling according to EC Regulations:

Hazardous symbols and indicators of danger for dangerous substances and preparations: No labelling necessary  
Hazardous components to be indicated on label: contains: n/a

H-Phrases:

n/a

P-Phrases (recommendation):

P102 Keep out of reach of children.

P302+P352 IF ON SKIN: Wash with plenty of water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

#### 15.2 National regulations:

Additional classification acc. to GefStoffV Annex II No. (only if differing from EC classification): n/a

Restrictions of occupation: n/a

Statutory order on hazardous incidents: n/a

Water pollution class: nwg

Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline):

Further regulations, restrictions, and prohibition regulation:

(such as principles of industrial medicine and health and safety regulations)

Instruction Sheet BG-Chemie (Chemical Professional Association):

M 004 Corrosive and irritant substances (ZH 1/229).

Other state regulations may apply. Check individual state requirements.

### 16. Other information

#### Use of the substance / preparation:

See section 1.2; additional information in the Instruction for use.

#### Relevant H-Phrases:

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H331 Toxic if inhaled.

H332 Harmful if inhaled.

H360D May damage the unborn child.

H361f Suspected of damaging fertility.

H373 May cause damage to organs through prolonged or repeated exposure.

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**Comments:**

n. a., n/a, ./.:	not applicable
MAC:	Maximum allowable concentration
COD:	Chemical oxygen demand
BOD:	Biochemical oxygen demand
EWL:	European waste list
VOC:	Volatile organic compounds
VCI:	Verband der Chemischen Industrie e.V. (Association of the German chemical industry)
WGK:	German water hazard class

## Further information:

The above information represents our current state of experience and describes the product only with respect to safety requirements. The manufacturer makes no representation and assumes no liability for any direct, incidental or consequential damages resulting from its use. It is the responsibility of the customer to test whether the product is suitable for the purpose intended by the customer.

Data sheet issued by: Global EHS Management  
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