

## Product Safety Information Sheet

Document: 9030375  
 Version: 25.01.2017  
 Format: DrägerSensors™ (classified as UN 2796)\_miscellaneous\_P SIS\_st\_375d\_25.01.2017.doc

Date of issue: 25.01.2017  
 Supersedes: 03.06.2016  
 Status: released

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

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

Trade name: **DrägerSensors™ (classified as UN 2796)**  
 Part nos. : miscellaneous

#### 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  
 D-23560 Lübeck  
 Telephone number +49 451/882-0  
 Fax number +49 451/882-2080  
 Contact for information: Dräger Environmental Management  
 Telephone number +49 451/882-3125  
 Fax number +49 451/882-4606

#### 1.4 Emergency telephone: +49 451/882-2395

#### 1.5 Relevant products:

Part-No.	Trade name	Part-No.	Trade name
68 01 032	MicroPac H <sub>2</sub> S	68 10 030	DrägerSensor® microPac CO
68 09 105	DrägerSensor® XS EC CO	68 10 032	DrägerSensor® XS H <sub>2</sub> S
68 09 110	DrägerSensor® XS EC H <sub>2</sub> S	68 10 034	DrägerSensor® XS O <sub>2</sub>
68 09 115	DrägerSensor® XS EC OV	68 10 200	DrägerSensor® XS CO V
68 09 120	DrägerSensor® XS CO HC	68 10 208	DrägerSensor® XS NO V
68 09 125	DrägerSensor® XS EC NO	68 10 210	DrägerSensor® XS O <sub>2</sub> V
68 09 130	DrägerSensor® XS EC O <sub>2</sub>	68 10 258	DrägerSensor® XS R CO
68 09 135	DrägerSensor® XS PH <sub>3</sub>	68 10 260	DrägerSensor® XS R H <sub>2</sub> S
68 09 150	DrägerSensor® XS EC HCN	68 10 262	DrägerSensor® XS R O <sub>2</sub> LS
68 09 155	DrägerSensor® XS EC NO <sub>2</sub>	68 10 365	DrägerSensor® XS 2 CO
68 09 160	DrägerSensor® XS EC SO <sub>2</sub>	68 10 370	DrägerSensor® XS 2 H <sub>2</sub> S
68 09 165	DrägerSensor® XS Cl <sub>2</sub>	68 10 375	DrägerSensor® XS 2 O <sub>2</sub>
68 09 170	DrägerSensor® XS H <sub>2</sub> O <sub>2</sub>	68 10 435	DrägerSensor® H <sub>2</sub> S
68 09 180	DrägerSensor® XS EC H <sub>2</sub> S HC	68 10 550	Dräger OxyTrace-Sensor (A)
68 09 185	DrägerSensor® XS H <sub>2</sub>	68 10 575	DrägerSensor® XS H <sub>2</sub> S SR
68 09 195	DrägerSensor® XS THT	68 10 740	DrägerSensor® OV1
68 09 200	DrägerSensor® XS Odorant	68 10 745	DrägerSensor® OV2
68 09 522	DrägerSensor® XS EtO	68 11 125	DrägerSensor® XS NF <sub>3</sub>
68 09 535	DrägerSensor® XS PH <sub>3</sub>	68 11 360	DrägerSensor® XS ClO <sub>2</sub>
68 09 550	DrägerSensor® XS O <sub>2</sub> 100	68 11 365	DrägerSensor® XS H <sub>2</sub> HC
68 09 605	DrägerSensor® CO	68 12 570	DrägerSensor® CO LH
68 09 610	DrägerSensor® H <sub>2</sub> S LC	68 12 730	DrägerSensor® MEC CO
68 09 615	DrägerSensor® OV	68 12 735	DrägerSensor® MEC H <sub>2</sub> S
68 09 620	DrägerSensor® CO LS	68 12 740	DrägerSensor® MEC O <sub>2</sub>
68 09 625	DrägerSensor® NO LC	68 12 755	DrägerSensor® MEC NO <sub>2</sub>
68 09 630	DrägerSensor® O <sub>2</sub> LS	68 12 760	DrägerSensor® MEC SO <sub>2</sub>
68 09 635	DrägerSensor® Hydride	68 12 770	DrägerSensor® MEC HCN

68 09 640	DrägerSensor® HCl	68 12 775	DrägerSensor® MEC H <sub>2</sub>
68 09 650	DrägerSensor® HCN	68 12 780	DrägerSensor® MEC OV
68 09 655	DrägerSensor® NO <sub>2</sub>	68 12 785	DrägerSensor® MEC NO
68 09 660	DrägerSensor® SO <sub>2</sub>	68 13 160	DrägerSensor® CO BB
68 09 675	DrägerSensor® H <sub>2</sub> O <sub>2</sub> HC	68 51 144	Dräger OxyTrace INCU (MX01050)
68 09 685	DrägerSensor® H <sub>2</sub>	68 51 153	Dräger OxyTrace-Sensor (VE) (MX01049)
68 09 695	DrägerSensor® PH <sub>3</sub> / AsH <sub>3</sub>	68 71 028	Dräger OxyTrace-Sensor (A)
68 09 705	DrägerSensor® H <sub>2</sub> O <sub>2</sub> LC	MX01049	Dräger OxyTrace-Sensor (VE)
68 09 710	DrägerSensor® H <sub>2</sub> S HC	MX01050	Dräger OxyTrace INCU

## 2. Hazards identification

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

**2.1 Classification: n.a.**

“Nature of hazard”: n/a  
 “H314”

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

Improper handling, leaks, destruction of and/or damage to the DrägerSensors™ may release small amounts of caustic sulphuric acid.

## 3. Composition/Information on ingredients

**3.1 Chemical characterisation (constituent):**

not applicable

**3.2 Chemical characterisation (preparation):**

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

Electrochemical DrägerSensors™ are articles which contain small amounts (2-8 ml) of sulphuric acid. The housings consist of polyethylene, polypropylene and polyamide.

EINECS / ELINCS-No.	CAS-No.	Designation acc. to the EC Regulation	Content	Unit	GHS-Pictogram	H-Phrases
231-639-5	7664-93-9	Sulphuric Acid	n.a.	n.a.	GHS05	H314

**3.3 Other information:**

DrägerSensors™ are articles which are not subject to labelling. The requirements of EC regulations 1907/2006 (Reach) and 1272/2008 (GHS/CLP) do not apply to such products. Hence, the information in this Product Safety Information Sheet 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:**  
Elektrochemical 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, SO<sub>3</sub> 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.
- 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 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 informations.  
Information for protection against fire and explosion: 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; PAC Sensors: -40 °C - +40 °C; XS, Polytron Sensors: 0 °C - +30 °C) and in their original packaging. Observe the use-by date indicated on the packaging.  
Information on storage together with other materials: n/a  
Further information on storage conditions: n/a  
Storage class: LGK: 8, 10-13 respectively (VCI-Concept)
- 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	7664-93-9	Sulphuric acid	former MAK*	0,1 E**	mg/m <sup>3</sup>
			*German TLV; recommendation	**measured as inhalable fraction of dust	

### 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: n/a  
 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: n/a  
 Boiling point: n/a  
 Melting point: n/a  
 Flame point: n/a  
 Inflammability: 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

n/a

## 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:**  
n/a

Possibility of a dangerous exothermic reaction:

If acid released from the DrägerSensors™ mingles with water or bases.

Dangerous products of decomposition at contact with water:

n/a

**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:**

Electrochemical DrägerSensors™ contain electrolytes which are classified in WGK 1 [German water hazard class]

**12.6 Additional information:**

n/a

## 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 GGVSEB (cross-border/domestic):**

UN-No.: 2796

Class: 8

Packing group: II

Name: Sulphuric Acid

Classification code: C1

Remarks: Electrochemical DrägerSensors™ should always be shipped in combination packaging according to E2 or LQ (1L). Then they are only subject to the provisions of Chaps. 3.4 or 3.5 of ADR/GGVSEB.

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

UN-No. 2796

Correct technical name:

Sulphuric Acid

Class: 8

Sub risk: n/a

Packing group: II

EmS-No.: n/a

MFAG: n/a

Marine pollutant: n/a

Remarks: n/a

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

UN-No. 2796

Proper shipping Name:

SULPHURIC ACID

Class: 8

Sub risk: ./.

PG: II

Remarks: Electrochemical DrägerSensors™ could be shipped in "Excepted Quantities" according to Code E2.

**14.4 Transport/further information:**

Dräger recommends that the option of air shipment in "Excepted Quantities" (E2) should be used.

## 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: 1 (self-classification)

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

BGI 595 Corrosive and irritant substances

## 16. Other information

### Use of the substance / preparation:

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

### Relevant H-Phrases:

H314 Causes severe skin burns and eye damage.

### 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: d-em

Contact: Dr. H.-Chr. Bechthold; hans-christoph.bechthold@draeger.com

Changes to preceding version: In section 1.5.