Material Safety Data Sheet

Revision 12: 12/2013
Material Name: DrägerSensors™ (classified as hazardous according to UN2796) **P/N: 4594899**

*** Section 1 - Chemical Product and Company Identification ***

Product Use: Detection of gases, measuring of gas concentrations

Manufacturer Information
Dräger Safety AG & Co. KGaA
Revalstr. 1
23560 Lübeck
Germany

Distributor Information
Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057

Phone: 412-787-8383
Fax: 412-787-2207
Emergency # 1-800-424-9300 (CHEMTREC)

Relevant Products:

Part-No.	Trade Name	Part-No.	Trade Name
45 10 092	Sensor PAC II SO2	68 01 032	MicroPac H2S
68 03 691	CO-Sensor	68 05 481	CO-Sensor head for suction of gases
68 05 900	PAC H2S	68 06 330	PAC CO
68 07 100	Sensor Comytron	68 07 600	Sensor PAC H2S 500ppm
68 07 665	NO- Sensor	68 08 325	CO-Sensor C
68 08 330	Sensor HCN	68 08 340	Sensor Hydride
68 08 770	NO2 –Sensor	68 08 775	SO2 Sensor PAC
68 08 870	DrägerSensor™ H2O2	68 08 890	Sensor O2 LS
68 08 930	OV Sensor	68 09 005	CO Sensor
68 09 010	H2S Sensor	68 09 015	EO-Sensor
68 09 020	PAC S2 CO	68 09 025	NO-Sensor
68 09 030	O2 LS Sensor	68 09 035	Hydride Sensor
68 09 050	HCN- Sensor	68 09 055	NO2 -Sensor
68 09 060	SO2-Sensor	68 09 070	DrägerSensor™ H2O2 HC
68 09 080	Sensor H2S 500	68 09 105	DrägerSensor™ XS EC CO
68 09 110	DrägerSensor™ XS EC H2S	68 09 115	DrägerSensor™ XS EC OV
68 09 120	DrägerSensor™ XS CO HC	68 09 125	DrägerSensor™ XS EC NO
68 09 130	DrägerSensor™ XS EC O2	68 09 135	Draeger XS PH3
68 09 140	DrägerSensor™ XS EC HF/ HCl	68 09 150	DrägerSensor™ XS EC HCN
68 09 155	DrägerSensor™ XS EC NO2	68 09 160	DrägerSensor™ XS EC SO2
68 09 170	DrägerSensor™ XS H2O2	68 09 180	DrägerSensor™ XS EC H2S HC
68 09 185	DrägerSensor™ XS H2	68 09 195	THT-Sensor
68 09 310	DrägerSensor™ NF3	68 09 522	Dräger XS EtO
68 09 200	DrägerSensor™ XS Odorant	68 09 535	Dräger XS PH3
68 09 550	DrägerSensor™ XS O2 100	68 09 605	DrägerSensor™ CO
68 09 610	DrägerSensor™ H2S LC	68 09 615	DrägerSensor™ OV
68 09 620	DrägerSensor™ CO LS	68 09 625	DrägerSensor™ NO LC
68 09 630	DrägerSensor™ O2 LS	68 09 635	DrägerSensor™ Hydride
68 09 640	DrägerSensor™ HCl	68 09 650	DrägerSensor™ HCN
68 09 655	DrägerSensor™ NO2	68 09 660	DrägerSensor™ SO2
68 09 675	DrägerSensor™ H2O2 HC	68 09 685	DrägerSensor™ H2
68 09 695	DrägerSensor™ PH3/ AsH3	68 09 705	DrägerSensor™ H2O2 LC
68 09 710	DrägerSensor™ H2S HC	68 09 715	DrägerSensor™ NO HC
68 10 010	NO2 –Sensor (DSI)	68 10 011	SO2 –Sensor (DSI)
68 10 012	NO-Sensor (DSI)	68 10 030	DrägerSensor™ microPac CO
68 10 032	Draeger XS H2S	68 10 034	Draeger XS O2
68 10 200	DrägerSensor™ XS CO V	68 10 208	DrägerSensor™ XS NO V
68 10 210	DrägerSensor™ XS O2 V	68 10 258	DrägerSensor™ XS R CO
68 10 260	DrägerSensor™ XS R H2S	68 10 262	DrägerSensor™ XS R O2 LS
68 10 375	DrägerSensor™ XS 2 O2	68 10 435	DrägerSensor™ H2S
68 10 740	DrägerSensor™ OV1	68 11 125	DrägerSensor™ XS NF3

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Part-No.	Trade Name	Part-No.	Trade Name
68 51 144	Dräger OxyTrace INCU (MX01050)	68 51 153	Dräger OxyTrace-Sensor (VE) (MX01049)
MX01049	Dräger OxyTrace-Sensor (VE)	MX01050	Dräger OxyTrace INCU

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7664-93-9	Sulfuric acid	*

Component Information/Information on Non-Hazardous Components

This material is considered an "article" under 29 CFR 1910.1200 (Hazard Communication). The information in this MSDS is provided for the contents of the article, which may be potentially hazardous from accidental exposure.

*DrägerSensors™ usually contain small amounts (2-8 mL) of sulfuric acid as an electrolyte. The sensor housings are made from polyethylene, polypropylene and polyamide.

*** Section 3 - Hazards Identification ***

Emergency Overview

This is a solid plastic housing material containing a sensor. Under normal conditions of use, this product does not pose any physical hazard or health risk. Improper handling, leaks and/or damage to the sensor may release caustic sulfuric acid. Contents are severely irritating and corrosive. Contents cause burns. The following information on this MSDS is based only on the contents of the sensor if it would become exposed.

Potential Health Effects: Eyes

Eye contact with contents causes corrosive damage with burns, severe irritation and possible eye injury.

Potential Health Effects: Skin

Skin contact with contents causes corrosive damage with burns, severe irritation and pain.

Potential Health Effects: Ingestion

Ingestion of contents may cause severe irritation to the gastrointestinal system and risk of perforation in the esophagus and stomach.

Potential Health Effects: Inhalation

Inhalation of contents may cause nose and throat irritation, headache, cough and an increase in respiratory rate.

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

In case of contact, immediately remove contaminated clothing and flush skin with copious amounts of water. Wash contaminated clothing before reuse. Call a physician immediately.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

First Aid: Inhalation

If symptoms are experienced, remove source of contamination or move victim to fresh air. If breathing is difficult, give oxygen if qualified personnel are available. Do NOT perform mouth-to-mouth resuscitation. Call a physician immediately.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not Available
Method Used: Not Available
Upper Flammable Limit (UFL): Not Available
Lower Flammable Limit (LFL): Not Available
Auto Ignition: Not Available
Flammability Classification: Not Available
Rate of Burning: Not Available

General Fire Hazards

This material is non-flammable.

Hazardous Combustion Products

Thermal decomposition or combustion of the plastic housing and sensor contents may release carbon monoxide, carbon dioxide and sulfur oxides.

Extinguishing Media

Foam, carbon dioxide or water fog.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this is without risk. Do not allow spilled material to contact eyes or skin. Do not breath vapors or mists of spilled product. Block any potential routes to water systems.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Absorb spill with inert material. Shovel material into appropriate container for disposal. Thoroughly wash the area with water after a spill or leak clean-up.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

Wear appropriate personal protective equipment.

*** Section 7 - Handling and Storage ***

Handling Procedures

Handle according to all relevant sensor data sheets/instructions for use. This applies when handling electrochemical DrägerSensors™ including 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 appropriate exhausting device. Observe hazard information.

Storage Procedures

Store electrochemical DrägerSensors™ according to the conditions stated in the sensor data sheets. PAC sensors should be stored at -40°C +/- 40°C (-40°F +/- 104°F); Oxygen sensors at 20°C +/- 40°C (68°F +/- 104°F); XS and Polytron sensors at 0°C +/- 30°C (32°F +/- 86°F). All sensors should be stored in their original packaging. Observe the use-by date indicated on the packaging.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

With normal handling of product there should be no exposure to contents. However, if exposure does occur, follow the recommended exposure limits.

B: Component Exposure Limits

Sulfuric acid (7664-93-9)

ACGIH: 0.2 mg/m3 TWA (thoracic fraction)
OSHA: 1 mg/m3 TWA
NIOSH: 1 mg/m3 TWA

Engineering Controls

Use local exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

If contents are released from sensor, wear chemical goggles; face shield (if splashing is possible).

Personal Protective Equipment: Skin

Wear leather or other appropriate work gloves, if necessary for type of operation. If contents are released from sensor, use impervious gloves.

Personal Protective Equipment: Respiratory

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended. Use good industrial hygiene practices in handling this material.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Plastic housing	**Odor:**	None
Physical State:	Solid	**pH:**	<1 (Sulfuric Acid)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Melting Point:**	Not applicable
Solubility (H2O):	Not applicable	**Specific Gravity:**	Not applicable

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Not applicable.

Incompatibility

Not applicable in product physical form. Contents can react with water, basic substances, and organic material.

Hazardous Decomposition

Thermal decomposition or combustion of the plastic housing and sensor contents may release carbon monoxide, carbon dioxide and sulfur oxides.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Under normal conditions of use this product is not expected to pose any health risks. The information in Section 3 is based on the sulfuric acid contents of the this product if they would be released due to improper handling, leaks, destruction and/or damage to the electrochemical DrägerSensor™.

Sulfuric acid is corrosive to the eyes, skin, respiratory system and gastrointestinal tract. Exposure to sulfuric acid may lead to dental erosion, bronchitis, fibrosis, emphysema and pulmonary edema. Exposure to mists containing sulfuric acid have been implicated in causing cancer in humans.

B: Component Analysis - LD50/LC50

Sulfuric acid (7664-93-9)

Oral LD50 Rat: 2140 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

Sulfuric acid (7664-93-9)

ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)
IARC: Monograph 54, 1992 (Group 1 (carcinogenic to humans))

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate

No information available for the product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Utilized and exhausted sensors must not be disposed of as household waste. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations or return to the manufacturer or distributor for recycling/disposal. Do not allow this material to drain into sewers/water supplies.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Sulfuric acid
UN/NA #: UN2796 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): CORROSIVE

TDG Information

Shipping Name: Sulfuric acid
UN/NA #: UN2796 **Hazard Class:** 8 **Packing Group:** II
Required Label(s): CORROSIVE

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

No additional information available.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Sulfuric acid (7664-93-9)

SARA 302: 1000 lb TPQ
SARA 313: 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Sulfuric acid	7664-93-9	Yes	Yes	Yes	Yes	Yes	Yes

Canadian WHMIS Information

A: General Product Information

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sulfuric acid	7664-93-9	1 % (English Item 1485, French Item 138)

WHMIS Classification: Class E- Corrosive

Additional Regulatory Information

A: General Product Information

This product is considered to be an article and is exempt from the U.S. EPA TSCA Inventory.

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Sulfuric acid	7664-93-9	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Contact: Product Manager
Contact Phone: 412-787-8383

This is the end of MSDS # 4594899