

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

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

Chemical Name: H₂SO₄/SO₃

Manufacturer Information

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

Distributor/Contact Information

Dräger Safety, Inc
101 Technology Drive
Pittsburgh, PA 15275-1057

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

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

Relevant Products

Part No.	Trade Name	Part No.	Trade Name
CH 00 216	Air Current Detector Tubes	CH 25 301	Air Current Tubes
67 28 051	Ethylene 50/a	CH 20 001	Natural Gas Test

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

CAS #	Component	Percent*
Not Available	Inert carrier material and glass of the tube	<90
8014-95-7	Adsorbed oleum (65%)	0-15
7722-64-7	Potassium permanganate	0-0.2
12029-98-0	Iodine pentoxide	0-0.01

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Sulfuric acid (7664-93-9).

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*based on the gross weight of the Draeger-Tube™.

The information contained in this MSDS is applicable to the hazardous contents of the Draeger-Tube™.

*** Section 3 - Hazards Identification ***
--

Emergency Overview

This product is a non-flammable, granulate filled glass tube. Contents of the tube are corrosive to the eyes, skin, gastrointestinal tract and may cause irritation to the respiratory tract. Improper handling, leaks and/or damage to the tube may release caustic sulfuric acid in gaseous or solid form. Tube contents may react vigorously with water.

Potential Health Effects: Eyes

Eye contact with contents of tube and vapor or mist from the tube may cause corrosive damage with severe irritation, burns, and possible eye injury.

Potential Health Effects: Skin

Skin contact with contents of tube and vapor or mist from the tube may cause corrosive damage with severe irritation and burns. Burns may be enhanced in the presence of water.

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

Potential Health Effects: Ingestion

Product contents may be harmful or fatal if swallowed. This product may produce corrosive damage to the gastrointestinal tract if it is swallowed.

Potential Health Effects: Inhalation

Inhalation of vapor or mist from tube contents may cause severe irritation or injury to the respiratory system. Inhalation of vapor or mist from tube contents may cause pulmonary edema, emphysema, and permanent changes in pulmonary function

HMS Ratings: Health: 3 Fire: 0 Physical Hazard: 2 Pers. Prot.: safety glasses, gloves, safety shoes, hearing protection

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** 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

Rinse with plenty of water. Discard any shoes or clothing items that cannot be decontaminated. If irritation persists, get medical attention.

First Aid: Ingestion

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

First Aid: Inhalation

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

First Aid: Notes to Physician

Tube contents can be neutralized with lime and water, or rinsed with plenty of water, then treated with polyethylene glycol 400.

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

Flash Point: Not available

Upper Flammable Limit (UFL): Not available

Auto Ignition: Not available

Rate of Burning: Not available

General Fire Hazards

This material is non-flammable. Glass tube contains oleum which reacts with water to form heat and toxic vapor and mist. Contents of tube and vapors released from broken tube may be corrosive to eyes, skin, respiratory and gastrointestinal tract. Burns may be enhanced in the presence of water.

Hazardous Combustion Products

Thermal decomposition of tube contents may produce toxic sulfur oxides.

Extinguishing Media

Dry chemical, carbon dioxide. Avoid direct contact of this product with water since this can cause a violent exothermic reaction.

Fire Fighting Equipment/Instructions

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 2

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

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

Containment Procedures

Not applicable.

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

Clean-Up Procedures

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. Dilute tube contents with water and baking soda. Sweep up or scrape broken tubes into container for disposal. Do not pick up glass with bare hands. Do not use water to flush away spill because a violent exothermic reaction may result.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

Follow all Local, State, Federal and Provincial regulations for disposal.

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

Handling Procedures

Contents are corrosive. Do not get this material in contact with skin or eyes. Do not inhale vapors or mists of this product. Avoid contact with water. Tubes are not recommended for qualitative mask fit-testing. Open tubes should be capped and stored in a well ventilated area until they are disposed of or completely used.

Storage Procedures

Keep the container tightly closed and dry. Do not store above 77° F (25° C). The expiry date on the packaging must be considered.

* * * 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

Adsorbed oleum (65%) (8014-95-7)

ACGIH: 0.2 mg/m3 TWA (thoracic fraction) (related to Sulfuric acid)

OSHA: 1 mg/m3 TWA (related to Sulfuric acid)

NIOSH: 1 mg/m3 TWA (related to Sulfuric acid)

Engineering Controls

Use general ventilation.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields.

Personal Protective Equipment: Skin

Use impervious gloves. Observe the glove manufacturer's instructions on permeability and rupture times as well as the specific workplace conditions. Wash thoroughly after handling.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

Use good industrial hygiene practices in handling this material.

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

Appearance: Glass tubes containing colorless to dark brown solid
Physical State: solid

Odor: Pungent
pH: Not available (strong acidic reaction)

Vapor Pressure: Not applicable
Boiling Point: Not applicable
Solubility (H2O): Extremely hygroscopic

Vapor Density: Not applicable
Melting Point: Not applicable
Specific Gravity: Not applicable

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

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

Chemical Stability

Stable under normal conditions.

When air is pumped into the tube by means of the rubber bulb, SO₃ will be released. Per each pump stroke approximately 3-4 mg SO₃ is produced. This corresponds to the reaction of air humidity with 4-5 mg H₂SO₄. By using the tube in a room of 10 m³ this corresponds to a concentration of 0.5 mg/m³ H₂SO₄.

Chemical Stability: Conditions to Avoid

Avoid contact with water. Do not mix other substances with the contents of the tube.

Incompatibility

Tube contents react with bases and water.

Hazardous Decomposition

Decomposition of this product produces toxic sulfur oxides.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

The corrosive properties of this product are presented by the Oleum contained in the glass tube. Oleum emits toxic and choking vapors of sulfur trioxide which may cause severe irritation or injury to the eyes, throat and lungs. If the glass tube is broken, the sharp edges may cause cuts or scrapes. 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

Adsorbed oleum (65%) (8014-95-7)

Inhalation LC50 Rat: 347 ppm/1H

Potassium permanganate (7722-64-7)

Oral LD50 Rat: 1090 mg/kg; Oral LD50 Mouse: 2157 mg/kg

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

Adsorbed oleum (65%) (8014-95-7)

ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists) (related to Sulfuric acid)

IARC: Monograph 54, 1992 (related to Sulfuric acid) (Group 1 (carcinogenic to humans))

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Potassium permanganate (7722-64-7)

Test & Species

96 Hr LC50 goldfish

3.6 mg/L

24 Hr LC50 striped bass

1.5 mg/L

Conditions

Static

Environmental Fate

This product is not expected to accumulate in the food chain.

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

If discarded, wastes may be classified as: D002, D003 (Corrosive, Reactive Waste) 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

Prior to disposal, carefully dilute tube contents with water. Add baking soda to neutralize acidity. Do not allow this material to drain into sewers/water supplies. Waste must be handled in accordance with all federal, state, provincial, and local regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Corrosive solid, acidic, inorganic, n.o.s. (Contains: Adsorbed oleum (65%), mixture)

UN/NA #: UN3260 **Hazard Class:** 8 **Packing Group:** II

Required Label(s): CORROSIVE

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Oleum (Fuming Sulfuric Acid) does not appear on TSCA, DSL or EINECS Inventories but contains Sulfuric Acid and Sulfur Trioxide which are present on TSCA, DSL and EINECS Inventories.

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).

Adsorbed oleum (65%) (8014-95-7)

SARA 302: 1000 lb TPQ (related to Sulfuric acid)

SARA 313: 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size) (related to Sulfuric acid)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Potassium permanganate (7722-64-7)

CERCLA: 100 lb final RQ; 45.4 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
Adsorbed oleum (65%) (related to Sulfuric acid)	8014-95-7	Yes ¹	Yes	Yes ¹	Yes	Yes	Yes ¹
Potassium permanganate	7722-64-7	Yes	Yes	No	Yes	Yes	Yes

Component Analysis - WHMIS IDL

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

Component	CAS #	Minimum Concentration
Adsorbed oleum (65%)	8014-95-7	1 % (English Item 1485, French Item 138) (related to Sulfuric acid)

Additional Regulatory Information

A: General Product Information

No additional information available.

Material Safety Data Sheet

Revision 9: 2/08/2008

ID: 4594886

Material Name: Draeger Tubes™ (which are classified as dangerous goods, PGII)

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Adsorbed oleum (65%)	8014-95-7	No	No	No
Potassium permanganate	7722-64-7	Yes	DSL	EINECS
Iodine pentoxide	12029-98-0	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

ACGIH = American Conference of Governmental Industrial Hygienists. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. EINECS = European Inventory of Existing Commercial Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Information System. IARC = International Agency for Research on Cancer. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act.

Contact: Product Manager

Contact Phone: 412-787-8383

This is the end of MSDS # 4594886