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: **Dräger-Tubes™ and MicroTubes (which are not classified as dangerous goods!)**
Part nos. : various (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
D-23560 Lübeck
Telephone number +49 451/882-0
Fax number +49 451/882-2080
Contact for information: Dräger Global EHS Management
Telephone number +49 451/882-5997

Distributor:
Dräger Safety Inc.
101 Technology Drive
Pittsburgh, PA 15275-1057
United States

Telephone +1-412-787-8383

1.4 Emergency telephone: **+49 451/882-2395** **US Emergency No. +1-800-424-9300**

1.5 Relevant products:

2 Part-No.	Trade name	Part-No.	Trade name
6726665	Acetaldehyde 100/a	8610080	MT Carbon monoxide 2-1000 ppm
6722101	Acetic Acid 5/a	8610090	MT Hydrochloric acid 0.5-25 ppm
CH22901	Acetone 100/b	8610100	MT Formaldehyde 0,15-3 ppm
8103381	Acetone 40/a	8610110	MT Sulfur dioxide 0.05-5 ppm
8101121	Acid Test	8610120	MT Nitrogen dioxide 0.25-25 ppm
8103701	Acrylonitrile 0,2/a	8610130	MT Ammonia 1-100 ppm
8101141	Active Tube for Formaldehyde 0.2A	8610190	MT Carbon dioxide 200-50000 ppm
3740290	Alcohol 10/a	8610200	MT Ethylene Oxide 25-250 ppb
8101061	Amine Test	8610220	MT Hydrogen sulfide 100-2000 ppm
8101711	Ammonia 0.25/a	8610230	MT Vinyl chloride 0.1-10 ppm
CH31901	Ammonia 0.5 %/a	8610250	MT Toluene 10-1000 ppm
6733231	Ammonia 2/a	8610260	MT Xylene 10-1000 ppm
8101301	Ammonia 20/a-D	8610270	MT Petroleum Hydrocarbons 10-3000 ppm
8103301	Ammonia 3/a	8610280	MT Benzol 10-100 ppm
CH20501	Ammonia 5/a	8610290	MT Demo
8101941	Ammonia 5/b	8610300	MT 1,3-Butadiene 0.5-25 ppm
6733171	Aniline 0.5/a	8610320	MT Trichlorethylene 0.25-50 ppm
CH25001	Arsine 0.05/a	8610330	MT Acetic Acid 2-50 ppm
6718801	Benzene 5/a	8610340	MT Phosgene 10-1000 ppb
8101161	Butadiene 10/a-D	8610350	MT Mercury 0,005-0,25 mg/m³
8103861	n-Butanol 10/a	8610360	MT Mercaptane 50-6000 ppb
CH23501	Carbon Dioxide 0.1 %/a	8610380	MT Alcohol 10-5000 ppm
CH31401	Carbon Dioxide 0.5 %/a	8610400	MT Phosphine 50-5000 ppb
CH25101	Carbon Dioxide 1 %/a	8610430	MT Ozone 10-1000 ppb
8101051	Carbon Dioxide 1 %/a-D	8610460	MT 1,3-Butadiene 25-500 ppb
8101811	Carbon Dioxide 100/a	8610470	MT Acetone 25-5000 ppm
6728521	Carbon Dioxide 100/a-P	8610510	MT Methylene Chloride 10-500 ppm
CH20301	Carbon Dioxide 5 %/A	8610520	MT Hydrocyanic acid 0,5-50 ppm
8101891	Carbon Disulphide 3/a	8610530	MT MTBE 2-200 ppm
CH23201	Carbon Disulphide 30/a		

CH24101	Carbon Pre-Tube	8610540	MT Formaldehyde 5-150 ppb
8101021	Carbon Tetrachloride 1/a	8610050	MT Hydrogen Sulfide 0.1-50 ppm
8103140	CDS Set I	8610060	MT Nitrous fumes 0,5-25 ppm
8103200	CDS Set V	8610580	MT Ethylene oxide 0.25-10 ppm
8103230	CDS Training-Kit I	8610600	MT Benzene 1-150 ppb
8103240	CDS Training-Kit V	8103071	Natural Gas odorization, tert.-Butyl mercaptan (TBM)
CH24301	Chlorine 0.2/a	CH19501	Nickel Tetracarbonyl 0.1/a
CH20701	Chlorine 50/a	6728311	Nitric Acid 1/a
8103491	Chlorine Dioxide 0.025/a	8103631	Nitrogen Dioxide 0.1/a
6728761	Chlorobenzene 5/a	8101111	Nitrogen Dioxide 10/a-D
6718601	Chloroformates 0.2/b	6719101	Nitrogen Dioxide 2/c
8103421	Chloropicrin 0.1/a	8103661	Nitrous Fumes 0,2/a
6718901	Chloroprene 5/a	CH31001	Nitrous Fumes 2/a
6728681	Chromic Acid 0.1/a	3706171	Nitrous Fumes 20/b
6728791	Cyanide 2/a	8103941	Nitrous Fumes 50/b
CH19801	Cyanogen Chloride 0.25/a	CH31201	Olefines 0.05 % /a
8103671	Cyclohexane 40/a	CH26303	Organic Arsenic Compounds
6728931	Cyclohexylamine 2/a	CH25903	Organic Basic Nitrogen Compounds
8103475	Diesel Fuel	6733181	Ozone 0.05/b
6730501	Diethyl Ether 100/a	CH21001	Ozone 10/a
6718501	Dimethyl Formamide 10/b	6724701	Pentane 100/a
6718701	Dimethyl Sulphate 0.005/c	8101551	Perchloroethylene 0.1/a
6728451	Dimethyl Sulphide 1/a	8101501	Perchloroethylene 2/a
6728111	Epichlorohydrin 5/c	6730201	Petroleum Hydrocarbons 100A
8103761	Ethanol 100/a	8101691	Petroleum Hydrocarbons 10A
6728381	Ethyl Benzene 30/a	8101641	Phenol 1/b
6726801	Ethyl Glycol Acetate 50/a	8101521	Phosgene 0.02/a
8101331	Ethylene 0.1/a	8103711	Phosphine 0,1/c
8101351	Ethylene Glycol 10	8101611	Phosphine 0.01/a
6728961	Ethylene Oxide 1/a	8103341	Phosphine 0.1/b in Acetylene
8101491	Fluorine 0.1/a	8101801	Phosphine 1/a
6733081	Formaldehyde 0.2/a	8101621	Phosphine 25/a
8101751	Formaldehyde 2/a	CH21201	Phosphine 50/a
6722701	Formic Acid 1/a	6728461	Phosphoric Acid Ester 0.05/a
8103410	Fumigation-Test-Set	8103531	PID-Pre-filter Tube Humidity
8103681	Hexane 10/a	3702013	ppb-Booster Basic X-act 7000
8103351	Hydrazine 0.01/a	8103741	i-Propanol 50/a
CH31801	Hydrazine 0.25/a	6728651	Pyridine 5/A
8101681	Hydrochloric Acid / Nitric Acid 1/a	8101861	Silicagel Type B/G
8103481	Hydrochloric Acid 0,2/a	6728851	Silicagel Type G
CH29501	Hydrochloric Acid 1/a	8101735	Simultaneous Test-Set I for inorganic fumes
6728181	Hydrochloric Acid 50/a	8101736	Simultaneous Test-Set II for inorganic fumes
8103601	Hydrocyanic Acid 0,5/a	8101770	Simultaneous Test-Set III for organic vapours
8101511	Hydrogen 0.2 %/a	8103180	Simultaneus Test Set
CH30901	Hydrogen 0.5 %/a	8103380	Simultaneus Test Set for Container Fumigation
8103251	Hydrogen Fluoride 0.5/a	8103170	Simultaneus Test Set Indicator Substances
CH30301	Hydrogen Fluoride 1.5/b	6723301	Styrene 10/a
8101041	Hydrogen Peroxide 0,1/a	CH27601	Styrene 50/a
CH28201	Hydrogen Sulphide + Sulphur Dioxide 0.2 %/A	6727101	Sulphur Dioxide 0.1/a
CH28101	Hydrogen Sulphide 0.2 %/A	6728491	Sulphur Dioxide 0.5/a
8101461	Hydrogen Sulphide 0.2/a	CH31701	Sulphur Dioxide 1/a
8101991	Hydrogen Sulphide 0.2/b	CH24201	Sulphur Dioxide 20/a
6728041	Hydrogen Sulphide 0.5/a	8101531	Sulphur Dioxide 50/b
6719001	Hydrogen Sulphide 1/c	6728781	Sulphuric Acid 1/a
8101831	Hydrogen Sulphide 1/d	8101341	Tetrahydrothiophene 1/b
CH29101	Hydrogen Sulphide 100/a	CH25803	Thioether
8101211	Hydrogen Sulphide 2 %/a	8101731	Toluene 100/a

6728821	Hydrogen Sulphide 2/a	8101661	Toluene 5/b
8101961	Hydrogen Sulphide 2/b	8101701	Toluene 50/a
CH29801	Hydrogen Sulphide 5/b	6724501	Toluene Diisocyanate 0.02/A
8103521	Iodine 0.1/a	CH21101	Trichloroethane 50/d
8103281	Mercaptan 0.1/a	6728541	Trichloroethylene 2/a
6728981	Mercaptan 0.5/a	8101881	Trichloroethylene 50/a
8101871	Mercaptan 20/a	6718401	Triethylamine 5/a
CH23101	Mercury Vapour 0.1/b	8101721	Vinyl Chloride 0.5/b
8103801	Methanol 20/a	CH19601	Vinyl Chloride 100/a
8103591	Methylene chloride 20/a	CH23401	Water Vapour 0,1
8103485	MITC 0.1/a	8101321	Water Vapour 0,1/a
8610010	MT Chlorine 50-5000 ppb	8101781	Water Vapour 1/b
8610020	MT Ammonia 100-2.500 ppm	8103031	Water Vapour 3/a
8610030	MT Benzene 0,15-10 ppm	8103061	Water Vapour 20/a-P
8610040	MT Perchlorethylene 1-500 ppm	6728531	Water Vapour 5/a-P

2. Hazards identification

2.0 General information:
Dräger-Tubes™ and MicroTubes are articles which are not subject to labelling (Chapter 1.3.2.1 in GHS Purple Book). The requirements of the Australian Model Work Health and Safety Regulations do not apply to such products as the included mixtures are not able to be released during the use. Hence, the information in this Product Safety Information Sheet is purely voluntary!

2.1 Classification: -

2.2 Particular hazards for man and environment:
These products are non-flammable, granulate filled glass tubes. Improper handling, leaks, and/or damage to the tubes may release weak caustic/corrosive and/or irritant/harmful granulate material in solid form.
The chemicals and preparations in the detector tubes may cause different irritation or injury to the skin, eyes, gastrointestinal tract and may cause irritation to the respiratory tract. If the glass tubes are broken, the sharp edges may cause cuts or scratches.

3. Composition/Information on ingredients

3.1 Chemical characterisation (constituent):
not applicable

3.2 Chemical characterisation (mixtures):
Dräger-Tubes™ and MicroTubes are glass tubes usually containing small amounts of inert inorganic carrier materials which have been impregnated with different chemicals. In the following table such chemicals are listed; for detailed information about the ingredients in the different tubes please see the Dräger-Tubes™-/MicroTubes Handbook.

EINECS / ELINCS-No.	CAS-No.	Designation acc. to the EC Regulations	Content	Unit	GHS-Pictogram	H-Phrases
204-309-3	119-26-6	2,4-Dinitrophenylhydrazine	0-0,1	%	GHS01, GHS07	H228, H302, H319
203-564-8	108-24-7	Acetic acid anhydrid	0-1	w/w per cent	GHS02, GHS05, GHS06	H226, H302, H314, H332
n/a	n/a	Amine compounds	0-3	w/w per cent	GHS06, GHS08, GHS09	H302, H312, H314, H317, H332, H351, H410
-	32458-20-1	Bariumchloroanilat	0-0.1	w/w per cent	GHS06	H302, H332
219-666-0	2494-56-6	Butyrylcholiniodide	0-0.1	w/w per cent	GHS06	H315, H319, H335

237-029-5	10294-42-5	Cerium sulfate	0-0.1	w/w per cent	GHS08	H314, H318, H400, H410
n/a	n/a	Chromium(VI) salts	<1	w/w per cent	GHS05, GHS08, GHS09	H301, H312, H315, H317, H318, H330, H334, H335, H340, H350, H400, H410
n/a	n/a	Copper salts	0-10	w/w per cent	GHS09	H302, H315, H319, H400, H410
203-473-3	107-21-1	Ethylene glycol	0-0,2	w/w per cent	GHS08	H302
200-01-8	50-00-0	Formaldehyde	0-0.1	w/w per cent	GHS06, GHS08	H301, H311, H314, H317, H331, H341, H350
202-626-1	98-00-0	Furfurol	0-0.1	w/w per cent	GHS02, GHS06, GHS07	H302, H312,H319, H331, H335, H351, H373
n/a	n/a	Gold salts	0-1	w/w per cent	GHS05, GHS09	H302, H315, H319, H335, H410
206-114-9	302-01-2	Hydrazine-Hydrate	0-6	w/w per cent	GHS02, GHS05, GHS09	H226, H301, H311, H314, H317, H331, H350, H400, H410
231-595-7	7647-01-0	Hydrochloric acid	0-0.5	w/w per cent	GHS05, GHS07	H314, H335
231-442-4	7553-56-2	Iodine	0-3	w/w per cent	GHS05, GHS08	H312, H332, H400
234-740-2	12029-98-0	Iodinepentoxide	0-0.01	w/w per cent	GHS08	H272, H314, H318
n/a	n.a	Lead salts	0-0,1	w/w per cent	GHS06, GHS08, GHS09	H302, H332, H373, H410
233-108-3	10034-81-8	Magnesium perchlorate	0-0.1	w/w per cent	GHS08	H272, H315, H319, H335
n/a	n/a	Mercury salts	0-0.1	w/w per cent	GHS06, GHS08, GHS09	H300, H310, H330, H360D H372, H410
202-088-8	91-66-7	N,N-Diethylaniline	0-0.2	w/w per cent	GHS05	H301, H311, H331, H373, H411
204-358-0	119-93-7	o-Tolidine	0-0.5	w/w per cent	GHS05	H302, H350, H411
204-355-4	119-90-4	o-Dianisidine	0-0.1	w/w per cent	GHS05	H302, H350
n/a	n/a	Palladium compounds	0-0.2	w/w per cent	GHS05	H314
231-760-3	7722-64-7	Potassium permanganate	0-0.1	w/w per cent	GHS08, GHS05	H272, H302, H400, H410, H361d
231-633-2	7664-38-2	o-Phosphoric acid	0-10	w/w per cent	GHS05	H314
203-809-9	110-86-1	Pyridine	0-5	w/w per cent	GHS02, GHS08	H225, H302, H312, H332
211-027-4	628-13-7	Pyridylpyridiniumchloride	0-0.1	w/w per cent	GHS08	H302, H315, H319, H332, H335
n/a	n/a	Silver salts	0-0.1	w/w per cent	GHS06, GHS09	H301, H302, H312, H410

n/a	n/a	Selenium salts	<1	w/w per cent	GHS06, GHS09	H301, H331, H373, H413
n/a	n/a	Sodium salts	0-1	w/w per cent	GHS02, GHS05, GHS08	H260, H314, H302, H319, H361d
231-639-5	7664-93-9	Sulphuric acid	0-5	w/w per cent	GHS05	H314
215-535-7	1330-20-7	Xylene	0-1	w/w per cent	GHS02, GHS08	H226, H312, H315, H332
n/a	n/a	Zirconium compounds	0-0.0005	w/w per cent	GHS08	H314

* based on the gross weight of the Draeger Tube™ or MicroTube. The information contained in this Product Safety Information Sheet is applicable to the hazardous contents of the Draeger Tube™ or MicroTube.

3.3 Other information:

Dräger-Tubes™ and MicroTubes are closed glass tubes which are filled with several preparation layers. The preparation layers are usually fixed by holding and separating elements within the glass tube. Partially the Dräger-Tubes™ and MicroTubes contain filled glass ampoules also with reactive liquids.
Important ingredients in preparations used for the Dräger-Tubes™ and MicroTubes:
- inorganic acid,
- inorganic salts, and
- organic chemicals/indicators in small quantities and in concentrations below the limit for labelling-requirements in acc. to CLP and the German GefStoffV.

Important ingredients of the ampoules used in the Dräger-Tubes™ and MicroTubes:
- inorganic acids,
- organic solvents.

Dräger-Tubes™ and MicroTubes contain no ozone-depleting chemicals and no volatile organic chemicals (except special ampoules). During the manufacturing process for the Dräger-Tubes™ and MicroTubes (except special calibration procedures) no ozone-depleting chemicals (group I-IV of the Montreal Protocol) were used.

4. First-aid measures

4.1 After inhalation:

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

4.2 After contact with skin:

Wash with plenty of water. Tube contents can be neutralized with lime and water, or rinsed with plenty of water, then treated with polyethylene glycol 400. If irritation persists, get medical advice. Discard any shoes or clothing items that cannot be decontaminated.

4.3 After contact with the eyes:

Immediately flush eyes with plenty of water (for at least 15 minutes), while holding eyelids open. Seek medical advice at once. Danger of corneal clouding.

4.4 After ingestion:

If the material is swallowed, get immediate medical attention or advice. Do not induce vomiting (Danger of perforation!).

4.5 Information for the doctor:

After ingestion there is a danger of the oesophagus and the stomach becoming perforated.

5. Fire-fighting measures

5.1 Suitable extinguishing media:

Dry chemical, carbon dioxide. Adapt extinguishing media to the environment. Materials in the glass tubes are non-flammable. Avoid direct contact of this product with water since this may cause an exothermic reaction.

5.2 Extinguishing media which must not be used for safety reasons:

Not checked

5.3 Special exposure hazards arising from substances or preparation itself, combustion products, resulting gases:

Non-Flammable. Thermal decomposition of the tube contents may produce weak amount of harmful, irritant or toxic gases (sulphur oxides, carbon monoxide, etc.). When using water as an extinguishing media, take care of the resulting slight acidic fire-fighting water.
Contents of the tubes 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 granulate material in solid form.

5.4 Special protective equipment for fire-fighters:
Recommendation: Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

6. Accidental release measures

6.1 Personal precautions:
Do not inhale released vapour, fumes, or dusts from the spilled material. Do not allow spilled materials to contact eyes or skin, use protective gloves (e.g. PE/PP, Latex, rubber) resistant against acidic materials and safety goggles. Isolate area. Keep unnecessary personnel away. Use dust mask with P2/FFP2 filters.

6.2 Environmental precautions:
Block any potential routes to water systems. Do not discharge into the sewer system. Do not allow to enter drains/surface water/groundwater.

6.3 Methods for cleaning up:
Sweep up dry while avoiding formation of dusts. Do not pick up glass with bare hands. Dilute tube contents with water and baking soda. Shovel material into appropriate container for disposal. Thoroughly wash the area with water after a spill or leak clean-up. Sweep up or scrape broken tubes into container for disposal.

6.4 Additional information:
Follow all Local, State, Federal and Provincial regulations for disposal.

7. Handling and storage

7.1 Handling:

Precautions for safety handling:	Observe the Instructions for Use.
Information for protection against fire and explosion:	These products are non-flammable.

7.2 Storage:

Requirements for storage and containers:	Keep containers tightly closed and dry. Do not store at temperatures exceeding 77°F (25°C). Handling according to the Instructions for Use. Store the product in the original packaging. The expiry date on the packaging must be considered.
Information on storage together with other materials:	Observe VCI-concept for storing chemicals.
Further information on storage conditions:	Contents are corrosive. Avoid contact with water. Open tubes should be stored in the container in a well ventilated area until they are disposed of.
Storage class:	LGK 10-13 (VCI-concept).

7.3 Certain application:
n/a

8. Exposure controls/Personal protection

8.1 Components with exposure limit values:
Several, in relation to the chemicals in the tubes (see Section 2). But with normal handling of the Dräger-Tubes™ and MicroTubes there should be no exposure to contents. However, if exposure does occur, follow the national exposure limits for the relevant chemicals. For detailed information about the ingredients in the different tubes, please see the Dräger-Tubes™ -/ MicroTubes Handbook.

EC, Land	CAS-No.	Description of material	Type	Content	Unit
D	7664-93-9	Sulphuric acid	MAK	0,1 E**	mg/m³
D	n/a	Chromium(VI) compounds	TRK	0,05 E*	mg/m³

D	1333-82-0	Chromium trioxide	EG	Carc. Cat 1 / S	
D	7664-38-2	o-Phosphoric acid	MAK	2	mg/m³
D	7778-50-9	Potassium dichromate	EG	Carc. Cat 1 / Muta. Cat. 2 / S	
D	110-86-1	Pyridine	DFG, EU-classification	16 5	mg/m³ mL/m³
		E = inhalable fraction			
		Carc. Cat 1 = Carcinogen to human body	MAK = German TLV		
		Carc. Cat 2 = Carcinogen to human body is possible.			
		Muta. Cat 2 = Reproductive toxic to human body is possible.			
		S = Hazard of sensitization			

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
General protection and hygiene measures:
With normal handling of the Dräger-Tubes™ and MicroTubes there should be no exposure to contents. However, if exposure does occur, follow the exposure limits.
Use good industrial hygiene practices.

Personal protection:

8.2.1.1 Respiratory protection:
Not necessary when handled according to the Instructions for Use.

8.2.1.2 Hand protection:
With normal handling of the Dräger-Tubes™ and MicroTubes 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.

8.2.1.3 Eye protection:
Not necessary when handled according to the Instructions for Use.
Recommendation: Wear safety glasses with side shields.

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

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

9. Physical and chemical properties

9.1 General information:

Form:	Glass tubes containing colourless and/or coloured solids.
Colour:	various
Odour:	slightly pungent/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 (weak acidic reaction)
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:	n/a

9.3 Other information
n/a

10. Stability and reactivity

General information:
Stable under normal conditions and appropriate commerce.

10.1 Conditions to avoid:
Do not mix other substances with contents of tubes. Avoid contact with water. Stable under normal conditions. Hazardous polymerisation will not occur. Do not store above 25°C (77°F).

10.2 Materials to avoid:
Tubes contents react with bases. Possibility of a slight exothermic reaction.

10.3 Hazardous decomposition products:
Decomposition of granulate in the tubes may produce toxic substances (e.g. sulphur oxides).

Possibility of a dangerous exothermic reaction:	Avoid contact with bases/water, tube contents may react with bases and water in an exothermic reaction.
Dangerous products of decomposition at contact with water:	Acids and solutions of (heavy) metal salts

10.4 Further information:
n/a

11. Toxicological information

11.1 Toxicity tests:
Classification-relevant LD/LC_{50}-values: No toxicity data are available for the contents of the tubes (carrier materials impregnated with different chemicals!).

11.1.1 Specific symptoms in animal studies: No data are available.

11.1.2 Irritant/corrosive effects: Irritant and weak corrosive effects of the contents of the tubes cannot be excluded.

11.1.3 Sensitization: Sensitization effects of the contents of the tubes cannot be excluded.

11.1.4 Subacute and chronical toxicity:

Experiments:	No data are available.
Species:	No data are available.

11.1.5 Carcinogenic, mutagenic and reproductive toxic effects:
No data are available. See Section 11.3

11.1.6 Further information:
For detailed information about the ingredients in the different tubes and their hazards, please see the Dräger-Tubes™-/CMS Handbook and section 2.

11.2 Effects on human body/Experiments made in practice:

after inhalation:
Inhalation of dusts from the tube contents may cause irritation or injury to the respiratory system.
after ingestion:
Product contents may be harmful or fatal if swallowed. This product may produce corrosive damage to the gastrointestinal tract if swallowed.
after eye contact:

Eye contact with contents of the tubes may cause corrosive damage with irritation, and possible eye injury.
after skin contact:
Skin contact with the contents of the tubes may cause slight corrosive damage with irritation.

11.3 Additional toxicological information:
The toxicity of the impregnated carrier material contained in the tubes has not been tested in detail. With respect to the chemicals used for the impregnation these materials should be handled in the same way as the pure chemicals. They may cause sensitization, irritation or injury to the skin, eyes and mucous membrane. Carcinogenic, mutagenic and reproductive toxic effects can not be excluded, because some of the impregnation chemicals in pure form are classified accordingly.

Further information:
If the glass tube is broken, the sharp edges may cause cuts or scratches.

12. Ecological information

12.1 Ecotoxicity:
No ecotoxicity data are available for the preparations/components in the Dräger-Tubes™ and MicroTubes .

12.2 Mobility:
No data are available

12.3 Persistence and degradability:

Biological decompositionability:	No data are available
Behaviour in purification plants:	No data are available

12.4 Bioaccumulative potential:
No data are available

12.5 Other adverse effects:
No data are available

12.6 Additional information:
Dräger-Tubes™ and MicroTubes themselves and also the chemical preparations/components in the tubes shouldn´t be released into water because the chemicals on the carrier material could be dissolved and then contaminate the water. Normally water extracts from the impregnated carrier materials have a low pH-value and contain small amounts of the chemicals used for impregnation. So, it would be expected to produce ecotoxicity upon exposure to aquatic organisms and aquatic systems.
Dräger-Tubes™ and MicroTubes themselves and the chemical preparations/components in the tubes are not expected to accumulate in the food chain.

13. Disposal considerations

13.1 Product (recommendations):
If discarded, wastes may be classified as corrosive waste or reactive waste. Prior to disposal, carefully dilute tube contents with water. Add baking soda to neutralise 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.
Dräger-Tubes™ and MicroTubes must be disposed of in accordance with local waste disposal regulations. If discarded, wastes may be classified as hazardous waste. Applicable “waste numbers” (federal, state, provincial, and local) for this products or their components have not been checked in detail.

Waste category:	EWL (European waste list): 170204*
Waste designation:	Glass, plastic and wood containing or contaminated with dangerous substances.
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.: ./. Class: ./. Packing group: ./.

Name: ./. Classification code: ./.
Remarks: Dräger-Tubes™ and MicroTubes cited in section 1 are no dangerous goods. These Dräger-Tubes™ are no hazardous material as defined by the transport regulations.

14.2 Marine transport IMDG-Code/GGVSee:

UN-No.	./.	Correct technical name:	./.		
Class:	./.	Sub risk:	Packing group:	./.	
EmS-No.:	./.		MFAG:	./.	
Marine pollutant:	./.				

Remarks: Dräger-Tubes™ and MicroTubes cited in section 1 are no dangerous goods. These Dräger-Tubes™ and MicroTubes are no hazardous material as defined by the transport regulations.

14.3 Air transport ICAO-TI und IATA-DGR:

UN-No.	./.	Proper shipping Name:	./.		
Class	./.	Sub risk:	./.	PG:	./.

Remarks: Dräger-Tubes™ and MicroTubes cited in section 1 are no dangerous goods. These Dräger-Tubes™ and MicroTubes are no hazardous material as defined by the transport regulations.

14.4 Transport/further information:
May be sent by post.

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: 3 (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):
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 Instructions for Use.

Relevant H-Phrases:

H270	May cause or intensify fire; oxidiser.
H290	May be corrosive to metals
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.

H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

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 representations 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.
Any questions of warranty and liability for this product are subject to our General Terms and Conditions unless legislation imperatively provides otherwise.

Data sheet issued by:	Global EHS Management
Contact:	Jana Müller, sds@draeger.com

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