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™ (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
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1.5 Relevant products:

Sach-Nr.	Trade name	Sach-Nr.	Trade name
81 03 551	1,3-Dichloropropene 0.1/a	81 01 991	Hydrogen Sulphide 0.2/b
67 26 665	Acetaldehyde 100/a	67 28 041	Hydrogen Sulphide 0.5/a
81 01 071	Acetic Acid 10/a-D	67 19 001	Hydrogen Sulphide 1/c
67 22 101	Acetic Acid 5/a	81 01 831	Hydrogen Sulphide 1/d
CH 22 901	Acetone 100/b	67 33 091	Hydrogen Sulphide 10/a-D
81 03 381	Acetone 40/a	CH 29 101	Hydrogen Sulphide 100/a
81 01 121	Acid Test	81 01 211	Hydrogen Sulphide 2 %/a
67 28 591	Acrylonitrile 0.5/a	67 28 821	Hydrogen Sulphide 2/a
81 03 701	Acrylonitrile 0,2/a	81 01 961	Hydrogen Sulphide 2/b
CH 26 901	Acrylonitrile 5/b	67 28 141	Hydrogen Sulphide 5/a-L
81 01 141	Active Tube for Formaldehyde 0.2A	CH 29 801	Hydrogen Sulphide 5/b
CH 29 701	Alcohol 100/a	81 03 521	Iodine 0.1/a
81 01 631	Alcohol 25/a	81 03 281	Mercaptan 0.1/a
81 01 061	Amine Test	67 28 981	Mercaptan 0.5/a
81 01 711	Ammonia 0.25/a	81 01 871	Mercaptan 20/a
CH 31 901	Ammonia 0.5 %/a	CH 23 101	Mercury Vapour 0.1/b
67 28 231	Ammonia 10/a-L	81 03 801	Methanol 20/a
67 33 231	Ammonia 2/a	81 03 391	Methyl Bromide 0.2/a
81 01 301	Ammonia 20/a-D	81 01 671	Methyl Bromide 0.5/a
81 03 301	Ammonia 3/a	67 28 211	Methyl Bromide 3/a
CH 20 501	Ammonia 5/a	CH 27 301	Methyl Bromide 5/b
81 01 941	Ammonia 5/b	81 03 591	Methylene chloride 20/a
67 33 171	Aniline 0.5/a	81 03 485	MITC 0.1/a
CH 20 401	Aniline 5/a	81 03 071	Natural Gas odorization, tert.-Butyl mercaptan (TBM)
CH 25 001	Arsine 0.05/a	CH 19 501	Nickel Tetracarbonyl 0.1/a
67 28 561	Benzene 0.5/a	67 28 311	Nitric Acid 1/a
67 18 801	Benzene 5/a	81 03 631	Nitrogen Dioxide 0.1/a
81 01 161	Butadiene 10/a-D	CH 30 001	Nitrogen Dioxide 0.5/c

81 03 861	n-Butanol 10/a	81 01 111	Nitrogen Dioxide 10/a-D
CH 30 801	Carbon Dioxide 0.01 %	67 19 101	Nitrogen Dioxide 2/c
CH 23 501	Carbon Dioxide 0.1 %/a	81 03 661	Nitrous Fumes 0,2/a
CH 31 401	Carbon Dioxide 0.5 %/a	CH 29 401	Nitrous Fumes 0,5/a
CH 25 101	Carbon Dioxide 1 %/a	CH 31 001	Nitrous Fumes 2/a
81 01 051	Carbon Dioxide 1 %/a-D	67 24 001	Nitrous Fumes 20/a
81 01 811	Carbon Dioxide 100/a	67 28 911	Nitrous Fumes 5/a-L
67 28 521	Carbon Dioxide 100/a-P	81 01 921	Nitrous Fumes 50/a
67 28 611	Carbon Dioxide 1000/a-L	81 01 941	Nitrous Fumes 50/b
CH 20 301	Carbon Dioxide 5 %/A	CH 27 701	Nitrous Fumes100/c
81 01 381	Carbon Dioxide 500/a-D	CH 31 201	Olefines 0.05 % /a
81 01 891	Carbon Disulphide 3/a	CH 26 303	Organic Arsenic Compounds
CH 23 201	Carbon Disulphide 30/a	CH 25 903	Organic Basic Nitrogen Compounds
81 01 951	Carbon Monoxide 10/c	67 33 181	Ozone 0.05/b
81 03 321	Carbon Monoxide 10/d	CH 21 001	Ozone 10/a
67 33 191	Carbon Monoxide 50/a-D	67 24 701	Pentane 100/a
CH 24 101	Carbon Pre-Tube	81 01 551	Perchloroethylene 0.1/a
81 03 501	Carbon Tetrachloride 0.1/a	CH 30 701	Perchloroethylene 10/b
81 01 791	Carbon Tetrachloride 0.2/b	81 01 501	Perchloroethylene 2/a
81 01 021	Carbon Tetrachloride 1/a	81 01 401	Perchloroethylene 200/a-D
CH 27 401	Carbon Tetrachloride 5/c	67 30 201	Petroleum Hydrocarbons 100A
81 03 140	CDS Set I	81 01 691	Petroleum Hydrocarbons 10A
81 03 150	CDS Set II	81 01 641	Phenol 1/b
81 03 160	CDS Set III	81 01 521	Phosgene 0.02/a
81 03 200	CDS Set V	CH 19 401	Phosgene 0.05/a
CH 24 301	Chlorine 0.2/a	CH 28 301	Phosgene 0.25/c
67 28 411	Chlorine 0.3/b	81 03 711	Phosphine 0,1/c
CH 20 701	Chlorine 50/a	81 01 611	Phosphine 0.01/a
81 03 491	Chlorine Dioxide 0.025/a	CH 31 101	Phosphine 0.1/a
67 28 761	Chlorobenzene 5/a	81 03 341	Phosphine 0.1/b in Acetylene
67 18 601	Chloroformates 0.2/b	81 01 801	Phosphine 1/a
67 18 901	Chloroprene 5/a	81 01 621	Phosphine 25/a
67 28 681	Chromic Acid 0.1/a	CH 21 201	Phosphine 50/a
67 28 791	Cyanide 2/a	67 28 461	Phosphoric Acid Ester 0.05/a
CH 19 801	Cyanogen Chloride 0.25/a	81 03 531	PID-Pre-filter Tube Humidity
67 25 201	Cyclohexane 100/a	81 03 741	i-Propanol 50/a
67 28 931	Cyclohexylamine 2/a	67 28 651	Pyridine 5/A
81 03 475	Diesel Fuel	67 28 851	Silicagel Type G
67 30 501	Diethyl Ether 100/a	81 01 735	Simultaneous Test-Set I for inorganic fumes
67 18 501	Dimethyl Formamide 10/b	81 01 736	Simultaneous Test-Set II for inorganic fumes
67 18 701	Dimethyl Sulphate 0.005/c	81 01 770	Simultaneous Test-Set III for organic vapours
67 28 451	Dimethyl Sulphide 1/a	81 03 180	Simultaneus Test Set
67 28 111	Epichlorohydrin 5/c	81 03 380	Simultaneus Test Set for Container Fumigation
81 03 761	Ethanol 100/a	81 03 170	Simultaneus Test Set Indicator Substances
81 01 151	Ethanol 1000/a-D	67 23 301	Styrene 10/a
CH 20 201	Ethyl Acetate 200/a	CH 27 601	Styrene 50/a
67 28 381	Ethyl Benzene 30/a	67 27 101	Sulphur Dioxide 0.1/a
67 26 801	Ethyl Glycol Acetate 50/a	67 28 491	Sulphur Dioxide 0.5/a
81 01 331	Ethylene 0.1/a	CH 31 701	Sulphur Dioxide 1/a
81 01 351	Ethylene Glycol 10	67 28 921	Sulphur Dioxide 2/a-L
67 28 961	Ethylene Oxide 1/a	CH 24 201	Sulphur Dioxide 20/a
67 28 241	Ethylene Oxide 25/a	81 01 091	Sulphur Dioxide 5/a-D
81 01 491	Fluorine 0.1/a	81 01 531	Sulphur Dioxide 50/b
67 33 081	Formaldehyde 0.2/a	67 28 781	Sulphuric Acid 1/a

81 01 751	Formaldehyde 2/a	81 01 341	Tetrahydrothiophene 1/b
67 22 701	Formic Acid 1/a	CH 25 803	Thioether
81 03 410	Fumigation-Test-Set	81 01 731	Toluene 100/a
67 28 391	Hexane 100/a	81 01 421	Toluene 100/a-D
81 03 351	Hydrazine 0.01/a	CH 23 001	Toluene 5/a
67 33 121	Hydrazine 0.2/a	81 01 661	Toluene 5/b
CH 31 801	Hydrazine 0.25/a	81 01 701	Toluene 50/a
67 28 571	Hydro Carbon 100/a-L	67 24 501	Toluene Diisocyanate 0.02/A
81 01 681	Hydrochloric Acid / Nitric Acid 1/a	CH 21 101	Trichloroethane 50/d
81 03 481	Hydrochloric Acid 0,2/a	CH 24 401	Trichloroethylene 10/a
CH 29 501	Hydrochloric Acid 1/a	67 28 541	Trichloroethylene 2/a
67 33 111	Hydrochloric Acid 10/a-D	81 01 441	Trichloroethylene 200/a-D
67 28 181	Hydrochloric Acid 50/a	81 01 881	Trichloroethylene 50/a
81 03 601	Hydrocyanic Acid 0,5/a	67 18 401	Triethylamine 5/a
CH 25 701	Hydrocyanic Acid 2/a	81 01 721	Vinyl Chloride 0.5/b
67 33 221	Hydrocyanic Acid 20/a-D	67 28 031	Vinyl Chloride 1/a
81 01 511	Hydrogen 0.2 %/a	CH 19 601	Vinyl Chloride 100/a
CH 30 901	Hydrogen 0.5 %/a	CH 23 401	Water Vapour 0,1
81 03 251	Hydrogen Fluoride 0.5/a	81 01 321	Water Vapour 0,1/a
CH 30 301	Hydrogen Fluoride 1.5/b	81 01 081	Water Vapour 1/a
81 01 041	Hydrogen Peroxide 0,1/a	81 01 781	Water Vapour 1/b
CH 28 201	Hydrogen Sulphide + Sulphur Dioxide 0.2 %/A	81 03 031	Water Vapour 3/a
CH 28 101	Hydrogen Sulphide 0.2 %/A	81 03 061	Water Vapour 20/a-P
81 01 461	Hydrogen Sulphide 0.2/a	67 28 531	Water Vapour 5/a-P

2. Hazards identification

2.0 General information:
Dräger-Tubes™ 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!

2.1 Classification:
Nature of hazard: "GHS07",
"H332", H312", H302"
"H318"

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™ 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™-/CMS Handbook.

EINECS / ELINCS-No.	CAS-No.	Designation acc. to the EC Regulations	Content	Unit	GHS-Pictogram	H-Phrases
203-564-8	108-24-7	Acetic acid anhydrid	0-1	w/w per cent	GHS05	H302, H314, H332

n/a	n/a	Amine compounds	0-3	w/w per cent	GHS06, GHS08, GHS09	H302, H319, H331, H335, H373, H400, H410
n/a	n/a	Bariumchloroanilat	0-0.1	w/w per cent	GHS07	H302, H332
n/a	n/a	Bismuth compounds	0-0.05	w/w per cent	GHS03, GHS07	H270, H315, H319, H335
n/a	n/a	Butyrylcholiniodide	0-0.1	w/w per cent	GHS07	H315, H319, H335
237-029-5	10294-42-5	Cerium sulfate	0-0.1	w/w per cent	GHS07	H315, H319
n/a	n/a	Chromium(VI) salts	0-2	w/w per cent	GHS06, GHS09	H301, H312, H315, H317, H318, H330, H335, H400, H410
n/a	n/a	Copper salts	0-10	w/w per cent	GHS07, GHS09	H302, H315, H319, H400, H410
n/a	107-21-1	Ethylene glycol	0-0,2	w/w per cent	GHS07	H302
n/a	n/a	Formaldehyde	0-0.1	w/w per cent	GHS07	H302, H315, H317, H319, H332, H335,
n/a	n/a	Furfurol	0-0.1	w/w per cent	GHS06, GHS07	H301, H312,H319, H330, H331, H335
n/a	n/a	Gold salts	0-1	w/w per cent	GHS05	H302, H314
206-114-9	78036-57-8	Hydrazine-Hydrate	0-6	w/w per cent	GHS06, GHS09	H301, H311, H314, H317, H330, H331, H400, H410
n/a	n/a	Hydrochloric acid	0-0.5	w/w per cent	GHS05	H314, H335
231-442-4	7553-56-2	Iodine	0-3	w/w per cent	GHS07, GHS09	H312, H332, H400
234-740-2	12029-98-0	Iodinepentoxide	0-0.01	w/w per cent	GHS07	H315, H319
n/a	n.a	Lead salts	0-0,1	w/w per cent	GHS06, GHS09	H373, H400, H410
n/a	n/a	Magnesium perchlorate	0-0.1	w/w per cent	GHS07	H315, H319, H335
n/a	n/a	Mercury salts	0-0.1	w/w per cent	GHS06, GHS09	H300, H314, H372, H400, H410
202-088-8	91-66-7	N,N-Diethylaniline	0-0.2	w/w per cent	GHS06, GHS09	H301, H311, H330, H331, H373, H411
204-358-0	119-93-7	o-Tolidine	0-0.5	w/w per cent	GHS06, GHS09	H302, H411
n/a	n/a	o-Dianisidine	0-0.1	w/w per cent	GHS06	H302
n/a	n/a	Palladium compounds	0-0.2	w/w per cent	GHS05	H314
231-760-3	772-64-7	Potassium permanganate	0-0.1	w/w per cent	GHS07, GHS09	H302, H400, H410
231-633-2	7664-38-2	o-Phosphoric acid	0-10	w/w per cent	GHS05	H290, H314
203-809-9	110-86-1	Pyridine	0-5	w/w per cent	GHS07	H302, H312, H332
n/a	n/a	Pyridylpyridiniumchloride	0-0.1	w/w per cent	GHS07	H315, H319, H335
n/a	n/a	Silver salts	0-0.1	w/w per cent	GHS05, GHS09	H314, H400, H410

n/a	n/a	Selenium salts	0-1	w/w per cent	GHS06, GHS09	H330, H331, H373, H400, H410
n/a	n/a	Sodium salts	0-1	w/w per cent	GHS05	H314
n/a	n/a	Sulphuric acid	0-5	w/w per cent	GHS05	H314
n/a	n/a	Xylene	0-1	w/w per cent	GHS07	H312, H315, H332
n/a	n/a	Zirconium compounds	0-0.0005	w/w per cent	GHS05	H314

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

2.3 Other information:

Dräger-Tubes™ 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™ contain filled glass ampoules also with reactive liquids.
Important ingredients in preparations used for the Dräger-Tubes™:
- 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™:
- inorganic acids,
- organic solvents.

Dräger-Tubes™ contain no ozone-depleting chemicals and no volatile organic chemicals (except special ampoules). During the manufacturing process for the Dräger-Tubes™ (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™ 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™ -/CMS 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™ 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™ 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™.

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™ 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™ 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™ 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™ 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™ cited in section 1 are no dangerous goods. These Dräger-Tubes™ 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™ cited in section 1 are no dangerous goods. These Dräger-Tubes™ 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:	d-em
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