Lovibond[®] Water Testing

Tintometer® Group



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 15.07.2013

Version number 12

Revision: 15.07.2013

1 Identification of the substance/mixture and of the company/undertaking

- · 1.1 Product identifier
- · Product name: COD Reagent Vario MR
- · Catalog number: 420721, 2420721, 420726, 2420726
- 1.2 Relevant identified uses of the substance or mixture and uses advised against No further relevant information available.
- Application of the substance / the preparation: Reagent for water analysis
- · 1.3 Details of the supplier of the safety data sheet
- Supplier: Tintometer GmbH Schleefstr. 8-12 DE-44287 Dortmund Made in Germany www.lovibond.com
- Informing department:
 e-mail: produktsicherheit@tintometer.de
 Product Safety Department
 Contact for technical details:
- Technical Department e-mail: technik@tintometer.de
- **1.4 Emergency telephone number:** Poison Center Berlin, Germany phone: 0049-30 30686 790

2 Hazards identification

- · 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008

GHS06 skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.

GHS08 health hazard

Muta. 1B	H340 May cause genetic defects.
Carc. 1B	H350 May cause cancer.
STOT RE 2	H373 May cause damage to organs through prolonged or repeated exposure.

GHS05 corrosion

Met. Corr.1H290May be corrosive to metals.Skin Corr. 1AH314Causes severe skin burns and eye damage.

GHS09 environment

Aquatic Acute 1H400Very toxic to aquatic life.Aquatic Chronic 1H410Very toxic to aquatic life with long lasting effects.

phone: +49 (0) 231 945100 E-Mail: sales@tintometer.de

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

Acute Tox. 4 H302 Harmful if swallowed. • Classification according to Directive 67/548/EEC or Directive 1999/45/EC Image: T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. Image: C; Corrosive R35: Causes severe burns.		(Contd. of page 1)
Acute Tox. 4 H302 Harmful if swallowed. • Classification according to Directive 67/548/EEC or Directive 1999/45/EC • T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. • C; Corrosive	$\mathbf{\wedge}$	
Acute Tox. 4 H302 Harmful if swallowed. • Classification according to Directive 67/548/EEC or Directive 1999/45/EC • T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. • C; Corrosive	CHS07	
Classification according to Directive 67/548/EEC or Directive 1999/45/EC T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. C; Corrosive	• GI 1307	
Classification according to Directive 67/548/EEC or Directive 1999/45/EC T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. C; Corrosive		
Image: T; Toxic R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed. Image: C; Corrosive		
R45-46-23/24/25: May cause cancer. May cause heritable genetic damage. Toxic by inhalation, in contact with skin and if swallowed.	Classification acce	ording to Directive 67/548/EEC or Directive 1999/45/EC
swallowed.	T; Toxic	
	R45-46-23/24/25:	
R35: Causes severe burns.	E; Corrosive	
	R35:	Causes severe burns.
R33-52/53: Danger of cumulative effects. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	R33-52/53:	
 • 2.2 Label elements • Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation. • Hazard pictograms GHS05, GHS06, GHS08, GHS09 • Signal word Danger 	Labelling accordin Hazard pictograms	ng to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation. s GHS05, GHS06, GHS08, GHS09
· Hazard-determining components of labelling:		
sulphuric acid	sulphuric acid	
mercury sulphate		
potassium dichromate	•	
· Hazard statements		
Contains potassium dichromate. May produce an allergic reaction. H290 May be corrosive to metals.		
H302 Harmful if swallowed.		
H311 Toxic in contact with skin.		
H314 Causes severe skin burns and eye damage.		
H340 May cause genetic defects.		
H350 May cause cancer.		
H373 May cause damage to organs through prolonged or repeated exposure.		
H410 Very toxic to aquatic life with long lasting effects.		
Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray.		
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.		
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.		
P309 IF exposed or if you feel unwell:		
P310 Immediately call a POISON CENTER or doctor/physician.	P310	Immediately call a POISON CENTER or doctor/physician.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.		
Additional information:		
Contains potassium dichromate. May produce an allergic reaction. Restricted to professional users.	Contains potassium Restricted to profes	n dichromate. May produce an allergic reaction. ssional users.
Composition/information on ingredients	3 Composition/ir	oformation on ingredients
Composition/information on ingredients	5 Composition/II	normation on ingredients
	· 3.2 Mixtures	
Description: sulfuric acid solution		
• Dangerous components: The percent content of the chromium compound mentioned below refers to the amount of the pure chromium therein.		

•	ercury compound mentioned below refers to the amount of the pure mercury therein.	
	sulphuric acid	80-90%
Index number: 016-020-00-8	☑ C R35 ♦ Met. Corr.1, H290; Skin Corr. 1A, H314	
		td. on page 3)

GB — GB —

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

Printing date 15.07.2013

CAS: 7783-35-9	mercury sulphate	ntd. of page 2 0.1-1.0%
EINECS: 231-992-5 Index number: 080-002-00-6	፼ T+ R26/27/28; ₩ N R50/53 R33	
	♦ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ♦ STOT RE 2, H373; ♦ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	
CAS: 7778-50-9	potassium dichromate	0.1-0.3%
EINECS: 231-906-6	😡 T+ R26; 😡 T Carc. Cat. 2, Muta. Cat. 2, Repr. Cat. 2 R45-46-60-61-25-48/23; 🧾	
Index number: 024-002-00-6	C R34; 🗙 Xn R21; 🗙 Xn R42/43; 👩 O R8; 🌄 N R50/53	
	♦ Ox. Sol. 2, H272; ♦ Acute Tox. 3, H301; Acute Tox. 2, H330; ♦ Resp. Sens. 1, H334; Muta. 1B, H340; Carc. 1B, H350; Repr. 1B, H360FD; STOT RE 1, H372;	
	H334; Muta. 1B, H340; Carc. 1B, H350; Repr. 1B, H360FD; STOT RE 1, H372;	
	Skin Corr. 1B, H314; 🚯 Aquatic Acute 1, H400; Aquatic Chronic 1, H410;	
	🔆 Acute Tox. 4, H312; Skin Sens. 1, H317	
CAS: 10294-26-5	disilver(1+) sulphate	0.1-1.0%
EINECS: 233-653-7	🗙 Xi R41	
	📀 Eye Dam. 1, H318; 🚸 Aquatic Acute 1, H400; Aquatic Chronic 1, H410]
REACH - Pre-registered sub	ostances All components are REACH pre-registered.	•

· SVHC

7778-50-9 potassium dichromate

• Additional information For the wording of the listed risk phrases refer to section 16.

4 First aid measures

· 4.1 Description of first aid measures

· General information

Personal protection for the First Aider!

Instantly remove any clothing soiled by the product.

· After inhalation

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness bring patient into stable side position for transport.

· After skin contact

Instantly wash with polyethylene glycol 400.

Instantly rinse with water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

· After eye contact

Rinse opened eye for several minutes (at least 10 min) under running water.

Call a doctor immediately.

· After swallowing

Do not induce vomiting; instantly call for medical help.

Rinse out mouth and then drink 1-2 glasses of water.

\cdot 4.2 Most important symptoms and effects, both acute and delayed

burns after inhalation: breathing difficulty coughing damage to the affected mucous membranes after swallowing: metallic taste bloody diarrhoea pain strong caustic effect. unconsciousness methaemoglobin formation vomiting cramps · Danger Danger of system failure. Danger of gastric perforation. · 4.3 Indication of any immediate medical attention and special treatment needed If swallowed or in case of vomiting, danger of entering the lungs

Subsequent observation for pneumonia and pulmonary oedema

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

5 Firefighting measures

· 5.1 Extinguishing media

Printing date 15.07.2013

- · Suitable extinguishing agents CO2, sand, extinguishing powder. Do not use water.
- · For safety reasons unsuitable extinguishing agents Water.
- · 5.2 Special hazards arising from the substance or mixture
- Formation of toxic gases is possible during heating or in case of fire.

nitrous gases Sulphur oxides (SOx) mercury vapours chromium trioxide

- Dipotassium oxide
- 5.3 Advice for firefighters
- Protective equipment:

Wear self-contained breathing apparatus. Wear full protective suit.

· Additional information

Collect contaminated fire fighting water separately. It must not enter drains.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away.
 Ensure adequate ventilation
- · 6.2 Environmental precautions:

Do not allow product to reach sewage system or water bodies. Inform respective authorities in case product reaches water or sewage system. • 6.3 Methods and material for containment and cleaning up:

Dispose of contaminated material as waste according to item 13.

Ensure adequate ventilation.

Absorb with liquid-binding material (sand, diatomite, universal binders).

6.4 Reference to other sections
 See Section 7 for information on safe handling
 See Section 8 for information on personal protection

See Section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

7 Handling and storage

· 7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols. Use only in well ventilated areas.

· Information about protection against explosions and fires: The product is not flammable

· 7.2 Conditions for safe storage, including any incompatibilities

- · Storage
- Requirements to be met by storerooms and containers: Store in cool location.
- suitable material for container: HDPE
- · Information about storage in one common storage facility:
- Store away from water.
- Store away from metals.
- Further information about storage conditions: Keep container tightly sealed.

Protect from heat and direct sunlight.

Protect from humidity and keep away from water.

- Protect from the effects of light.
- Recommended storage temperature: 20 °C +/- 5 °C
- · Storage class 6.1 D

(Contd. of page 3)

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

· 7.3 Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

8.1 Control parameters · Components with limit values that require monitoring at the workplace: 7664-93-9 sulphuric acid (80-90%) WEL (Great Britain) Long-term value: 0.05* mg/m³ *mist: is defined as fraction IOELV (European Union) Long-term value: 0.05 mg/m³ OEL (Sweden) Short-term value: 0.2 mg/m3 Long-term value: 0.1 mg/m³ C 10294-26-5 disilver(1+) sulphate (0.1-1.0%) WEL (Great Britain) Long-term value: 0.01 mg/m³ as Ag 7778-50-9 potassium dichromate (0.1-1.0%) WEL (Great Britain) Long-term value: 0.05 mg/m³ as Cr; Carc, Sen OEL (Sweden) Short-term value: 0.015* mg/m3 Long-term value: 0.005** mg/m³ *Cr(VI) föreningar:C, S; **totaldamm · Ingredients with biological limit values: 7783-35-9 mercury sulphate (0.1-1.0%) BMGV (Great Britain) 20 µmol/mol creatinine Medium: urine Sampling time: random Parameter: mercury 7778-50-9 potassium dichromate (0.1-1.0%) BMGV (Great Britain) 10 µmol/mol creatinine Medium: urine Sampling time: post shift Parameter: chromium 8.2 Exposure controls · Personal protective equipment · General protective and hygienic measures Avoid contact with the eyes and skin. Do not eat, drink or smoke while working. · Breathing equipment: Use breathing protection against the effects of fumes/dust/aerosol. · Recommended filter device for short term use: Filter B · Protection of hands: Acid resistant gloves Preventive skin protection by use of skin-protecting agents is recommended. After use of gloves apply skin-cleaning agents and skin cosmetics. Material of gloves Butyl rubber, BR Recommended thickness of the material: ≥ 0.11 mm · Penetration time of glove material The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed. Value for the permeation: Level ≤ 1 (>10 min) · Eye protection: Tightly sealed safety glasses.

· Body protection: Acid resistant protective clothing

GB -(Contd. on page 6)

(Contd. of page 4)

Printing date 15.07.2013

Version number 12

Revision: 15.07.2013

(Contd. of page 5)

Product name: COD Reagent Vario MR

Printing date 15.07.2013

9 Physical and chemical	properties
 9.1 Information on basic phy Appearance: 	sical and chemical properties
Form:	Liquid
Colour:	Yellow-brown
· Odour:	Recognizable
· pH-value at 20 °C:	1
 Melting point/Melting range: Boiling point/Boiling range: 	
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density at 20 °C	1.758 g/cm ³
 Solubility in / Miscibility with Water: 	i Fully miscible
 Solvent content: Organic solvents: Water: 	0.0 % < 20 %
Solids content: · 9.2 Other information	< 5 % No further relevant information available.

10 Stability and reactivity

· Reactivity

- · Thermal decomposition / conditions to be avoided: strong heating
- Possibility of hazardous reactions
 Corrosive action on metals
 When diluting, always add acid to water, never vice versa
 Reacts with metals forming hydrogen (--> Explosive!)
 Forms hydrogen in aqueous solution with metals
 Reacts with organic substances
 Diluting or dissolving in water always causes rapid heating
 Conditions to avoid No further relevant information available.
- · Incompatible materials: organic substances ammonia (NH3) alkali compounds alkalis acids metals halogen compounds combustible substances organic solvents nitriles peroxides reducing agents oxidizing agents · Hazardous decomposition products: nitrous gases Sulphur oxides (SOx)

11 Toxicological information

see chapter 5

Г

· 11.1 Information on toxicological effects

· Acute toxicity: Quantitative data on the toxicity of the preparation are not available.

· LD/LC50 values that are relevant for classification:

	raidee ina		
Oral	ATE _(MIX)	687 mg/kg (.)	
		(Contd. on page 7	1

Printing date 15.07.2013

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

			ontd. of page 6)
Dermal		694 mg/kg (.)	
Inhalative		56.6 mg/l (.)	
7664-93-9	sulphuric	c acid	
Oral	LD50	2140 mg/kg (rat) (IUCLID)	
Inhalative	LC 50	510 (pure) mg/m³/2h (rat) IUCLID	
7783-35-9	mercury s	sulphate	
Oral	LD50	57 mg/kg (rat) (RTECS)	
Dermal	LD50	625 mg/kg (rat)	
7778-50-9	potassiun	m dichromate	
Oral	LD	(human)	
	LD50	25 mg/kg (rat) (RTECS)	
	LDLo	26 mg/kg (child)	
		143 mg/kg (man)	
Dermal	LD50	1170 mg/kg (rat)	
		14 mg/kg (rabbit) (Sigma-Aldrich)	
Inhalative	LC50	0.094 mg/l/4h (rat)	
	LD50 IPR	28 mg/kg (rat)	

· Primary irritant effect:

• on the skin: Strong caustic effect on skin and mucous membranes.

· on the eye: strong caustic effect.

· Sensitization: Sensitizing effect by inhalation and skin contact is possible by prolonged exposure.

· Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach. Mercury compounds have a cytotoxic and protoplasmatoxic effect.

The principal signs manifest themselves in the CNS.

Inhalable chromium (VI) compounds have claerly shown themselves to be carcinogenic in animal experiments.

Poor tendency for ulcers to heal following penetration of substance into the wound.

Lethal dose (man): 0.5 g

Antidotes: chelating agents such as EDTA, DMPS

· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)

The product can cause inheritable damage.

Carcinogenic

May cause harm to the unborn child. Pregnant women should not be exposed to the product.

Product is suspected to cause injury to foetus.

Muta. 1B, Carc. 1B

12 Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

The following applies to the water-soluble matter contained in inorganic Hg compounds in general:

The toxicity of mercury(II)ions	for water organism depends on the water hardness (IPCS).	

7664-93-9 su	Iphuric acid
Daphnia EC5	0 29 mg/l/24h (Daphnia magna)
LC50	16-29 mg/l/96h (Lepomis macrochirus) MERCK
7783-35-9 me	ercury sulphate
EC50	0.005-3.6 mg/l/48h (Daphnia magna)
LC50	0.5 mg/l/48h (Leuciscus idus)
	0.19 mg/l/96h (Pimephales promelas)
	(Contd. on page 8)

(Contd. on page 8)

GB

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

7778-50-9 potassium dichromate

1110-50-9	potassium dichromate	
EC50	0.77 mg/l/48h (Daphnia i (in soft water - Merck/IU	
LC50	58.5 mg/l/96h (byr)	
	160 mg/l/96h (Poecilia re	eticulata)
	26.13 mg/l/96h (Pimepha (Merck/IUCLID)	ales promelas)
· 12.2 Persis	stence and degradability No	o further relevant information available.
Does not ca • 12.3 Bioaco • Behaviour	e data on the ecological effect ause biolocigal oxygen deficit.	her relevant information available.
 Ecotoxical Remark: Toxic for fis sulphates > Forms corre Harmful to a Algea toxic Bacterial to Bacterial to Remark: ne Additional General no Water dang Do not allow Danger to co Rinse off of aquatic orga 	effects: -7 g/l - 7	n if diluted. lorella vulgaris IC50: 0.16 - 0.59 mg/l/96 h Photobacterium phosphoreum EC50: 58 mg/l/30 min Microtox-Test (MERCK) on) (Self-assessment acc. VwVwS Annex 4): extremely hazardous for water. iter, water bodies or sewage system, even in small quantities. ely small quantities leak into soil. or the aquatic environment may lead to decreased pH-values. A low pH-value harms
· vPvB asse · 12.6 Other	ssments: no data available	elevant information available.
	e treatment methods ndation Hand over to dispose	ers of hazardous waste.
	waste catalogue	
16 05 07 d	iscarded inorganic chemicals	consisting of or containing dangerous substances
	packagings: ndation: Disposal must be m	ade according to official regulations.
4 Transpoi	rt information	
· 14.1 UN-Nu · ADR, IMDO		UN2922
· 14.2 UN pr · ADR	oper shipping name	2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE), ENVIRONMENTALLY HAZARDOUS
·IMDG		CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY SULPHATE), MARINE POLLUTANT
· IATA		CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, MERCURY

SULPHATE)

(Contd. on page 9) GB

Printing date 15.07.2013

(Contd. of page 7)

Version number 12

Revision: 15.07.2013

Product name: COD Reagent Vario MR

Printing date 15.07.2013

	(Contd. of pa
· 14.3 Transport hazard class(es)	
· ADR	
· Class	8 (CT1) Corrosive substances.
· Label	8+6.1
·IMDG	
· Class · Label	8 Corrosive substances. 8+6.1
· IATA	
· Class · Label	8 Corrosive substances. 8+6.1
 14.4 Packing group ADR, IMDG, IATA 	II
 14.5 Environmental hazards: Marine pollutant: 	Yes Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Corrosive substances.
Kemler Number: EMS Number:	86 F-A,S-B
· Segregation groups	Acids
• 14.7 Transport in bulk according to Ann	ex II of
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
 Transport category Tunnel restriction code 	2 E
	E

15 Regulatory information

• 15.4 Safety, health and environmental regulations/legislation specific for the substance or mixture

· National regulations

· Additional classification according to Decree on Hazardous Materials, Annex II:

Carcinogenic hazardous material group III (dangerous)

 Information about limitation of use: Observe employment restrictions for pregnant and nursing mothers according to the 'mother protection guideline' (92/85/EEC) . Employment restrictions concerning young persons must be observed.

 \cdot Substances of very high concern (SVHC) according to REACH, Article 57

7778-50-9 potassium dichromate

Version number 12

Product name: COD Reagent Vario MR

Revision: 15.07.2013

(Contd. of page 9)

GB -

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

 Relevant p 	phrases			
H272	May intensify fire; oxidiser.			
H290	May be corrosive to metals.			
H300	Fatal if swallowed.			
H301	Toxic if swallowed.			
H310	Fatal in contact with skin.			
H312	Harmful in contact with skin.			
H314	Causes severe skin burns and eye damage.			
H317	May cause an allergic skin reaction.			
	Causes serious eye damage.			
H330	Fatal if inhaled.			
	May cause allergy or asthma symptoms or breathing difficulties if inhaled.			
	May cause genetic defects.			
	May cause cancer.			
	May damage fertility. May damage the unborn child.			
	Causes damage to organs through prolonged or repeated exposure.			
	May cause damage to organs through prolonged or repeated exposure.			
	Very toxic to aquatic life.			
	Very toxic to aquatic life with long lasting effects.			
R21	Harmful in contact with skin.			
R25	Toxic if swallowed.			
	Very toxic by inhalation.			
	Very toxic by inhalation, in contact with skin and if swallowed.			
	Danger of cumulative effects.			
R34	Causes burns.			
R35	Causes severe burns.			
	Risk of serious damage to eyes.			
	May cause sensitisation by inhalation and skin contact.			
	May cause cancer.			
	May cause heritable genetic damage.			
	Toxic: danger of serious damage to health by prolonged exposure through inhalation.			
	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.			
	May impair fertility.			
	May cause harm to the unborn child.			
R8	Contact with combustible material may cause fire.			
· Abbreviati	ions and acronyms:			
EC50: effectiv	ve concentration, 50 percent (in vivo)			
	européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods			
by Road)	ational Maritime Code for Dangerous Goods			
	IATA: International Air Transport Association			
GHS: Globally	GHS: Globally Harmonized System of Classification and Labelling of Chemicals			
	opean Inventory of Existing Commercial Chemical Substances			
	opean List of Notified Chemical Substances al Abstracts Service (division of the American Chemical Society)			
LC50: Lethal	concentration, 50 percent			
LD50: Lethal	dose, 50 percent			
· Sources				

Sources
 IUCLID (International Uniform Chemical Information Database)
 GESTIS-Stoffdatenbank
 International Chemical Safety Cards (ICSCs)
 Data arise from reference works and literature.

 \cdot * Data compared to the previous version altered.