

Safety data sheet according to 1907/2006/EC, Article 31

Printing date 18.05.2011

Version number 79

Revision: 18.05.2011

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

- **Product identifier** Reagent for water analysis
 - **Product name:** Acidifying GP
 - **Catalog number:** 00515481BT, (4)515480BT, (4)515481BT, 515483(0)BT, 00515480BT, 00515489BT
 - **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
 - **Emergency telephone number:**
Poison Center Berlin, Germany
phone: 0049-30 30686 790
- phone: +49 (0) 231 945100
E-Mail: sales@tintometer.de

2 Hazards identification

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



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R36: Irritating to eyes.

- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms** GHS07
- **Signal word** Warning
- **Hazard statements**
H319 Causes serious eye irritation.
- **Precautionary statements**
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Preparation contains organic compounds.

· Dangerous components:			
CAS: 77-92-9 EINECS: 201-069-1	citric acid	 Xi R36  Eye Irrit. 2, H319	50-60%
CAS: 124-04-9 EINECS: 204-673-3 Index number: 607-144-00-9	adipic acid	 Xi R36  Eye Irrit. 2, H319	25-35%

- **REACH - Pre-registered substances** All components are REACH pre-registered.
- **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **Description of first aid measures**
- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes (at least 10 min) under running water.
Call a doctor immediately.
- **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment.
- **Most important symptoms and effects, both acute and delayed**
after inhalation:
irritations
coughing
mucous membrane irritation
After swallowing of large amounts:
gastric or intestinal trouble
pain
vomiting

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**
Foam
Water spray jet
Water
Fire-extinguishing powder
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Nitrogen oxides (NOx)
Carbon monoxide (CO)
Sulphur dioxide (SO2)
combustible
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.

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- **Additional information**

Ambient fire may liberate hazardous vapours.

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

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Avoid causing dust.

- **Environmental precautions:** Do not allow product to reach sewage system or water bodies.

- **Methods and material for containment and cleaning up:**

Collect mechanically.

Ensure adequate ventilation.

Dispose of contaminated material as waste according to item 13.

- **Reference to other sections**

See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**

- **Precautions for safe handling** Thorough dedusting.

- **Information about protection against explosions and fires:**

Protect from heat.

Keep ignition sources away - Do not smoke.

- **Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and containers:**

Store in cool location.

Unsuitable material for container: steel.

- **Information about storage in one common storage facility:** Store away from metals.

- **Further information about storage conditions:**

Keep container tightly sealed.

Protect from heat and direct sunlight.

Store under dry conditions.

Protect from humidity and keep away from water.

Protect from the effects of light.

- **Recommended storage temperature:** 20°C +/- 5°C

- **Storage class** 10-13

8 Exposure controls/personal protection

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

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- **Additional information:** The lists that were valid during the compilation were used as basis.

- **Exposure controls**

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from foodstuffs, beverages and food.

Take off immediately all contaminated clothing

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Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:** After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≥ 1 (>10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
use against the effects of fumes / dust
Tightly sealed safety glasses.
- **Body protection:** Protective work clothing.

9 Physical and chemical properties

· Information on basic physical and chemical properties	
· Appearance:	
Form:	Tablets
Colour:	White
· Odour:	Odourless
· pH-value (9.5 g/l) at 20°C:	2.4
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	265°C
· Flash point:	Not applicable
· Danger of explosion:	Product is not explosive.
· Density at 20°C	1.458 g/cm ³
· Solubility in / Miscibility with Water:	Soluble
· Solvent content:	
Organic solvents:	0.0 %
Solids content:	100.0 %

*10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** strong heating
- **Possibility of hazardous reactions**
Risk of dust explosion if enriched with fine dust in presence of air
Reacts with certain metals
Aqueous solution reacts with metals.
Aqueous solution reacts acidic.
- **Incompatible materials:**
alkalis
metals
halogen compounds
nitrates

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combustible substances

reducing agents

Citric acid: incompatible with bases, strong oxidizers, amines. Contact with metal nitrates may be explosive. Attacks aluminum, copper, zinc und their alloys, when wet.

oxidizing agents

· **Hazardous decomposition products:** see chapter 5

* 11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

Quantitative data on the toxicity of the preparation are not available.

The following statements refer to the individual components.

· LD/LC50 values that are relevant for classification:

77-92-9 citric acid

Oral	LD50	3000 mg/kg (rat) (IUCLID)
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· Primary irritant effect:

· **on the skin:** Irritant to skin and mucous membranes.· **on the eye:** Irritant effect.· **Sensitization:** Sensitizing effect by skin contact is possible by prolonged/repeated exposure.

· Subacute to chronic toxicity:

CAS-No. 124-04-9:

Sensitization test (guinea pig): negative (IUCLID)

Citric acid: A single drop of a 2% or 5% solution in water causes little or no irritation. A 0.5% solution held in contact with the eye causes irreversible tissue damage to the cornea.

Citric Acid caused mild irritation when 500 mg was tested on rabbit skin in a 24-hour test. (CHEMINFO, Canadian Centre for Occupational Health and Safety)

· Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Irritant

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** no data available

12 Ecological information

· Toxicity

· Aquatic toxicity:

77-92-9 citric acid

EC50	~ 120 /72h/ mg/l (Daphnia magna) (IUCLID)
LC50	440-760 mg/l/96h (Leuciscus idus) (IUCLID)

· Persistence and degradability

· Other information:

Quantitative data on the ecological effect of this product are not available.

The following statements refer to the individual components.

CAS-No. 124-04-9: 100% / 28 d

CAS: 77-92-9 Citric acid: 98% / 2 d

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· Behaviour in environmental systems:	
77-92-9 citric acid	
log P(o/w)	-1.72 (20°C) (.) (IUCLID)
124-04-9 adipic acid	
log P(o/w)	0.081 (25°C) (.) (MERCK-OECD 107)

· Ecotoxical effects:**· Remark:**

Forms corrosive mixtures with water even if diluted.
Harmful effect due to pH shift.

· Protozoa:	
77-92-9 citric acid	
EC5	485 mg/l/72h (Protozoa) (MERCK)

· Additional ecological information:

· COD-value:	
77-92-9 citric acid	
COD	0.728 g/g (.)

· BSB5-value:	
77-92-9 citric acid	
BSB5	0.526 g/g (IU)
124-04-9 adipic acid	
BSB5	0.598 g/g (OECD)

· General notes:

Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· vPvB assessments: no data available

* 13 Disposal considerations

· Waste treatment methods**· Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to disposers of hazardous waste.

· European waste catalogue	
16 05 08*	discarded organic chemicals consisting of or containing dangerous substances

· Uncleaned packagings:**· Recommendation:** Disposal must be made according to official regulations.**· Recommended cleaning agent:** Water, if necessary with cleaning agent.

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14 Transport information

· **Land transport ADR/RID (cross-border)**· **ADR/RID-GGVs/E Class:** -· **Maritime transport IMDG:**· **IMDG Class:** -· **Marine pollutant:** No· **Air transport ICAO-TI and IATA-DGR:**· **ICAO/IATA Class:** -· **UN "Model Regulation":** -· **Special precautions for user** Not applicable.· **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **National regulations**· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.· **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**

H319 Causes serious eye irritation.

R36 Irritating to eyes.

· **Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· **Sources**

NTP (National Toxicology Program)

Data arise from reference works and literature.

IUCLID (International Uniform Chemical Information Database)

GESTIS-Stoffdatenbank

· *** Data compared to the previous version altered.**



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Version number 44

Revision: 01.02.2011

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

- **Product identifier** Reagent for water analysis
- **Product name:** Chlorine HR
- **Catalog number:** 00513009(BT), 501210, 501211, (4)513000(BT), (4)513001(BT), 5130030(BT)
- **CAS Number:**
7681-11-0
- **EINECS Number:**
231-659-4
- **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
- **Emergency telephone number:**
Poison Center Berlin, Germany
phone: 0049-30 30686 790

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

* 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008** The substance is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Void
- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard-determining components of labelling:** Void
- **Hazard statements** Void

* 3 Composition/information on ingredients

- **Chemical characterization:** Substances inorganic salt
- **CAS No. Designation:**
7681-11-0 potassium iodide
- **Identification number(s):**
- **EINECS Number:** 231-659-4

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* 4 First aid measures

- **Description of first aid measures**
- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly rinse with water.
- **After eye contact**
Rinse opened eye for several minutes under running water (at least 15 minutes). If symptoms persist, consult doctor.
- **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
In case of persistent symptoms consult doctor.
- **Most important symptoms and effects, both acute and delayed**
After swallowing of large amounts:
sickness
vomiting
Danger of system failure.
drop in blood pressure

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire
Hydrogen iodide (HI)
iodine compounds
dipotassium oxide
- **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

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Avoid causing dust.
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
- **Environmental precautions:** Do not allow product to reach sewage system or water bodies.
- **Methods and material for containment and cleaning up:**
Collect mechanically.
Ensure adequate ventilation.
Dispose of contaminated material as waste according to item 13.
- **Reference to other sections** No dangerous materials are released.

* 7 Handling and storage

- **Handling**
- **Precautions for safe handling** No special measures required.

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- **Information about protection against explosions and fires:** The product is not flammable
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - This product is hygroscopic.
 - Store under dry conditions.
 - 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

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8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Wash hands during breaks and at the end of the work.
 - 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 P2
- **Protection of hands:** Preventive skin protection by use of skin-protecting agents is recommended.
- **Material of gloves**
 - nitrile rubber, NBR
 - Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
 - The exact break through 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:**
 - use against the effects of fumes / dust
 - Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties

- | | |
|--|-----------|
| · Information on basic physical and chemical properties | |
| · Appearance: | |
| Form: | Tablets |
| Colour: | White |
| Odour: | Odourless |
| · pH-value (19.6 g/l) at 20°C: 6.1 | |
| · Melting point/Melting range: 686°C | |
| · Boiling point/Boiling range: 1330°C | |
| · Flash point: Not applicable | |
| · Inflammability (solid, gaseous) Product is not inflammable. | |

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Product name: Chlorine HR

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· Danger of explosion:	Product is not explosive.
· Density at 20°C	3.13 g/cm ³
· Solubility in / Miscibility with	
Water at 20°C:	1430 g/l
Organic solvents:	0.0 %
· Solids content:	100.0 %

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **Incompatible materials:**
 - alkali metals
 - ammonia (NH₃)
 - halogen compounds
 - oxidizing agents
 - peroxides
- **Hazardous decomposition products:**
 - Hydrogen iodide (HI)
 - see chapter 5

* 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
7681-11-0 potassium iodide		
Oral	LD50	2779 mg/kg (rat) (MERCK)

- **Primary irritant effect:**
 - **on the skin:** slight irritations possible
 - **on the eye:**
 - Irritant effect.
 - (rabbit)
- **Sensitization:** Sensitization possible in predisposed persons (MERCK).
- **Subacute to chronic toxicity:** iodide: chronic hypothyroidism
- **Additional toxicological information:**
 - When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
 - The material is not subject to classification according to EC lists in the last version.
 - The usual precautionary measures should be adhered to general rules for handling chemicals.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** no data available

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* 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

7681-11-0 potassium iodide

Daphnia EC50	2.7 mg/l/24h (Daphnia magna)
LC50	8960 mg/l/96h (Oncorhynchus mykiss) (ECOTOX)

- **Persistence and degradability**

- **Other information:** Methods for the determination of biodegradability are not applicable to inorganic substances.

- **Behaviour in environmental systems:**

7681-11-0 potassium iodide

log P(o/w)	0.04 (.) (MERCK)
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- **Ecotoxicological effects:**

- **Protozoa:** CAS-No. 7681-11-0: E. sulcatum toxic > 40 mg/l

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment acc. VwVwS Annex 4): slightly hazardous for water.

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

- **Results of PBT and vPvB assessment** no data available

* 13 Disposal considerations

- **Waste treatment methods**

- **Recommendation**

Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

- **European waste catalogue**

16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08
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- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 14 Transport information

- **Land transport ADR/RID (cross-border)**

- **ADR/RID-GGVS/E Class:** -

- **Maritime transport IMDG:**

- **IMDG Class:** -
- **Marine pollutant:** No

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** -

- **UN "Model Regulation":** -

- **Special precautions for user** Not applicable.

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· **Transport/Additional information:** Not dangerous according to the above specifications.

* 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008** The substance is not classified according to the CLP regulation.
- **National regulations**
- **Information about limitation of use:** Not required.
- **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.

· **Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· **Sources**

GESTIS-Stoffdatenbank

ECOTOX Database

Data arise from reference works and literature.

- *** Data compared to the previous version altered.**