

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date: 16.06.2016

Version: 4.00

Revision: 16.06.2016

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

- **1.1 Product identifier**
- **Trade name:** MIRAVIT® L-cid standard
- **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:** Product for use in agriculture
- **Uses advised against -**
- **1.3 Details of the supplier of the safety data sheet**
- **Supplier/Manufacturer:**
VitaVis GmbH
Industrieweg 110
48155 Münster
Germany
- Tel.: +49 (0) 251-682-1144
Fax: +49 (0) 251-682-2008
- **Email competent person:** sds@kft.de
- **Information department:** See supplier/manufacturer
- **1.4 Emergency telephone number:**
National Poison Information Service (NPIS)
24 hour national number professionals only
0844 892 0111
- National Health Service (NHS)
24 hour national number consumer
England and Scotland: 111
Wales: 0845 46 47
Northern Ireland: call your local General Practitioner
- Call 999 if there is a life-threatening incident.

* SECTION 2: Hazards identification

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



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.

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· Hazard pictograms



GHS05 GHS07

· Signal word Danger

· Hazard-determining components of labelling:

formic acid
propionic acid
lactic acid

· Hazard statements

H332 Harmful if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

· Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves / eye protection / face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P302+P352 IF ON SKIN: Wash with plenty of water.
P332+P313 If skin irritation occurs: Get medical advice/attention.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable
· vPvB: Not applicable

* SECTION 3: Composition/information on ingredients

· 3.2 Chemical characterisation: Mixtures

· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 64-18-6	formic acid	25-50%
EINECS: 200-579-1	Flam. Liq. 3, H226; Acute Tox. 3, H331; Skin Corr. 1B, H314; Acute Tox. 4, H302	
Index number: 607-001-00-0		
REACH-no: 01-2119491174-37-xxxx		
CAS: 50-21-5	lactic acid	5-10%
EINECS: 200-018-0	Eye Dam. 1, H318; Skin Irrit. 2, H315	
REACH-no: 01-2119548400-48-xxxx		
CAS: 79-09-4	propionic acid	10-25%
EINECS: 201-176-3	Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	
Index number: 607-089-01-8		
REACH-no: 01-2119486971-24-xxxx		

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CAS: 141-53-7	sodium formate	10-25%
EINECS: 205-488-0		
REACH-no: 01-2119486468-21-xxxx		

CAS: 57-55-6	propane-1,2-diol	1-5%
EINECS: 200-338-0	substance with a Community workplace exposure limit	
REACH-no: 01-2119456809-23-xxxx		

Additional information:

For the wording of the listed hazard phrases refer to section 16.

For further components with national limit values which require monitoring at the workplace please see chapter 8.

SECTION 4: First aid measures**4.1 Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** Supply fresh air; consult a doctor in case of pain.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

After eye contact:

Protect unharmed eye.

Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult an eye specialist immediately.

After swallowing:

Rinse mouth with water.

Spit liquid out again.

Never give anything by mouth to an unconscious person.

Do not induce vomiting.

If symptoms persist, consult doctor.

- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **4.3 Indication of any immediate medical attention and special treatment needed** Symptomatic treatment

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing agents:**CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire fighting measures that suit the environment.

- **For safety reasons unsuitable extinguishing agents:** High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO₂)**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained respiratory protective device.

Wear a fully protective suit.

Additional information:

Cool endangered receptacles with water spray.

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

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SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing.
Avoid contact with eyes and skin.
Do not smoke - keep ignition sources away
Ensure adequate ventilation.

· 6.2 Environmental precautions:

The following information refer to the leakage of large quantities:
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to penetrate the ground/soil.
In case of seepage into the ground inform responsible authorities.

· 6.3 Methods and material for containment and cleaning up:

Dam up larger quantities and pump into containers.
Small quantities:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Make sure to recycle or dispose of in suitable receptacles.

· 6.4 Reference to other sections

See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Do not smoke. Keep ignition sources away.
Take measures against electrostatic charge.

· **Information about protection against explosions and fires:** Observe the general rules of industrial fire protection.

· 7.2 Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles:

Store container tightly sealed at a cool and dry place with sufficient ventilation.

· Information about storage in one common storage facility:

Store away from foodstuffs.
Store away from oxidising agents.
Do not store together with alkalis (caustic solutions).
Refer to national regulations for storing hazardous chemicals.

· **Further information about storage conditions:** Protect from heat and direct sunlight.

· **Storage class:** 10-13 other combustible and non-combustible substances

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

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical systems:

Install appropriate mechanical ventilation.
No further data; see section 7.

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· 8.1 Control parameters

· Components with limit values that require monitoring at the workplace:

64-18-6 formic acid

WEL (Great Britain) Long-term value: 9.6 mg/m³, 5 ppmIOELV (European Union) Long-term value: 9 mg/m³, 5 ppm

79-09-4 propionic acid

WEL (Great Britain) Short-term value: 46 mg/m³, 15 ppmLong-term value: 31 mg/m³, 10 ppmIOELV (European Union) Short-term value: 62 mg/m³, 20 ppmLong-term value: 31 mg/m³, 10 ppm

56-81-5 glycerol

WEL (Great Britain) Long-term value: 10 mg/m³

57-55-6 propane-1,2-diol

WEL (Great Britain) Long-term value: 474* 10** mg/m³, 150* ppm

*total vapour and particulates **particulates

· DNELs

Abbreviations:

In = Industrial

Prof = Professional

Cons = Consumer

LLE = Long term, local effects

LSE = Long term, systemic effects

SLE = Short term, local effects

SSE = Short term, systemic effects

64-18-6 formic acid

Inhalative DNEL/Cons/LLE 3 mg/m³ (human)DNEL/Cons/SLE 9.5 mg/m³ (human)DNEL/In/LLE 9.5 mg/m³ (human)DNEL/In/SLE 17 mg/m³ (human)

· PNECs

Abbreviations:

aq = aqua

sed = sediment

64-18-6 formic acid

PNEC STP 7.2 mg/l (sewage treatment plant)

PNEC/Aq 2 mg/l (fresh water)

1 mg/l (Intermittent releases)

0.2 mg/l (marine water)

PNEC/sed 13.4 mg/kg (fresh water)

1.34 mg/kg (marine water)

· Additional information: The lists that were valid during the creation were used as basis.

· 8.2 Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

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Wash hands before breaks and at the end of work.

Use skin protection cream for skin protection.

Provide eye bath.

- **Breathing equipment:**

In case of unintentional release of substance, exceeding the occupational exposure limit value:



In case of brief exposure or low pollution use a respiratory filter device. In case of intensive or longer exposure use a respiratory protective device that is independent of circulating air.

Filter: ABE

- **Protection of hands:**

Chemical resistant gloves (EN 374)

The glove material has to be impermeable and resistant to the product/substance/preparation.

Selection of the glove material in consideration of the penetration times, rates of diffusion and the degradation

After use of gloves apply skin-cleaning agents and skin cosmetics.

- **Material of gloves:**

Butyl rubber, BR

Polychloroprene rubber (CR)

- **Penetration time of glove material:**

The exact penetration time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Tightly sealed goggles

If splashing possible, wear full face protection.

- **Body protection:**

Protective work clothing

Acid resistant protective clothing

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information:**

- **Appearance:**

Form:	Liquid
Colour:	Brown
	Light brown
Odour:	Pungent
Odour threshold:	Not determined

pH-value:	2.5 - 3.5
	5 % solution

Change in condition:	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined

Flash point:	>66 °C
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Flammability (solid, gaseous):	Not applicable
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Ignition temperature:	Not determined
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Decomposition temperature:	Not determined
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Self ignition temperature:	Product is not self-igniting.
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· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapour mixtures is possible. Not applicable
· Explosion limits:	
Lower:	Not applicable
Upper:	Not applicable
· Oxidizing properties:	Non-oxidizing
· Vapour pressure:	Not determined
· Density at 20 °C:	1150-1250 kg/m ³
· Relative density:	Not determined
· Vapour density:	Not determined
· Evaporation rate:	Not determined
· Solubility in / Miscibility with Water:	Soluble
· Partition coefficient (n-octanol/water):	Not determined
· Viscosity:	
dynamic:	Not determined
kinematic:	Not determined
· 9.2 Other information	No further relevant information available

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications
- **10.3 Possibility of hazardous reactions** Violent reactions with strong alkalis and oxidizing agents
- **10.4 Conditions to avoid** Conditions to be avoided: see chapter 7.
- **10.5 Incompatible materials:** No further relevant information available
- **10.6 Hazardous decomposition products:**
No hazardous decomposition products if instructions for storage and handling are followed

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
Harmful if inhaled.
- **LD/LC50 values that are relevant for classification:**
ATE oral: 1601 mg/kg
ATE dermal: 7196 mg/kg
ATE inhalative (dust/mist): 53 mg/l
ATE inhalation (vapours): 20 mg/l
- **64-18-6 formic acid**
Oral LD₅₀ 730 mg/kg (rat) (OECD 401)
Dermal LD₅₀ 940 mg/kg (rabbit)
Inhalative LC₅₀/4 h 7.4 mg/l (rat) (OECD 403)
- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.

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- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity**

64-18-6 formic acid

Oral NOAEL (P) 650 mg/kg bw/day (rat) (OECD 416)
 NOAEL(developmental) 667 mg/kg bw/day (rabbit) (OECD 414)
 Based on available data, the classification criteria are not met.

- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure**

64-18-6 formic acid

Oral LOAEL 2000 mg/kg bw/d (rat) (OECD 453)
 Read across to structur analogen
 NOAEL 400 mg/kg/day (rat) (OECD 453)
 Read across to structur analogen
 Inhalative LOAEC 244 mg/m³ (rat) (OECD 413)
 NOAEC local/90d 0,122 mg/l (Ratte) (OECD 413)
 NOAEC systemic/90d 0,244 mg/l (Ratte) (OECD 413)

Based on available data, the classification criteria are not met.

- **Aspiration hazard** Based on available data, the classification criteria are not met.

* SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**
- **64-18-6 formic acid**
- EC₅₀/48h 120 mg/l (Daphnia magna)
NOEC 180 mg/l (Daphnia magna) (OECD 202)
Read across
- EC₅₀/72h 1240 mg/l (Pseudokirchneriella subcapitata) (OECD 201)
Noec <76,8* mg/l (Pseudokirchnerella subcapitata) (OECD 201)
Read across
26.9 mg/l (Scenedesmus subspicatus)
- LC₅₀/48h 122 mg/l (Leuciscus idus)
- LC₅₀/96h 130 mg/l (Danio rerio) (OECD 203)
NOEC 90 mg/l Danio rerio
Read across
- NOEC/21d ≥100 mg/l (Daphnia magna) (OECD 211)
- **12.2 Persistence and degradability** Readily biodegradable
- **12.3 Bioaccumulative potential** No bioaccumulation to be expected
- **12.4 Mobility in soil** No further relevant information available

· **Ecotoxicological effects:**· **Remark:** Harmful effects possible due to shift of pH-value.· **Additional ecological information:**· **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous to water

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According to appendix 4 of VwVwS dated 17.05.1999 (German regulation)

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

Danger to drinking water is possible if large quantities leak into the ground or into water course.

Discharging 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.

- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable
- **vPvB:** Not applicable
- **12.6 Other adverse effects** No further relevant information available

*** SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation:**
Must be recycled or disposed of according to the regulations. Waste has to be classified according to the European Waste Catalogue based on the identification of the waste generating source.
Disposal according to instructions of local authorities
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Collect only completely empty packaging for recycling.
Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number · ADR, ADN, IMDG, IATA	Void
· 14.2 UN proper shipping name · ADR, ADN, IMDG, IATA	Void
· 14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA · Class	Void
· 14.4 Packing group · ADR, IMDG, IATA	Void
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user	Not applicable
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable
· Transport/Additional information:	Not dangerous according to the above regulations
· UN "Model Regulation":	Void

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* SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

* SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Reasons for amendments:**
Regulation (EC) No. 1272/2008 /CLP
EC Regulation 453/2010
General revision
Version/s 3 is/are not available in this language.
 - **Replaces version dated:** 26.04.2013
 - **Relevant phrases**
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
 - **Classification according to Regulation (EC) No 1272/2008**
Eye Dam.1 calculation method
Acute Tox.4, Skin Irrit.2 calculation method
STOT SE 3 calculation method
 - **Department issuing SDS:**
KFT Chemieservice GmbH
Im Leuschnerpark. 3 64347 Griesheim
Postfach 1451 64345 Griesheim
Germany
- Phone: +49 6155 8981 400 Fax: +49 6155 8981 500
Safety Data Sheet Service: +49 6155 8981 522
- **Contact:** Barbara Stark
 - **Abbreviations and acronyms:**
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent

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LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
SVHC: Substances of Very High Concern
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Sources:

MSDS of the supplier
Data of supplier

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

Changes have been made to sections marked with a *, as compared to the previous version.