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

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

· **1.1 Product identifier**

· **Trade name: MIRAVIT® PigCid**

· **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

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier/Manufacturer:**
VitaVis GmbH
Industrieweg 110
48155 Münster
Germany

Tel.: +49 (0) 251-682-1133
Fax: +49 (0) 251-682-2008

· **Email competent person:** sds@kft.de

· **Information department:** See supplier/manufacturer

· **1.4 Emergency telephone number:**
National Poisons Information Service (NPIS)
24 hour national number is 0844 892 0111 professionals only

National Health Service (NHS)
24 hour national number is 0845 4647 consumer

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

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


Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.

· **Classification system:** Classified deviating from the formulations directive 1999/45/EC due to test results

· **2.2 Label elements**

· **Labelling according to EU guidelines:**
The product has been classified and marked in accordance with EC Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**


Xi Irritant

· **Hazard-determining components of labelling:**
formic acid

· **Risk phrases:**
36/37/38 Irritating to eyes, respiratory system and skin.

· **Safety phrases:**
20 When using do not eat or drink.
23 Do not breathe vapour/spray.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable

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· **vPvB:** Not applicable

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SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 64-18-6 EINECS: 200-579-1 Index number: 607-001-00-0 Reg.nr.: 01-2119491174-37-xxxx	formic acid C R35 Flam. Liq. 3, H226; Skin Corr. 1A, H314	10-25%
CAS: 50-21-5 EINECS: 200-018-0	latic acid Xi R38-41 Acute Tox. 3, H331; Eye Dam. 1, H318; Skin Irrit. 2, H315	10-25%
CAS: 141-53-7 EINECS: 205-488-0 Reg.nr.: 01-2119486468-21-xxxx	sodium formate	10-25%
CAS: 79-09-4 EINECS: 201-176-3 Index number: 607-089-00-0 Reg.nr.: 01-2119486971-24-xxxx	propionic acid C R34 Flam. Liq. 3, H226; Skin Corr. 1B, H314; Eye Dam. 1, H318	5-10%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

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:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
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 (CO_2)

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· **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.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Avoid contact with eyes and skin.
Ensure adequate ventilation.
· **6.2 Environmental precautions:**
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.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Small quantities:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dam up larger quantities and pump into containers.
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.

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SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **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.
Refer to national regulations for storing hazardous chemicals.
· **Further information about storage conditions:** None
· **Storage class:** 10-13 other combustible and non-combustible substances
· **7.3 Specific end use(s)** No further relevant information available

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SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical systems:**
Install appropriate mechanical ventilation.
No further data; see item 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 ppm
IOELV (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 ppm Long-term value: 31 mg/m³, 10 ppm
IOELV (European Union)	Short-term value: 62 mg/m³, 20 ppm Long-term value: 31 mg/m³, 10 ppm

· **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)

141-53-7 sodium formate

Oral	DNEL/Cons/LSE	25 mg/kg bw/day (human)
Dermal	DNEL/Cons/LLE	8.3 mg/kg bw/day (human)
	DNEL/Cons/LSE	2500 mg/kg bw/day (human)
	DNEL/Cons/SLE	8.33 mg/kg bw/day (human)
	DNEL/Cons/SSE	2500 mg/kg bw/day (human)
	DNEL/In/LLE	16.67 mg/kg bw/day (human)
	DNEL/In/LSE	5000 mg/kg bw/day (human)
	DNEL/In/SLE	16.7 mg/kg bw/day (human)
	DNEL/In/SSE	5000 mg/kg bw/day (human)
Inhalative	DNEL/Cons/LSE	87 mg/m³ (human)
	DNEL/Cons/SSE	87 mg/m³ (human)
	DNEL/In/LSE	353 mg/m³ (human)
	DNEL/In/SSE	350 mg/m³ (human)

79-09-4 propionic acid

Dermal	DNEL/IN/LLE	0.26 mg/cm² (human)
	DNEL/In/SSE	132 mg/kg bw/day (human)
Inhalative	DNEL/In/LLE	31 mg/m³ (human)
	DNEL/In/LSE	31 mg/m³ (human)
	DNEL/In/SLE	62 mg/m³ (human)
	DNEL/In/SSE	62 mg/m³ (human)

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· **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)

141-53-7 sodium formate

PNEC/Aq 2 mg/l (fresh water)
10 mg/l (intermittent release)
0.2 mg/l (marine water)
2.21 mg/l (sewage treatment plant)
PNEC/sed 13.4 mg/kg (fresh water)
(dry weight)
1.34 mg/kg (marine water)
(dry weight)
PNEC/soil 1.5 mg/kg (soil)

79-09-4 propionic acid

PNEC/Aq 0.5 mg/l (fresh water)
5 mg/l (intermittent releases)
0.05 mg/l (marine water)
PNEC/sed 1.86 mg/kg (fresh water)
dry weight
0.186 mg/kg (marine water)
dry weight

· **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.
Wash hands before breaks and at the end of work.
Use skin protection cream for skin protection.
Avoid contact with eyes and skin.
· **Breathing equipment:**
Use a suitable respiratory protective device in case of insufficient ventilation.
Short term filter device (EN 149):
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.

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· **Eye protection:** Tightly sealed goggles
· **Body protection:** Protective work clothing

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information:**	
· **Appearance:**	
Form:	Liquid
Colour:	Brown
· **Odour:**	Pungent
· **Odour threshold:**	Not determined
· **pH-value at 20 °C:**	2.5-3.5 (5%)
· **Change in condition:**	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
· **Flash point:**	Not determined
· **Self ingnition temperature:**	Product is not self-igniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/dust mixtures is possible.
· **Explosion limits:**	
Lower:	Not applicable
Upper:	Not applicable
· **Density at 20 °C:**	1100-1200 kg/m³
· **Solubility in / Miscibility with**	
Water:	Soluble
· **Partition coefficient (n-octanol/water):**	Not determined
· **Viscosity:**	
dynamic:	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** No further relevant information available
· **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

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**
· **LD/LC50 values that are relevant for classification:**

64-18-6 formic acid

Oral LD_{50} 730 mg/kg (rat) (OECD 401)

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Dermal LD_{50} 940 mg/kg (rabbit)
Inhalative LC_{50}/4 h 7.4 mg/l (rat) (OECD 403)

50-21-5 latic acid

Oral LD_{50} 3543 mg/kg (rat) ((EPA OPP 81-1))
Read across
3543 mg/kg (rat/female)
4936 mg/kg (rat/male)
All main study mortalties and range-finding mortalities (6,310 mg/kg) occurred after dosing on day 0 or in the morning of day l except for one main study female dosed at 3,162 mg/kg that was found dead in the morning of day 2. Range-finding animals dosed at 1,000, 1,585, 2,512, and 3,981 mg/kg and surviving main study animals were sacrificed after 14-day observation periods.
Dermal LD0 >2000 mg/kg (rabbit) ((EPA OPP 81-2)3)
Read across
Inhalative LC_{50}/4 h >7.94 mg/l (rat) (OECD 403)
Read across

141-53-7 sodium formate

Oral LD_{50} > 3000 mg/kg (rat)
Dermal LD_{50} >2000 mg/kg (rat) (OECD 402)
Inhalative LC_0 >0.67 mg/m³ (rat) (EPA OTS 798.1150)

79-09-4 propionic acid

Oral LD_{50} 2600 mg/kg (rat)
Dermal LD_{50} 4960-9930 mg/kg (guinea pig)
500 mg/kg (rabbit)
Inhalative LC_{50}/1 h >19.7 mg/l (rat) (OECD 403)
LC_{50}/4 h > 4.9 mg/l (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes
· **on the eye:** Irritating effect
· **On respiratory tract:** Light irritation possible
· **Sensitization:** No sensitizing effects known
· **Other information (about experimental toxicology):**
· **Carcinogenic, mutagenic effects and adverse effects on reproduction:**

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)

79-09-4 propionic acid

Oral NOAEL (canc) 4000 ppm (rat)
2years

141-53-7 sodium formate

Oral NOAEL 2000 mg/kg bw/day (rat) (OECD 453)
104 weeks Read across
NOAEL (P) 1000 mg/kg bw/day (rat) (OECD 416)
NOAEL(developmental) 1000 mg/kg bw/day (rat) (OECD 414)

· **Subacute to chronic toxicity:**
· **STOT-single exposure** No data available
· **STOT-repeated exposure:** No data available
· **Aspiration hazard** No classification
· **Additional toxicological information:** Classified deviating from the formulations directive 1999/45/EC due to test results

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· **Repeated dose toxicity:**

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)

141-53-7 sodium formate

Oral	NOAEL	3185 mg/kg/day (rat) (OECD 453) systemic/90 days Read across

79-09-4 propionic acid

Dermal	LOAEL	136.9 mg/kg bw/d (mouse) (OECD 411) 90 days
Inhalative	NOAEL/90d	50000 ppm (rat) (OECD 408) systemic NOAEL local/ 90days 6200 ppm (rat)

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SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

64-18-6 formic acid

EC_{50}/48h	120 mg/l (Daphnia magna) NOEC 180 mg/l (Daphnia magna) (OECD 202) Read across
EC_{50}/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)
LC_{50}/48h	122 mg/l (Leuciscus idus)
LC_{50}/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)

50-21-5 latic acid

EC_{50}/48h	250 mg/l (Daphnia magna) (OECD 202) Read across
EC_{50}/72h	3500 mg/l (Pseudokirchneriella subcapitata) (OECD 201) Read across
LC_{50}/96h	130 mg/l (Onchorhynchus mykiss) (EPA-669/3-75-009) Read across

141-53-7 sodium formate

EC_{50}/48h	>1000 mg/l (Daphnia magna) (OECD 202) Read across
EbC_{50}/72h	1000 mg/l (Pseudokirchneriella subcapitata) Read across
LC_{50}/48h	> 1000 mg/l (Leuciscus idus)

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LC_{50}/96h >1000 mg/l (Onchorhynchus mykiss) (EPA-669/3-75-009)

79-09-4 propionic acid

EC_{50}/48h (static) >500 mg/l (Daphnia magna) (EU Method C.2)
Read across

EC_{50}/72h >500 mg/l (Desmodesmus subspicatus) (OECD 201)
Read across

EC_{50}/96h 43 mg/l (algae)

43 mg/l (Scenedesmus subspicatus)
Die Angabe der toxischen Wirkung bezieht sich auf die Nominalkonzentration. Das Produkt führt zu Änderungen des pH-Wertes im Testsystem. Das Ergebnis bezieht sich auf die neutralisierte Probe.

LC_{50}/48h 50 mg/l (Daphnia magna)

>500 mg/l (Leuciscus idus)

LC_{50}/96h 10000 mg/l (Leuciscus idus) (DIN 38412)
Read across

NOEC 250 mg/l (Daphnia magna) (EU Method C.2)
Read across

>5000 mg/l (Leuciscus idus) (DIN 38412)
Read across

· **12.2 Persistence and degradability** Readily biodegradable
· **12.3 Bioaccumulative potential** Does not accumulate in organisms.
· **12.4 Mobility in soil** No further relevant information available
· **Ecotoxical 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
According to appendix 4 of VwVwS dated 27.7.2005 (German regulation)
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable
· **12.6 Other adverse effects** No further relevant information available

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
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

· **Uncleaned packagings:**
· **Recommendation:**
Collect only completely empty packaging for recycling.
Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water; if necessary, with cleansing agents

SECTION 14: Transport information

· **14.1 UN-Number**
· **ADR, ADN, IMDG, IATA** Void

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· **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 MARPOL73/78 and the IBC Code**	Not applicable
· **Transport/Additional information:**	Protect from moisture.

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **National regulations**

· **Information about limitation of use:** Take note of Directive 94/33/EC on the protection of young people at work.

· **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:**
General revision
Completion of toxicity data
TLV
Safety phrases
Information on formulation
Data on components
Information on registration
DNEL/PNEC values
Information Section 9
· **Replaces version dated:** 30.04.2012
· **Relevant phrases**
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H331 Toxic if inhaled.

R34 Causes burns.
R35 Causes severe burns.
R38 Irritating to skin.
R41 Risk of serious damage to eyes.

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· **Department issuing MSDS:**
KFT Chemieservice GmbH
Im Leuschnerpark. 3 64347 Griesheim
Postfach 1451 64345 Griesheim
Germany

Phone: +49 6155 86829-0 Fax: +49 6155 86829-25
Safety Data Sheet Service: +49 6155 86829-22
· **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 Harmonized System of Classification and Labelling of Chemicals
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
LD50: Lethal dose, 50 percent
· **Sources:** MSDS of the supplier