

# Formic acid 98-100%

## Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 01/06/2022 Version: 0.0

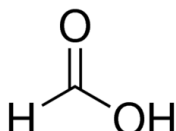
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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
Substance name : Formic acid 98-100%  
EC Index-No. : 607-001-00-0  
EC-No. : 200-579-1  
CAS-No. : 64-18-6  
Type of product : Solution,Group  
Formula : CH<sub>2</sub>O<sub>2</sub>  
Chemical structure :



#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH  
Am Dillhof 2 - 63863 Eschau / GERMANY  
Tel: + 49 93 74 / 978 55-0  
Fax: +49 93 74 / 978 55-29  
[prodsafe@isolab.de](mailto:prodsafe@isolab.de)

#### 1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 30 19240	

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin Corr. 1A H314  
Flam. Liq. 3 H226  
Acute Tox. 4 (Oral) H302  
Acute Tox. 3 (Dermal) H311

Full text of hazard classes and H-statements : see section 16

##### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour.  
H314 - Causes severe skin burns and eye damage.  
H302 - Harmful if swallowed.

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Precautionary statements (CLP)	<p>H331 - Toxic if inhaled. EUH071 - Corrosive to the respiratory tract.</p> <p>: P210 - Keep away from heat. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P310 - IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.</p>
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### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%
Formic acid 98 - 100%	(CAS-No.) 64-18-6 (EC-No.) 200-579-1 (EC Index-No.) 607-001-00-0	98 - 100

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Doctor: administration of corticoid spray. Immediately consult a doctor/medical service.
First-aid measures after skin contact	: Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre ( <a href="http://www.big.be/antigif.htm">www.big.be/antigif.htm</a> ). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Do not give chemical antidote.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: Corrosion of the upper respiratory tract. Dry/sore throat. Coughing. Nausea. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Affection of the nasal septum. Risk of lung oedema. Respiratory collapse.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin.
Symptoms/effects after eye contact	: Corrosion of the eye tissue.
Symptoms/effects after ingestion	: Nausea. Abdominal pain. Risk of aspiration pneumonia. Change in the haemogramme/blood composition. Burns to the gastric/intestinal mucosa. Possible esophageal perforation. Blood in vomit. Bleeding of the gastrointestinal tract. Blood in stool. Shock. Low arterial pressure. Disturbances of consciousness. Decreased renal function.
Chronic symptoms	: No effects known.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : BC powder. Carbon dioxide. MAJOR FIRE: Water spray. Alcohol-resistant foam.  
Unsuitable extinguishing media : No unsuitable extinguishing media known.

#### 5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Material presenting a fire hazard. INDIRECT FIRE HAZARD. Temperature above flashpoint: higher fire/explosion hazard. Reactions involving a fire hazard: see "Reactivity Hazard".  
Explosion hazard : INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

#### 5.3. Advice for firefighters

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Protective equipment : Gas-tight suit. Corrosion-proof suit. See "Material-Handling" to select protective clothing.  
Emergency procedures : Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Keep containers closed. Wash contaminated clothes.

##### 6.1.2. For emergency responders

No additional information available

#### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

#### 6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Dilute toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain. Heating: dilute combustible gas/vapour with water curtain.  
Methods for cleaning up : Liquid spill: neutralize with powdered limestone or sodium bicarbonate. Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

#### 6.4. Reference to other sections

No additional information available

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. At temperature > flashpoint: use spark-/explosionproof appliances. Finely divided: spark- and explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Use earthed equipment. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

#### 7.2. Conditions for safe storage, including any incompatibilities

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.  
Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. metals.  
Storage area : Store in a cool area. Store in a dry area. Ventilation at floor level. Fireproof storeroom. Keep locked up. Protect against frost. Provide for a tub to collect spills. Provide the tank with earthing. Unauthorized persons are not admitted. Store only in a limited quantity. Meet the legal requirements.  
Special rules on packaging : SPECIAL REQUIREMENTS: closing. with pressure relief valve. corrosion-proof. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

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Packaging materials

: SUITABLE MATERIAL: stainless steel. carbon steel. glass. MATERIAL TO AVOID: steel. lead. aluminium. iron. copper. zinc.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Formic acid, 98 - 100%		
EU	Local name	Formic acid
EU	IOELV TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
EU	IOELV TWA (ppm)	5 ppm
Austria	Local name	Ameisensäure
Austria	MAK (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Austria	MAK (ppm)	5 ppm
Austria	MAK Short time value (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Austria	MAK Short time value (ppm)	5 ppm
Belgium	Local name	Acide formique # Mierenzuur
Belgium	Limit value (mg/m <sup>3</sup> )	9.5 mg/m <sup>3</sup>
Belgium	Limit value (ppm)	5 ppm
Belgium	Short time value (mg/m <sup>3</sup> )	19 mg/m <sup>3</sup>
Belgium	Short time value (ppm)	10 ppm
Bulgaria	Local name	Мравчена киселина
Bulgaria	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Bulgaria	OEL TWA (ppm)	5 ppm
Bulgaria	Notes	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Croatia	Local name	Mravlja kiselina, > 90%
Croatia	GVI (granična vrijednost izloženosti) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Croatia	GVI (granična vrijednost izloženosti) (ppm)	5 ppm
Croatia	Naznake (HR)	EU** (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2006/15/ EC (druga lista)); C (nagrizajuće)
Czech Republic	Local name	Kyselina mraven í
Czech Republic	Expoziční limity (PEL) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Czech Republic	Expoziční limity (PEL) (ppm)	4.78 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m <sup>3</sup> )	18 mg/m <sup>3</sup>
Czech Republic	Expoziční limity (NPK-P) (ppm)	9.56 ppm
Denmark	Local name	Myresyre (Methansyre)
Denmark	Grænseværdie (langvarig) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Denmark	Grænseværdie (langvarig) (ppm)	5 ppm
Denmark	Anmærkninger (DK)	E (betyder, at stoffet har en EF-grænseværdi)
Estonia	Local name	Metaanhape (sipelghape)
Estonia	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Estonia	OEL TWA (ppm)	5 ppm
Finland	Local name	Muurahaishappo
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Finland	HTP-arvo (8h) (ppm)	3 ppm
Finland	HTP-arvo (15 min)	19 mg/m <sup>3</sup>
Finland	HTP-arvo (15 min) (ppm)	10 ppm
France	Local name	Acide formique
France	VME (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
France	VME (ppm)	5 ppm

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France	Note (FR)	Valeurs réglementaires indicatives
Germany	Local name	Ameisensäure
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	9.5 mg/m <sup>3</sup>
Germany	TRGS 900 Occupational exposure limit value (ppm)	5 ppm
Germany	Remark (TRGS 900)	DFG;EU;Y
Greece	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Greece	OEL TWA (ppm)	5 ppm
Hungary	Local name	HANGYASAV
Hungary	AK-érték	9 mg/m <sup>3</sup>
Hungary	Megjegyzések (HU)	m; l.
Ireland	Local name	Formic acid
Ireland	OEL (8 hours ref) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Ireland	OEL (8 hours ref) (ppm)	5 ppm
Ireland	Notes (IE)	IOELV
Italy	Local name	Acido formico
Italy	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Italy	OEL TWA (ppm)	5 ppm
Latvia	Local name	Skudrskābe (metānskābe)
Latvia	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Latvia	OEL TWA (ppm)	5 ppm
Lithuania	Local name	Skruzdžių rūgštis
Lithuania	IPRV (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Lithuania	IPRV (ppm)	5 ppm
Luxembourg	Local name	Acide formique
Luxembourg	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Luxembourg	OEL TWA (ppm)	5 ppm
Malta	Local name	Formic acid
Malta	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Malta	OEL TWA (ppm)	5 ppm
Netherlands	Local name	Mierenzuur
Netherlands	Grenswaarde TGG 15MIN (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Poland	Local name	Kwas mrówkowy
Poland	NDS (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Poland	NDSch (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
Portugal	Local name	Ácido fórmico
Portugal	OEL TWA (ppm)	5 ppm
Portugal	OEL STEL (ppm)	10 ppm
Romania	Local name	Acid formic
Romania	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Romania	OEL TWA (ppm)	5 ppm
Slovakia	Local name	Kyselina mravčia (kyselina metánová)
Slovakia	NPHV (priemerná) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Slovakia	NPHV (priemerná) (ppm)	5 ppm
Slovenia	Local name	mravljična kislina
Slovenia	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Slovenia	OEL TWA (ppm)	5 ppm
Spain	Local name	Ácido fórmico
Spain	VLA-ED (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Spain	VLA-ED (ppm)	5 ppm

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Formic acid, 98 - 100%		
Spain	Notes	VLI (Agente químico para el que la U.E. estableció en su día un valor Límite indicativo), s (Esta sustancia tiene prohibida total o parcialmente su comercialización y uso como fitosanitario y/o como biocida. Para una información detallada acerca de las prohibiciones consúltese: Base de datos de productos biocidas: <a href="http://www.msssi.gob.es/ciudadanos/productos.do?tip o=plaguicidas">http://www.msssi.gob.es/ciudadanos/productos.do?tip o=plaguicidas</a> Base de datos de productos fitosanitarios: <a href="http://www.magrama.gob.es/agricultura/pags/fitos/regi stro/fichas/pdf/Lista_sa.pdf">http://www.magrama.gob.es/agricultura/pags/fitos/regi stro/fichas/pdf/Lista_sa.pdf</a> )
Sweden	Local name	Myrsyra
Sweden	nivågränsvärde (NVG) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Sweden	nivågränsvärde (NVG) (ppm)	3 ppm
Sweden	kortidsvärde (KTV) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Sweden	kortidsvärde (KTV) (ppm)	5 ppm
Sweden	Anmärkning (SE)	V (Vägledande korttidsgränsvärde ska användas som ett rekommenderat högsta värde som inte bör överskridas)
United Kingdom	Local name	Formic acid
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	9.6 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	5 ppm
Russian Federation	Local name	Метановая кислота+
Russian Federation	OEL Ceiling (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Russian Federation	Remark (RU)	2 класс опасности - высокоопасное; п (пары и/или газы); + (соединения, при работе с которыми требуется специальная защита кожи и глаз; символ проставлен вслед за наименованием вещества)
Norway	Local name	Maursyre
Norway	Grenseverdier (AN) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Norway	Grenseverdier (AN) (ppm)	5 ppm
Norway	Merknader (NO)	E (EU har en veiledende grenseverdi for stoffet)
Switzerland	Local name	Ameisensäure
Switzerland	MAK (mg/m <sup>3</sup> )	9.5 mg/m <sup>3</sup>
Switzerland	MAK (ppm)	5 ppm
Switzerland	KZGW (mg/m <sup>3</sup> )	19 mg/m <sup>3</sup>
Switzerland	KZGW (ppm)	10 ppm
Switzerland	Remark (CH)	SS <sub>C</sub> - Haut & Auge, OAW <sup>KT AN</sup> - NIOSH, OSHA
Turkey	Local name	Formik asit
Turkey	OEL TWA (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Turkey	OEL TWA (ppm)	5 ppm
Australia	Local name	Formic acid
Australia	TWA (mg/m <sup>3</sup> )	9.4 mg/m <sup>3</sup>
Australia	TWA (ppm)	5 ppm
Australia	STEL (mg/m <sup>3</sup> )	19 mg/m <sup>3</sup>
Australia	STEL (ppm)	10 ppm
USA - ACGIH	Local name	Formic acid
USA - ACGIH	ACGIH TWA (ppm)	5 ppm
USA - ACGIH	ACGIH STEL (ppm)	10 ppm
USA - ACGIH	Remark (ACGIH)	URT, eye, & skin irr
USA - OSHA	Local name	Formic acid
USA - OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
USA - OSHA	OSHA PEL (TWA) (ppm)	5 ppm

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### 8.2. Exposure controls

#### Personal protective equipment:

Gloves. Safety glasses.

#### Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. polyurethane. PVC. styrene-butadiene rubber. GIVE LESS RESISTANCE: chlorinated polyethylene. viton. neoprene/SBR. nitrile rubber/PVC. GIVE POOR RESISTANCE: polyethylene

#### Hand protection:

Gloves

#### Eye protection:

Protective goggles

#### Skin and body protection:

Head/neck protection. Corrosion-proof clothing

#### Respiratory protection:

Wear gas mask with filter type A if conc. in air > exposure limit

Device	Filter type	Condition	Standard
Gas mask	Type A - High-boiling (>65 °C) organic compounds	If conc. in air > exposure limit	

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 46.03 g/mol
Colour	: Colourless.
Odour	: Irritating/pungent odour.
Odour threshold	: No data available
pH	: 2.2 (10 g/l, H <sub>2</sub> O, 20 °C)
Relative evaporation rate (butylacetate=1)	: 2
Melting point	: 8.4 °C
Freezing point	: No data available
Boiling point	: 101 °C (1013 hPa)
Flash point	: 48 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 42 hPa (20 °C)
Relative vapour density at 20 °C	: No data available
Relative density	: 1.22 g/cm <sup>3</sup> (20 °C)
Solubility	: Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in acetic acid. Soluble in gasoline. Soluble in glycerol. Soluble in toluene. Soluble in xylene. Water: Complete
Log Pow	: -1.55 - -0.5
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: 12 - 57 %(V)
Oxidising properties	: No data available
Explosive limits	: 18 - 57 vol %

### 9.2. Other information

VOC content : >= 90 %

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Other properties : Gas/vapour heavier than air at 20°C. Hygroscopic. Producing fumes/mist. Physical properties depending on the concentration. Volatile. Substance has acid reaction.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

On heating: release of highly flammable gases/vapours (hydrogen). Upon combustion: CO and CO<sub>2</sub> are formed. Reacts violently with (strong) oxidizers: pressure rise and possible bursting of container. Reacts exothermically with (some) acids/bases. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). Prolonged storage: decomposes slowly: release of harmful/irritant gases/vapours (carbon monoxide): pressure rise and possible bursting of container. This reaction is accelerated on exposure to some compounds and on exposure to temperature rise.

### 10.2. Chemical stability

Hygroscopic.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

No additional information available

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

Formic acid 98 - 100% (64-18-6)	
LD50 oral rat	1100 mg/kg (Rat)
LC50 inhalation rat (mg/l)	> 7.4 mg/l/4h (Rat)

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Serious eye damage, category 1, implicit

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Classification concerning the environment: not applicable.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Mild water pollutant (surface water). Harmful to fishes. Harmful to invertebrates (Daphnia). Harmful to algae. Harmful to plankton. pH shift. Not harmful to activated sludge.

Formic acid 98 - 100% (64-18-6)	
LC50 fish 2	46 mg/l (LC50; 96 h)
EC50 Daphnia 1	34 mg/l (EC50; 48 h)
Threshold limit algae 1	26.9 mg/l (EC50; 72 h)

### 12.2. Persistence and degradability

Formic acid 98 - 100% (64-18-6)	
Persistence and degradability	Readily biodegradable in water. No (test)data on mobility of the components available.
Biochemical oxygen demand (BOD)	0.02 - 0.27 g O <sub>2</sub> /g substance



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<b>Formic acid 98 - 100% (64-18-6)</b>	
ThOD	0.35 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.40 - 0.77

### 12.3. Bioaccumulative potential

<b>Formic acid, 98 - 100% (64-18-6)</b>	
Log Pow	-1.55 - -0.5
Bioaccumulative potential	Bioaccumulation: not applicable.

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Treat using the best available techniques before discharge into drains or the aquatic environment.

Additional information : LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
1779	1779	1779	1779	1779
<b>14.2. UN proper shipping name</b>				
FORMIC ACID	FORMIC ACID	Formic acid	FORMIC ACID	FORMIC ACID
<b>Transport document description</b>				
UN 1779 FORMIC ACID, 3 (8), II, (D/E)	UN 1779 FORMIC ACID, 8 (3), II	UN 1779 Formic acid, 8 (3), II	UN 1779 FORMIC ACID, 8 (3), II	UN 1779 FORMIC ACID, 8 (3), II
<b>14.3. Transport hazard class(es)</b>				
3 (8)	8 (3)	8 (3)	8 (3)	8 (3)
<b>14.4. Packing group</b>				
II	II	II	II	II
<b>14.5. Environmental hazards</b>				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR) : CF1  
Limited quantities (ADR) : 11  
Excepted quantities (ADR) : E2  
Packing instructions (ADR) : P001, IBC02

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Mixed packing provisions (ADR) : MP15

Portable tank and bulk container instructions (ADR) : T7

Portable tank and bulk container special provisions (ADR) : TP2

Tank code (ADR) : L4BN

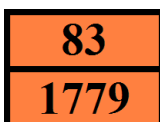
Vehicle for tank carriage : FL

Transport category (ADR) : 2

Special provisions for carriage - Operation (ADR) : S2

Hazard identification number (Kemler No.) : 83

Orange plates :



Tunnel restriction code (ADR) : D/E

### - Transport by sea

Transport regulations (IMDG) : Subject

Limited quantities (IMDG) : 1 L

Excepted quantities (IMDG) : E2

Packing instructions (IMDG) : P001

IBC packing instructions (IMDG) : IBC02

Tank instructions (IMDG) : T7

Tank special provisions (IMDG) : TP2

EmS-No. (Fire) : F-E

EmS-No. (Spillage) : S-C

Stowage category (IMDG) : A

Stowage and handling (IMDG) : SW2

Properties and observations (IMDG) : Colourless flammable liquid with a pungent odour. Pure FORMIC ACID: flashpoint 42°C c.c. Corrosive to most metals. Causes burns to skin, eyes and mucous membranes.

MFAG-No : 153

### - Air transport

Transport regulations (IATA) : Subject to the provisions

PCA Excepted quantities (IATA) : E2

PCA Limited quantities (IATA) : Y840

PCA limited quantity max net quantity (IATA) : 0.5L

PCA packing instructions (IATA) : 851

PCA max net quantity (IATA) : 1L

CAO packing instructions (IATA) : 855

CAO max net quantity (IATA) : 30L

ERG code (IATA) : 8F

### - Inland waterway transport

Classification code (ADN) : CF1

Limited quantities (ADN) : 1 L

Excepted quantities (ADN) : E2

Carriage permitted (ADN) : T

Equipment required (ADN) : PP, EP, EX, A

Ventilation (ADN) : VE01

Number of blue cones/lights (ADN) : 1

### - Rail transport

Transport regulations (RID) : Subject

Classification code (RID) : CF1

Limited quantities (RID) : 1L

Excepted quantities (RID) : E2

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Packing instructions (RID)	: P001, IBC02
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE6
Hazard identification number (RID)	: 83

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Formic acid, 98 - 100% is not on the REACH Candidate List

Formic acid, 98 - 100% is not on the REACH Annex XIV List

VOC content :  $\geq 90$  %

#### 15.1.2. National regulations

##### Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 210)

WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

##### Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

##### Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product  
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration

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IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Full text of H- and EUH-statements:	
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Flam. Liq. 3	Flammable liquids, Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H302	Harmful if swallowed.
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage
EUH071	Corrosive to the respiratory tract.

SDS ISOLAB

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*