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

### 1.1. Product identifier

Formic acid 90 % pure deviation max. ± 0.2 %

UFI: T53W-X0G5-700M-X3EU

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

**Use of the substance/mixture**

Laboratory chemical
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

**Uses advised against**

Do not use for private purposes (household).

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

| | | | |
|---|---|---|---|
| Company name: | AnalytiChem GmbH<br>ACD | | |
| Street: | Stempelstraße 6 | | |
| Place: | D-47167 Duisburg | | |
| Telephone: | 0203/5194-0 | Telefax: | 0203/5194-290 |
| E-mail: | info@analytichem.de | | |
| Contact person: | Abteilung Produktsicherheit | Telephone: | 0203/5194-107/117 |
| E-mail: | produktsicherheit@analytichem.de | | |
| Internet: | www.analytichem.de | | |
| Responsible Department: | Abteilung Produktsicherheit | | |

### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

**Further Information**

No data available

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Regulation (EC) No 1272/2008**

Acute Tox. 3; H331
Acute Tox. 4; H302
Skin Corr. 1A; H314
Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

**Regulation (EC) No 1272/2008**

**Hazard components for labelling**

formic acid

**Signal word:** Danger

**Pictograms:**

**Hazard statements**

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H331 | Toxic if inhaled. |

**Precautionary statements**

| | |
|---|---|
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. |
| 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. |

**Special labelling of certain mixtures**

| | |
|---|---|
| EUH071 | Corrosive to the respiratory tract. |

### 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

**Relevant ingredients**

| CAS No | Chemical name | | | Quantity |
|---|---|---|---|---|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 64-18-6 | formic acid | | | 90 - < 95 % |
| | 200-579-1 | 607-001-00-0 | 01-2119491174-37 | |
| | Flam. Liq. 3, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1A; H226 H331 H302 H314 EUH071 | | | |

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

| CAS No | EC No | Chemical name | Quantity |
|---|---|---|---|
| | Specific Conc. Limits, M-factors and ATE | | |
| 64-18-6 | 200-579-1 | formic acid | 90 - < 95 % |
| | inhalation: LC50 = 7,85 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 730 mg/kg Skin Corr. 1A; H314: >= 90 - 100 Skin Corr. 1B; H314: >= 10 - < 90 Skin Irrit. 2; H315: >= 2 - < 10 Eye Irrit. 2; H319: >= 2 - < 10 | | |

**Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General information**

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down. Take off immediately all contaminated clothing and wash it before reuse.

**After inhalation**

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Call a physician immediately.

**After contact with skin**

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

**After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.
Remove contact lenses, if present and easy to do. Continue rinsing.

**After ingestion**

Never give anything by mouth to an unconscious person or a person with cramps.
Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk.

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

Dyspnoea
Irritation to respiratory tract
Risk of serious damage to eyes.
Conjunctival oedema (chemosis).
strongly corrosive.

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

No data available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media**

Water spray jet, Carbon dioxide (CO2), Foam, Extinguishing powder.

**Unsuitable extinguishing media**

no restriction

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

Combustible liquids
In case of warming: Vapours can form explosive mixtures with air.
Vapours are heavier than air, spread along floors and form explosive mixtures with air.
Hazardous combustion products
In case of fire may be liberated: Carbon monoxide, Carbon dioxide (CO2)

### 5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
In case of fire and/or explosion do not breathe fumes.
Avoid contact with skin, eyes and clothes.

**Additional information**

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Danger of bursting container.

## SECTION 6: Accidental release measures

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

**General advice**

Keep away from sources of ignition - No smoking.
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).
Take action to prevent static discharges.

**For non-emergency personnel**

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures
Do not breathe dust/fume/gas/mist/vapours/spray.

**For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.
The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.
Danger of explosion
Do not allow uncontrolled discharge of product into the environment. Danger of explosion

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

**For containment**

Cover drains.
Prevent spread over a wide area (e.g. by containment or oil barriers).
Collect in closed and suitable containers for disposal.
Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**For cleaning up**

Clean contaminated articles and floor according to the environmental legislation.

**Other information**

Provide adequate ventilation.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.

### 6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used.
Do not breathe vapour/aerosol.
Read label before use.

**Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.
In case of warming: Vapours can form explosive mixtures with air.

**Advice on general occupational hygiene**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

**Further information on handling**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

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

**Requirements for storage rooms and vessels**

Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container dry.
Due to gaseous decomposition products, overpressure can occur in tightly sealed containers.
Close containers in such a way to enable internal pressure to escape (e.g. excess pressure valve).

**Further information on storage conditions**

Protect against: Light
Keep cool. Protect from sunlight.
Corrosive to metals.
Unsuitable container/equipment material: Metal

### 7.3. Specific end use(s)

Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Occupational exposure limits**

| CAS No | Substance | ppm | mg/m³ | fib/cm³ | Category | Origin |
|---|---|---|---|---|---|---|
| 64-18-6 | Formic acid | 5 | 9 | | TWA (8 h) | |

**DNEL/DMEL values**

| CAS No | Substance | | |
|---|---|---|---|
| DNEL type | Exposure route | Effect | Value |
| 64-18-6 | formic acid | | |
| Consumer DNEL, long-term | inhalation | local | 3 mg/m³ |
| Worker DNEL, long-term | inhalation | local | 9,5 mg/m³ |

**PNEC values**

| CAS No | Substance |
|---|---|
| Environmental compartment | Value |
| 64-18-6 | formic acid |
| Freshwater | 2 mg/l |
| Freshwater (intermittent releases) | 1 mg/l |
| Marine water | 0,2 mg/l |
| Freshwater sediment | 13,4 mg/kg |
| Marine sediment | 1,34 mg/kg |
| Micro-organisms in sewage treatment plants (STP) | 7,2 mg/l |
| Soil | 1,5 mg/kg |

### 8.2. Exposure controls

**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.
If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Suitable eye protection: goggles.

Face protection shield

**Hand protection**

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact
Trade name/designation KCL 720 Camapren®
Suitable material: CR (polychloroprene, chloroprene rubber) 0,65 mm
Wearing time with permanent contact: >480 min

By short-term hand contact
Trade name/designation KCL 897 Butoject®
Suitable material: Butyl caoutchouc (butyl rubber) 0,3 mm
Wearing time with occasional contact (splashes): >480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

**Skin protection**

Wear suitable protective clothing.
Material, acid-resistant
Wear fire resistant or flame retardant clothing.

**Respiratory protection**

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device with filter or ventilator filtering device of type: E-(P3)

**Thermal hazards**

No data available

**Environmental exposure controls**

Do not allow to enter into surface water or drains.
Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

## SECTION 9: Physical and chemical properties

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

| | | |
|---|---|---|
| Physical state: | Liquid | |
| Colour: | colourless | |
| Odour: | stinging | |
| Odour threshold: | No data available | |
| Melting point/freezing point: | | 4 °C |
| Boiling point or initial boiling point and boiling range: | | 100,23 °C |
| Flammability: | | No data available |
| Lower explosion limits: | | No data available |
| Upper explosion limits: | | No data available |
| Flash point: | | 71 °C |

| | |
|---|---|
| Auto-ignition temperature: | No data available |
| Decomposition temperature: | No data available |
| pH-Value: | 1-2 |
| Viscosity / kinematic: | No data available |
| Water solubility: | easily soluble |

Solubility in other solvents

No data available

| | |
|---|---|
| Dissolution rate: | No data available |
| Partition coefficient n-octanol/water: | No data available |
| Dispersion stability: | No data available |
| Vapour pressure: | No data available |
| Vapour pressure: | No data available |
| Density (at 20 °C): | 1,171 g/cm³ |
| Relative density: | No data available |
| Bulk density: | No data available |
| Relative vapour density: | No data available |
| Particle characteristics: | No data available |

## 9.2. Other information

**Information with regard to physical hazard classes**

Explosive properties

Vapours may form explosive mixtures with air.

| | |
|---|---|
| Sustaining combustion: | No data available |

Self-ignition temperature

| | |
|---|---|
| Solid: | No data available |
| Gas: | No data available |

Oxidizing properties

No data available

**Other safety characteristics**

| | |
|---|---|
| Evaporation rate: | No data available |
| Solvent separation test: | No data available |
| Solvent content: | No data available |
| Solid content: | No data available |
| Sublimation point: | No data available |
| Softening point: | No data available |
| Pour point: | No data available |
| Viscosity / dynamic: | No data available |
| Flow time: | No data available |

**Further Information**

No data available

# SECTION 10: Stability and reactivity

## 10.1. Reactivity

Flammable.

In case of warming: Vapours can form explosive mixtures with air.

## 10.2. Chemical stability

slow decomposition

Protect against: Light Heat

## 10.3. Possibility of hazardous reactions

Reaction with:

Alkali (lye)

Oxidising agent, strong

sulphuric acid
Catalyst (Metal)
Phosphorus oxides
Nitric acid
NO3
Ignition hazard: Aluminium
Explosion hazard with: , Hydrogen peroxide
Exothermic reaction with: Alkali (lye), Amines

### 10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
In case of warming: Vapours can form explosive mixtures with air.
Light

### 10.5. Incompatible materials

Corrosive to metals.

### 10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

**Further information**

No data available

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Toxicocinetics, metabolism and distribution**

There are no data available on the preparation/mixture itself.

**Acute toxicity**

Toxic if inhaled.
Harmful if swallowed.

**ATEmix calculated**

ATE (oral) 811,1 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) 8,720 mg/l; ATE (inhalation dust/mist) 0,5560 mg/l

| CAS No | Chemical name | | | | | |
|---|---|---|---|---|---|---|
| | Exposure route | Dose | | Species | Source | Method |
| 64-18-6 | formic acid | | | | | |
| | oral | LD50 mg/kg | 730 | Rat | Study report (1985) | OECD Guideline 401 |
| | dermal | LD50 mg/kg | > 2000 | Rat | Study report (2007) | OECD Guideline 402 |
| | inhalation (4 h) vapour | LC50 | 7,85 mg/l | Rat | Study report (1980) | OECD Guideline 403 |
| | inhalation dust/mist | ATE | 0,5 mg/l | | | |

**Irritation and corrosivity**

Causes severe skin burns and eye damage.
Causes serious eye damage.
Corrosive to the respiratory tract.

**Sensitising effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

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

**Information on likely routes of exposure**

There are no data available on the preparation/mixture itself.

**Specific effects in experiment on an animal**

There are no data available on the preparation/mixture itself.

**Additional information on tests**

There are no data available on the preparation/mixture itself.

**Practical experience**

There are no data available on the preparation/mixture itself.

### 11.2. Information on other hazards

**Endocrine disrupting properties**

There are no data available on the preparation/mixture itself.

**Other information**

gastric perforation

Pulmonary oedema, Conjunctival oedema (chemosis)., Risk of serious damage to eyes.

**Further information**

Cough

Dyspnoea

## SECTION 12: Ecological information

### 12.1. Toxicity

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

| CAS No | Chemical name | | | | | | |
|---|---|---|---|---|---|---|---|
| | Aquatic toxicity | Dose | | [h] \| [d] | Species | Source | Method |
| 64-18-6 | formic acid | | | | | | |
| | Acute fish toxicity | LC50 | 130 mg/l | 96 h | Danio rerio | Study report (2005) | OECD Guideline 203 |
| | Acute algae toxicity | ErC50 mg/l | 1240 | 72 h | Pseudokirchneriella subcapitata | Study report (2005) | OECD Guideline 201 |
| | Acute crustacea toxicity | EC50 | 365 mg/l | 48 h | Daphnia magna | Study report (2005) | OECD Guideline 202 |
| | Crustacea toxicity | NOEC mg/l | >= 100 | 21 d | Daphnia magna | Study report (2007) | OECD Guideline 211 |

### 12.2. Persistence and degradability

Readily biodegradable (according to OECD criteria). 100 %; 28 d; aerob

### 12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Does not significantly accumulate in organisms.

**Partition coefficient n-octanol/water**

| CAS No | Chemical name | Log Pow |
|---|---|---|
| 64-18-6 | formic acid | -2,1 |

**BCF**

| CAS No | Chemical name | BCF | Species | Source |
|---|---|---|---|---|
| 64-18-6 | formic acid | 3,16 | | Other company data ( |

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

**12.7. Other adverse effects**

There are no data available on the mixture itself.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations.
Do not empty into drains.

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

## SECTION 14: Transport information

**Land transport (ADR/RID)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1779 |
| **14.2. UN proper shipping name:** | FORMIC ACID |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8+3 |
| Classification code: | CF1 |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |
| Transport category: | 2 |
| Hazard No: | 83 |
| Tunnel restriction code: | D/E |

**Inland waterways transport (ADN)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1779 |
| **14.2. UN proper shipping name:** | formic acid |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8+3 |
| Classification code: | CF1 |
| Limited quantity: | 1 L |
| Excepted quantity: | E2 |

**Marine transport (IMDG)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1779 |
| **14.2. UN proper shipping name:** | FORMIC ACID |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8+3 |
| Special Provisions: | - |
| Limited quantity: | 1 L |

| | |
|---|---|
| Excepted quantity: | E2 |
| EmS: | F-E, S-C |
| Segregation group: | 1 - acids |

**Air transport (ICAO-TI/IATA-DGR)**

| | |
|---|---|
| **14.1. UN number or ID number:** | UN 1779 |
| **14.2. UN proper shipping name:** | FORMIC ACID |
| **14.3. Transport hazard class(es):** | 8 |
| **14.4. Packing group:** | II |
| Hazard label: | 8+3 |
| Limited quantity Passenger: | 0.5 L |
| Passenger LQ: | Y840 |
| Excepted quantity: | E2 |
| IATA-packing instructions - Passenger: | 851 |
| IATA-max. quantity - Passenger: | 1 L |
| IATA-packing instructions - Cargo: | 855 |
| IATA-max. quantity - Cargo: | 30 L |

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

## SECTION 15: Regulatory information

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

**EU regulatory information**

Restrictions on use (REACH, annex XVII):
Entry 3, Entry 40

Information according to Directive 2012/18/EU (SEVESO III): H2 ACUTE TOXIC

**National regulatory information**

Water hazard class (D): 1 - slightly hazardous to water

## SECTION 16: Other information

**Changes**

This data sheet contains changes from the previous version in section(s): 1,12.

**Abbreviations and acronyms**

Flam. Liq: Flammable liquid
Acute Tox: Acute toxicity
Skin Corr: Skin corrosion
Eye Dam: Eye damage

**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

| Classification | Classification procedure |
|---|---|
| Acute Tox. 3; H331 | Calculation method |
| Acute Tox. 4; H302 | Calculation method |
| Skin Corr. 1A; H314 | Calculation method |
| Eye Dam. 1; H318 | Calculation method |

**Relevant H and EUH statements (number and full text)**

| | |
|---|---|
| H226 | Flammable liquid and vapour. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H331 | Toxic if inhaled. |

EUH071 Corrosive to the respiratory tract.

**Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

*(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*