Safety Data Sheet
acc. to OSHA HCS

Printing date 04/13/2020 Reviewed on 04/13/2020

1 Identification

· **Product identifier**

· **Trade name: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Article number:** 15750, 15760
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

· **Information department:** Product safety department
· **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.

GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Formic acid
· **Hazard statements**
Flammable liquid and vapor.
Harmful if swallowed.

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Causes severe skin burns and eye damage.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 2
Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** *Not applicable.*

· **vPvB:** *Not applicable.*

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

64-18-6	Formic acid	>50-≤100%

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Immediately call a doctor.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**
All components have the value 3 ppm.

· **PAC-2:**
All components have the value 25 ppm.

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· **PAC-3:**
All components have the value 250 ppm.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
64-18-6 Formic acid	
PEL	Long-term value: 9 mg/m³, 5 ppm
REL	Long-term value: 9 mg/m³, 5 ppm
TLV	Short-term value: 19 mg/m³, 10 ppm Long-term value: 9.4 mg/m³, 5 ppm

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

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Pungent, makes eyes water
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-9 °C (15.8 °F)
Boiling point/Boiling range:	101 °C (213.8 °F)
· **Flash point:**	50 °C (122 °F)
· **Flammability (solid, gaseous):**	Not flammable.
· **Ignition temperature:**	520 °C (968 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	14 Vol %
Upper:	33 Vol %
· **Vapor pressure at 20 °C (68 °F):**	43 hPa (32.3 mm Hg)

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· **Density at 20 °C (68 °F):**	1.6 g/cm³ (13.352 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
64-18-6 Formic acid		
Oral	LD50	1,100 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Strong caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety** Health Administration)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

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

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

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN3412

· **UN proper shipping name**	
· **DOT**	Formic acid
· **ADR**	3412 FORMIC ACID
· **IMDG, IATA**	FORMIC ACID

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Transport hazard class(es)**

· **DOT**

· **Class**	8 Corrosive substances
· **Label**	8

· **ADR, IMDG, IATA**

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· **Hazardous substance:**	5000 lbs, 2270 kg
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 3412 FORMIC ACID, 8, II

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All components have the value ACTIVE.

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Formic acid
· **Hazard statements**
Flammable liquid and vapor.
Harmful if swallowed.
Causes severe skin burns and eye damage.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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.

· **Date of preparation / last revision** *04/13/2020 / -*
· **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)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety ***Health***
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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according to WHS Regulations

Printing date 13.04.2020 Revision: 13.04.2020

1 Identification

· **Product identifier**

· **Trade name: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Article number:** 15750, 15760
· **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

ProSciTech Pty Ltd
11 Carlton Street, Kirwan QLD 4817 Australia
Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)
Website: ems.proscitech.com

Emgrid Australia Pty. Ltd.
P.O. Box 118
The Patch VIC 3792
Australia
Tel: 03 9752 1785
Fax: 03 9752 1784
Website: www.emgrid.com.au

· **Further information obtainable from:** Product safety department
· **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard(s) Identification

· **Classification of the substance or mixture**

GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

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· **Label elements**
· **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).
· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labelling:**
Formic acid
· **Hazard statements**
Flammable liquid and vapour.
Harmful if swallowed.
Causes severe skin burns and eye damage.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO_2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition and Information on Ingredients

· **Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
64-18-6	Formic acid	>50-≤100%

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

4 First Aid Measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Call for a doctor immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire Fighting Measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental Release Measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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.

7 Handling and Storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

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Prevent formation of aerosols.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls and personal protection

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

· **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
64-18-6 Formic acid	
WES	Short-term value: 19 mg/m³, 10 ppm Long-term value: 9.4 mg/m³, 5 ppm

· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

Safety Data Sheet
according to WHS Regulations

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Eye protection:**

Tightly sealed goggles

9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Colourless
· **Odour:**	Pungent, makes eyes water
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point:	-9 °C
Initial boiling point and boiling range:	101 °C
· **Flash point:**	50 °C
· **Flammability (solid, gas):**	Not applicable.
· **Ignition temperature:**	520 °C
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	14 Vol %
Upper:	33 Vol %
· **Vapour pressure at 20 °C:**	43 hPa
· **Density at 20 °C:**	1.6 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Fully miscible.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
VOC (EC)	0.00 %
Solids content:	0.0 %

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· **Other information** No further relevant information available.

10 Stability and Reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological Information

· **Information on toxicological effects**
· **Acute toxicity**

· **LD/LC50 values relevant for classification:**		
64-18-6 Formic acid		
Oral	LD50	1,100 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation** Strong caustic effect on skin and mucous membranes.
· **Serious eye damage/irritation**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Respiratory or skin sensitisation** No sensitising effects known.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological Information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behaviour in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

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· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

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

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **UN-Number**	
· **ADG, IMDG, IATA**	UN3412
· **UN proper shipping name**	
· **ADG**	3412 FORMIC ACID
· **IMDG, IATA**	FORMIC ACID
· **Transport hazard class(es)**	
· **ADG, IMDG, IATA**	
· **Class**	8 Corrosive substances.
· **Label**	8
· **Packing group**	
· **ADG, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances.
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2

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· **Tunnel restriction code**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 3412 FORMIC ACID, 8, II

15 Regulatory information

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

· **Australian Inventory of Chemical Substances**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

All substances have the value S5.

· **Australia: Priority Existing Chemicals**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labelled according to the Globally Harmonised System (GHS).

· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

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

· **Hazard statements**
Flammable liquid and vapour.
Harmful if swallowed.
Causes severe skin burns and eye damage.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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Immediately call a POISON CENTER/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Directive 2012/18/EU***
· ***Named dangerous substances - ANNEX I*** *None of the ingredients is listed.*
· ***Seveso category*** *P5c FLAMMABLE LIQUIDS*
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** *5,000 t*
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** *50,000 t*
· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

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.

· ***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)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity - oral – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Safety Data Sheet
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1 Identification

· **Product identifier**

· **Trade name: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Article number:** 15750, 15760
· **Application of the substance / the mixture** Laboratory chemicals

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

· **Information department:** Product safety department
· **Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 Hazard identification

· **Classification of the substance or mixture**

GHS02 Flame

Flammable Liquids - Category 3 H226 Flammable liquid and vapour.

GHS05 Corrosion

Skin Corrosion - Category 1A H314 Causes severe skin burns and eye damage.
Serious Eye Damage - Category 1 H318 Causes serious eye damage.

GHS07

Acute Toxicity (Oral) - Category 4 H302 Harmful if swallowed.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Formic acid
· **Hazard statements**
Flammable liquid and vapour.
Harmful if swallowed.

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Causes severe skin burns and eye damage.

· **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof [electrical/ventilating/lighting] equipment.
Use non-sparking tools.
Take actions to prevent static discharges.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
Fire = 2
Reactivity = 0

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

64-18-6	Formic acid	80-100% w/w *

* Actual concentration ranges are withheld as a trade secret.

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4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Immediately call a doctor.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

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· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

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

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
64-18-6 Formic acid	
EL	STEL: 10 ppm TWA: 5 ppm
EV	STEL: 10 ppm TWA: 5 ppm

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

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Pungent, makes eyes water
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	-9 °C
Boiling point/Boiling range:	101 °C
· **Flash point:**	50 °C
· **Flammability (solid, gaseous):**	Not flammable.
· **Ignition temperature:**	520 °C
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Explosion limits:**	
Lower:	14 Vol %
Upper:	33 Vol %
· **Vapor pressure at 20 °C:**	43 hPa
· **Density at 20 °C:**	1.6 g/cm³
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Solvent content:**

Solids content: 0.0 %
· **Other information** No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**

64-18-6 Formic acid

Oral	LD50	1,100 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Strong caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

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

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

14 Transport information

· **UN-Number**	
· **DOT/TDG, ADR, IMDG, IATA**	UN3412
· **UN proper shipping name**	
· **DOT/TDG**	Formic acid
· **ADR**	3412 FORMIC ACID
· **IMDG, IATA**	FORMIC ACID
· **Transport hazard class(es)**	
· **DOT/TDG (Transport dangerous goods):**	

· **Class**	8 Corrosive substances
· **Label**	8
· **ADR, IMDG, IATA**	

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT/TDG, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT/TDG**	
· **Quantity limitations**	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· **Hazardous substance:**	5000 lbs, 2270 kg
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 3412 FORMIC ACID, 8, II

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**
All components have the value ACTIVE.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**
All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**
All ingredients are listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Formic acid
· **Hazard statements**
Flammable liquid and vapour.
Harmful if swallowed.
Causes severe skin burns and eye damage.
· **Precautionary statements**
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof [electrical/ventilating/lighting] equipment.
Use non-sparking tools.
Take actions to prevent static discharges.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

· **Date of the latest revision of the safety data sheet** 04/13/2020 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent

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Trade name: FORMIC ACID 96%, REAGENT, A.C.S.

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LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

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

Printing date 13.04.2020 *Revision: 13.04.2020*

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

· **1.1 Product identifier**

· **Trade name: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Article number:** 15750, 15760
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Laboratory chemicals

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

· **Further information obtainable from:** Product safety department
· **1.4 Emergency telephone number:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECTION 2: Hazards identification

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

GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS02 GHS05 GHS07

· **Signal word** Danger

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· **Hazard-determining components of labelling:**
Formic acid
· **Hazard statements**
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**
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.
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **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 substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 64-18-6 EINECS: 200-579-1	Formic acid	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Additional information:** For the wording of the listed hazard 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.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Call for a doctor immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
· **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**
No further relevant information available.

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SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3 Advice for firefighters**
· **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **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.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

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· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
64-18-6 Formic acid	
WEL	Long-term value: 9.6 mg/m³, 5 ppm

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Liquid
Colour:	Colourless
· **Odour:**	Pungent, makes eyes water
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.

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· **Change in condition**	
Melting point/freezing point:	-9 °C
Initial boiling point and boiling range:	101 °C
· **Flash point:**	50 °C
· **Flammability (solid, gas):**	Not applicable.
· **Ignition temperature:**	520 °C
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	14 Vol %
Upper:	33 Vol %
· **Vapour pressure at 20 °C:**	43 hPa
· **Density at 20 °C:**	1.6 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Fully miscible.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
VOC (EC)	0.00 %
Solids content:	0.0 %
· **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 according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **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 dangerous decomposition products known.

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed.

· **LD/LC50 values relevant for classification:**		
64-18-6 Formic acid		
Oral	LD50	1,100 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
· **Serious eye damage/irritation**
Causes serious eye damage.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **CMR effects (carcinogenity, 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** 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.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
· **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 not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

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SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 UN proper shipping name**	
· **ADR**	3412 FORMIC ACID
· **IMDG, IATA**	FORMIC ACID
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG, IATA**	

· **Class**	8 Corrosive substances.
· **Label**	8
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Warning: Corrosive substances.
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 3412 FORMIC ACID, 8, II

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.

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· ***Seveso category*** *P5c FLAMMABLE LIQUIDS*
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** *5,000 t*
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** *50,000 t*
· ***REGULATION (EC) No 1907/2006 ANNEX XVII*** *Conditions of restriction: 3*
· ***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.

· ***Relevant phrases***
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
· ***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)
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity - oral – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

· **1.1 Identificateur de produit**

· **Nom du produit: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Code du produit:** 15750, 15760
· **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**
Pas d'autres informations importantes disponibles.
· **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires

· **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**
· **Producteur/fournisseur:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

· **Service chargé des renseignements:** Product safety department
· **1.4 Numéro d'appel d'urgence:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

RUBRIQUE 2: Identification des dangers

· **2.1 Classification de la substance ou du mélange**
· **Classification selon le règlement (CE) n° 1272/2008**


GHS02 flamme

Flam. Liq. 3 H226 Liquide et vapeurs inflammables.


GHS05 corrosion

Skin Corr. 1A H314 Provoque des brûlures de la peau et de graves lésions des yeux.
Eye Dam. 1 H318 Provoque de graves lésions des yeux.


GHS07

Acute Tox. 4 H302 Nocif en cas d'ingestion.

· **2.2 Éléments d'étiquetage**
· **Etiquetage selon le règlement (CE) n° 1272/2008** Le produit est classifié et étiqueté selon le règlement CLP.
· **Pictogrammes de danger**


GHS02 GHS05 GHS07

· **Mention d'avertissement** Danger

· **Composants dangereux déterminants pour l'étiquetage:**
acide formique

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· **Mentions de danger**
H226 Liquide et vapeurs inflammables.
H302 Nocif en cas d'ingestion.
H314 Provoque des brûlures de la peau et de graves lésions des yeux.
· **Conseils de prudence**
P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau [ou se doucher].
P305+P351+P338 EN CAS DE CONTACT AVEC LES YEUX: Rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.
P310 Appeler immédiatement un CENTRE ANTIPOISON/un médecin.
P321 Traitement spécifique (voir sur cette étiquette).
P405 Garder sous clef.
P501 Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.
· **2.3 Autres dangers**
· **Résultats des évaluations PBT et vPvB**
· **PBT:** Non applicable.
· **vPvB:** Non applicable.

RUBRIQUE 3: Composition/informations sur les composants

· **3.2 Caractérisation chimique: Mélanges**
· **Description:** Mélange des substances mentionnées à la suite avec des additifs non dangereux.

· **Composants dangereux:**			
CAS: 64-18-6 EINECS: 200-579-1	acide formique	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Indications complémentaires:** Pour le libellé des phrases de risque citées, se référer au chapitre 16.

RUBRIQUE 4: Premiers secours

· **4.1 Description des premiers secours**
· **Remarques générales:**
Enlever immédiatement les vêtements contaminés par le produit.
Les symptômes d'intoxication peuvent apparaître après de nombreuses heures seulement; une surveillance médicale est donc nécessaire au moins 48 heures après un accident.
· **Après inhalation:** En cas d'inconscience, coucher et transporter la personne en position latérale stable.
· **Après contact avec la peau:** Laver immédiatement à l'eau et au savon et bien rincer.
· **Après contact avec les yeux:**
Rincer les yeux, pendant plusieurs minutes, sous l'eau courante en écartant bien les paupières et consulter un médecin.
· **Après ingestion:**
Consulter immédiatement un médecin.
Boire de l'eau en abondance et donner de l'air frais. Consulter immédiatement un médecin.
· **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.
· **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**
Pas d'autres informations importantes disponibles.

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RUBRIQUE 5: Mesures de lutte contre l'incendie

· **5.1 Moyens d'extinction**
· **Moyens d'extinction:**
CO2, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.
· **5.2 Dangers particuliers résultant de la substance ou du mélange**
Pas d'autres informations importantes disponibles.
· **5.3 Conseils aux pompiers**
· **Equipement spécial de sécurité:** Aucune mesure particulière n'est requise.

RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

· **6.1 Précautions individuelles, équipement de protection et procédures d'urgence**
Porter un équipement de sécurité. Eloigner les personnes non protégées.
· **6.2 Précautions pour la protection de l'environnement:**
Diluer avec beaucoup d'eau.
Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.
· **6.3 Méthodes et matériel de confinement et de nettoyage:**
Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant d'acide, liant universel, sciure).
Utiliser un neutralisant.
Evacuer les matériaux contaminés en tant que déchets conformément au point 13.
Assurer une aération suffisante.
· **6.4 Référence à d'autres rubriques**
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

RUBRIQUE 7: Manipulation et stockage

· **7.1 Précautions à prendre pour une manipulation sans danger**
Veiller à une bonne ventilation/aspiration du poste de travail.
Eviter la formation d'aérosols.
· **Préventions des incendies et des explosions:**
Tenir à l'abri des sources d'inflammation - ne pas fumer.
Tenir à l'abri de la chaleur.
Prendre des mesures contre les charges électrostatiques.

· **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
· **Stockage:**
· **Exigences concernant les lieux et conteneurs de stockage:** Aucune exigence particulière.
· **Indications concernant le stockage commun:** Pas nécessaire.
· **Autres indications sur les conditions de stockage:**
Tenir les emballages hermétiquement fermés.
Protéger de la forte chaleur et du rayonnement direct du soleil.
· **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

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RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

· **Indications complémentaires pour l'agencement des installations techniques:**
Sans autre indication, voir point 7.

· **8.1 Paramètres de contrôle**

· **Composants présentant des valeurs-seuil à surveiller par poste de travail:**	
64-18-6 acide formique	
VLEP	Valeur à long terme: 9 mg/m³, 5 ppm

· **Remarques supplémentaires:**
Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

· **8.2 Contrôles de l'exposition**
· **Equipement de protection individuel:**
· **Mesures générales de protection et d'hygiène:**
Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.
Retirer immédiatement les vêtements souillés ou humectés.
Se laver les mains avant les pauses et en fin de travail.
Eviter tout contact avec les yeux.
Eviter tout contact avec les yeux et avec la peau.
· **Protection respiratoire:**
En cas d'exposition faible ou de courte durée, utiliser un filtre respiratoire; en cas d'exposition intense ou durable, utiliser un appareil de respiration indépendant de l'air ambiant.
· **Protection des mains:**

Gants de protection

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.
À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.
Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.
· **Matériau des gants**
Le choix de gants appropriés dépend non seulement du matériau, mais aussi d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre. Puisque le produit représente une préparation composée de plusieurs substances, la résistance des matériaux des gants ne peut pas être calculée à l'avance et doit, alors, être contrôlée avant l'utilisation.
· **Temps de pénétration du matériau des gants**
Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.
· **Protection des yeux:**

Lunettes de protection hermétiques

RUBRIQUE 9: Propriétés physiques et chimiques

· **9.1 Informations sur les propriétés physiques et chimiques essentielles**
· **Indications générales**
· **Aspect:**
Forme: Liquide

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Couleur:	Incolore
· **Odeur:**	Piquante, irritant les yeux
· **Seuil olfactif:**	Non déterminé.
· **valeur du pH:**	Non déterminé.
· **Changement d'état**	
Point de fusion/point de congélation:	-9 °C
Point initial d'ébullition et intervalle d'ébullition:	101 °C
· **Point d'éclair**	50 °C
· **Inflammabilité (solide, gaz):**	Non applicable.
· **Température d'inflammation:**	520 °C
· **Température de décomposition:**	Non déterminé.
· **Température d'auto-inflammabilité:**	Le produit ne s'enflamme pas spontanément.
· **Propriétés explosives:**	Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.
· **Limites d'explosion:**	
Inférieure:	14 Vol %
Supérieure:	33 Vol %
· **Pression de vapeur à 20 °C:**	43 hPa
· **Densité à 20 °C:**	1,6 g/cm³
· **Densité relative**	Non déterminé.
· **Densité de vapeur:**	Non déterminé.
· **Taux d'évaporation:**	Non déterminé.
· **Solubilité dans/miscibilité avec l'eau:**	Entièrement miscible
· **Coefficient de partage: n-octanol/eau:**	Non déterminé.
· **Viscosité:**	
Dynamique:	Non déterminé.
Cinématique:	Non déterminé.
· **Teneur en solvants:**	
VOC (CE)	0,00 %
Teneur en substances solides:	0,0 %
· **9.2 Autres informations**	Pas d'autres informations importantes disponibles.

RUBRIQUE 10: Stabilité et réactivité

· **10.1 Réactivité** Pas d'autres informations importantes disponibles.
· **10.2 Stabilité chimique**
· **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
· **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
· **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
· **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
· **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

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RUBRIQUE 11: Informations toxicologiques

· **11.1 Informations sur les effets toxicologiques**
· **Toxicité aiguë**
Nocif en cas d'ingestion.

· **Valeurs LD/LC50 déterminantes pour la classification:**		
64-18-6 acide formique		
Oral	LD50	1.100 mg/kg (rat)

· **Effet primaire d'irritation:**
· **Corrosion cutanée/irritation cutanée**
Provoque des brûlures de la peau et de graves lésions des yeux.
· **Lésions oculaires graves/irritation oculaire**
Provoque de graves lésions des yeux.
· **Sensibilisation respiratoire ou cutanée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
· **Mutagénicité sur les cellules germinales**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Cancérogénicité** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Toxicité pour la reproduction**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Toxicité spécifique pour certains organes cibles - exposition unique**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Toxicité spécifique pour certains organes cibles - exposition répétée**
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
· **Danger par aspiration** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

RUBRIQUE 12: Informations écologiques

· **12.1 Toxicité**
· **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
· **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
· **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
· **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
· **Autres indications écologiques:**
· **Indications générales:**
Catégorie de pollution des eaux 1 (D) (Classification propre): peu polluant
Ne pas laisser le produit, non dilué ou en grande quantité, pénétrer la nappe phréatique, les eaux ou les canalisations.
Ne doit pas pénétrer à l'état non dilué ou non neutralisé dans les eaux usées ou le collecteur.
· **12.5 Résultats des évaluations PBT et VPVB**
· **PBT:** Non applicable.
· **vPvB:** Non applicable.
· **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

RUBRIQUE 13: Considérations relatives à l'élimination

· **13.1 Méthodes de traitement des déchets**
· **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.

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· **Emballages non nettoyés:**
· **Recommandation:** Evacuation conformément aux prescriptions légales.
· **Produit de nettoyage recommandé:** Eau, éventuellement avec des produits de nettoyage

RUBRIQUE 14: Informations relatives au transport

· **14.1 Numéro ONU**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 Désignation officielle de transport de l'ONU**	
· **ADR**	3412 ACIDE FORMIQUE
· **IMDG, IATA**	FORMIC ACID
· **14.3 Classe(s) de danger pour le transport**	
· **ADR, IMDG, IATA**	

· **Classe**	8 Matières corrosives.
· **Étiquette**	8
· **14.4 Groupe d'emballage**	
· **ADR, IMDG, IATA**	II
· **14.5 Dangers pour l'environnement:**	Non applicable.
· **14.6 Précautions particulières à prendre par l'utilisateur**	Attention: Matières corrosives.
· **Numéro d'identification du danger (Indice Kemler):**	80
· **No EMS:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC**	Non applicable.
· **Indications complémentaires de transport:**	
· **ADR**	
· **Quantités limitées (LQ)**	1L
· **Quantités exceptées (EQ)**	Code: E2 Quantité maximale nette par emballage intérieur: 30 ml Quantité maximale nette par emballage extérieur: 500 ml
· **Catégorie de transport**	2
· **Code de restriction en tunnels**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **"Règlement type" de l'ONU:** UN 3412 ACIDE FORMIQUE, 8, II

RUBRIQUE 15: Informations relatives à la réglementation

· **15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement**

· **Directive 2012/18/UE**
· **Substances dangereuses désignées - ANNEXE I** Aucun des composants n'est compris.
· **Catégorie SEVESO** P5c LIQUIDES INFLAMMABLES
· **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas** 5.000 t
· **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut** 50.000 t
· **RÈGLEMENT (CE) N° 1907/2006 ANNEXE XVII** Conditions de limitation: 3
· **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

RUBRIQUE 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

· **Phrases importantes**
H302 Nocif en cas d'ingestion.
H314 Provoque des brûlures de la peau et de graves lésions des yeux.
· **Acronymes et abréviations:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Liquides inflammables – Catégorie 3
Acute Tox. 4: Toxicité aiguë - voie orale – Catégorie 4
Skin Corr. 1A: Corrosion cutanée/irritation cutanée – Catégorie 1A
Eye Dam. 1: Lésions oculaires graves/irritation oculaire – Catégorie 1

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ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

· **1.1 Produktidentifikator**

· **Handelsname: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Artikelnummer:** 15750, 15760
· **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**
Keine weiteren relevanten Informationen verfügbar.
· **Verwendung des Stoffes / des Gemisches** Laborchemikalien

· **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**
· **Hersteller/Lieferant:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Science Services GmbH
Unterhachinger Str. 75
81737 München Germany

Tel: +49(0)89 18 93 668-0
safety@scienceservices.de

Deutschland: +49 (0)89 19240, 24h Giftnotruf Munchen, www toxinfo.org
Osterreich: +43 1406 43 43, Gesundheit Osterreich GmbH, 24 h

· **Auskunftgebender Bereich:** Product safety department
· **1.4 Notrufnummer:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

ABSCHNITT 2: Mögliche Gefahren

· **2.1 Einstufung des Stoffs oder Gemischs**
· **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**

GHS02 Flamme

Flam. Liq. 3 H226 Flüssigkeit und Dampf entzündbar.

GHS05 Ätzwirkung

Skin Corr. 1A H314 Verursacht schwere Verätzungen der Haut und schwere Augenschäden.
Eye Dam. 1 H318 Verursacht schwere Augenschäden.

GHS07

Acute Tox. 4 H302 Gesundheitsschädlich bei Verschlucken.

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· **2.2 Kennzeichnungselemente**
· **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**
Das Produkt ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.
· **Gefahrenpiktogramme**

GHS02 GHS05 GHS07

· **Signalwort** Gefahr

· **Gefahrbestimmende Komponenten zur Etikettierung:**
Ameisensäure
· **Gefahrenhinweise**
H226 Flüssigkeit und Dampf entzündbar.
H302 Gesundheitsschädlich bei Verschlucken.
H314 Verursacht schwere Verätzungen der Haut und schwere Augenschäden.
· **Sicherheitshinweise**
P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen [oder duschen].
P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.
P310 Sofort GIFTINFORMATIONSZENTRUM/Arzt anrufen.
P321 Besondere Behandlung (siehe auf diesem Kennzeichnungsetikett).
P405 Unter Verschluss aufbewahren.
P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen/ internationalen Vorschriften.
· **2.3 Sonstige Gefahren**
· **Ergebnisse der PBT- und vPvB-Beurteilung**
· **PBT:** Nicht anwendbar.
· **vPvB:** Nicht anwendbar.

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

· **3.2 Chemische Charakterisierung: Gemische**
· **Beschreibung:** Gemisch aus nachfolgend angeführten Stoffen mit ungefährlichen Beimengungen.

· **Gefährliche Inhaltsstoffe:**

CAS: 64-18-6 EINECS: 200-579-1	Ameisensäure	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Zusätzliche Hinweise:** Der Wortlaut der angeführten Gefahrenhinweise ist dem Abschnitt 16 zu entnehmen.

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

· **4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
· **Allgemeine Hinweise:**
Mit Produkt verunreinigte Kleidungsstücke unverzüglich entfernen.
Vergiftungssymptome können erst nach vielen Stunden auftreten, deshalb ärztliche Überwachung mindestens 48 Stunden nach einem Unfall.
· **Nach Einatmen:** Bei Bewusstlosigkeit Lagerung und Transport in stabiler Seitenlage.
· **Nach Hautkontakt:** Sofort mit Wasser und Seife abwaschen und gut nachspülen.

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· **Nach Augenkontakt:**
Augen bei geöffnetem Lidspalt mehrere Minuten unter fließendem Wasser abspülen und Arzt konsultieren.
· **Nach Verschlucken:**
Sofort Arzt aufsuchen.
Reichlich Wasser nachtrinken und Frischluftzufuhr. Unverzüglich Arzt hinzuziehen.
· **4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**
Keine weiteren relevanten Informationen verfügbar.
· **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**
Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

· **5.1 Löschmittel**
· **Geeignete Löschmittel:**
CO2, Löschpulver oder Wassersprühstrahl. Größeren Brand mit Wassersprühstrahl oder alkoholbeständigem Schaum bekämpfen.
· **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**
Keine weiteren relevanten Informationen verfügbar.
· **5.3 Hinweise für die Brandbekämpfung**
· **Besondere Schutzausrüstung:** Keine besonderen Maßnahmen erforderlich.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

· **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**
Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
· **6.2 Umweltschutzmaßnahmen:**
Mit viel Wasser verdünnen.
Nicht in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.
· **6.3 Methoden und Material für Rückhaltung und Reinigung:**
Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder, Sägemehl) aufnehmen.
Neutralisationsmittel anwenden.
Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.
Für ausreichende Lüftung sorgen.
· **6.4 Verweis auf andere Abschnitte**
Informationen zur sicheren Handhabung siehe Abschnitt 7.
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.
Informationen zur Entsorgung siehe Abschnitt 13.

ABSCHNITT 7: Handhabung und Lagerung

· **7.1 Schutzmaßnahmen zur sicheren Handhabung**
Für gute Belüftung/Absaugung am Arbeitsplatz sorgen.
Aerosolbildung vermeiden.
· **Hinweise zum Brand- und Explosionsschutz:**
Zündquellen fernhalten - nicht rauchen.
Vor Hitze schützen.
Maßnahmen gegen elektrostatische Aufladung treffen.

· **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
· **Lagerung:**
· **Anforderung an Lagerräume und Behälter:** Keine besonderen Anforderungen.
· **Zusammenlagerungshinweise:** Nicht erforderlich.

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· **Weitere Angaben zu den Lagerbedingungen:**
Behälter dicht geschlossen halten.
Vor Hitze und direkter Sonnenbestrahlung schützen.
· **Lagerklasse:**
· **Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** Entzündbare Flüssigkeiten
· **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

· **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.

· **8.1 Zu überwachende Parameter**

· **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**	
64-18-6 Ameisensäure	
AGW	Langzeitwert: 9,5 mg/m³, 5 ml/m³ 2(I);DFG, EU, Y

· **Zusätzliche Hinweise:** Als Grundlage dienten die bei der Erstellung gültigen Listen.

· **8.2 Begrenzung und Überwachung der Exposition**
· **Persönliche Schutzausrüstung:**
· **Allgemeine Schutz- und Hygienemaßnahmen:**
Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.
Beschmutzte, getränkte Kleidung sofort ausziehen.
Vor den Pausen und bei Arbeitsende Hände waschen.
Berührung mit den Augen vermeiden.
Berührung mit den Augen und der Haut vermeiden.
· **Atemschutz:**
Bei kurzzeitiger oder geringer Belastung Atemfiltergerät; bei intensiver bzw. längerer Exposition umluftunabhängiges Atemschutzgerät verwenden.
· **Handschutz:**

Schutzhandschuhe

Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein.
Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.
Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.
· **Handschuhmaterial**
Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich. Da das Produkt eine Zubereitung aus mehreren Stoffen darstellt, ist die Beständigkeit von Handschuhmaterialen nicht vorausberechenbar und muß deshalb vor dem Einsatz überprüft werden.
· **Durchdringungszeit des Handschuhmaterials**
Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.

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· **Augenschutz:**

Dichtschließende Schutzbrille

ABSCHNITT 9: Physikalische und chemische Eigenschaften

· **9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften**	
· **Allgemeine Angaben**	
· **Aussehen:**	
Form:	Flüssigkeit
Farbe:	Farblos
· **Geruch:**	Stechend, zu Tränen reizend
· **Geruchsschwelle:**	Nicht bestimmt.
· **pH-Wert:**	Nicht bestimmt.
· **Zustandsänderung**	
Schmelzpunkt/Gefrierpunkt:	-9 °C
Siedebeginn und Siedebereich:	101 °C
· **Flammpunkt:**	50 °C
· **Entzündbarkeit (fest, gasförmig):**	Nicht anwendbar.
· **Zündtemperatur:**	520 °C
· **Zersetzungstemperatur:**	Nicht bestimmt.
· **Selbstentzündungstemperatur:**	Das Produkt ist nicht selbstentzündlich.
· **Explosive Eigenschaften:**	Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.
· **Explosionsgrenzen:**	
Untere:	14 Vol %
Obere:	33 Vol %
· **Dampfdruck bei 20 °C:**	43 hPa
· **Dichte bei 20 °C:**	1,6 g/cm³
· **Relative Dichte**	Nicht bestimmt.
· **Dampfdichte**	Nicht bestimmt.
· **Verdampfungsgeschwindigkeit**	Nicht bestimmt.
· **Löslichkeit in / Mischbarkeit mit**	
Wasser:	Vollständig mischbar.
· **Verteilungskoeffizient: n-Octanol/Wasser:**	Nicht bestimmt.
· **Viskosität:**	
Dynamisch:	Nicht bestimmt.
Kinematisch:	Nicht bestimmt.
· **Lösemittelgehalt:**	
VOC (EU)	0,00 %
Festkörpergehalt:	0,0 %

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· **9.2 Sonstige Angaben** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 10: Stabilität und Reaktivität

· **10.1 Reaktivität** Keine weiteren relevanten Informationen verfügbar.
· **10.2 Chemische Stabilität**
· **Thermische Zersetzung / zu vermeidende Bedingungen:**
Keine Zersetzung bei bestimmungsgemäßer Verwendung.
· **10.3 Möglichkeit gefährlicher Reaktionen** Keine gefährlichen Reaktionen bekannt.
· **10.4 Zu vermeidende Bedingungen** Keine weiteren relevanten Informationen verfügbar.
· **10.5 Unverträgliche Materialien:** Keine weiteren relevanten Informationen verfügbar.
· **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

ABSCHNITT 11: Toxikologische Angaben

· **11.1 Angaben zu toxikologischen Wirkungen**
· **Akute Toxizität**
Gesundheitsschädlich bei Verschlucken.

· **Einstufungsrelevante LD/LC50-Werte:**		
64-18-6 Ameisensäure		
Oral	LD50	1.100 mg/kg (rat)

· **Primäre Reizwirkung:**
· **Ätz-/Reizwirkung auf die Haut**
Verursacht schwere Verätzungen der Haut und schwere Augenschäden.
· **Schwere Augenschädigung/-reizung**
Verursacht schwere Augenschäden.
· **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)**
· **Keimzell-Mutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Karzinogenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
· **Aspirationsgefahr** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.

ABSCHNITT 12: Umweltbezogene Angaben

· **12.1 Toxizität**
· **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
· **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
· **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
· **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
· **Weitere ökologische Hinweise:**
· **Allgemeine Hinweise:**
Wassergefährdungsklasse 1 (Selbsteinstufung): schwach wassergefährdend
Nicht unverdünnt bzw. in größeren Mengen in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.

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Darf nicht unverdünnt bzw. unneutralisiert ins Abwasser bzw. in den Vorfluter gelangen.
· **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
· **PBT:** Nicht anwendbar.
· **vPvB:** Nicht anwendbar.
· **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

ABSCHNITT 13: Hinweise zur Entsorgung

· **13.1 Verfahren der Abfallbehandlung**
· **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.

· **Ungereinigte Verpackungen:**
· **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.
· **Empfohlenes Reinigungsmittel:** Wasser, gegebenenfalls mit Zusatz von Reinigungsmitteln.

ABSCHNITT 14: Angaben zum Transport

· **14.1 UN-Nummer**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 Ordnungsgemäße UN-Versandbezeichnung**	
· **ADR**	3412 AMEISENSÄURE
· **IMDG, IATA**	FORMIC ACID
· **14.3 Transportgefahrenklassen**	
· **ADR, IMDG, IATA**	

· **Klasse**	8 Ätzende Stoffe
· **Gefahrzettel**	8
· **14.4 Verpackungsgruppe**	
· **ADR, IMDG, IATA**	II
· **14.5 Umweltgefahren:**	Nicht anwendbar.
· **14.6 Besondere Vorsichtsmaßnahmen für den Verwender**	Achtung: Ätzende Stoffe
· **Nummer zur Kennzeichnung der Gefahr (Kemler-Zahl):**	80
· **EMS-Nummer:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code**	Nicht anwendbar.

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· **Transport/weitere Angaben:**

· **ADR**	
· **Begrenzte Menge (LQ)**	1L
· **Freigestellte Mengen (EQ)**	Code: E2 Höchste Nettomenge je Innenverpackung: 30 ml Höchste Nettomenge je Außenverpackung: 500 ml
· **Beförderungskategorie**	2
· **Tunnelbeschränkungscode**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 3412 AMEISENSÄURE, 8, II

ABSCHNITT 15: Rechtsvorschriften

· **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**

· **Richtlinie 2012/18/EU**
· **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Keiner der Inhaltsstoffe ist enthalten.
· **Seveso-Kategorie** P5c ENTZÜNDBARE FLÜSSIGKEITEN
· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse** 5.000 t
· **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse** 50.000 t
· **VERORDNUNG (EG) Nr. 1907/2006 ANHANG XVII** Beschränkungsbedingungen: 3

· **Nationale Vorschriften:**

· **Wassergefährdungsklasse:** WGK 1 (Selbsteinstufung): schwach wassergefährdend.
· **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

· **Relevante Sätze**
H302 Gesundheitsschädlich bei Verschlucken.
H314 Verursacht schwere Verätzungen der Haut und schwere Augenschäden.
· **Abkürzungen und Akronyme:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Entzündbare Flüssigkeiten – Kategorie 3

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Acute Tox. 4: Akute Toxizität - oral – Kategorie 4
Skin Corr. 1A: Hautreizende/-ätzende Wirkung – Kategorie 1A
Eye Dam. 1: Schwere Augenschädigung/Augenreizung – Kategorie 1

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SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa

· **1.1 Identificatore del prodotto**

· **Denominazione commerciale: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Articolo numero:** 15750, 15760
· **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**
Non sono disponibili altre informazioni.
· **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio

· **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**
· **Produttore/fornitore:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Societa Italiana Chimici
Via Rio Nell Ellba 140
00138 Rome, Italy
Tel: 39 06 8800211
Fax: 39 30 06 8815313
Web: www.sichim.com

· **Informazioni fornite da:** Product safety department
· **1.4 Numero telefonico di emergenza:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SEZIONE 2: Identificazione dei pericoli

· **2.1 Classificazione della sostanza o della miscela**
· **Classificazione secondo il regolamento (CE) n. 1272/2008**

GHS02 fiamma

Flam. Liq. 3 H226 Liquido e vapori infiammabili.

GHS05 corrosione

Skin Corr. 1A H314 Provoca gravi ustioni cutanee e gravi lesioni oculari.
Eye Dam. 1 H318 Provoca gravi lesioni oculari.

GHS07

Acute Tox. 4 H302 Nocivo se ingerito.

· **2.2 Elementi dell'etichetta**
· **Etichettatura secondo il regolamento (CE) n. 1272/2008**
Il prodotto è classificato ed etichettato conformemente al regolamento CLP.

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· **Pittogrammi di pericolo**

GHS02 GHS05 GHS07

· **Avvertenza** Pericolo

· **Componenti pericolosi che ne determinano l'etichettatura:**
acido formico
· **Indicazioni di pericolo**
H226 Liquido e vapori infiammabili.
H302 Nocivo se ingerito.
H314 Provoca gravi ustioni cutanee e gravi lesioni oculari.
· **Consigli di prudenza**
P303+P361+P353 IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle [o fare una doccia].
P305+P351+P338 IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.
P310 Contattare immediatamente un CENTRO ANTIVELENI/un medico.
P321 Trattamento specifico (vedere su questa etichetta).
P405 Conservare sotto chiave.
P501 Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.
· **2.3 Altri pericoli**
· **Risultati della valutazione PBT e vPvB**
· **PBT:** Non applicabile.
· **vPvB:** Non applicabile.

SEZIONE 3: Composizione/informazioni sugli ingredienti

· **3.2 Caratteristiche chimiche: Miscele**
· **Descrizione:** Miscela delle seguenti sostanze con additivi non pericolosi.

· **Sostanze pericolose:**

CAS: 64-18-6 EINECS: 200-579-1	acido formico	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Ulteriori indicazioni:** Il testo dell'avvertenza dei pericoli citati può essere appreso dal capitolo 16

SEZIONE 4: Misure di primo soccorso

· **4.1 Descrizione delle misure di primo soccorso**
· **Indicazioni generali:**
Allontanare immediatamente gli abiti contaminati dal prodotto.
I sintomi di avvelenamento possono comparire dopo molte ore, per tale motivo è necessaria la sorveglianza di un medico nelle 48 ore successive all'incidente.
· **Inalazione:** Se il soggetto è svenuto provvedere a tenerlo durante il trasporto in posizione stabile su un fianco.
· **Contatto con la pelle:** Lavare immediatamente con acqua e sapone sciacquando accuratamente.
· **Contatto con gli occhi:**
Lavare con acqua corrente per diversi minuti tenendo le palpebre ben aperte e consultare il medico.
· **Ingestione:**
Chiamare subito il medico.

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Bere abbondante acqua e sostare in zona ben areata. Richiedere immediatamente l'intervento del medico.
· **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.
· **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**
Non sono disponibili altre informazioni.

SEZIONE 5: Misure antincendio

· **5.1 Mezzi di estinzione**
· **Mezzi di estinzione idonei:**
CO2, polvere o acqua nebulizzata. Estinguere gli incendi di grosse dimensioni con acqua nebulizzata o con schiuma resistente all'alcool.
· **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.
· **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
· **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

SEZIONE 6: Misure in caso di rilascio accidentale

· **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza**
Indossare equipaggiamento protettivo. Allontanare le persone non equipaggiate.
· **6.2 Precauzioni ambientali:**
Diluire abbondantemente con acqua.
Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
· **6.3 Metodi e materiali per il contenimento e per la bonifica:**
Raccogliere il liquido con materiale assorbente (sabbia, tripoli, legante di acidi, legante universale, segatura).
Utilizzare mezzi di neutralizzazione.
Smaltimento del materiale contaminato conformemente al punto 13.
Provvedere ad una sufficiente areazione.
· **6.4 Riferimento ad altre sezioni**
Per informazioni relative ad un manipolazione sicura, vedere capitolo 7.
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.
Per informazioni relative allo smaltimento vedere Capitolo 13.

SEZIONE 7: Manipolazione e immagazzinamento

· **7.1 Precauzioni per la manipolazione sicura**
Accurata ventilazione/aspirazione nei luoghi di lavoro.
Evitare la formazione di aerosol.
· **Indicazioni in caso di incendio ed esplosione:**
Tenere lontano da fonti di calore, non fumare.
Proteggere dal calore.
Adottare provvedimenti contro cariche elettrostatiche.

· **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**
· **Stoccaggio:**
· **Requisiti dei magazzini e dei recipienti:** Non sono richiesti requisiti particolari.
· **Indicazioni sullo stoccaggio misto:** Non necessario.
· **Ulteriori indicazioni relative alle condizioni di immagazzinamento:**
Mantenere i recipienti ermeticamente chiusi.
Proteggere dal calore e dai raggi diretti del sole.
· **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

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SEZIONE 8: Controllo dell'esposizione/protezione individuale

· **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.

· **8.1 Parametri di controllo**

· **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:**	
64-18-6 acido formico	
TWA	Valore a breve termine: 18,8 mg/m³, 10 ppm Valore a lungo termine: 9,4 mg/m³, 5 ppm
VL	Valore a lungo termine: 9 mg/m³, 5 ppm

· **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.

· **8.2 Controlli dell'esposizione**
· **Mezzi protettivi individuali:**
· **Norme generali protettive e di igiene del lavoro:**
Tenere lontano da cibo, bevande e foraggi.
Togliere immediatamente gli abiti contaminati.
Lavarsi le mani prima dell'intervallo o a lavoro terminato.
Evitare il contatto con gli occhi.
Evitare il contatto con gli occhi e la pelle.
· **Maschera protettiva:**
Nelle esposizioni brevi e minime utilizzare la maschera; nelle esposizioni più intense e durature indossare l'autorespiratore.
· **Guanti protettivi:**

Guanti protettivi

Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.
A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.
Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.
· **Materiale dei guanti**
La scelta dei guanti adatti non dipende soltanto dal materiale bensí anche da altre caratteristiche di qualità variabili da un produttore a un altro. Poiché il prodotto rappresenta una formulazione di più sostanze, la stabilità dei materiali dei guanti non è calcolabile in anticipo e deve essere testata prima dell'impiego
· **Tempo di permeazione del materiale dei guanti**
Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.
· **Occhiali protettivi:**

Occhiali protettivi a tenuta

SEZIONE 9: Proprietà fisiche e chimiche

· **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**
· **Indicazioni generali**
· **Aspetto:**
Forma: Liquido

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Colore:	Incolore
· **Odore:**	Pungente, provoca la lacrimazione
· **Soglia olfattiva:**	Non definito.
· **valori di pH:**	Non definito.
· **Cambiamento di stato**	
Punto di fusione/punto di congelamento:	-9 °C
Punto di ebollizione iniziale e intervallo di ebollizione:	101 °C
· **Punto di infiammabilità:**	50 °C
· **Infiammabilità (solidi, gas):**	Non applicabile.
· **Temperatura di accensione:**	520 °C
· **Temperatura di decomposizione:**	Non definito.
· **Temperatura di autoaccensione:**	Prodotto non autoinfiammabile.
· **Proprietà esplosive:**	Prodotto non è esplosivo, è tuttavia possibile la formazione di miscele di vapori/aria esplosive.
· **Limiti di infiammabilità:**	
Inferiore:	14 Vol %
Superiore:	33 Vol %
· **Tensione di vapore a 20 °C:**	43 hPa
· **Densità a 20 °C:**	1,6 g/cm³
· **Densità relativa**	Non definito.
· **Densità di vapore:**	Non definito.
· **Velocità di evaporazione**	Non definito.
· **Solubilità in/Miscibilità con acqua:**	Completamente miscibile.
· **Coefficiente di ripartizione: n-ottanolo/acqua:**	Non definito.
· **Viscosità:**	
Dinamica:	Non definito.
Cinematica:	Non definito.
· **Tenore del solvente:**	
VOC (CE)	0,00 %
Contenuto solido:	0,0 %
· **9.2 Altre informazioni**	Non sono disponibili altre informazioni.

SEZIONE 10: Stabilità e reattività

· **10.1 Reattività** Non sono disponibili altre informazioni.
· **10.2 Stabilità chimica**
· **Decomposizione termica/ condizioni da evitare:** Il prodotto non si decompone se utilizzato secondo le norme.
· **10.3 Possibilità di reazioni pericolose** Non sono note reazioni pericolose.
· **10.4 Condizioni da evitare** Non sono disponibili altre informazioni.
· **10.5 Materiali incompatibili:** Non sono disponibili altre informazioni.

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· **10.6 Prodotti di decomposizione pericolosi:** Non sono noti prodotti di decomposizione pericolosi.

SEZIONE 11: Informazioni tossicologiche

· **11.1 Informazioni sugli effetti tossicologici**
· **Tossicità acuta**
Nocivo se ingerito.

· **Valori LD/LC50 rilevanti per la classificazione:**		
64-18-6 acido formico		
Orale	LD50	1.100 mg/kg (rat)

· **Irritabilità primaria:**
· **Corrosione/irritazione cutanea**
Provoca gravi ustioni cutanee e gravi lesioni oculari.
· **Lesioni oculari gravi/irritazioni oculari gravi**
Provoca gravi lesioni oculari.
· **Sensibilizzazione respiratoria o cutanea**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
· **Mutagenicità delle cellule germinali**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Cancerogenicità** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
· **Pericolo in caso di aspirazione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

SEZIONE 12: Informazioni ecologiche

· **12.1 Tossicità**
· **Tossicità acquatica:** Non sono disponibili altre informazioni.
· **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.
· **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
· **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.
· **Ulteriori indicazioni in materia ambientale:**
· **Ulteriori indicazioni:**
Pericolosità per le acque classe 1 (D) (Autoclassificazione): poco pericoloso
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature non diluito o in grandi quantità.
Non immettere il prodotto non diluito o non neutralizzato nelle acque di scarico e nei canali di raccolta.
· **12.5 Risultati della valutazione PBT e vPvB**
· **PBT:** Non applicabile.
· **vPvB:** Non applicabile.
· **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

SEZIONE 13: Considerazioni sullo smaltimento

· **13.1 Metodi di trattamento dei rifiuti**
· **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.

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· **Imballaggi non puliti:**
· **Consigli:** Smaltimento in conformità con le disposizioni amministrative.
· **Detergente consigliato:** Acqua eventualmente con l'aggiunta di detersivi.

SEZIONE 14: Informazioni sul trasporto

· **14.1 Numero ONU**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 Nome di spedizione dell'ONU**	
· **ADR**	3412 ACIDO FORMICO
· **IMDG, IATA**	FORMIC ACID
· **14.3 Classi di pericolo connesso al trasporto**	
· **ADR, IMDG, IATA**	

· **Classe**	8 Materie corrosive
· **Etichetta**	8
· **14.4 Gruppo di imballaggio**	
· **ADR, IMDG, IATA**	II
· **14.5 Pericoli per l'ambiente:**	Non applicabile.
· **14.6 Precauzioni speciali per gli utilizzatori**	Attenzione: Materie corrosive
· **N° identificazione pericolo (Numero Kemler):**	80
· **Numero EMS:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Trasporto di rinfuse secondo l'allegato II di MARPOL ed il codice IBC**	Non applicabile.
· **Trasporto/ulteriori indicazioni:**	
· **ADR**	
· **Quantità limitate (LQ)**	1L
· **Quantità esenti (EQ)**	Codice: E2 Quantità massima netta per imballaggio interno: 30 ml Quantità massima netta per imballaggio esterno: 500 ml
· **Categoria di trasporto**	2
· **Codice di restrizione in galleria**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

(continua a pagina 8)

Scheda di dati di sicurezza
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 13.04.2020 Revisione: 13.04.2020

Denominazione commerciale: FORMIC ACID 96%, REAGENT, A.C.S.

(Segue da pagina 7)

· **UN "Model Regulation":** UN 3412 ACIDO FORMICO, 8, II

SEZIONE 15: Informazioni sulla regolamentazione

· **15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**

· **Direttiva 2012/18/UE**
· **Sostanze pericolose specificate - ALLEGATO I** Nessuno dei componenti è contenuto.
· **Categoria Seveso** P5c LIQUIDI INFIAMMABILI
· **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore** 5.000 t
· **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore** 50.000 t
· **REGOLAMENTO (CE) n. 1907/2006 ALLEGATO XVII** Restrizioni: 3
· **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

SEZIONE 16: Altre informazioni

I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.

· **Frasi rilevanti**
H302 Nocivo se ingerito.
H314 Provoca gravi ustioni cutanee e gravi lesioni oculari.
· **Abbreviazioni e acronimi:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Liquidi infiammabili – Categoria 3
Acute Tox. 4: Tossicità acuta per via orale – Categoria 4
Skin Corr. 1A: Corrosione/irritazione della pelle – Categoria 1A
Eye Dam. 1: Gravi lesioni oculari/irritazione oculare – Categoria 1

물질안전보건자료

GHS에 따라라따

인쇄일자: 2020.04.13 개정: 2020.04.13

1 화학제품과 회사에 관한 정보

제품제품제품명자

· **제품명:** FORMIC ACID 96%, REAGENT, A.C.S.

· **상품번호:** 15750, 15760

해당해당한물질이나 혼합물의관련된확인용도 및 사용금지용도 추가적인 정보가 존재하지 않습니다.

· **제품의권고용도와 사용상의제한제한** 시험 실 화 학품

· **안전데이터표(Safety Data Sheet)내 공급업체 관련정보** 정보

· **제조자/수입자/유통업체정보**

Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Samchang Commercial Co., Ltd.
Yeo Eui Do
PO Box 1110
Seoul, Korea
Tel: 82 2 703 3040
Fax: 82 2 717 3298

Daedok Science, Co. Ltd.
34141 E10 Korea Advanced Institute of Science
Guseong-Dong, Yuseong-gu, Daejeon,
Korea
Phone: 82 42 710 2091
Fax: 82 42 367 0005
Website: www.labsmro.com

· **추가정보를얻을수있는부서:** duct safety department

· **비상연락 전화번호:**

ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

2 유해성·위험성

· **순물질또는혼합물의분류분류**

화염

인화성 액체 – 구분 3 H226 인화성 액체 및 증기

부식

피부 부식성/피부 자극성 – 구분 1 H314 피부에 심한 화상과 눈에 손상을 일으킴
심한 눈 손상성/눈 자극성 – 구분 1 H318 눈에 심한 손상을 일으킴

급성 독성 - 경구 – 구분 4 H302 삼키면 유해함

(2 쪽에계속)

물질안전보건자료

GHS에 따라 작성

인쇄일자: 2020.04.13 개정: 2020.04.13

제품명: FORMIC ACID 96%, REAGENT, A.C.S.

(1 쪽부터계속)

· **라벨 표기 요소**
· **GHS 라벨 표기 요소**
본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.
· **그림문자**

GHS02 GHS05 GHS07

· **신호어** 위험

· **상표상에명확히위험성이표시된성분:**
개미산
유해 유해·위험 문구
인화성 액체 및 증기
삼키면 유해함
피부에 심한 화상과 눈에 손상을 일으킴
· **예방 조치 문구**
피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하시오. 피부를 물로 씻으시오/샤워하시오.
눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면 콘택트렌즈를 제거하시오. 계속 씻으시오.
즉시 독성물질센터/병원 연락 필요.
(라벨 참조) 처치를 하시오.
밀봉하여 저장하시오.
(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하시오.
기타 유해성
· **PBT(잔류성, 생물농축성 및 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과**
· **PBT(잔류성, 생물농축성 및 독성 물질)** 해당사항 없음.
· **vPvB(고 잔류성, 고 생물농축성 물질)** 해당사항 없음.

3 구성성분의 명칭 및 함유량

· **화학적 특성: 혼합물**
설명 명시된 첨가물이 함유된 아래에 열거된 물질로 만들어진 혼합물.

· **위험 요소**		
64-18-6	개미산 피부 부식성/피부 자극성 – 구분 1, H314; 급성 독성 - 경구 – 구분 4, H302	>50-≤100%

4 응급조치 요령

· **응급조치요령의 내용**
· **일반적 정보**
이 제품에 의해 오염된 의상은 즉시 제거한다.
중독증상은 몇 시간이 지난 뒤에 발생할 수 있다. 따라서 사고가 발생한 후에 적어도 48 시간동안은 의료진의 관찰을 받아야 한다.
· **흡입했을 때:** 환자가 의식을 잃었을 경우에는 안전한 자세에서 환자를 운반한다.
· **피부에 접촉했을 때:** 즉시물과비누로씻고잘헹군다.
눈에 들어갔을 때: 흐르는 물에 눈을 몇분동안 씻어내고나서, 의사와 상담한다
· **먹었을 때:**
즉시 의사의 도움을 구한다.
물을 충분히 마시고 신선한 공기를 쐰다. 즉시 의사의 도움을 구한다.

(3 쪽에계속)

물질안전보건자료

GHS에 따라라따

인쇄일자: 2020.04.13 개정: 2020.04.13

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(2 쪽부터계속)

기타기타 그 의사의 주의사항:
가장 가장 중요한 모든 급성 또는 지연 증상 및 영향 추가적인 정보가 존재하지 않습니다.
· **즉각적인 의료처치 및 특별치료가 필요함을 시사하는 징후 증후** 추가적인 정보가 존재하지 않습니다.

5 폭발·화재시 대처방법

· **소화제**
· **적절한 소화제:**
이산화탄소, 진화용석회가루 또는 물 방사를 사용하고, 더 큰 화재는 물을 분사하거나 알코올 이 함유된 거품으로 끈다.
· **본 화학물질이나 혼합물에서 발생하는 특별한 유해성** 추가적인 정보가 존재하지 않습니다.
· **소방관에 대한 권고사항**
화재 화재 진압 착용할 보호구 및 예방조치: 특별한 조치가 필요없음.

6 누출 사고 시 대처방법

· **개인적 예방조치, 보호장비 및 응급 절차** 장비 착용하고, 무방비의 사람은 격리시킨다.
환경 환경 예방조치:
많은 물로 희석 시킨다.
하수도망/해수면위의물/지하수로도달하지않게한다.
밀폐 밀폐 정화 방법과 소재:
액체가 혼합된 물질(모래, 규조토, 산성결합물, 일반결합물, 톱밥)에 흡입되도록 한다.
중성제를사용한다.
항목 13에 따라 오염된 물질을 쓰레기로 처분한다.
충분한 환기가 되도록 한다.
섹션 참조
안전관리에 대한 정보는 제7 장을 참고하시오.
개인보호장비에 대한 정보는 제8 장을 참고하시오.
쓰레기처리에 대한 정보는 제13 장을 참고하시오.

7 취급 및 저장방법

취급 취급
안전 안전 취급을 위한 예방조치
작업장에서는통풍이잘되고/습기제거가잘되게주의한다.
연무질이형성되는것을피한다.
화재 화재 폭발 및 폭발 대책에 관한 정보
발화요소는멀리둔다-금연.
열로부터보호한다.
정전기의충전으로부터보호한다.

· **혼합 위험성 안전 조건**
보관 보관
· **안전한 저장 방법**
특별한 요구사항이 없음.
· **하나 이상 공통 보관 시설에 대한 정보**
요없음
· **보관 조건에 관한 추가 정보**
용기를새지않게밀폐한채보관한다.
열이나직사광선으로부터보호한다.
· **구체적 최종 사용자** 추가적인 정보가 존재하지 않습니다.

(4 쪽에계속)

물질안전보건자료

GHS에 따라 작성됨

인쇄일자: 2020.04.13 개정: 2020.04.13

제품명: FORMIC ACID 96%, REAGENT, A.C.S.

(3 쪽부터계속)

8 노출방지 및 개인보호구

· **적절한 공학적 관리에 대한 추가 정보:** 더 이상 의 자료는 없음. 항 목 7 을 참고하시 오.

통제 변수

· **화학물질의 노출기준, 생물학적 노출기준 등:**

64-18-6 개미산	
TLV (KR)	장기간의값: 5 ppm
IOELV (EU)	장기간의값: 9 mg/m³, 5 ppm
PEL (US)	장기간의값: 9 mg/m³, 5 ppm
REL (US)	장기간의값: 9 mg/m³, 5 ppm
TLV (US)	단기간의값: 19 mg/m³, 10 ppm 장기간의값: 9.4 mg/m³, 5 ppm

· **추가 정보:** 제조 할 당시에 유 효 한 목 록을 기초로 사용했다.

노출 통제

개인 보호구

· **일반적 보호 조치 및 위생 조치:**
식 료 품, 음 료 수와 사 료 로 부 터 멀 리 떨 어 뜨 려 놓 는 다.
더 러 워 지 거 나 음 료 수 가 묻 은 옷 은 즉 시 탈의한다.
휴 식 전 이 나 작업이 끝날때마다 손을 씻는다.
눈과의 접 촉 을 피 한 다.
눈 과 피 부와의 접 촉 은 피 한 다.

· **호흡기 보호 보호:**
단 시 간 또 는 경 미 한 오 염 의 경 우에는 호 흡 여 과 기 를 사 용 한 다. 심각한 또 는 장 기 간 노 출시에 는 호 흡 보 호 장 비 를 사 용 한 다.

보호 보호보호

보 호용 장 갑

장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.
테 스 트 를 하 지 않 았기 때문에 제 품 / 조 제 / 화 학 혼 합 물에 적합한 장갑재질에 대한 추천이 없다.
투과 시 간, 침 투 율 과 저하를 고 려해서 장 갑 재 료를 선택한다.

· **장갑의재료**
적합한장갑의선정은재질차이뿐아니라품질기준의차이도고려하여이루어져야하고제조업종에따라서도다르게선정되어야한다. 제품은다양한재료로부터의조제로이루어지는것이기때문에, 장갑재질의안정성은사전에예측되어질수있는것이아니고, 반드시사용전에 (그안전성이) 체크되어져야한다.

· **장 갑 재 료 의 투과시 간** 정확한관통시간은보호장갑제조자에의하여인지되고, 준수되어야한다.

보호 보호보호

꽉조이는보안경

KR

(5 쪽에계속)

물질안전보건자료

GHS에 따라라따

인쇄일자: 2020.04.13 개정: 2020.04.13

제품명: FORMIC ACID 96%, REAGENT, A.C.S.

(4 쪽부터계속)

9 물리화학적 특성

기본 물리 및 화학적 특성에 대한 정보

· **일반정보**

외형 외형 외형

물리적 상태 상태 액체

색: 색소가없는

냄새 냄새 냄새 찌르는듯한, 눈물날만큼자극적인

· **후각역치** 알맞지않다.

· **pH:** 알맞지않다.

· **상태변화**

녹는점/어는점: -9 °C

초기 초기 끓는 점과 끓는점 범위 범위 101 °C

· **인화점:** 50 °C

· **인화성 고체, 기체** 해당사항 없음.

· **점화온도:** 520 °C

분해 분해 분해온도 알맞지않다.

· **자기점화:** 이제품은자연발화성이없다.

· **폭발위험:** 이제품은폭발위험성이없지만, 폭발가능성이있는증기화합물/공기화합물의형성가능성이있다.

인화 인화 인화 폭발 폭발 폭발 한계 한계 한계

아래로: 14 Vol %

위로 위로 위로 33 Vol %

· **증기압 의 경우 20 °C:** 43 hPa

밀도 밀도 밀도 및 및 및 20 °C: 1.6 g/cm³

비중 비중 비중 알맞지않다.

· **증기밀도:** 알맞지않다.

증발 증발 증발 속도 알맞지않다.

· **용해도:**

물: 완전히혼합할수있는

· **n 옥탄올/물 분배계수:** 알맞지않다.

점도 점도 점도

역학성: 알맞지않다.

등점성: 알맞지않다.

· **용매내용물**

VOC (EU) 0.00 %

고체 함량 함량 0.0 %

기타 정보 정보 정보 추가적인 정보가 존재하지 않습니다.

10 안정성 및 반응성

· **반응성** 추가적인 정보가 존재하지 않습니다.

· **화학적 안정성**

· **화학적 안정성 및 유해 반응의 가능성 / 피해야 할 조건** 조건 정에따라사용할경우해체는없다

· **유해반응 가능성** 위험한반응으로는알려지지않았다.

(6 쪽에계속)

물질안전보건자료

GHS에 따라라따

인쇄일자: 2020.04.13 개정: 2020.04.13

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· **피해야 할 조건** 추가적인 정보가 존재하지 않습니다.
혼합 혼합 금지 물질 추가적인 정보가 존재하지 않습니다.
· **유해분해물질:** 위험성있는분해물들은알려지지않았다.

11 독성에 관한 정보

· **독성학적 영향에 대한 정보** 정보
급성 독성 독성

· **LD/LC50-수치에 대한 분류**		
64-18-6 개미산		
구강의	LD50	1,100 mg/kg (rat)

· **일차적 자극 효과**
피부 피부 부식성 또는 자극성: 피부와점막에강한부식작용.
심한 심한 손상 또는 자극성:
강한부식작용
심각한안구상처의위험이있는강한자극
· **감각화:** 민감한영향이없는것으로알려져있다.
· **추가적인 독성에 관한 정보** 정보
이제품은유럽공동체의공동분류원칙의합법적인절차에근거하여최근에발효된원고에서아래위험들의사전준비에대하여제시하고있다.
건강에해로운
부식작용의
자극적인
삼킬경우식도나위등의내장기관벽에상처를주는위험과마찬가지로입주변이나구강에강한부식작용을한다

12 환경에 미치는 영향

독성 독성 독성
· **수생독성:** 추가적인 정보가 존재하지 않습니다.
· **지속성 및 분해성** 추가적인 정보가 존재하지 않습니다.
· **환경 시스템에서의 행동:**
· **생물농축 잠재성** 추가적인 정보가 존재하지 않습니다.
· **토양내 이동성** 추가적인 정보가 존재하지 않습니다.
· **추가적인 생태학적 정보** 정보
일반 일반적 주의 징후
수질오염등급 1 (자체등급분류): 약하게수질오염이된
희석시키지않은채대량으로지하수나, 하천으로그리고하수도망에도달하지않게한다.
희석시키지않은채또는중화시키지않은채하수도나배수로에도달하지않게해야한다.
· **PBT(잔류성, 생물농축성 및 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과**
· **PBT(잔류성, 생물농축성 및 독성 물질) 해당사항 없음.**
· **vPvB(고 잔류성, 고 생물농축성 물질) 해당사항 없음.**
기타 기타 부작용 추가적인 정보가 존재하지 않습니다.

13 폐기시 주의사항

· **폐기물 처리 방법**
권고 권고 생활 쓰레기와함께처리되어서는안된다. 하수도망으로유입되서는안된다.

· **비위생적 포장 포장**
권고 권고 관할 국의지침에입각한쓰레기처리.

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물질안전보건자료

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· **추 천 세정제:** 경우에따라서세제가첨가된물

14 운송에 필요한 정보

유엔 유엔운송번호 · **ADR, IMDG, IATA**	UN3412
· 적정적정적정명 · **ADR** · **IMDG, IATA**	3412 FORMIC ACID FORMIC ACID
교통 교통위험물클래스 · **ADR, IMDG, IATA**	
등급등급등급 · 위험물라벨라벨	8 부식작용하는물질 8
· 용기등급 · **ADR, IMDG, IATA**	II
· 환경적 유해물질:	해당사항 없음.
· 이용자특별해방조치 위험위험코드 · E번호번호번호 · **Segregation groups** · **Stowage Category** · **Stowage Code**	경고: 부식작용하는물질 80 8-05 Acids A SW2 Clear of living quarters.
· **MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(벌크)운송**	해당사항 없음.
· 운송/추가정보	정보
· **ADR** 한정한정량(유량) · **Excepted quantities (EQ)**	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
운송 운송분류구분 터널 터널제한코드	2 E
· **IMDG** · **Limited quantities (LQ)** · **Excepted quantities (EQ)**	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN 모범규정	UN 3412 FORMIC ACID, 8, II

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물질안전보건자료

GHS에 따라 작성

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15 법적 규제현황

· **산업안전보건법에 의한 규제**

제조 제조 또는 금지물질:

어떠한 내용물도 목록화되어있지않다

· **허가대상물질:**

어떠한 내용물도 목록화되어있지않다

· **관리대상유해물질:**

모든 내용물이 목록화되어있다

· **작업환경측정 대상 유해인자**

64-18-6	개미산	1C1

· **특수건강진단 대상 유해인자**

어떠한 내용물도 목록화되어있지않다

해당 화학물질 또는 혼합물에 대한 기타 국내 및 지방 정부 법률

· **Korean Existing Chemical Inventory**

64-18-6	개미산	KE-17233

· **화학물질관리법**

· **사고대비물질**

모든 내용물이 목록화되어있다

· **금지물질**

어떠한 내용물도 목록화되어있지않다

· **제한물질**

어떠한 내용물도 목록화되어있지않다

· **유독물질**

어떠한 내용물도 목록화되어있지않다

· **허가물질**

모든 내용물이 목록화되어있다

· **위험물안전관리법 (위험물 및 지정수량)** True

등록 또는 신고 대상 화학물질

어떠한 내용물도 목록화되어있지않다

· **'21년까지 등록하여야 할 암, 돌연변이, 생식능력 이상을 일으키거나 일으킬 우려가 있는 기존화학물질**

어떠한 내용물도 목록화되어있지않다

· **중점관리물질에 지정**

· **표1 중점관리물질(제조 관련)**

어떠한 내용물도 목록화되어있지않다

· **표2 중점관리물질(제조 관련)**

어떠한 내용물도 목록화되어있지않다

· **라벨 표시 요소**

본 제품은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.

(9 쪽에계속)

물질안전보건자료

GHS에 따라라따

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· **그림문자**

GHS02 GHS05 GHS07

· **신호어** 위험

· **상표상에명확히위험성이표시된성분:**
개미산

유해유해유해유해 문구

인화성 액체 및 증기
삼키면 유해함
피부에 심한 화상과 눈에 손상을 일으킴

· **예방조치문구문구**
피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하시오. 피부를 물로 씻으시오/샤워하시오
.
눈에 묻으면 몇 분간 물로 조심해서 씻으시오. 가능하면 콘택트렌즈를 제거하시오. 계속 씻으시오.
즉시 독성물질센터/병원 연락 필요.
(라벨 참조) 처치를 하시오.
밀봉하여 저장하시오.
(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하시오.

· **화학물질 안전성 평가평가평가** 화학물질 안전성 평가가 수행되지 않음

16 그 밖의 참고사항

이보고는우리지식에대한오늘날의상태에대하여평가하고있다, 하지만이보고서는생산특성에관한보증은기술하지않았으며계약적인법률관계에기반을두고있지도않다

최초최초최초작성일자: 2020.04.13
개정개정개정최종최종최종일자: 1 / 2020.04.13

· **약어와 두문자어:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

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RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

· **1.1 Productidentificatie**

· **Handelsnaam: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Artikelnummer:** 15750, 15760
· **1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik**
Geen verdere relevante informatie verkrijgbaar.
· **Toepassing van de stof / van de bereiding** Laboratoriumchemcaliën

· **1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad**
· **Fabrikant/leverancier:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Aurion
Binnenhaven 5
6709 PD Wageningen
The Netherlands
Tel: 31 317 415094
Fax: 31 317 415955
email: info@aurion.nl

· **Inlichtingengevende sector:** Product safety department
· **1.4 Telefoonnummer voor noodgevallen:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

RUBRIEK 2: Identificatie van de gevaren

· **2.1 Indeling van de stof of het mengsel**
· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**


GHS02 vlam

Flam. Liq. 3 H226 Ontvlambare vloeistof en damp.


GHS05 corrosie

Skin Corr. 1A H314 Veroorzaakt ernstige brandwonden en oogletsel.
Eye Dam. 1 H318 Veroorzaakt ernstig oogletsel.


GHS07

Acute Tox. 4 H302 Schadelijk bij inslikken.

· **2.2 Etiketteringselementen**
· **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**
Het product is geclassificeerd en geëtiketteerd volgens de CLP-verordening.

(Vervolg op blz. 2)

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(Vervolg van blz. 1)

· **Gevarenpictogrammen**

GHS02 GHS05 GHS07

· **Signaalwoord** Gevaar

· **Gevaaraanduidende componenten voor de etikettering:**
mierenzuur
· **Gevarenaanduidingen**
H226 Ontvlambare vloeistof en damp.
H302 Schadelijk bij inslikken.
H314 Veroorzaakt ernstige brandwonden en oogletsel.
· **Veiligheidsaanbevelingen**
P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen [of afdouchen].
P305+P351+P338 BIJ CONTACT MET DE OGEN: voorzichtig afspoelen met water gedurende een aantal minuten; contactlenzen verwijderen, indien mogelijk; blijven spoelen.
P310 Onmiddellijk een ANTIGIFCENTRUM/arts raadplegen.
P321 Specifieke behandeling vereist (zie op dit etiket).
P405 Achter slot bewaren.
P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.
· **2.3 Andere gevaren**
· **Resultaten van PBT- en zPzB-beoordeling**
· **PBT:** Niet bruikbaar.
· **zPzB:** Niet bruikbaar.

RUBRIEK 3: Samenstelling en informatie over de bestanddelen

· **3.2 Chemische karakterisering: Mengsels**
· **Beschrijving:** Mengsel van na elkaar aangevoerde stoffen met ongevaarlijke bijmengingen.

· **Gevaarlijke inhoudstoffen:**			
CAS: 64-18-6 EINECS: 200-579-1	mierenzuur	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Aanvullende gegevens:**
De woordelijke inhoud van de opgegeven aanwijzingen inzake de mogelijke gevaren is te vinden in hoofdstuk 16.

RUBRIEK 4: Eerstehulpmaatregelen

· **4.1 Beschrijving van de eerstehulpmaatregelen**
· **Algemene informatie:**
Verontreinigde kleding onmiddellijk uittrekken.
Het is mogelijk dat vergiftigingssymptomen pas na vele uren optreden. Om deze reden is medische controle gedurende minstens 48 uur na een ongeval noodzakelijk.
· **Na het inademen:** Bij bewusteloosheid ligging en vervoer in stabiele zijligging.
· **Na huidcontact:** Onmiddellijk met water en zeep afwassen en goed naspoelen.
· **Na oogcontact:** Ogen met open ooglid een aantal minuten onder stromend water afspoelen en dokter raadplegen.
· **Na inslikken:**
Onmiddellijk arts raadplegen.

(Vervolg op blz. 3)

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(Vervolg van blz. 2)

Drink zeer veel water en voer verse lucht aan. Onmiddellijk een dokter waarschuwen.
· **4.2 Belangrijkste acute en uitgestelde symptomen en effecten** *Geen verdere relevante informatie verkrijgbaar.*
· **4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**
Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 5: Brandbestrijdingsmaatregelen

· **5.1 Blusmiddelen**
· **Geschikte blusmiddelen:**
CO2, bluspoeder of waterstraal. Grotere brand met waterstraal bestrijden of met schuim, dat tegen alcohol bestand is.
· **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**
Geen verdere relevante informatie verkrijgbaar.
· **5.3 Advies voor brandweerlieden**
· **Speciale beschermende kleding:** *Geen bijzondere maatregelen nodig.*

RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

· **6.1 Persoonlijke voorzorgsmaatregelen, beschermde uitrusting en noodprocedures**
Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.
· **6.2 Milieuvoorzorgsmaatregelen:**
Met veel water verdunnen.
Niet in de riolering/het oppervlaktewater/het grondwater laten terechtkomen.
· **6.3 Insluitings- en reinigingsmethoden en -materiaal:**
Met vloeistofbindend materiaal (zand, bergmeel, zuurbinder, universele binder, zaagmeel) opnemen.
Neutralisatiemiddel gebruiken.
Besmet materiaal zoals afval volgens punt 13 verwijderen.
Voor voldoende ventilatie zorgen.
· **6.4 Verwijzing naar andere rubrieken**
Informatie inzake veilig gebruik - zie hoofdstuk 7.
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.
Informatie inzake berging - zie hoofdstuk 13.

RUBRIEK 7: Hantering en opslag

· **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**
Voor goede ventilatie/afzuiging op de werkplaatsen zorgen.
Aërosolvorming vermijden.
· **Informatie m.b.t. brand- en ontploffingsgevaar:**
Onststekingsbronnen op afstand houden - niet roken.
Beschermen tegen hitte.
Maatregelen treffen tegen ontlading van statische elektriciteit.

· **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
· **Opslag:**
· **Eisen ten opzichte van opslagruimte en tanks:** *Geen bijzondere eisen.*
· **Informatie m.b.t. gezamenlijke opslag:** *Niet noodzakelijk.*
· **Verdere inlichtingen over eisen m.b.t. de opslag:**
Tanks ondoordringbaar gesloten houden.
Tegen hitte en directe zonnestralen beschermen.

(Vervolg op blz. 4)

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· **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

· **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.

· **8.1 Controleparameters**

· **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**	
64-18-6 mierenzuur	
WGW	Korte termijn waarde: 5 mg/m³, 2,6 ppm

· **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.

· **8.2 Maatregelen ter beheersing van blootstelling**
· **Persoonlijke beschermingsvoorzieningen:**
· **Algemene beschermings- en gezondheidsmaatregelen:**
Verwijderd houden van eet- en drinkwaren.
Verontreinigde kleding onmiddellijk uittrekken.
Vóór de pauze en aan het einde van werktijd handen wassen.
Aanraking met de ogen vermijden.
Aanraking met de ogen en de huid vermijden.
· **Ademhalingsbescherming:**
Bij korte of geringe belasting ademfiltertoestel; bij intensieve resp. langdurige expositie een van de omringende lucht onafhankelijk ademhalingstoestel gebruiken.
· **Handbescherming:**

Veiligheidshandschoenen

Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.
Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.
Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.
· **Handschoenmateriaal**
De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant. Aangezien het product uit meerdere stoffen is samengesteld, is de duurzaamheid van de handschoenmaterialen niet vooraf berekenbaar en moet derhalve vóór het gebruik worden getest.
· **Doordringingstijd van het handschoenmateriaal**
De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.
· **Oogbescherming:**

Nauw aansluitende veiligheidsbril

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RUBRIEK 9: Fysische en chemische eigenschappen

· **9.1 Informatie over fysische en chemische basiseigenschappen**	
· **Algemene gegevens**	
· **Voorkomen:**	
Vorm:	Vloeistof
Kleur:	Kleurloos
· **Geur:**	Stekend, tot tranen prikkelend
· **Geurdrempelwaarde:**	Niet bepaald.
· **pH-waarde:**	Niet bepaald.
· **Toestandsverandering**	
Smelt-/vriespunt:	-9 °C
Beginkookpunt en kooktraject:	101 °C
· **Vlampunt:**	50 °C
· **Ontvlambaarheid (vast, gas):**	Niet bruikbaar.
· **Ontstekingstemperatuur:**	520 °C
· **Ontledingstemperatuur:**	Niet bepaald.
· **Zelfontbrandingstemperatuur:**	Het produkt ontbrandt niet uit zichzelf.
· **Ontploffingseigenschappen:**	Het produkt is niet ontploffingsgevaarlijk, maar de vorming van ontploffingsgevaarlijke damp-/luchtmengsels is mogelijk.
· **Ontploffingsgrenzen:**	
Onderste:	14 Vol %
Bovenste:	33 Vol %
· **Dampspanning bij 20 °C:**	43 hPa
· **Dichtheid bij 20 °C:**	1,6 g/cm³
· **Relatieve dichtheid**	Niet bepaald.
· **Dampdichtheid**	Niet bepaald.
· **Verdampingssnelheid**	Niet bepaald.
· **Oplosbaarheid in/mengbaarheid met**	
Water:	Volledig mengbaar.
· **Verdelingscoëfficiënt: n-octanol/water:**	Niet bepaald.
· **Viscositeit**	
Dynamisch:	Niet bepaald.
Kinematisch:	Niet bepaald.
· **Oplosmiddelgehalte:**	
VOC (EG)	0,00 %
Gehalte aan vaste bestanddelen:	0,0 %
· **9.2 Overige informatie**	Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 10: Stabiliteit en reactiviteit

· **10.1 Reactiviteit** Geen verdere relevante informatie verkrijgbaar.
· **10.2 Chemische stabiliteit**
· **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
· **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.

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· **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
· **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
· **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsprodukten bekend.

RUBRIEK 11: Toxicologische informatie

· **11.1 Informatie over toxicologische effecten**
· **Acute toxiciteit**
Schadelijk bij inslikken.

· **Indelingsrelevantie LD/LC50-waarden:**		
64-18-6 mierenzuur		
Oraal	LD50	1.100 mg/kg (rat)

· **Primaire aandoening:**
· **Huidcorrosie/-irritatie**
Veroorzaakt ernstige brandwonden en oogletsel.
· **Ernstig oogletsel/oogirritatie**
Veroorzaakt ernstig oogletsel.
· **Sensibilisatie van de luchtwegen/de huid**
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
· **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **Kankerverwekkendheid** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **STOT bij eenmalige blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
· **Gevaar bij inademing** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

RUBRIEK 12: Ecologische informatie

· **12.1 Toxiciteit**
· **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
· **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
· **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
· **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
· **Verdere ecologische informatie:**
· **Algemene informatie:**
Waterbezwaarlijkheid (NL): B(4) Weinig schadelijk voor in water levende organismen
Gevaar voor water klasse 1 (D) (Zelfclassificatie): gevaar voor water klein
Niet onverdund of in grote hoeveelheden lozen in grondwater, in oppervlaktewater of in de riolering.
Mag niet onverdund of niet geneutraliseerd in oppervlaktewater of in afwateringskanaal geloosd worden.
· **12.5 Resultaten van PBT- en zPzB-beoordeling**
· **PBT:** Niet bruikbaar.
· **zPzB:** Niet bruikbaar.
· **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

RUBRIEK 13: Instructies voor verwijdering

· **13.1 Afvalverwerkingsmethoden**
· **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.

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· **Niet gereinigde verpakkingen:**
· **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.
· **Aanbevolen reinigingsmiddel:** Water, eventueel met toevoeging van reinigingsmiddelen.

RUBRIEK 14: Informatie met betrekking tot het vervoer

· **14.1 VN-nummer**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN**	
· **ADR**	3412 MIERENZUUR
· **IMDG, IATA**	FORMIC ACID
· **14.3 Transportgevarenklasse(n)**	
· **ADR, IMDG, IATA**	

· **klasse**	8 Bijtende stoffen
· **Etiket**	8
· **14.4 Verpakkingsgroep:**	
· **ADR, IMDG, IATA**	II
· **14.5 Milieugevaren:**	Niet bruikbaar.
· **14.6 Bijzondere voorzorgen voor de gebruiker**	Waarschuwing: Bijtende stoffen
· **Gevaarsidentificatienummer (Kemler-getal):**	80
· **EMS-nummer:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Vervoer in bulk overeenkomstig bijlage II bij Marpol en de IBC-code**	Niet bruikbaar.
· **Transport/verdere gegevens:**	
· **ADR**	
· **Beperkte hoeveelheden (LQ)**	1L
· **Uitgezonderde hoeveelheden (EQ)**	Code: E2 Grootste netto hoeveelheid per binnenverpakking: 30 ml Grootste netto hoeveelheid per buitenverpakking: 500 ml
· **Vervoerscategorie**	2
· **Tunnelbeperkingscode**	E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **VN "Model Regulation":** UN 3412 MIERENZUUR, 8, II

RUBRIEK 15: Regelgeving

· **15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel**

· **SZW-lijst van kankerverwekkende stoffen**
geen der bestanddelen staat op de lijst.

· **SZW-lijst van mutagene stoffen**
geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid**
geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling**
geen der bestanddelen staat op de lijst.

· **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding**
geen der bestanddelen staat op de lijst.

· **Lijst Zeer Zorgwekkende Stoffen (ZZS)**
geen der bestanddelen staat op de lijst.

· **Lijst van Potentieel Zeer Zorgwekkende Stoffen**
geen der bestanddelen staat op de lijst.

· **Richtlijn 2012/18/EU**
· **Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** geen der bestanddelen staat op de lijst.
· **Seveso-categorie** P5c ONTVLAMBARE VLOEISTOFFEN
· **Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen** 5.000 t
· **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen** 50.000 t
· **Verordening (EG) nr. 1907/2006 BIJLAGE XVII** Beperkingsvoorwaarden: 3

· **Nationale voorschriften:**

· **Gevaarklasse v. water:** Waterbezwaarlijkheid (NL): B(4) Weinig schadelijk voor in water levende organismen
· **15.2 Chemischeveiligheidsbeoordeling:** Een chemische veiligheidsbeoordeling is niet uitgevoerd.

RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van produkteigenschappen en vestigen geen contractuele rechtsbetrekking.

· **Relevante zinnen**
H302 Schadelijk bij inslikken.
H314 Veroorzaakt ernstige brandwonden en oogletsel.
· **Afkortingen en acroniemen:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Ontvlambare vloeistoffen – Categorie 3
Acute Tox. 4: Acute toxiciteit - oraal – Categorie 4
Skin Corr. 1A: Huidcorrosie/-irritatie – Categorie 1A
Eye Dam. 1: Ernstig oogletsel/oogirritatie – Categorie 1

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SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

· **1.1 Identificador del producto**

· **Nombre comercial: FORMIC ACID 96%, REAGENT, A.C.S.**

· **Número del artículo:** 15750, 15760
· **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**
No existen más datos relevantes disponibles.
· **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio

· **1.3 Datos del proveedor de la ficha de datos de seguridad**
· **Fabricante/distribuidor:**
Electron Microscopy Sciences
1560 Industry Road
USA-Hatfield, PA 19440
Tel: 215-412-8400 Fax: 215-412-8450
email: info@emsdiasum.com
www.emsdiasum.com

Aname
C/ Perez Galdos no. 2
28693 Quijorna
Madrid, Spain
Tel: +34.91.816.89.50
Fax: +34.91.816.85.94
email: ventas@aname.es

· **Área de información:** Product safety department
· **1.4 Teléfono de emergencia:**
ChemTrec 1-800-424-9300 Contract CCN7661
1-703-527-3887

SECCIÓN 2: Identificación de los peligros

· **2.1 Clasificación de la sustancia o de la mezcla**
· **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**

GHS02 llama

Flam. Liq. 3 H226 Líquidos y vapores inflamables.

GHS05 corrosión

Skin Corr. 1A H314 Provoca quemaduras graves en la piel y lesiones oculares graves.
Eye Dam. 1 H318 Provoca lesiones oculares graves.

GHS07

Acute Tox. 4 H302 Nocivo en caso de ingestión.

· **2.2 Elementos de la etiqueta**
· **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**
El producto se ha clasificado y etiquetado de conformidad con el reglamento CLP.

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· **Pictogramas de peligro**

GHS02 GHS05 GHS07

· **Palabra de advertencia** Peligro

· **Componentes peligrosos a indicar en el etiquetaje:**
ácido fórmico
· **Indicaciónes de peligro**
H226 Líquidos y vapores inflamables.
H302 Nocivo en caso de ingestión.
H314 Provoca quemaduras graves en la piel y lesiones oculares graves.
· **Consejos de prudencia**
P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente toda la ropa contaminada. Enjuagar la piel con agua [o ducharse].
P305+P351+P338 EN CASO DE CONTACTO CON LOS OJOS: Enjuagar con agua cuidadosamente durante varios minutos. Quitar las lentes de contacto cuando estén presentes y pueda hacerse con facilidad. Proseguir con el lavado.
P310 Llamar inmediatamente a un CENTRO DE TOXICOLOGÍA/médico.
P321 Se necesita un tratamiento específico (ver en esta etiqueta).
P405 Guardar bajo llave.
P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/internacional.
· **2.3 Otros peligros**
· **Resultados de la valoración PBT y mPmB**
· **PBT:** No aplicable.
· **mPmB:** No aplicable.

SECCIÓN 3: Composición/información sobre los componentes

· **3.2 Caracterización química: Mezclas**
· **Descripción:** Mezcla formada por las substancias especificadas a continuación con adiciones no peligrosas.

· **Componentes peligrosos:**

CAS: 64-18-6 EINECS: 200-579-1	ácido fórmico	Skin Corr. 1A, H314; Acute Tox. 4, H302	>50-≤100%

· **Indicaciones adicionales:** El texto de los posibles riesgos aquí indicados se puede consultar en el capítulo 16.

SECCIÓN 4: Primeros auxilios

· **4.1 Descripción de los primeros auxilios**
· **Instrucciones generales:**
Quitarse de inmediato toda prenda contaminada con el producto.
Los síntomas de intoxicación pueden presentarse después de muchas horas, por lo que se requiere una supervisión médica durante un mínimo de 48 horas después del accidente.
· **En caso de inhalación del producto:**
Las personas desmayadas deben tenderse y transportarse de lado con la suficiente estabilidad.
· **En caso de contacto con la piel:** Lavar inmediatamente con agua y jabón y enjuagar bien.
· **En caso de con los ojos:**
Limpiar los ojos abiertos durante varios minutos con agua corriente y consultar un médico.

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· ***En caso de ingestión:***
Consultar inmediatamente un médico.
Beber mucha agua a respirar aire fresco. Solicitar asistencia médica inmediatamente.
· ***4.2 Principales síntomas y efectos, agudos y retardados*** *No existen más datos relevantes disponibles.*
· ***4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente***
No existen más datos relevantes disponibles.

SECCIÓN 5: Medidas de lucha contra incendios

· ***5.1 Medios de extinción***
· ***Sustancias extintoras apropiadas:***
CO2, polvo extintor o chorro de agua rociada. Combatir incendios mayores con chorro de agua rociada o espuma resistente al alcohol.
· ***5.2 Peligros específicos derivados de la sustancia o la mezcla*** *No existen más datos relevantes disponibles.*
· ***5.3 Recomendaciones para el personal de lucha contra incendios***
· ***Equipo especial de protección:*** *No se requieren medidas especiales.*

SECCIÓN 6: Medidas en caso de vertido accidental

· ***6.1 Precauciones personales, equipo de protección y procedimientos de emergencia***
Llevar puesto equipo de protección. Mantener alejadas las personas sin protección.
· ***6.2 Precauciones relativas al medio ambiente:***
Diluir con mucha agua.
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
· ***6.3 Métodos y material de contención y de limpieza:***
Quitar con material absorbente (arena, kieselgur, aglutinante de ácidos, aglutinante universal, aserrín).
Utilizar un neutralizador.
Desechar el material contaminado como vertido según item 13.
Asegurar suficiente ventilación.
· ***6.4 Referencia a otras secciones***
Ver capítulo 7 para mayor información sobre una manipulación segura.
Ver capítulo 8 para mayor información sobre el equipo personal de protección.
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

SECCIÓN 7: Manipulación y almacenamiento

· ***7.1 Precauciones para una manipulación segura***
Asegurar suficiente ventilación /aspiración en el puesto de trabajo.
Evitar la formación de aerosoles.
· ***Prevención de incendios y explosiones:***
Mantener alejadas las fuentes de encendido. No fumar.
Proteger del calor.
Tomar medidas contra las cargas electrostáticas.

· ***7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades***
· ***Almacenamiento:***
· ***Exigencias con respecto al almacén y los recipientes:*** *No se requieren medidas especiales.*
· ***Normas en caso de un almacenamiento conjunto:*** *No es necesario.*
· ***Indicaciones adicionales sobre las condiciones de almacenamiento:***
Mantener el recipiente cerrado herméticamente.
Proteger del calor y de la luz directa del sol.

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· **7.3 Usos específicos finales** No existen más datos relevantes disponibles.

SECCIÓN 8: Controles de exposición/protección individual

· **Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:**
Sin datos adicionales, ver punto 7.

· **8.1 Parámetros de control**

· **Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:**	
64-18-6 ácido fórmico	
LEP	Valor de larga duración: 9 mg/m³, 5 ppm VLI, s

· **Indicaciones adicionales:** Como base se han utilizado las listas vigentes en el momento de la elaboración.

· **8.2 Controles de la exposición**
· **Equipo de protección individual:**
· **Medidas generales de protección e higiene:**
Mantener alejado de alimentos, bebidas y alimentos para animales.
Quitarse de inmediato la ropa ensuciada o impregnada.
Lavarse las manos antes de las pausas y al final del trabajo.
Evitar el contacto con los ojos.
Evitar el contacto con los ojos y la piel.
· **Protección respiratoria:**
Si la exposición va a ser breve o de poca intensidad, colocarse una máscara respiratoria. Para una exposición más intensa o de mayor duración, usar un aparato de respiración autónomo.
· **Protección de manos:**

Guantes de protección

El material del guante deberá ser impermeable y resistente al producto / substancia / preparado.
Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de substancias químicas.
Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.
· **Material de los guantes**
La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro. Teniendo en cuenta que el producto está fabricado a partir de diferentes materiales, su calidad no puede ser avaluada de antemano, de modo que los guantes deberán ser controlados antes de su utilización.
· **Tiempo de penetración del material de los guantes**
El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.
· **Protección de ojos:**

Gafas de protección herméticas

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SECCIÓN 9: Propiedades físicas y químicas

· **9.1 Información sobre propiedades físicas y químicas básicas**	
· **Datos generales**	
· **Aspecto:**	
Forma:	Liquido
Color:	Incoloro
· **Olor:**	Penetrante, lacrimógeno
· **Umbral olfativo:**	No determinado.
· **valor pH:**	No determinado.
· **Cambio de estado**	
Punto de fusión/punto de congelación:	-9 °C
Punto inicial de ebullición e intervalo de ebullición:	101 °C
· **Punto de inflamación:**	50 °C
· **Inflamabilidad (sólido, gas):**	No aplicable.
· **Temperatura de ignición:**	520 °C
· **Temperatura de descomposición:**	No determinado.
· **Temperatura de auto-inflamación:**	El producto no es autoinflamable.
· **Propiedades explosivas:**	El producto no es explosivo; sin embargo, pueden formarse mezclas explosivas de vapor / aire.
· **Límites de explosión:**	
Inferior:	14 Vol %
Superior:	33 Vol %
· **Presión de vapor a 20 °C:**	43 hPa
· **Densidad a 20 °C:**	1,6 g/cm³
· **Densidad relativa**	No determinado.
· **Densidad de vapor**	No determinado.
· **Tasa de evaporación:**	No determinado.
· **Solubilidad en / miscibilidad con**	
agua:	Completamente mezclable.
· **Coeficiente de reparto: n-octanol/agua:**	No determinado.
· **Viscosidad:**	
Dinámica:	No determinado.
Cinemática:	No determinado.
· **Concentración del disolvente:**	
VOC (CE)	0,00 %
Contenido de cuerpos sólidos:	0,0 %
· **9.2 Otros datos**	No existen más datos relevantes disponibles.

SECCIÓN 10: Estabilidad y reactividad

· **10.1 Reactividad** No existen más datos relevantes disponibles.
· **10.2 Estabilidad química**
· **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
· **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.

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· **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
· **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
· **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

SECCIÓN 11: Información toxicológica

· **11.1 Información sobre los efectos toxicológicos**
· **Toxicidad aguda**
Nocivo en caso de ingestión.

· **Valores LD/LC50 (dosis letal /dosis letal = 50%) relevantes para la clasificación:**		
64-18-6 ácido fórmico		
Oral	LD50	1.100 mg/kg (rat)

· **Efecto estimulante primario:**
· **Corrosión o irritación cutáneas**
Provoca quemaduras graves en la piel y lesiones oculares graves.
· **Lesiones o irritación ocular graves**
Provoca lesiones oculares graves.
· **Sensibilización respiratoria o cutánea**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
· **Mutagenicidad en células germinales**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Carcinogenicidad** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Toxicidad específica en determinados órganos (STOT) – exposición única**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Toxicidad específica en determinados órganos (STOT) – exposición repetida**
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
· **Peligro de aspiración** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

SECCIÓN 12: Información ecológica

· **12.1 Toxicidad**
· **Toxicidad acuática:** No existen más datos relevantes disponibles.
· **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
· **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
· **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
· **Indicaciones medioambientales adicionales:**
· **Indicaciones generales:**
Nivel de riesgo para el agua 1 (autoclasificación): escasamente peligroso para el agua
En estado no diluido o no neutralizado, no dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados.
En estado no diluido o no neutralizado, no verter en el alcantarillado o en otros sistemas de desagüe.
· **12.5 Resultados de la valoración PBT y mPmB**
· **PBT:** No aplicable.
· **mPmB:** No aplicable.
· **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

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SECCIÓN 13: Consideraciones relativas a la eliminación

· **13.1 Métodos para el tratamiento de residuos**
· **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.

· **Embalajes sin limpiar:**
· **Recomendación:** Eliminar conforme a las disposiciones oficiales.
· **Producto de limpieza recomendado:** Agua, eventualmente añadiendo productos de limpieza.

SECCIÓN 14: Información relativa al transporte

· **14.1 Número ONU**	
· **ADR, IMDG, IATA**	UN3412
· **14.2 Designación oficial de transporte de las Naciones Unidas**	
· **ADR**	3412 ÁCIDO FÓRMICO
· **IMDG, IATA**	FORMIC ACID
· **14.3 Clase(s) de peligro para el transporte**	
· **ADR, IMDG, IATA**	

· **Clase**	8 Materias corrosivas
· **Etiqueta**	8
· **14.4 Grupo de embalaje**	
· **ADR, IMDG, IATA**	II
· **14.5 Peligros para el medio ambiente:**	No aplicable.
· **14.6 Precauciones particulares para los usuarios**	Atención: Materias corrosivas
· **Número de identificación de peligro (Número Kemler):**	80
· **Número EMS:**	8-05
· **Segregation groups**	Acids
· **Stowage Category**	A
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC**	No aplicable.
· **Transporte/datos adicionales:**	
· **ADR**	
· **Cantidades limitadas (LQ)**	1L
· **Cantidades exceptuadas (EQ)**	Código: E2 Cantidad neta máxima por envase interior: 30 ml Cantidad neta máxima por embalaje exterior: 500 ml
· **Categoria de transporte**	2
· **Código de restricción del túnel**	E

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· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **"Reglamentación Modelo" de la UNECE:**	UN 3412 ÁCIDO FÓRMICO, 8, II

SECCIÓN 15: Información reglamentaria

· **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**

· **Directiva 2012/18/UE**
· **Sustancias peligrosas nominadas - ANEXO I** ninguno de los componentes está incluido en una lista
· **Categoría Seveso** P5c LÍQUIDOS INFLAMABLES
· **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior** 5.000 t
· **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior** 50.000 t
· **REGLAMENTO (CE) nº 1907/2006 ANEXO XVII** Restricciones: 3
· **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contratual.

· **Frases relevantes**
H302 Nocivo en caso de ingestión.
H314 Provoca quemaduras graves en la piel y lesiones oculares graves.
· **Abreviaturas y acrónimos:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Líquidos inflamables – Categoría 3
Acute Tox. 4: Toxicidad aguda - oral – Categoría 4
Skin Corr. 1A: Corrosión o irritación cutáneas – Categoría 1A
Eye Dam. 1: Lesiones oculares graves o irritación ocular – Categoría 1