

Safety data sheet

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BASF safety data sheet. This is a translation of the country-specific safety data sheet into a language other than that required by law. This document does not replace the safety data sheet provided according to Regulation (EC) No 1907/2006.

Date / Revised: 18.06.2026

Version: 1.0

Date / Previous version: not applicable

Previous version: none

Product: **Amasil® 99**

(ID no. 30041107/SDS_GEN_DE/EN)

Date of print 19.06.2026

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

1.1. Product identifier

Amasil® 99

Chemical name: formic acid...%

CAS Number: 64-18-6

REACH registration number: 01-2119491174-37-0000, 01-2119491174-37-0013

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

Relevant identified uses: feed additive(s)

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Nutrition and Health

Telephone: +49 621 60-48434

E-mail address: EN-global-safety-data@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

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SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Flam. Liq. 3	H226 Flammable liquid and vapour.
Met. Corr. 1	H290 May be corrosive to metals.
Acute Tox. 3 (Inhalation - vapour)	H331 Toxic if inhaled.
Acute Tox. 4 (oral)	H302 Harmful if swallowed.
Skin Corr. 1A	H314 Causes severe skin burns and eye damage.
Eye Dam. 1	H318 Causes serious eye damage.

Specific Concentration Limits According to Regulation (EC) No 1272/2008 [CLP]

Flam. Liq. 3: > 85 %
Eye Dam. 1: >= 10 %
Eye Irrit. 2: 2 - < 10 %
Skin Corr. 1A: >= 90 %
Skin Corr. 1B: 10 - < 90 %
Skin Irrit. 2: 2 - < 10 %

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:



Signal Word:

Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
H302	Harmful if swallowed.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing and eye protection or face protection.

Precautionary Statements (Response):

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 or physician.

Precautionary Statements (Storage):

P403 + P235	Store in a well-ventilated place. Keep cool.
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Precautionary Statements (Disposal):

P501 Dispose of contents and container to hazardous or special waste collection point.

Labeling of special preparations (GHS):

EUH071: Corrosive to the respiratory tract.

Hazard determining component(s) for labelling: formic acid ... %

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture. Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

carboxylic acid

Regulatory relevant ingredients

formic acid ... %

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Content (W/W): $\geq 99\%$ - $\leq 100\%$

CAS Number: 64-18-6

EC-Number: 200-579-1

INDEX-Number: 607-001-00-0

Substance with EU occupational exposure limit

Flam. Liq. 3

Met. Corr. 1

Acute Tox. 3 (Inhalation - vapour)

Acute Tox. 4 (oral)

Skin Corr. 1A

Eye Dam. 1

H226, H290, H314, H331, H302

EUH071

Specific concentration limit:

Flam. Liq. 3: $> 85\%$

Eye Dam. 1: $\geq 10\%$

Eye Irrit. 2: 2 - $< 10\%$

Skin Corr. 1A: $\geq 90\%$

Skin Corr. 1B: 10 - $< 90\%$

Skin Irrit. 2: 2 - $< 10\%$

Acute toxicity estimate:

oral: 500 mg/kg

Inhalation: 7,4 mg/l (vapour)

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

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Do not induce vomiting. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

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

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:

water spray, dry powder, alcohol-resistant foam, carbon dioxide

5.2. Special hazards arising from the substance or mixture

Endangering substances: carbon monoxide

Advice: The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Breathing protection required. Avoid contact with the skin, eyes and clothing.

6.2. Environmental precautions

Do not empty into drains.

6.3. Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material (e.g. acid binder).

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6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Only use containers equipped with adequately sized pressure relief devices. Sealed containers should be protected against heat as this results in pressure build-up.

Protection against fire and explosion:

Sources of ignition should be kept well clear.

Temperature class: T1 (Autoignition temperature > 450 °C).

7.2. Conditions for safe storage, including any incompatibilities

Segregate from alkalies and alkalizing substances.

Suitable materials for containers: Stainless steel 1.4571, Stainless steel 1.4404, High density polyethylene (HDPE), Low density polyethylene (LDPE), glass, HDPE fluorinated

Storage class according to TRGS 510 (originally VCI, Germany): (3) Flammable liquids

Storage stability:

Storage temperature: < 30 °C

Storage duration: <= 24 Months

The specified storage temperature is recommended to keep the decomposition rate low.

The indicated storage temperature is not safety-relevant.

The indicated temperature is only quality relevant.

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

The surveillance of the workplace by exposure measurements may be necessary, in order to prove the efficiency of safety measures, for example ventilation or the need of respiratory protection. Since this requires a specific competency, only accredited laboratories should be contracted. Regarding

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suitable methods to assess inhalation exposure, the European Standards EN 482, 689 and 14042 are to be considered. In addition, the TRGS 402 has to be observed in Germany.

64-18-6: formic acid ... %

Short Term Exposure Classification: (TRGS 900 (DE))

Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages

OEL 9,5 mg/m³ ; 5 ppm (TRGS 900 (DE))

Ceiling limit value/factor: 2

If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)

TWA value 9 mg/m³ ; 5 ppm (OEL (EU))

indicative

PNEC

freshwater:

No hazard identified.

marine water:

No hazard identified.

intermittent release:

No hazard identified.

STP:

No hazard identified.

sediment (freshwater):

No hazard identified.

sediment (marine water):

No hazard identified.

soil:

No hazard identified.

DNEL

worker:

Long-term exposure - systemic and local effects, Inhalation: 9,5 mg/m³

consumer:

Long-term exposure - systemic and local effects, Inhalation: 6 mg/m³

consumer:

Long-term exposure- systemic effects, dermal: 3 mg/kg

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consumer:

Long-term exposure- systemic effects, oral: 3 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for acid inorganic gases/vapours such as SO₂, HCl (e.g. EN 14387 Type E). Gas filter for gases/vapours of inorganic compounds (e.g. EN 14387 Type B) Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK). Suitable respiratory protection for higher concentrations or long-term effect: Self-contained breathing apparatus.

Consider the risk management measures as outlined in the exposure scenario.

Hand protection:

Chemical resistant protective gloves (EN ISO 374-1)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):

chloroprene rubber (CR) - 0.5 mm coating thickness

butyl rubber (butyl) - 0.7 mm coating thickness

fluoroelastomer (FKM) - 0.7 mm coating thickness

Polyethylene-Laminate (PE laminate) - ca. 0.1 mm coating thickness

Suitable materials for short-term contact (recommended: At least protective index 2, corresponding > 30 minutes of permeation time according to EN ISO 374-1)

polyvinylchloride (PVC) - 0.7 mm coating thickness

natural rubber/natural latex (NR) - 0.5 mm coating thickness

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Tightly fitting safety goggles (cage goggles) (e.g. EN 166) and face shield.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour. Avoid contact with skin and eyes. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Hands and/or face should be washed before breaks and at the end of the shift. When using, do not eat, drink or smoke.

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SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	liquid	
Form:	liquid	
Colour:	colourless to yellow	
Odour:	of formic acid, pungent odour	
Odour threshold:	not determined	
Melting point:	8 °C (1.013,25 hPa)	(OECD Guideline 102)
Boiling point:	100,23 °C	(OECD Guideline 103)
Flammability:	Flammable liquid and vapour.	(derived from flash point)
Lower explosion limit:	12 %(V) (43 °C)	
Upper explosion limit:	38 %(V) (43 °C)	
Flash point:	49,5 °C	(ISO 13736)
Auto-ignition temperature:	528 °C	(DIN EN 14522)
Thermal decomposition:	350 °C, 0,15 kJ/g (DSC (DIN 51007)) Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.	
SADT:	Study scientifically not justified.	
pH value:	2,2 (10 g/l, 20 °C)	
Viscosity, kinematic:	1,41 mm ² /s (20 °C)	(DIN 51562)
	0,98 mm ² /s (40 °C)	(DIN 51562)
	0,78 mm ² /s (55 °C)	(DIN 51562)
Viscosity, dynamic:	1,72 mPa.s (20 °C)	(calculated (from kinematic viscosity))
	1,17 mPa.s (40 °C)	(calculated (from kinematic viscosity))
	0,92 mPa.s (55 °C)	(calculated (from kinematic viscosity))
Solubility in water:	miscible (20 °C, 1.013,25 hPa)	(internal method)
Solubility (qualitative) solvent(s):	N, N-dimethylformamide, 1,4-dioxane, dichloromethane miscible in all proportions	
Partitioning coefficient n-octanol/water (log Kow):	-2,1 (23 °C; pH value: 7,0)	(Directive 92/69/EEC, A.8)
	-1,9 (23 °C; pH value: 5,0)	(Directive 92/69/EEC, A.8)
	-2,3 (23 °C; pH value: 9,0)	(Directive 92/69/EEC, A.8)

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Vapour pressure:	42,71 mbar (20 °C)	(OECD Guideline 104)
	54,96 mbar (25 °C)	(OECD Guideline 104)
	170,7 mbar (50 °C)	(OECD Guideline 104)
Relative density:	1,2195 (20 °C)	(OECD Guideline 109)
Density:	1,2196 g/cm3 (20 °C)	(ISO 2811-3)
	1,1691 g/cm3 (55 °C)	(ISO 2811-3)
	1,2200 g/cm3 (15 °C)	
	1,1800 g/cm3 (50 °C)	
Relative vapour density (air):	> 1 (20 °C)	(estimated)
	Heavier than air.	

Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form. -

9.2. Other information

Information with regard to physical hazard classes

Explosives

Impact sensitivity:

Based on the chemical structure there is no shock-sensitivity.

Flammable liquids

Sustained combustibility:

not determined

Pyrophoric properties

Self-ignition temperature:

Test type: Spontaneous self-ignition at room-temperature.

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

Self heating ability: not applicable, the product is a liquid

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:

Forms no flammable gases in the presence of water.

Corrosion to metals

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May be corrosive to metals.

Other safety characteristics

Miscibility with water:

miscible in all proportions

pK_A:

3,70

(OECD Guideline 112)

(20 °C)

Adsorption/water - soil:

KOC: < 17,8; log KOC: 1,25

(OECD Guideline 121)

Surface tension:

71,5 mN/m

(OECD Guideline 115)

(20 °C; 1 g/l)

Molar mass:

46,03 g/mol

SAPT-Temperature:

Study scientifically not justified.

Evaporation rate:

Value can be approximated from Henry's Law Constant or vapor pressure.

SECTION 10: Stability and Reactivity

10.1. Reactivity

Corrosion to metals: May be corrosive to metals.

Formation of flammable gases: Remarks:

Forms no flammable gases in the presence of water.

10.2. Chemical stability

Slow decomposition possible.

10.3. Possibility of hazardous reactions

Exothermic reaction. Reacts with alkalies. Reacts with amines. The formation of gaseous decomposition products builds up pressure in tightly closed containers.

10.4. Conditions to avoid

Temperature: > 44 °C

Upper temperature limit to avoid the formation of a flammable atmosphere.

10.5. Incompatible materials

Substances to avoid:

bases, non-coated metals, base metals

10.6. Hazardous decomposition products

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Hazardous decomposition products:
carbon monoxide

SECTION 11: Toxicological Information

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

Acute toxicity

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term inhalation.

Experimental/calculated data:

LD50 rat (oral): 730 mg/kg (OECD Guideline 401)

ATE (oral): 500 mg/kg

LC50 rat (by inhalation): 7,4 mg/l 4 h (BASF-Test)

The vapour was tested.

ATE (by inhalation): 7,4 mg/l

vapour

(dermal): No data available. Study scientifically not justified.

Irritation

Assessment of irritating effects:

Highly corrosive! Damages skin and eyes.

Experimental/calculated data:

Skin corrosion/irritation

rabbit: Corrosive. (OECD Guideline 404)

Literature data.

Serious eye damage/irritation

: Study scientifically not justified. As the product corrodes the skin, it can be expected to have a similar effect on the eyes also.

Respiratory/Skin sensitization

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

Buehler test guinea pig: Non-sensitizing. (OECD Guideline 406)

Germ cell mutagenicity

Assessment of mutagenicity:

No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in an insect test. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity

Assessment of carcinogenicity:

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In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Specific target organ toxicity (single exposure)

Assessment of STOT single:

Corrosive to the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

No substance-specific organotoxicity was observed after repeated administration to animals. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration hazard

No aspiration hazard expected.

Interactive effects

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties.

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SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

The product gives rise to pH shifts.

Toxicity to fish:

LC50 (96 h) 130 mg/l, *Danio rerio* (OECD 203; ISO 7346; 92/69/EWG, C.1, static)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aquatic invertebrates:

EC50 (48 h) 365 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants:

EC50 (72 h) 1.240 mg/l (growth rate), *Selenastrum capricornutum* (OECD Guideline 201, static)

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

EC50 (72 h) 32,64 mg/l (growth rate), *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.

Microorganisms/Effect on activated sludge:

EC10 (3 h) > 500 mg/l, activated sludge, domestic, non-adapted (OECD Guideline 209, aerobic)

No effects at the highest test concentration. Nominal concentration.

Chronic toxicity to fish:

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (21 d) $\geq$ 100 mg/l, *Daphnia magna* (OECD Guideline 211, semistatic)

The statement of the toxic effect relates to the analytically determined concentration. The product will cause changes in the pH value of the test system. The result refers to a neutralized sample. No effects at the highest test concentration.

Assessment of terrestrial toxicity:

No data available.

Study scientifically not justified.

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Soil living organisms:
Literature data.

Terrestrial plants:
Literature data.

Other terrestrial non-mammals:
LD50 (18 h) $\geq$ 111 mg/kg, *Agelaius phoeniceus*
Literature data.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H₂O):
Readily biodegradable (according to OECD criteria).

Elimination information:
100 % DOC reduction (9 d) (OECD 301E/92/69/EWG, C.4-B) (aerobic, municipal sewage treatment plant effluent)

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis):
 $t_{1/2} > 5$ d (50 °C, pH value4), (Directive 92/69/EEC, C.7, pH 4)

$t_{1/2} > 5$ d (50 °C, pH value7), (Directive 92/69/EEC, C.7, pH 7)

$t_{1/2} > 5$ d (50 °C, pH value9), (Directive 92/69/EEC, C.7, pH 9)

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

Bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

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According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties.

12.7. Other adverse effects

The product does not contain substances that are listed in Regulation (EU) 2024/590 on substances that deplete the ozone layer.

Results of PMT and vPvM assessment

Substance is not included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having PMT/vPvM properties.

Additional information

Sum parameter

Chemical oxygen demand (COD): 348 mg/g

Biochemical oxygen demand (BOD) Incubation period5 d: 86 mg/g

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

A waste code in accordance with the European waste catalog (EWC) cannot be specified, due to dependence on the usage.

The waste code in accordance with the European waste catalog (EWC) must be specified in cooperation with disposal agency/manufacturer/authorities.

Incinerate in suitable incineration plant, observing local authority regulations.

Contaminated packaging:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

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SECTION 14: Transport Information

Land transport

ADR

UN number or ID number: UN1779
UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3
Packing group: II
Environmental hazards: no
Special precautions for user: Tunnel code: D/E

RID

UN number or ID number: UN1779
UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3
Packing group: II
Environmental hazards: no
Special precautions for user: None known

Inland waterway transport

ADN

UN number or ID number: UN1779
UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3
Packing group: II
Environmental hazards: no
Special precautions for user: None known

Transport in inland waterway vessel

UN number or ID number: UN1779
UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3, N3
Packing group: II
Environmental hazards: yes
Type of inland waterway vessel: N
Cargo tank design: 2

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Cargo tank type: 3

Sea transport

IMDG

UN number or ID number: UN 1779

UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3

Packing group: II

Environmental hazards: no

Marine pollutant: NO

Special precautions for user: EmS: F-E; S-C

Air transport

IATA/ICAO

UN number or ID number: UN 1779

UN proper shipping name: FORMIC ACID

Transport hazard class(es): 8, 3

Packing group: II

Environmental hazards: No Mark as dangerous for the environment is needed

Special precautions for user: None known

14.1. UN number or ID number

See corresponding entries for "UN number or ID number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

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See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Regulation:	IBC-Code
Product name:	Formic acid (over 85%)
Pollution category:	Y
Ship Type:	3

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

Chemical Prohibition Ordinance (DE): Annex 2

Restriction Type: Restricted substance

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3, 40, 75

Hazardous Incident Ordinance (Germany):

List entry in regulation: 1.1.2

Classification applies for standard conditions of temperature and pressure.

List entry in regulation: 1.2.5.3

Classification applies for standard conditions of temperature and pressure.

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):

List entry in regulation: H2

Classification applies for standard conditions of temperature and pressure.

List entry in regulation: P5c

Classification applies for standard conditions of temperature and pressure.

Classification according to 'TA-Luft' (Germany):

5.2.5 class I: Organic gases class I

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (1) Weakly water polluting.

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'Hazardous Substances Regulation'

'Data Sheet: Irritating substances / corrosive substances' (M 004)

'Data Sheet for eye protection'

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Skin Corr. 1A

Flam. Liq. 3

Eye Dam. 1

Acute Tox. 4 (oral)

Acute Tox. 3 (Inhalation - vapour)

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Flam. Liq.	Flammable liquids
Met. Corr.	Corrosive to metals
Acute Tox.	Acute toxicity
Skin Corr.	Skin corrosion
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation
H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
EUH071	Corrosive to the respiratory tract.

Abbreviations

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational

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Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PMT = Persistent, Mobile and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative. vPvM = very Persistent and very Mobile.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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Annex: Exposure Scenarios

Index

1. Formulation

F; ERC2; PROC3, PROC4, PROC5

1. Short title of exposure scenario

Formulation

F; ERC2; PROC3, PROC4, PROC5

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	138.000.000 kg
Minimum emission days per year	300
Emission factor air	2,5 %
Emission factor water	2 %
Emission factor soil	0,01 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v6.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,684623
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).
Maximum amount of safe use	671.902,6 kg/d
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).	

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Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	formic acid ... % Content: $\geq 0\%$ - $\leq 100\%$
Physical state	liquid
Vapour pressure of the substance during use	4271 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Provide specific employee training to prevent/minimize exposures. Regular inspection and maintenance of equipment and machines. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
In case of potential exposure:, Wear suitable personal protective equipment.	
Use suitable eye protection., Wear suitable face shield	
Avoid skin contact. Wash off any skin contamination immediately. Provide specific employee training to prevent/minimize exposures. Provide employee skin care programs.	
Wear chemically resistant gloves in combination with specific activity training, Wear suitable coveralls to prevent exposure to the skin., Wear suitable face shield	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v6.1, ECETOC TRA v3.2, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1,9177 mg/m ³
Risk Characterization Ratio (RCR)	0,201866

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Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	formic acid ... % Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4271 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Provide specific employee training to prevent/minimize exposures. Regular inspection and maintenance of equipment and machines. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
In case of potential exposure:, Wear suitable personal protective equipment.	
Use suitable eye protection., Wear suitable face shield	
Avoid skin contact. Wash off any skin contamination immediately. Provide specific employee training to prevent/minimize exposures. Provide employee skin care programs.	
Wear chemically resistant gloves in combination with specific activity training, Wear suitable coveralls to prevent exposure to the skin., Wear suitable face shield	
Exposure estimate and reference to its source	

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Assessment method	EASY TRA v6.1, ECETOC TRA v3.2, Worker
	Worker - inhalation, long-term - local
Exposure estimate	3,8354 mg/m ³
Risk Characterization Ratio (RCR)	0,403732
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	formic acid ... % Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4271 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Provide specific employee training to prevent/minimize exposures. Regular inspection and maintenance of equipment and machines. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
In case of potential exposure:, Wear suitable personal protective equipment.	
Use suitable eye protection., Wear suitable face shield	
Avoid skin contact. Wash off any skin contamination immediately. Provide specific employee training to prevent/minimize exposures. Provide employee skin care programs.	

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Wear chemically resistant gloves in combination with specific activity training, Wear suitable coveralls to prevent exposure to the skin., Wear suitable face shield	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v6.1, ECETOC TRA v3.2, Worker
	Worker - inhalation, long-term - local
Exposure estimate	6,712 mg/m ³
Risk Characterization Ratio (RCR)	0,70653
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	
