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Safety data sheet

BASF Safety data sheet according to UN GHS 4th rev.
Date / Revised: 01.11.2022 Version: 2.0
Product: **Lupro-Cid®**

(ID no. 30041101/SDS_GEN_00/EN)
Date of print 15.10.2025

1. Identification

Product identifier

Lupro-Cid®

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

Relevant identified uses: feed additive(s)

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

Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Flam. Liq. 3
Acute Tox. 4 (Inhalation - vapour)
Acute Tox. 4 (oral)
Acute Tox. 5 (dermal)

Skin Corr./Irrit. 1B
Eye Dam./Irrit. 1
STOT SE 3 (irritating to respiratory system)

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

Label elements

Globally Harmonized System (GHS)

Pictogram:

Signal Word:
Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H313	May be harmful in contact with skin.
H335	May cause respiratory irritation.
H302 + H332	Harmful if swallowed or if inhaled

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.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/gas/mist/vapours.
P243	Take action to prevent static discharges.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.
P240	Ground and bond container and receiving equipment.
P242	Use only non-sparking tools.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Remove or Take off immediately all contaminated clothing. Rinse skin with water or shower.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use alcohol-resistant foam, carbon dioxide, dry powder or water spray for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

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

Other hazards

According to UN GHS criteria

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.

3. Composition/Information on Ingredients

Substances

Not applicable

Mixtures

Chemical nature

Preparation based on: Formic acid, propionic acid, Water

Hazardous ingredients (GHS)
According to UN GHS criteria

Formic acid

Content (W/W): >= 50 % - < 75 %	Flam. Liq. 3
CAS Number: 64-18-6	Acute Tox. 3 (Inhalation - vapour)
EC-Number: 200-579-1	Acute Tox. 4 (oral)
INDEX-Number: 607-001-00-0	Skin Corr./Irrit. 1A
	Eye Dam./Irrit. 1
	H226, H331, H302, H314
	EUH071

Specific concentration limit:
Skin Corr./Irrit. 1A: >= 90 %
Skin Corr./Irrit. 1B: 10 - < 90 %
Eye Dam./Irrit. 2: 2 - < 10 %
Skin Corr./Irrit. 2: 2 - < 10 %

propionic acid

Content (W/W): >= 25 % - < 50 % CAS Number: 79-09-4	Flam. Liq. 3 Acute Tox. 5 (oral) Acute Tox. 5 (dermal) Skin Corr./Irrit. 1B Eye Dam./Irrit. 1 STOT SE 3 (irr. to respiratory syst.) H226, H335, H314, H303 + H313 Specific concentration limit: Eye Dam./Irrit. 2: 10 - < 25 % Skin Corr./Irrit. 1B: >= 25 % Skin Corr./Irrit. 2: 10 - < 25 % STOT SE 3, irr. to respiratory syst.: >= 10 %

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

4. First-Aid Measures

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

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., (Further) symptoms and / or effects are not known so far

Indication of any immediate medical attention and special treatment needed

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

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, alcohol-resistant foam, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

harmful vapours, carbon oxides
The substances/groups of substances mentioned can be released in case of fire. The product is combustible.

Advice for fire-fighters

Special protective equipment:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
Cool endangered containers with water-spray.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Information regarding personal protective measures, see section 8.
Ensure adequate ventilation. Do not breathe vapour/spray. Wear respiratory protection if ventilation is inadequate. Avoid contact with the skin, eyes and clothing. Take off immediately all contaminated clothing. Avoid all sources of ignition: heat, sparks, open flame.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Contain with absorbent material (e.g. sand, silica gel, acid binder, general purpose binder, sawdust).
For large amounts: Dike spillage. Cover with blanket of foam (alcohol-resistant foam). Pump off product.
For residues: Pick up with suitable absorbent material.
Dispose of absorbed material in accordance with regulations. Cleaning operations should be carried out only while wearing breathing apparatus.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Wear suitable protective clothing and eye/face protection. Avoid contact with the skin, eyes and clothing. Keep container tightly sealed.

Protection against fire and explosion:
The product is combustible. Avoid all sources of ignition: heat, sparks, open flame. Take precautionary measures against static discharges. If exposed to fire, keep containers cool by spraying with water. Vapours may form explosive mixture with air.

Conditions for safe storage, including any incompatibilities

Segregate from alkalies and alkalizing substances.

Suitable materials for containers: glass, Stainless steel 1.4401, Stainless steel 1.4301 (V2), Aluminium, High density polyethylene (HDPE), Low density polyethylene (LDPE)
Further information on storage conditions: Keep container tightly closed and dry; store in a cool place. Protect containers from physical damage.

Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

64-18-6: Formic acid
79-09-4: propionic acid

Exposure controls

Personal protective equipment

Respiratory protection:
Suitable respiratory protection for higher concentrations or long-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:
Wear chemical resistant protective gloves.
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
butyl rubber (butyl) - 0.7 mm coating thickness
fluoroelastomer (FKM) - 0.7 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.

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

Body protection:
Body protection must be chosen based on level of activity and exposure., acid- resp. lye-proof apron, e.g. of rubber (f.e. according to EN 14605), protection boots, f.e. of rubber (e.g. according to EN 20346), acid-proof chemical protection suit (f.e. according to EN 14605)

General safety and hygiene measures
Avoid contact with the skin, eyes and clothing. Do not inhale gases/vapours/aerosols. Wearing of closed work clothing is required additionally to the stated personal protection equipment. No eating, drinking, smoking or tobacco use at the place of work. Hands and/or face should be washed before breaks and at the end of the shift. Store work clothing separately.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form:	liquid	
Colour:	Colourless to reddish	
Odour:	pungent	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
pH value:	1,5 - 1,9 (100 g/l)	
Melting point:	-18,2 °C	
Boiling range:	107 - 117 °C	(DIN 53171)
Flash point:	55,5 °C	(DIN 51755)
Flammability:	Flammable liquid and vapour.	(derived from flash - and boiling point)
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	515 °C	
Vapour pressure:	24 hPa (20 °C)	
Density:	approx. 1,15 g/cm3 (20 °C)	
Relative vapour density (air):	> 1 (20 °C) Heavier than air.	(calculated)
Solubility in water:	fully soluble	
Partitioning coefficient n-octanol/water (log Kow):	not applicable for mixtures	
Information on: Formic acid		
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)*
Information on: propionic acid		
Partitioning coefficient n-octanol/water (log Kow):	*0,33* *Literature data.*	*(measured)*

Thermal decomposition: No data available.
Information on: Formic acid
Thermal decomposition: 350 °C, > 150 kJ/kg (DSC (DIN 51007))
Information on: propionic acid
Thermal decomposition: (DSC (DIN 51007))
No exothermic decomposition within the mentioned temperature range.
It is not a self-decompositionable substance.

Viscosity, dynamic:	approx. 1,86 mPa.s (20 °C)	
Viscosity, kinematic:	1,61 mm2/s (20 °C) calculated	(calculated (from dynamic viscosity))
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	
Grain size distribution:	The substance / product is marketed or used in a non solid or granular form.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: In the presence of water or moisture metal corrosion cannot be excluded. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
Reacts with alkalies. Exothermic reaction.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame. See SDS section 7 - Handling and storage.

Incompatible materials

Substances to avoid:
alkalies

Hazardous decomposition products

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Of moderate toxicity after short-term inhalation. Of moderate toxicity after single ingestion. Of low toxicity after short-term skin contact.

Information on: Formic acid

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

Information on: propionic acid

Experimental/calculated data:
LD50 rat (oral): 3.455 mg/kg (similar to OECD guideline 401)

Information on: Formic acid
Experimental/calculated data:
LC50 rat (by inhalation): 7,85 mg/l 4 h (BASF-Test)
The vapour was tested.

Information on: propionic acid
Experimental/calculated data:
LC50 rat (by inhalation): > 19,7 mg/l 1 h (OECD Guideline 403)
The vapour was tested.

LC0 rat (by inhalation): 24,4 mg/l 8 h (IRT)
Literature data. No mortality within the stated exposition time as shown in animal studies. The vapour was tested.

Information on: propionic acid
Experimental/calculated data:
LD50 rat (dermal): 3.235 mg/kg (similar to OECD guideline 402)

Irritation

Assessment of irritating effects:
Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Information on: Formic acid
Experimental/calculated data:
Buehler test guinea pig: Non-sensitizing. (OECD Guideline 406)

Information on: propionic acid
Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing. (similar to OECD guideline 406)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Germ cell mutagenicity

Assessment of mutagenicity:
No mutagenic effect was found in various tests with bacteria and mammalian cell culture.

Information on: Formic acid
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.

Information on: propionic acid
Assessment of mutagenicity:
The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals. 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:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Information on: Formic acid
Assessment of carcinogenicity:
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.

Information on: propionic acid
Assessment of carcinogenicity:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Information on: Formic acid
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.

Information on: propionic acid
Assessment of reproduction toxicity:
No data available. Study scientifically not justified.

Developmental toxicity

Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Information on: Formic acid
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.

Information on: propionic acid
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:
Causes temporary irritation of the respiratory tract.

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

Assessment of repeated dose toxicity:
Based on available data, the classification criteria are not met.

Information on: Formic acid
Assessment of repeated dose toxicity:
No substance-specific organtoxicity 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.

Information on: propionic acid
Assessment of repeated dose toxicity:
No substance-specific organtoxicity was observed after repeated administration to animals. After repeated administration the prominent effect is the induction of corrosion.

Aspiration hazard

No aspiration hazard expected.

Other relevant toxicity information

The product has not been tested. The statement has been derived from the properties of the individual components.

12. Ecological Information

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.

Information on: Formic acid
Toxicity to fish:
LC50 (96 h) 130 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Information on: propionic acid
Toxicity to fish:
LC50 (96 h) > 10.000 mg/l, Leuciscus idus (DIN 38412 Part 15, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Information on: Formic acid
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.

Information on: propionic acid
Aquatic invertebrates:
EC50 (48 h) > 500 mg/l, Daphnia magna (Directive 84/449/EEC, C.2, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Information on: Formic acid
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.

Information on: propionic acid
Aquatic plants:
EC50 (72 h) > 500 mg/l (biomass), Scenedesmus subspicatus (OECD Guideline 201, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Information on: Formic acid
Microorganisms/Effect on activated sludge:
EC10 (13 d) 72 mg/l, activated sludge, domestic, non-adapted (other, aerobic)

Information on: propionic acid
Microorganisms/Effect on activated sludge:
EC20 (30 min) 500 - 1.040 mg/l, activated sludge, domestic (DIN EN ISO 8192, aquatic)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of terrestrial toxicity:
No data available.

Information on: propionic acid
Terrestrial plants:
EC50 (3 d) 125,8 mg/l 188,7 mg/kg, Lactuca sativa
Literature data.

Persistence and degradability

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

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

Information on: propionic acid
Elimination information:
approx. 74 % BOD of the ThOD (30 d) (other) (aerobic, activated sludge, domestic)

Bioaccumulative potential

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

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.

Other adverse effects

The product does not contain substances that are listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Additional information

Add. remarks environm. fate & pathway:
The product has not been tested. The statements on environmental fate and pathway have been derived from the properties of the individual components.

Other ecotoxicological advice:
The product has not been tested. The statement has been derived from the properties of the individual components.

13. Disposal Considerations

Waste treatment methods

Observe national and local legal requirements.

14. Transport Information

Land transport

ADR

UN number or ID number:	UN2920
UN proper shipping name:	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (FORMIC ACID, PROPIONIC 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:	UN2920
UN proper shipping name:	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (FORMIC ACID, PROPIONIC 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:	UN2920
UN proper shipping name:	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (FORMIC ACID, PROPIONIC ACID)
Transport hazard class(es):	8, 3
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

UN number or ID number:	UN 2920
UN proper shipping name:	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (FORMIC ACID, PROPIONIC 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 2920
UN proper shipping name:	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (FORMIC ACID, PROPIONIC 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

Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

15. Regulatory Information

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Information on intended use: This includes the mentioned and recommended usage. Any other intended applications should be discussed with the manufacturer. Corresponding occupational protection measurements must be followed.

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

Flam. Liq.	Flammable liquids
Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
STOT SE	Specific target organ toxicity — single exposure

H226	Flammable liquid and vapour.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H303 + H313	May be harmful if swallowed or in contact with skin
EUH071	Corrosive to the respiratory tract.

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.