

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Name **Goldfeed Welfare Premium**

Pure substance/mixture Mixture

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

Application Complementary feed

Uses advised against Not identified.

1.3. Details of the supplier of the safety data sheet**Manufacturer**

Schippers Europe B.V.
Rond Deel 12 5531 AH Bladel
The Netherlands
Tél.: 0031 (0) 497-382017
Fax: 0031 (0) 497-382096

E-mail address contact.nl@schippers.eu

1.4. Emergency telephone number

Europe (+)1 760 476 3961 (contract no: 334101)

United Kingdom (+)44 8 08 189 0979 (contract no: 334101)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

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

Acute toxicity - Oral

Acute toxicity - Inhalation (Vapours)

Skin corrosion/irritation

Serious eye damage/eye irritation

Category 4 - (H302)

Category 4 - (H332)

Category 2 - (H315)

Category 1 - (H318)

2.2. Label elements**Symbols/Pictograms****Signal word**

Danger

Hazard statements

H318 - Causes serious eye damage

H315 - Causes skin irritation

H332 - Harmful if inhaled

H302 - Harmful if swallowed

Precautionary Statements

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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 doctor

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

Contains: Formic acid 30-40%, Lactic acid.

2.3. Other hazards

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	REACH Registration Number	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Formic acid	200-579-1	64-18-6	01-2119491174-37-0001	30-40	Flam. Liq. 3 (H226) Skin Corr. 1A (H314) Eye Dam. 1 (H318) Acute Tox. 3 (H331) Acute Tox. 4 (H302) (EUH071)
Sodium formate	205-488-0	141-53-7	01-2119486468-21-0000	15-25	Not classified
Lactic acid	200-018-0	50-21-5	01-2119548400-48	5-10	Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
Propionic acid	201-176-3	79-09-4	01-2119486971-24-0002	1-5	Flam. Liq. 3 (H226) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335)

Full text of H- and EUH-phrases: see section 16

SECTION 4: First aid measures**4.1. Description of first aid measures**

General advice	Immediate medical attention is required. Emergency eyewash facilities must be located in the vicinity of where the product is handled.
Inhalation	Remove to fresh air. Rinse mouth with water. If irritation persists get medical advice/attention.
Skin contact	Immediately flush skin with water and rinse skin with soap and water for at least 5-10 minutes. Use lukewarm water if possible. Remove contaminated clothing and shoes. Get medical attention if redness does not disappear.
Eye contact	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Use lukewarm water if possible. Keep eye wide open while rinsing.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink plenty of water afterwards. Never give anything by mouth to an unconscious person. If a large quantity has been ingested or you feel unwell, get medical advice/attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing.

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

Eye contact: Causes severe irritation with flood of tears and pain and strong redness and swelling of the eye. Risk of permanent eye damage. May cause skin irritation and/or dermatitis Inhalation of vapours in high concentration may cause irritation of respiratory system

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

Treat symptomatically

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Unsuitable extinguishing media

High volume water jet.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating and toxic gases and vapours.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

Additional information

Cool containers with flooding quantities of water until well after fire is out. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate affected area. Remove all sources of ignition.

6.2. Environmental precautions

Minimize the area spreading and cover the drains. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

Methods for containment

Small spill	Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal
Large spill	Pump up the product into a spare container suitably labelled.

Methods for cleaning up

Clean contaminated surface thoroughly. Prevent product from entering drains. Collect spillage.

6.4. Reference to other sections

See Section 7,8,13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure adequate ventilation, especially in confined areas. Use personal protection recommended in Section 8. Avoid: aerosol or mist formation.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep from freezing. Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

7.3. Specific end use(s)

This information is supplied in the present Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Keep personal exposure levels below Derived No Effect Level (DNEL) and national exposure limit values (if existing).

Chemical Name	European Union	United Kingdom
Formic acid 64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9.6 mg/m ³ STEL: 15 ppm STEL: 28.8 mg/m ³
Propionic acid 79-09-4	TWA 10 ppm TWA 31 mg/m ³ STEL 20 ppm STEL 62 mg/m ³	TWA: 10 ppm TWA: 31 mg/m ³ STEL: 15 ppm STEL: 46 mg/m ³

Derived No Effect Level (DNEL) - worker

Formic acid (64-18-6)			
Type	Exposure route	DNEL	Remarks
Chronic effects, local	Inhalation	9.5	mg/m ³
Chronic effects, systemic	Inhalation	9.5	mg/m ³

Sodium formate (141-53-7)			
Type	Exposure route	DNEL	Remarks
Acute effects, local	Dermal	16.7	mg/cm ²
Acute effects, systemic	Dermal	5000	mg/kg bw/d
Chronic effects, systemic	Dermal	5000	mg/kg bw/d
Chronic effects, local	Dermal	16.7	mg/cm ²
Acute effects, systemic	Inhalation	350	mg/m ³
Chronic effects, systemic	Inhalation	353	mg/m ³

Lactic acid (50-21-5)			
Type	Exposure route	DNEL	Remarks
Acute effects, local	Inhalation	592	mg/m ³
Chronic effects, local	Inhalation	592	mg/m ³

Propionic acid (79-09-4)			
Type	Exposure route	DNEL	Remarks
Acute effects, local	Inhalation	62	mg/m ³
Chronic effects, local	Inhalation	31	mg/m ³
Chronic effects, systemic	Inhalation	73	mg/m ³
Chronic effects, systemic	Dermal	20.9	mg/kg bw/d

Derived No Effect Level (DNEL) - Consumer

Formic acid (64-18-6)			
Type	Exposure route	DNEL	Remarks
Chronic effects, local	Inhalation	3	mg/m ³
Chronic effects, systemic	Inhalation	3	mg/m ³

Sodium formate (141-53-7)			
Type	Exposure route	DNEL	Remarks
Chronic effects, systemic	Oral	25	mg/kg bw/d
Acute effects, systemic	Inhalation	87	mg/m ³
Chronic effects, systemic	Inhalation	87	mg/m ³
Acute effects, local	Dermal	8.33	mg/cm ²

Acute effects, systemic	Dermal	2500	mg/kg bw/d
Chronic effects, local	Dermal	8.3	mg/cm ²
Chronic effects, systemic	Dermal	2500	mg/kg bw/d

Lactic acid (50-21-5)

Type	Exposure route	DNEL	Remarks
Acute effects, local	Inhalation	296	mg/m ³

Propionic acid (79-09-4)

Type	Exposure route	DNEL	Remarks
Chronic effects, systemic	Oral	10.5	mg/kg bw/d
Chronic effects, systemic	Inhalation	18.3	mg/m ³
Acute effects, local	Inhalation	30.8	mg/m ³
Chronic effects, local	Inhalation	3.7	mg/m ³
Chronic effects, systemic	Dermal	10.5	mg/kg bw/d

Predicted No Effect Concentration (PNEC)**Formic acid (64-18-6)**

Environmental compartment	Predicted No Effect Concentration (PNEC)	Remarks
Freshwater	2	mg/l
Freshwater sediment	13.4	mg/kg dry weight
Marine water	0.2	mg/l
Marine sediment	1.34	mg/kg dry weight
Impact on Sewage Treatment	7.2	mg/l
Soil	1.5	mg/kg dry weight

Sodium formate (141-53-7)

Environmental compartment	Predicted No Effect Concentration (PNEC)	Remarks
Freshwater	2	mg/l
Intermittent	10	mg/l
Freshwater sediment	13.4	mg/kg dry weight
Marine water	0.2	mg/l
Marine sediment	1.34	mg/kg dry weight
Impact on Sewage Treatment	2.21	mg/l
Soil	1.5	mg/kg dry weight

Lactic acid (50-21-5)

Environmental compartment	Predicted No Effect Concentration (PNEC)	Remarks
Freshwater		No hazard identified
Marine water		No hazard identified
Impact on Sewage Treatment		No hazard identified
Freshwater sediment		No hazard identified
Marine sediment		No hazard identified
Soil		No hazard identified
Air		No hazard identified

Propionic acid (79-09-4)

Environmental compartment	Predicted No Effect Concentration (PNEC)	Remarks
Freshwater	0.5	mg/l
Impact on Sewage Treatment	5	mg/l
Marine water	0.05	mg/l
Freshwater sediment	1.86	mg/kg dry weight
Marine sediment	0.186	mg/kg dry weight
Soil	0.1258	mg/kg dry weight
Air		No hazard identified

8.2. Exposure controls

Appropriate engineering controls

Eyewash stations. Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Hand Protection	Wear protective gloves. Butyl rubber. Chloroprene rubber, CR. Nitrile rubber, NBR. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.
Skin and 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).
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Suitable respiratory protection for lower concentrations or short-term exposure: Gas filter for gases/vapours of organic compounds (boiling point >65°C, e. g. Type A) Suitable respiratory protection for higher concentrations or long-term exposure: Self-contained breathing apparatus.

Environmental exposure controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

liquid
colourless, yellow

Odour

Pungent

Odour threshold

No data available

Property

pH

Value
3.0 - 4.0

Remarks • Method

solution (5 %)

Melting point / freezing point

Not determined

Boiling point / boiling range

Not determined

Flash point

>66 °C

(based on components)

Evaporation rate

No information available

Flammability (solid, gas)

Not applicable

Explosive limits

Upper explosive limits

No information available

Lower explosive limits

No information available

Vapour pressure

No information available

Vapour density

No information available

Relative density

No information available

Water solubility

Soluble in water

Solubility(ies)

No information available

Partition coefficient

See Section 12 for more information

Autoignition temperature

No information available

Decomposition temperature

Not determined

Kinematic viscosity

No information available

Dynamic viscosity

No information available

Explosive properties

The product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Oxidising properties

Not oxidising.

Density

1.2-1.3 g/cm³

@ 20 °C

Bulk density

No information available

9.2. Other information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts with: Strong bases, Oxidising substances.

10.4. Conditions to avoid

None under normal use conditions.

10.5. Incompatible materials

Strong bases, Oxidising substances.

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapours.

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Information on likely routes of exposure**

Inhalation. Dermal.

Symptoms related to the physical, chemical and toxicological characteristics

See Section 4 for more information.

Numerical measures of toxicity**Acute toxicity**

Harmful if swallowed or if inhaled.

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	1,829.00 mg/kg
ATEmix (dermal)	7,873.00 mg/kg
ATEmix (inhalation-dust/mist)	69.00 mg/l
ATEmix (inhalation-vapour)	19.00 mg/l

Acute oral toxicity	0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
Acute dermal toxicity	0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
Acute inhalation toxicity - Vapour	0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapour)
Acute inhalation toxicity - dust/mist	45 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Formic acid (64-18-6)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 401: Acute Oral Toxicity	Rat	Oral	730	LD50 (lethal dose) mg/kg
OECD Test No. 402: Acute Dermal Toxicity	Mouse	Dermal	>2000	LD0 mg/kg
OECD Test No. 403: Acute Inhalation Toxicity	Rat	Inhalation	7.85	LC50 mg/l

Sodium formate (141-53-7)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 420: Acute Oral Toxicity - Fixed Dose Procedure	Rat	Oral	3000	LD50 (lethal dose) mg/kg
OECD Test No. 402: Acute Dermal Toxicity	Rat	Dermal	>2000	LD50 (lethal dose) mg/kg
EPA OTS 798.1150	Rat	Inhalation	>0.67	LC0 mg/m ³ The

				maximal attainable dust concentration of 0.67 mg/l produced no signs of toxicity.
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Lactic acid (50-21-5)

Method	Species	Exposure route	Effective dose	Remarks
EPA OPP 81-1	Rat	Oral	3543	LD50 (lethal dose) mg/kg read-across from supporting substance (structural analogue)
EPA OPP 81-2	rabbit	Dermal	>2000	LD0 mg/kg read-across from supporting substance (structural analogue)
OECD Test No. 403: Acute Inhalation Toxicity	Rat	Inhalation	>7.94	LC50 mg/l read-across from supporting substance (structural analogue)

Propionic acid (79-09-4)

Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 401: Acute Oral Toxicity	Rat	Oral	3455	LD50 (lethal dose) mg/kg
OECD Test No. 403: Acute Inhalation Toxicity	Rat	Inhalation	>19.7	LC50 mg/l 1h vapor
OECD Test No. 402: Acute Dermal Toxicity	Rat	Dermal	3235	LD50 (lethal dose) mg/kg

Skin corrosion/irritation

Irritating to skin. Safety factor.

Product Information

Method	Species	Exposure route	Results:
OECD Test No. 404: Acute Dermal Irritation/Corrosion	rabbit	Skin	Non-irritating to the skin Read-across from similar product

Formic acid (64-18-6)

Method	Species	Exposure route	Results:
Unknown	human data	Dermal	Corrosive

Sodium formate (141-53-7)

Method	Species	Exposure route	Results:
OECD Test No. 404: Acute Dermal Irritation/Corrosion	rabbit	Dermal	Non-irritant

Lactic acid (50-21-5)

Method	Species	Exposure route	Results:
EPA OPP 81-5	rabbit	Dermal	Irritating to skin read-across from supporting substance (structural analogue)

Propionic acid (79-09-4)

Method	Species	Exposure route	Results:
Unknown	rabbit	Dermal	Corrosive

Serious eye damage/eye irritation

Risk of serious damage to eyes.

Product Information

Method	Species	Exposure route	Results:
OECD 438	in vitro		Causes serious eye damage

			Read-across from similar product
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Formic acid (64-18-6)

Method	Species	Exposure route	Results:
Unknown	human data	Eye	strongly corrosive

Sodium formate (141-53-7)

Method	Species	Exposure route	Results:
OECD Test No. 405: Acute Eye Irritation/Corrosion	rabbit	Eye	Non-irritant No classification according to GHS criteria.

Lactic acid (50-21-5)

Method	Species	Exposure route	Results:
Unknown	Eye in vitro	Eye	strongly irritant

Propionic acid (79-09-4)

Method	Species	Exposure route	Results:
Unknown	rabbit	Eye	Corrosive

Respiratory or skin sensitisation

According to the data on the components. Not a skin sensitiser.

Formic acid (64-18-6)

Method	Species	Exposure route	Results:
OECD Test No. 406: Skin Sensitisation	Guinea pig	Skin	Not a skin sensitiser

Sodium formate (141-53-7)

Method	Species	Exposure route	Results:
OECD Test No. 406: Skin Sensitisation	Guinea pig	Skin	Not a skin sensitiser read-across from supporting substance (structural analogue)

Lactic acid (50-21-5)

Method	Species	Exposure route	Results:
EPA OPP 81-6	Guinea pig	Skin	Not a skin sensitiser

Propionic acid (79-09-4)

Method	Species	Exposure route	Results:
OECD Test No. 406: Skin Sensitisation	Guinea pig	Skin	Not a skin sensitiser

Germ cell mutagenicity

According to the data on the components: Not mutagenic.

Formic acid (64-18-6)

Method	Species	Results:
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	in vitro	Negative
OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test	in vitro	Negative
OECD Test No. 479: Genetic Toxicology: In vitro Sister Chromatid Exchange Assay in Mammalian Cells	in vitro	Negative
OECD Test No. 477: Genetic Toxicology: Sex-Linked Recessive Lethal Test in <i>Drosophila melanogaster</i>	in vivo	Negative

Sodium formate (141-53-7)		
Method	Species	Results:
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test	in vitro	Negative read-across from supporting substance (structural analogue)
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	in vitro	Negative read-across from supporting substance (structural analogue)
OECD Test No. 477: Genetic Toxicology: Sex-Linked Recessive Lethal Test in <i>Drosophila melanogaster</i>	in vivo	Negative

Lactic acid (50-21-5)		
Method	Species	Results:
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	in vitro	Negative
OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test	in vitro	Negative

Propionic acid (79-09-4)		
Method	Species	Results:
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative
OECD Test No. 476: In vitro Mammalian Cell Gene Mutation Test	in vitro	Negative read-across from supporting substance (structural analogue)
OECD Test No. 479: Genetic Toxicology: In vitro Sister Chromatid Exchange Assay in Mammalian Cells	in vitro	Negative
OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test	in vivo	Negative

Carcinogenicity

According to the data on the components: Animal studies have not shown any carcinogenic potential.

Formic acid (64-18-6)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Oral	2000	NOAEL mg/kg bw/d No carcinogenic effects have been observed. read-across from supporting substance (structural analogue)

Sodium formate (141-53-7)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Oral	2000	NOAEL mg/kg bw/d No carcinogenic effects have been observed. read-across from supporting substance (structural analogue)

Propionic acid (79-09-4)				
Method	Species	Exposure route	Effective dose	Remarks
Unknown	Rat	Oral	4000	NOAEL ppm Animal studies have not shown any carcinogenic potential.

Reproductive toxicity

According to the data on the components: No impairment of fertility has been observed. No embryotoxic or teratogenic effects have been observed.

Formic acid (64-18-6)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 414: Pre-natal Development Toxicity Study	rabbit	Oral	667	NOAEL mg/kg bw/d No embryotoxic or teratogenic effects have been observed. read-across from supporting substance (structural analogue)
OECD Test No. 416: Two-Generation Reproduction Toxicity	Rat	Oral	650	NOAEL mg/kg bw/d A two-generation reproduction toxicity study performed with a read-across substance did not indicate any potential for reproductive or developmental toxicity.

Sodium formate (141-53-7)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	Oral	1000	NOAEL mg/kg bw/d No embryotoxic or teratogenic effects have been observed.
OECD Test No. 416: Two-Generation Reproduction Toxicity	rabbit	Oral	1000	NOAEL mg/kg bw/d No impairment of fertility has been observed. No embryotoxic or teratogenic effects have been observed.

Propionic acid (79-09-4)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	Oral	300	NOAEL mg/kg bw/d read-across from supporting substance (structural analogue)

STOT - single exposure Not classified.

Formic acid (64-18-6)				
Method	Species	Exposure route	Effective dose	Remarks
Unknown	human data	Inhalation		May give smarting pain in nose and throat, headache, tiredness, dizziness and coughing. High concentration can give difficulties in breathing.

Propionic acid (79-09-4)				
Method	Species	Exposure route	Effective dose	Remarks
		Inhalation		Irritating to respiratory system

STOT - repeated exposure

Formic acid (64-18-6)				
Method	Species	Exposure route	Effective dose	Remarks

OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Oral	2000	LOAEL mg/kg bw/d read-across from supporting substance (structural analogue)
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Oral	400	NOAEL mg/kg bw/d read-across from supporting substance (structural analogue)
OECD Test No. 413: Sub-chronic Inhalation Toxicity: 90-day Study	Rat	Inhalation	0.244	LOAEL mg/l read-across from supporting substance (structural analogue)
OECD Test No. 413: Sub-chronic Inhalation Toxicity: 90-day Study	Rat	Inhalation	0.122	NOAEL mg/l read-across from supporting substance (structural analogue)
OECD Test No. 413: Sub-chronic Inhalation Toxicity: 90-day Study	Rat	Inhalation	0.244	NOAEL mg/l systemic toxicity read-across from supporting substance (structural analogue)

Sodium formate (141-53-7)

Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral	3138	NOAEL mg/kg bw/d read-across from supporting substance (structural analogue)

Propionic acid (79-09-4)

Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral	6200	NOAEL Chronic effects, local ppm
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral	50000	NOAEL systemic toxicity ppm
OECD Test No. 411: Sub-chronic Dermal Toxicity: 90-day Study	Mouse	Dermal	136.9	LOAEL Subchronic toxicity mg/kg bw/d
OECD Test No. 409: Repeated Dose 90-Day Oral Toxicity Study in Non-Rodents	Dog	Oral	733.4	NOAEL mg/kg bw/d

Aspiration hazard

No information available.

SECTION 12: Ecological information**12.1. Toxicity**

Toxic to aquatic life with long lasting effects.

0% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Formic acid (64-18-6)

Method	Species	Exposure route	Effective dose	Exposure time	Remarks
OECD Test No. 203: Fish, Acute Toxicity Test	Brachydanio rerio	Freshwater	130	96h	LC50 (lethal concentration) mg/l read-across from supporting substance (structural

					analogue)
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	Freshwater	365	48h	EC50 (effective concentration) mg/l read-across from supporting substance (structural analogue)
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	1240	72h	EC50 (effective concentration) mg/l read-across from supporting substance (structural analogue)
OECD Test No. 203: Fish, Acute Toxicity Test	Brachydanio rerio	Freshwater	90	96h	NOEC mg/l read-across from supporting substance (structural analogue)
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	Freshwater	180	48h	NOEC mg/l read-across from supporting substance (structural analogue)
OECD Test No. 211: Daphnia magna Reproduction Test	Daphnia magna	Freshwater	>=100	21d	NOEC mg/l
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	<76.8	72h	NOEC mg/l read-across from supporting substance (structural analogue)
Regulation (EC) No. 440/2008, Annex, C.3	Bacteria toxicity	Freshwater	72	13d	NOEC mg/l

Sodium formate (141-53-7)

Method	Species	Exposure route	Effective dose	Exposure time	Remarks
EPA OTS 797.1400	Oncorhynchus mykiss (rainbow trout)	Freshwater	>1000	96h	LC50 (lethal concentration) mg/l
EPA-660/3-75-009	Daphnia magna	Freshwater	>1000	48h	EC50 (effective concentration) mg/l
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	>1000	72h	EC50 (effective concentration) mg/l read-across from supporting substance (structural analogue)

Lactic acid (50-21-5)

Method	Species	Exposure route	Effective dose	Exposure time	Remarks
EPA-669/3-75-009	Oncorhynchus mykiss (rainbow trout)	Freshwater	130	96h	LC50 (lethal concentration) mg/l read-across from supporting substance (structural analogue)
OECD Test No. 202: Daphnia sp. Acute	Daphnia magna	Freshwater	250	48h	EC50 (effective concentration) mg/l

Immobilization Test					
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	3500	72h	EC50 (effective concentration) mg/l

Propionic acid (79-09-4)

Method	Species	Exposure route	Effective dose	Exposure time	Remarks
DIN 38412	Leuciscus idus	Freshwater	>10000	96h	LC50 (lethal concentration) mg/l
Regulation (EC) No. 440/2008, Annex, C.2	Daphnia magna	Freshwater	>500	48h	EC50 (effective concentration) mg/l
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Scenedesmus subspicatus	Freshwater	>500	72h	EC50 (effective concentration) mg/l
DIN 38412	Leuciscus idus	Freshwater	>5000	96h	NOEC mg/l
Regulation (EC) No. 440/2008, Annex, C.2	Daphnia magna	Freshwater	250	48h	NOEC mg/l

12.2. Persistence and degradability

Based on the degradability studies on the ingredients, the product is expected to be readily biodegradable.

Formic acid (64-18-6)

Method	Value	Exposure time	Results:
OECD Test No. 301C: Ready Biodegradability: Modified MITI Test (I) (TG 301 C)	100%	28d	Readily biodegradable
EU Method C.4-B	99%	11d	Readily biodegradable
EU Method C.4-B	98%	14d	Readily biodegradable

Sodium formate (141-53-7)

Method	Value	Exposure time	Results:
OECD Test No. 306: Biodegradability in Seawater	86%	28d	Readily biodegradable
DIN EN 1899 BOD	3940	5d	mgO2/kg

Lactic acid (50-21-5)

Method	Value	Exposure time	Results:
EU Method C.5	67%	20d	Readily biodegradable, failing 10-d window

Propionic acid (79-09-4)

Method	Value	Exposure time	Results:
Regulation (EC) No. 440/2008, Annex, C.5 (BOD)	93%	20d	Readily biodegradable
OECD Test No. 302B: Inherent Biodegradability: Zahn-Wellens/ EVPA Test	95%	10d	Readily biodegradable
Unknown	74%	30d	Readily biodegradable

12.3. Bioaccumulative potential

Based on the partition coefficients of the ingredients the product is not expected to bioaccumulate in organisms.

Chemical Name	Partition coefficient	Bioconcentration factor (BCF)
Formic acid	-2.1	
Sodium formate	-1.8	
Lactic acid	-0.6	
Propionic acid	0.33	

12.4. Mobility in soil

The product is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Pow.

12.5. Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects

Emissions to water lowers the pH. This may cause local damage to fish and aquatic organisms in the discharge area.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Waste from residues/unused products**

This material and its container must be disposed of as hazardous waste.

Contaminated packaging

Contaminated packaging materials must be disposed of in the same manner as the product.

Waste codes / waste designations according to EWC / AVV

Waste from residues/unused products: 16 03 05*.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information**ADR Road transport**

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

RID Rail transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

IMDG Sea transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special precautions for user	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA Air transport

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	None

SECTION 15: Regulatory information

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

Not applicable.

European Union

REGULATION (EC) No 767/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the placing on the market and use of feed

France

Occupational Illnesses (R-463-3, France)

Not applicable

Germany

Water hazard class (WGK)

Water endangering class = 2 (self classification)

TA Luft (German Air Pollution Control Regulation)

Chemical Name	Type	Class
Formic acid - 64-18-6	5.2.5	0.10 kg/h Mass flow (Class I); 20 mg/m ³ Mass concentration (Class I)

15.2. Chemical safety assessment

Not applicable.

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H315 - Causes skin irritation

H318 - Causes serious eye damage

H226 - Flammable liquid and vapour

H314 - Causes severe skin burns and eye damage

H331 - Toxic if inhaled

H302 - Harmful if swallowed

H335 - May cause respiratory irritation

EUH071 - Corrosive to the respiratory tract

Issue Date 31-Jul-2019**Revision Date** 30-Jul-2019**Revision Note** SDS sections updated: 2, 3, 8, 11, 12, 14.**This safety data sheet complies with the requirements of:** Regulation (EC) No. 1907/2006, COMMISSION REGULATION (EU) No. 830/2015 of 20 May 2015.**Disclaimer**

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End of Safety Data Sheet