MATERIAL SAFETY DATA SHEET

FORMIC ACID 85%

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

1.1. Product identifier

Product name:	Formic Acid 84-85%
CAS Number:	64-18-6
EC Number:	200-579-1

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

Recommended use:	Silage, preservative, pH regulations.

1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd Miranda House, The Quay Harwich, Essex, CO12 3HH United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274

Section 2: Hazardous identification

2.1 Classification of the substance or mixture

CLP-classification:

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

Most serious harmful effects:

Harmful if swallowed. Causes severe skin burns and eye damage. Toxic if inhaled. The product releases organic solvent vapours which may cause lethargy and dizziness. At high concentrations, the vapours may cause headache and intoxication.

2.2 Label elements

Pictograms

Signal word:	Danger
Contains	
Substance:	formic acid….%;
H-phrases	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled

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P-phrases

P260	Do not breathe vapours
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305+351+338	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 CENTRE/doctor.

Supplemental information

EUH071	Corrosive to the respiratory tract.

2.3 Other Hazards

The product does not contain any PBT or vPvB substances.

Section 3: Composition/information on ingredients

3.2 Mixtures

Substance	CAS No	EC No	REACH Reg No	Concentration	Notes	CLP - Classification
Formic Acid…%	64-18-6	200-579-1	01-2119491174-37	84-84.9%	15	Flam. Liq. 3;H226 Acute Tox. 4;H302 Skin Corr. 1A;H314 Eye Dam. 1;H318 Acute Tox. 3;H331

Please see section 16 for the full text of H-phrases.

15 = REACH-registered with a different classification than in Regulation 1272/2008 Appendix VI

Section 4: First aid measures

4.1 Description of first aid measures

Inhalation: Seek fresh air. Call for medical attention or ambulance.

Ingestion: Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Skin contact: Immediately remove contaminated clothing. Wash the skin thoroughly with water and continue washing for a long time. Seek medical advice immediately.

Eye contact: Open eye wide, remove any contact lenses and flush immediately with water (preferably using eye wash equipment). Seek medical advice immediately. Continue flushing until medical attention is obtained.

Burns: Flush with water until pain ceases. Remove clothing that is not stuck to the skin - seek medical advice/transport to hospital. If possible, continue flushing until medical attention is obtained.

General: When obtaining medical advice, show the safety data sheet or label.

4.2 Most important symptoms and effects, both acute and delayed

Toxic by inhalation. Harmful if swallowed. Ingestion may cause caustic burning in mouth, oesophagus and stomach. Pains in mouth, throat, and stomach. Difficulty swallowing, feeling unwell and vomiting of blood. Brown spots and burns may appear in and around the mouth. Has a caustic burning effect and causes burning pain, reddening, blistering, and burning sores if it comes in contact with skin. Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight. Inhalation of vapours/spray mist is corrosive to the upper airways. The product releases organic solvent vapours which may cause lethargy and dizziness. At high concentrations, the vapours may cause headache and intoxication.

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4.3 Indication of any immediate medical attention and special treatment needed
Treat symptoms. Ensure that medical personnel are aware of the material involved and take precautions to protect themselves.

Section 5: Fire-fighting measures

5.1 Fire Fighting Media and Instructions:
Suitable extinguishing media: Extinguish with powder, foam, carbon dioxide or water mist. Use water or water mist to cool non-ignited stock.
Unsuitable extinguishing media: Do not use water stream, as it may spread the fire.

5.2 Special hazards arising from the substance or mixture
Can generate harmful flue gases containing carbon monoxide in the event of fire

5.3 Advice for firefighters
Move containers from danger area if it can be done without risk. Avoid inhalation of vapour and flue gases – seek fresh air. Wear Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit. Extinguishing water which has been in contact with the product may be corrosive.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For non-emergency personnel:
Stop leak if this can be done without risk. Stay upwind/keep distance from source. Keep unnecessary personnel away. Wear gloves. Wear safety goggles/face protection. In case of missing process ventilation: Wear respiratory protective equipment.
For emergency responders:
In addition to the above: Chemical protective suit equivalent to EN 943-2 is recommended.

6.2 Environmental precautions
Prevent spillage from entering drains and/or surface water.

6.3 Methods and material for containment and cleaning up
Caution! Causes burns. Contain and absorb spill with sand or other absorbent material and transfer to suitable waste containers. Rinse with water. Wipe up minor spills with a cloth.

6.4 References to other sections
See section 13 for instructions on disposal. See section 8 for type of protective equipment.

Section 7: Handling and storage

7.1 Precautions for safe handling
A safety shower must be available. Running water and eye wash equipment must be available. Wash hands before breaks, before using restroom facilities, and at the end of work. Work under effective process ventilation (e.g., local exhaust ventilation).

7.2 Conditions for safe storage, including any incompatibilities
Store safely, out of reach of children and away from food, animal feeding stuffs, medicines, etc. Keep in tightly closed original packaging. Store at temperatures below 30°C. Do not expose to heat (e.g., sunlight). Do not store with the following: Strong acids/ Strong oxidisers/ Alkalis. Store locked up.

7.3 Specific end use(s)
None.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Substance Name	Time period	ppm	Mg/m³	Fiber/cm3	Comments	Remarks
Formic Acid….%	-	5	9.6			

Occupational exposure limit: Formic acid: 5 ppm 9 mg/m3 Remarks: E: The substance has an EC exposure limit
Measuring methods: Compliance with occupational exposure limits may be checked by occupational hygiene measurements.
Legal basis: EH40/2005 Workplace exposure limits. Last amended January 2020.

PNEC

Formic Acid ….%, CAS No. 64-18-6				
Exposure	Value	Assessment Factor	Extrapolation Method	Note
PNEC aqua (freshwater)	2 mg/l			
PNEC aqua (marine water)	0,2 mg/l			
PNEC aqua (intermittent releases)	1 mg/l			
PNEC sediment (freshwater)	13,4 mg/kg dw			
PNEC sediment (marine water)	13,4 mg/kg dw			
PNEC STP (wastewater-treatment facilities)	7,2 mg/l			

DNEL – workers

Formic Acid ….%, CAS No. 64-18-6					
Exposure	**Value**	**Assessment Factor**	**Dose Descriptor**	**Main Impact Parameter**	**Note**
Inhalation DNEL (long-term exposure - local effects)	9,5 mg/m³				
Inhalation DNEL (acute/short-term exposure - local effects)	19 mg/m³				

DNEL – general population

Formic Acid ….%, CAS No. 64-18-6					
Exposure	**Value**	**Assessment Factor**	**Dose Descriptor**	**Main Impact Parameter**	**Note**
Inhalation DNEL (acute/short-term exposure - local effects)	9,5 mg/m³				

Inhalation DNEL (long-term exposure - local effects)	3mg/m³				

8.2 Exposure controls /
Appropriate engineering controls
Exposure controls: See enclosed exposure scenarios for further information.
Appropriate engineering controls: Wear the personal protective equipment specified below.
Personal protective equipment, eye/face protection: Wear safety goggles/face protection. Eye protection must conform to EN 166.
Personal protective equipment, skin protection: Wear gloves. Type of material: Neoprene rubber/ Butyl rubber. Penetration time: >8 hours. Gloves must conform to EN 374. Wear suitable protective clothing.
Personal protective equipment, respiratory protection: In case of missing process ventilation: Wear respiratory protective equipment. Filter type: A. Heavy use (high volume, long-term contact (more than 2 hours)): Wear fresh air respiratory protective equipment. Respiratory protection must conform to one of the following standards: EN 136/140/145.
Environmental exposure controls: Ensure compliance with local regulations for emissions.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State	Liquid	
Colour	Yellowish	
Odour	Prickling	
Solubility	Miscible with the following: Water	
Explosive properties	non-explosive	
Oxidising properties	non-oxidising	
pH (solution for use)	No data	
pH (concentrate)	< 1	
Melting point	No data	
Freezing point	-13.5 °C	Formic acid
Initial boiling point and boiling range	107 °C	Formic acid
Flash Point	67 °C	PMCC Formic acid
Evaporation rate	No data	
Flammability (solid, gas)	No data	
Flammability limits	No data	
Explosion limits	15 - 48 vol%	Formic acid
Vapour pressure	No data	
Vapour density	No data	
Relative density	1.2	(20 °C) Formic acid
Partition coefficient n-octonol/water	-2.1	Formic acid
Auto-ignition temperature	No data	
Decomposition temperature	350 °C	Formic acid
Viscosity	No data	
Odour threshold	No data	

9.2 Other information
Other information: None

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Section 10: Stability and Reactivity

10.1 Reactivity
Reacts with the following: Strong acids/ Strong oxidisers/ Alkalis. Never add water. Avoid contact with nitric acid and hydrogen peroxide.
10.2 Chemical Stability
The product is stable when used in accordance with the supplier's directions.
10.3 Possibility of hazardous reactions
None
10.4 Conditions to avoid
Do not expose to heat (e.g., sunlight).
10.5 Incompatible materials
Strong acids/ Strong oxidisers/ Alkalis.
10.6 Hazardous decomposition products
Carbon monoxide and carbon dioxide.

Section 11: Toxicological Information

Acute toxicity - oral
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
RAT	LD50		730mg/kg bw		OECD 401	

Harmful is swallowed.

Acute toxicity - dermal
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
MOUSE	LD50		> 2000mg/kg		OECD 402	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Acute toxicity - inhalation
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
RAT	LC50 (Vapour)	4h	7.85mg/l		OECD403	

Toxic by inhalation.

Skin corrosion/irritation
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
HUMAN				Corrosive		

Has a caustic burning effect and causes burning pain, reddening, blistering and burning sores if it comes in contact with skin.

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Serious eye damage/eye irritation
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
HUMAN				Corrosive		

Eye contact may result in deep caustic burns, pain, tearing and cramping of the eyelids. Risk of serious eye injury and loss of sight.

Respiratory sensitisation or skin sensitisation
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
GUINEA PIG				Non-sensitising	OECD406	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Germ cell mutagenicity
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
BACTERIA				No mutagenic effects observed	OECD 471	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Carcinogenic properties
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
RAT			2000mg/kg bw/day	No carcinogenic effects observed	OECD 453	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Reproductive toxicity
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Rabbit			667mg/kg bw/day	No indications	OECD 414	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Single STOT exposure
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Human				Can cause a burning sensation in the nose and throat, headache, fatigue, dizziness, and coughing. High concentrations can cause breathing difficulties.		

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The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. The product releases organic solvent vapours which may cause lethargy and dizziness. At high concentrations, the vapours may cause headache and intoxication. Inhalation of vapours/spray mist is corrosive to the upper airways.

Repeated STOT exposure
formic acid ... %, cas-no 64-18-6

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
Rabbit			0.244mg/l	NOAEL (systemic toxicity, inhalation)	OECD 413	

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Aspiration hazard: The product does not have to be classified. Test data are not available.
Other toxicological effects: Ingestion may cause caustic burning in mouth, aesophagus and stomach. Pains in mouth, throat and stomach. Difficulty swallowing, feeling unwell and vomiting of blood. Brown spots and burns may appear in and around the mouth.

Section 12: Ecological Information

12.1 Toxicity
formic acid ... %, cas-no 64-18-6

Organism	Species	Exposure time	Test Type	Value	Conclusion	Test method	Source
Fish	Brachydanio rerio		96hLC50	130mg/l			
Crustacea	Daphnia magna		48hLC50	365mg/l			
Fish	Brachydanio rerio		96hNOEC	90mg/l			
Crustacea	Daphnia magna		48hNOEC	180mg/l			
Algae	Pseudokirchne riella subcapitata		72hEC50	1240mg/l			
Algae	Pseudokirchne riella subcapitata		72hNOEC	< 76.8mg/l			

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

12.2. Persistence and degradability
formic acid ... %, cas-no 64-18-6

Organism	**Species**	**Exposure Time**	**Test Type**	**Value**	**Conclusion**	**Test method**	**Source**
					Readily biodegradable		

Expected to be biodegradable.

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12.3. Bioaccumulative potential
formic acid ... %, cas-no 64-18-6

Organism	Species	Exposure Time	Test Type	Value	Conclusion	Test method	Source
			Log Pow	- 2.1			
			BCF	3.2			

No bioaccumulation expected.

12.4. Mobility in soil
formic acid ... %, cas-no 64-18-6

Organism	Species	Exposure Time	Test Type	Value	Conclusion	Test method	Source
					The substance does not evaporate from the water surface. Adsorption to solid soil particles is not expected.		

Test data are not available.

12.5. Results of PBT and vPvB assessment
The product does not contain any PBT or vPvB substances.

12.6. Other adverse effects
The product affects the pH value of the local aquatic environment.

Section 13: Disposal considerations

13.1. Waste treatment methods
Avoid discharge to drain or surface water. If this product as supplied becomes a waste, it meets the criteria of a hazardous waste (Dir. 2008/98/EU). Collect spills and waste in closed, leak-proof containers for disposal at the local hazardous waste site. Empty, cleansed packaging should be disposed of for recycling. Uncleansed packaging is to be disposed of via the local waste-removal scheme.

Category of waste: Product:
Waste group:
EWC code: Depends on line of business and use, for instance 06 01 06* other acids

Absorbent/cloth contaminated with the product: EWC code: 15 02 02 absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances.

Section 14: Transport Information

Land transport (ADR/RID)
14.1 UN – No.:3412
14.2 UN proper shipping name: FORMIC ACID
14.3 Transport Hazard class(es): 8
Hazard label(s): 8
Hazard identification number: 80
14.4 Packing group: II

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14.5 Environmental hazards: The product should not be labelled as an environmental hazard (symbol: fish and tree).
Tunnel Restriction code: E

Inland water ways transport (ADN)
14.1. UN-No.: 3412
14.2. UN proper shipping name: FORMIC ACID
14.3. Transport hazard class(es): 8
Hazard label(s): 8
14.4. Packing group: II
Transport in tank vessels: Not applicable.
14.5. Environmental hazards: The product should not be labelled as an environmental hazard (symbol: fish and tree).

Sea Transport (IMDG)
14.1. UN-No.: 3412
14.2. UN proper shipping name: FORMIC ACID
14.3. Transport hazard class(es): 8
Hazard label(s): 8
14.4. Packing group: II
EmS: F-A, S-B
14.5. Environmental hazards: The product is not a Marine Pollutant (MP).
Environmental Hazardous Substance Name(s):
IMDG Code segregation group: Segr. grp. 1 - Acids (SGG1 or SGG1a)

Air Transport (ICAO-TI/IATA-DGR)
14.1. UN-No.: 3412
14.2. UN proper shipping name: FORMIC ACID
14.3. Transport hazard class(es): 8
Hazard label(s): 8
14.4. Packing group: II
14.5. Environmental hazards: The product should not be labelled as an environmental hazard (symbol: fish and tree).

14.6. Special precautions for user
None.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code
Not applicable

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Special Provisions: Directive 2012/18/EU (Seveso), H2 ACUTE TOXIC: Column 2: 50 t, Column 3: 200 t.
Covered by:

15.2. Chemical Safety Assessment

REACH Reg. No.	Substance Name
01-2119491174-37	formic acid ... %

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Section 16: Other Information

Abbreviations:
PBT: Persistent, Bioaccumulative and Toxic
vPvB: Very Persistent and Very Bioaccumulative
STOT: Specific Target Organ Toxicity
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration

Other Information: This safety data sheet has been prepared for and applies to this product only. It is based on our current knowledge and the information that the supplier was able to provide about the product at the time of preparation. The safety data sheet complies with applicable law on preparation of safety data sheets in accordance with 1907/2006/EC (REACH) as subsequently changed. Exposure scenarios are enclosed as appendicies.

Training advice: A thorough knowledge of this safety data sheet should be a prerequisite condition.

Classification method: Calculation based on the hazards of the known components.

List of relevant H-statements

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

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