

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier: Formic acid 85%
REACH registration No.: 01-2119491174-37-XXXX

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

Relevant identified uses: Chemical applications.

Company name: Nexchem Ltd
Unit 3 Barshaw Park
Leycroft Road
Leicester
LE4 1ET
Tel: 0116 2311130
24/7 Emergency Tel: 0800 246 1274
Email: sales@nexchem.co.uk

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

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

Acute Tox. 3; H331 - Acute toxicity (inhalative): Category 3; Toxic if inhaled.

Acute Tox. 4; H302 - Acute toxicity (oral): Category 4; Harmful if swallowed.

Eye Dam. 1; H318 - Serious eye damage/eye irritation: Category 1; Causes serious eye damage.

Skin Corr. 1A; H314 - Skin corrosion/irritation: Category 1A; Causes severe skin burns and eye damage.

Label elements:

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

Hazard pictograms:



Skull and crossbones (GHS06)



Corrosion (GHS05)

Signal word:

Danger

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Hazard components for labelling: FORMIC ACID 85 %

CAS No.: 64-18-6

Hazard statements:
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.

Precautionary statements:
P260 Do not breathe dusts or mists.
P264 Wash hands and face thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Supplemental Hazard information (EU): EUH071 Corrosive to the respiratory tract.

Other hazards: None under normal conditions.
This product does not contain substances of very high concern (SVHC) in a concentration $\geq 0,1$ % w/w.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

Hazardous ingredients: FORMIC ACID
REACH registration No.: 01-2119491174-37-XXXX
EC No.: 200-579-1
CAS No.: 64-18-6
INDEX No.: 607-001-00-0
Weight fraction: $\geq 85 - < 94$ %
Classification 1272/2008 [CLP]: Skin Corr. 1A; H314

Additional information: This product is considered to be hazardous.
Full text of H- and EUH-phrases: see section 16.

4. FIRST AID MEASURES

Description of first aid measures:

General information: When in doubt or if symptoms are observed, get medical advice.

Following inhalation: Remove victim out of the danger area. Seek medical attention if irritation develops. If breathing is irregular or stopped, administer artificial respiration. Seek medical advice.

In case of skin contact: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Seek medical attention immediately. [cont...]

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After eye contact: Continue to rinse eye with clean water for 10 - 15 minutes, retracting eyelids often. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention immediately.

After ingestion: Rinse mouth thoroughly with water. Seek medical advice. DO NOT INDUCE VOMITING. Give water to drink.

Most important symptoms and effects, both acute and delayed: No information available.

Indication of any immediate medical attention and special treatment needed: Give supportive therapy. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: Carbon dioxide (CO₂).
Water spray.
Dry extinguishing powder.
Alcohol resistant foam.

Unsuitable extinguishing media: Strong water jet.

Special hazards arising from the substance or mixture:

Hazardous combustion products: Thermal decomposition generates: Carbon oxides.

Advice for firefighters:

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Wear personal protection equipment. (see chapter 8).
Do not breathe vapour.
In case of accident/release: Evacuate personnel to safe area.
Avoid ingestion and inhalation.
Avoid contact with skin.

Environmental precautions: Do not allow to enter into surface water or drains.

Methods and material for containment and cleaning up: Absorb spill material with inert material (e.g., dry sand or earth), then place in a chemical waste container. Dispose in a safe manner in accordance with local/national regulations.

Reference to other sections: See protective measures under point 8 and 13.

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7. HANDLING AND STORAGE

Precautions for safe handling: Avoid ingestion and inhalation.
Good ventilation of the workplace required.
Avoid contact with skin.
Keep away from ignition sources - No smoking.

Conditions for safe storage, including any incompatibilities:
Keep away from food, drink and animal feeding stuffs.
Keep container closed when not in use.
Store in dry, cool, well-ventilated area.

Further information on storage conditions: Do not store at temperatures above: 30°C

Specific end use(s): None

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Occupational exposure limit values:

FORMIC ACID; CAS No.: 64-18-6

Limit value type (country of origin): TRGS 900 (D)

Limit value: 5 ppm/9.5 mg/m³

Peak limitation: 2(l)

Remark: Y

Version: 04-11-2017

Limit value type (country of origin): TWA (EC)

Limit value: 5 ppm/9 mg/m³

Version: 07-02-2006

DNEL/DMEL and PNEC values:

DNEL/DMEL:

Limit value type: DNEL/DMEL (Consumer) (FORMIC ACID; CAS No.: 64-18-6)

Exposure route: Inhalation

Exposure frequency: Short-term / local effects.

Limit value: 9.5 mg/m³

Limit value type: DNEL/DMEL (Consumer) (FORMIC ACID; CAS No.: 64-18-6)

Exposure route: Inhalation

Exposure frequency: Long-term / local effects.

Limit value: 3 mg/m³

Limit value type: DNEL/DMEL (Worker) (FORMIC ACID; CAS No.: 64-18-6)

Exposure route: Inhalation

Exposure frequency: Short-term / local effects.

Limit value: 17 mg/m³

Limit value type: DNEL/DMEL (Worker) (FORMIC ACID; CAS No.: 64-18-6)

Exposure route: Inhalation

Exposure frequency: Long-term / local effects.

Limit value: 9.5 mg/m³

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PNEC:

Limit value type:	Sediment (freshwater) (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	13.4 mg/kg sediment dw
Limit value type:	Sediment (sea water) (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	1.34 mg/kg sediment dw
Limit value type:	Soil FORMIC ACID; CAS No.: 64-18-6)
Limit value:	1.5 mg/kg soil dw
Limit value type:	STP (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	7.2 mg/l
Limit value type:	Water (fresh water) (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	2 mg/l
Limit value type:	Water (sea water) (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	0.2 mg/l
Limit value type:	Water (intermittent release) (FORMIC ACID; CAS No.: 64-18-6)
Limit value:	1 mg/l

Exposure controls:

Personal protection equipment:

Eye/face protection: Wear appropriate personal eye protection depending on the work to be performed in accordance with EN166. Safety glasses with face shield.

Skin protection:

Hand protection: Wear appropriate chemical resistant gloves according EN 374 also with prolonged, direct contact (Recommended: Protective index 6).

Long-term exposure:

Breakthrough time: 480 min.

Thickness of the material: 0,7 mm

Short-term exposure:

Breakthrough time: 30 min Thickness of the material: 0,4 mm

Material: Butyl caoutchouc (butyl rubber). Neoprene

Body protection:

Wear chemical protective clothing (overalls with long sleeves, two-piece suit resistant to chemical splashes, or chemical resistant disposable coveralls) according to EN 465. Wear chemical resistant safety shoes according to EN 13832.

Respiratory protection:

Wear approved full face mask respirator in accordance with DIN EN 136/140. Filter type A: (Brown) Gases and vapours of organic compounds, boiling point > 65°C.

General health and safety measures: When using do not eat, drink, smoke, sniff.

Wash hands before breaks and after work.

Good ventilation of the workplace required.

Remove contaminated, saturated clothing immediately.

Wash clothing before re-using.

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Safety relevant basis data:

Physical state:	Liquid
Colour:	Colourless
Odour:	Pungent
Melting point/melting range:	8°C
Initial boiling point and boiling range:	100°C
Flash point:	42°C
pH:	Not determined
Flammability:	Not flammable.
Oxidising properties:	No information available.
Density: (20 °C)	No data available
Solubility in water:	Miscible
Viscosity: (25 °C)	1.607 mPas
Surface tension:	71.5 mN/m
Other information:	None

10. STABILITY AND REACTIVITY

Reactivity: No information available.

Chemical stability: Stable under recommended storage and handling conditions.

Possibility of hazardous reactions: Reacts violently with: Strong oxidizing agents.
Exothermic reaction with: Bases. Amines

Conditions to avoid: Heat. Temperature exceeding: 30°C

Incompatible materials: Strong acids.
Strong oxidizing agents.
Strong alkali.
Aluminium.
Copper.

Hazardous decomposition products: Thermal decomposition generates: Carbon oxides.

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11. TOXICOLOGICAL INFORMATION**Information on toxicological effects:****Acute effects:****Acute oral toxicity:**

Parameter: LD50 (FORMIC ACID; CAS No.: 64-18-6)
Exposure route: Oral
Species: Rat
Effective dose: 730 mg/kg
Harmful if swallowed.

Acute inhalation toxicity:

Parameter: LC50 (FORMIC ACID; CAS No.: 64-18-6)
Exposure route: Inhalation
Species: Rat
Effective dose: 7850 mg/m³

Irritant and corrosive effects:**Primary irritation to the skin:**

Parameter: Skin corrosion/irritation
Result: Causes severe burns

Irritation to eyes:

Parameter: Serious eye damage/irritation
Result: Causes serious eye damage

Irritation to respiratory tract:

Parameter: Irritation to respiratory tract
Result: Corrosive.

Sensitisation:**In case of skin contact:**

Parameter: Skin sensitisation
Result: Not sensitizing.

Repeated dose toxicity (subacute, subchronic, chronic): No information available.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

Carcinogenicity: Not carcinogenic.
Germ cell mutagenicity: Not mutagenetic.
Reproductive toxicity: No reproduction hazard.
STOT-single exposure: Not classified.
STOT-repeated exposure: Not classified.
Aspiration hazard: No information available.

12. ECOLOGICAL INFORMATION**Toxicity:****Aquatic toxicity:****Acute (short-term) fish toxicity:**

Parameter:	LC50
Effective dose:	130 mg/l
Exposure time:	96 h

Acute (short-term) daphnia toxicity:

Parameter:	EC50
Effective dose:	365 mg/l
Exposure time:	48 h

Acute (short-term) algae toxicity:

Parameter:	EC50
Effective dose:	1000 mg/l
Exposure time:	72 h

Persistence and degradability:**Biodegradation:**

Parameter:	Biodegradation
Evaluation:	Readily biodegradable (according to OECD criteria).

Bioaccumulative potential:

Parameter:	Bioconcentration factor (BCF)
Concentration:	3.2
Evaluation:	Low bioaccumulative potential.

Mobility in soil: No information available.

Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

Other adverse effects: No information available.

Additional ecotoxicological information: None.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose in a safe manner in accordance with local/national regulations.

Product/Packaging disposal:**Waste treatment options**

Appropriate disposal / Package: Empty containers should be taken for local recycling, recovery or waste disposal.

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14. TRANSPORT INFORMATION

UN number:

Land transport (ADR/RID): UN1779

Sea transport (IMDG): UN1779

UN proper shipping name:

Land transport (ADR/RID): UN1779 FORMIC ACID, 8 (3), II, (D/E)

Sea transport (IMDG): FORMIC ACID

Transport hazard class(es):

Land transport (ADR/RID):

Class(es): 8

Classification code: CF1

Hazard identification number (Kemler 8 No.):

Tunnel restriction code: D/E

Special provisions: LQ 1 I · E 2

Hazard label(s):



Sea transport (IMDG):

Class(es): 8

EmS-No.: F-A / S-B

Special provisions: LQ 1 I · E 0

Hazard label(s):



Packing group:

Land transport (ADR/RID): II

Sea transport (IMDG): II

Environmental hazards:

Land transport (ADR/RID): No

Sea transport (IMDG): No

Special precautions for user: None

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15. REGULATORY INFORMATION

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

Ensure all national/local regulations are observed.

National regulations:

Water hazard class (WGK): Class: 1 (Slightly hazardous to water) Classification according to AwSV

Chemical safety assessment: For this substance an Exposure Scenario has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Indication of changes: None

Abbreviations and acronyms: a.i. = Active ingredient

ACGIH = American Conference of Governmental Industrial Hygienists (US)

ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road

AFFF = Aqueous Film Forming Foam

AISE = International Association for Soaps, Detergents and Maintenance Products (joint project of AISE and CEFIC)

AOAC = AOAC International (formerly Association of Official Analytical Chemists)

aq. = Aqueous

ASTM = American Society of Testing and Materials (US)

atm = Atmosphere(s) B.V. = Beperkt Vennootschap (Limited)

BCF = Bioconcentration Factor

bp = Boiling point at stated pressure

bw = Body weight

ca = (Circa) about

CAS No = Chemical Abstracts Service Number (see ACS - American Chemical Society)

CEFIC = European Chemical Industry Council (established 1972)

CIPAC = Collaborative International Pesticides Analytical Council

CLP = REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

Conc = Concentration

cP = CentiPoise

cSt = Centistokes

d = Day(s)

DIN = Deutsches Institut für Normung e.V.

DNEL = Derived No-Effect Level

DT50 = Time for 50% loss; half-life

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EbC50 = Median effective concentration (biomass, e.g. of algae)

EC = European Community; European Commission

EC50 = Median effective concentration

EINECS = European Inventory of Existing Commercial Chemical Substances (EU, outdated, now replaced by EC Number)

ELINCS = European List of Notified (New) Chemicals (see Tab 7, Background - Guide)

ErC50 = Median effective concentration (growth rate, e.g. of algae)

EU = European Union

EWC = European Waste Catalogue

FAO = Food and Agriculture Organization (United Nations)

GIFAP = Groupement International des Associations Nationales de Fabricants de Produits Agrochimiques (now CropLife International)

h = Hour(s)

hPa = HectoPascal (unit of pressure)

IARC = International Agency for Research on Cancer

IATA = International Air Transport Association

IC50 = Concentration that produces 50% inhibition

IMDG Code = International Maritime Dangerous Goods Code

IMO = International Maritime Organization

ISO = International Organization for Standardization

IUCLID = International Uniform Chemical Information Database

IUPAC = International Union of Pure and Applied Chemistry

kg = Kilogram

Kow = Distribution coefficient between n-octanol and water

kPa = KiloPascal (unit of pressure)

LC50 = Concentration required to kill 50% of test organisms

LD50 = Dose required to kill 50% of test organisms

LEL = Lower Explosive Limit/Lower Explosion Limit

LOAEL = Lowest observed adverse effect level

mg = Milligram min = Minute(s)

ml = Milliliter

mmHg = Pressure equivalent to 1 mm of mercury (133.3 Pa)

mp = Melting point

MRL = Maximum Residue Limit

MSDS = Material Safety Data Sheet

n.o.s. = Not Otherwise Specified

NIOSH = National Institute for Occupational Safety and Health (US)

NOAEL = No Observed Adverse Effect Level

NOEC = No observed effect concentration

NOEL = No Observable Effect Level

NOx = Oxides of Nitrogen

OECD = Organization for Economic Cooperation and Development

OEL = Occupational Exposure Limits

Pa = Pascal (unit of pressure)

PBT = Persistent, Bioaccumulative or Toxic

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pH = $-\log_{10}$ hydrogen ion concentration

pKa = $-\log_{10}$ acid dissociation constant

PNEC = Previsible Non-Effect Concentration

POPs = Persistent Organic Pollutants

ppb = Parts per billion

PPE = Personal Protection Equipment

ppm = Parts per million

ppt = Parts per trillion

PVC = Polyvinyl Chloride

QSAR = Quantitative Structure-Activity Relationship

REACH = Registration, Evaluation and Authorization of Chemicals (EU, see NCP)

SI = International System of Units

STEL = Short-Term Exposure Limit

tech. = Technical grade

TSCA = Toxic Substances Control Act (US)

TWA = Time-Weighted Average

vPvB = Very Persistent and Very Bioaccumulative

WHO = World Health Organization = OMS

y = Year(s)

Key literature references and sources for data: None

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]:

No information available.

Relevant H- and EUH-phrases (Number and full text): H314 Causes severe skin burns and eye damage.

Training advice: None

Additional information: None

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.