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

Product identifier:

Product name: Formic Acid 40%

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

Identified uses: Metal Treatment. pH adjustment.

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 (EC 1272/2008):

Physical hazards: Not Classified

Health hazards: Acute Tox. 4 - H302 Acute Tox. 4 - H332 Skin Corr. 1B - H314 Eye Dam. 1 - H318

Environmental hazards: Not Classified

Label elements:

Pictogram:

Signal word: Danger

Hazard statements: H302+H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.

[cont…]

Precautionary statements: P260 Do not breathe vapour/ spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.

Supplemental label information: EUH071 Corrosive to the respiratory tract.

Contains: Formic acid … %

Supplementary precautionary statements:
P261 Avoid breathing vapour/ spray.
P264 Wash contaminated skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor if you feel unwell.
P321 Specific treatment (see medical advice on this label).
P363 Wash contaminated clothing before reuse.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards: This product does not contain any substances classified as PBT or vPvB.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:
Formic acid … %: 40-50%
CAS number: 64-18-6
EC number: 200-579-1
REACH registration number: 01-2119491174-37-XXXX

Classification: Acute Tox. 4 - H302
Acute Tox. 3 - H331
Skin Corr. 1A - H314
Eye Dam. 1 - H318

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

4. FIRST AID MEASURES

Description of first aid measures:
General information: Get medical attention if symptoms are severe or persist. Show this Safety Data Sheet to the medical personnel. [cont…]

Inhalation: Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place. Get medical attention.

Ingestion: Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. Get medical attention.

Skin contact: It is important to remove the substance from the skin immediately. Take off immediately all contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical burns must be treated by a physician.

Eye contact: Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes. Get medical attention immediately.

Protection of first aiders: First aid personnel should wear appropriate protective equipment during any rescue. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed:

Inhalation: Corrosive to the respiratory tract. Severe irritation of nose and throat.

Ingestion: Harmful if swallowed. May cause chemical burns in mouth, oesophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.

Skin contact: Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.

Eye contact: Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

Indication of any immediate medical attention and special treatment needed:

Notes for the doctor: Treat symptomatically. Keep affected person under observation.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: Extinguish with the following media: Alcohol-resistant foam. Carbon dioxide (CO_2). Dry chemicals. Water spray.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture:

Specific hazards: Severe corrosive hazard. Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

[cont…]

Hazardous combustion products: Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO2). Carbon monoxide (CO).

Advice for firefighters:

Protective actions during firefighting: Avoid breathing fire gases or vapours. Evacuate area. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. Avoid discharge to the aquatic environment. Control runoff water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters: Regular protection may not be safe. Wear chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal precautions: No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Avoid contact with skin, eyes and clothing. Wear protective clothing as described in Section 8 of this safety data sheet. Wash thoroughly after dealing with a spillage. Do not touch or walk into spilled material. Avoid inhalation of dust and vapours. Use suitable respiratory protection if ventilation is inadequate.

Environmental precautions: Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

Methods and material for containment and cleaning up:

Methods for cleaning up: Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. This product is corrosive. Provide adequate ventilation. Contain and absorb spillage with sand, earth or other non-combustible material. The contaminated absorbent may pose the same hazard as the spilled material. Place waste in labelled, sealed containers. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Flush contaminated area with plenty of water. The requirements of the local water authority must be complied with if contaminated water is flushed directly to the sewer.

Reference to other sections: For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

[cont…]

7. HANDLING AND STORAGE

Precautions for safe handling:

Usage precautions: Provide adequate ventilation. Mechanical ventilation or local exhaust ventilation may be required. Wear protective clothing as described in Section 8 of this safety data sheet. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Do not eat, drink or smoke when using this product. Provide eyewash station and safety shower.

Advice on general occupational hygiene: Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities:

Storage precautions: Store in accordance with local regulations. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Protect from sunlight. Protect containers from damage. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store away from the following materials: Strong acids. Oxidising agents. Alkalis. Copper. Aluminium. Keep away from food, drink and animal feeding stuffs.

Specific end use(s): The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Occupational exposure limits:

Formic acid … %:

Long-term exposure limit (8-hour TWA): WEL 5 ppm 9.6 mg/m³

WEL = Workplace Exposure Limit

Formic acid … %:

CAS: 64-18-6

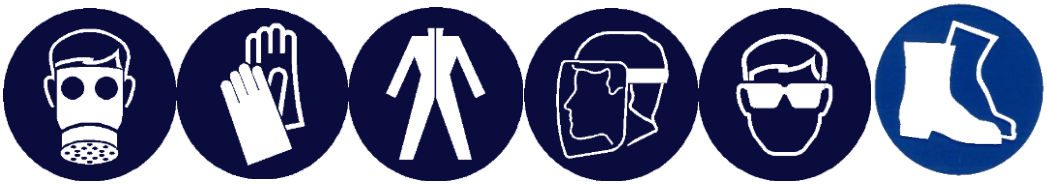
DNEL: Workers - Inhalation; Long term local effects: 9.5 mg/m³
Workers - Inhalation; Short term local effects: 19 mg/m³
General population - Inhalation; Long term local effects: 3 mg/m³
General population - Inhalation; Short term local effects: 9.5 mg/m³

PNEC: Fresh water; 2 mg/l
Marine water; 0.2 mg/l
Sediment (Freshwater); 13.4 mg/kg
Sediment (Marine water); 1.34 mg/kg
Soil; 1.5 mg/kg
STP; 7.2 mg/l
Intermittent release; 1 mg/l

[cont…]

Exposure controls:

Protective equipment:



Appropriate engineering controls: Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimise exposure.

Eye/face protection: Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection: Avoid contact with skin. Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures: Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

Respiratory protection: Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is ‘CE’-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140. Gas filter, type E.

Environmental exposure controls: Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Avoid discharge into drains or watercourses or onto the ground.

[cont…]

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Appearance:	Clear liquid.
Colour:	Colourless.
Odour:	Pungent.
pH:	pH (concentrated solution): <1
Melting point:	-9°C
Solubility(ies):	Completely soluble in water.
Other information:	

10. STABILITY AND REACTIVITY

Reactivity: See Section 10.3 (Possibility of hazardous reactions) for further information.

Chemical stability:

Stability: Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

Possibility of hazardous reactions: Reactions with the following materials may generate heat: Amines. Strong oxidising agents.

Conditions to avoid: Avoid heat.

Incompatible materials:

Materials to avoid: Amines. Strong oxidising agents. Alkalis. Copper. Aluminium.

Hazardous decomposition products: Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Corrosive gases or vapours. Carbon monoxide (CO).

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute toxicity – oral:

Notes (oral LD_{50}): Acute Tox. 4 - H302 Harmful if swallowed.

ATE oral (mg/kg): 1825.0

Acute toxicity – dermal:

Notes (dermal LD_{50}): Based on available data the classification criteria are not met.

Acute toxicity – inhalation:

Notes (inhalation LC_{50}): Acute Tox. 4 - H332 Harmful if inhaled.

ATE inhalation (vapours mg/l): 19.63

[cont…]

Skin corrosion/irritation:

Skin corrosion/irritation: Skin Corr. 1B - H314 Causes severe burns.

Serious eye damage/irritation:

Serious eye damage/irritation: Eye Dam. 1 - H318 Corrosive to skin. Corrosivity to eyes is assumed.

Toxicological information on ingredients:

Formic acid … %:

Acute toxicity – oral:

Acute toxicity oral (LD_{50} mg/kg): 730.0

Species: Rat

ATE oral (mg/kg): 730.0

Acute toxicity – dermal:

Notes (dermal LD_{50}): LD_{50} >2000 mg/kg, Dermal, Rat

Acute toxicity – inhalation:

Acute toxicity inhalation (LC_{50} vapours mg/l): 7.85

Species: Rat

ATE inhalation (vapours mg/l): 7.85

Skin corrosion/irritation:

Skin corrosion/irritation: Corrosive to skin.

Serious eye damage/irritation:

Serious eye damage/irritation: Causes serious eye damage.

Respiratory sensitisation:

Respiratory sensitisation: Data lacking.

Skin sensitisation:

Skin sensitisation: Not sensitising.

Germ cell mutagenicity:

Genotoxicity - in vitro: Negative.

Genotoxicity - in vivo: Negative.

Carcinogenicity:

Carcinogenicity: No evidence of carcinogenicity in animal studies. Read-across data.

Reproductive toxicity:

Reproductive toxicity – development: This substance has no evidence of toxicity to reproduction. Read-across data.

Specific target organ toxicity - single exposure:

STOT - single exposure: Conclusive data but not sufficient for classification.

[cont…]

Specific target organ toxicity - repeated exposure:

STOT - repeated exposure: NOAEL 142 mg/kg, Oral, Rat Read-across data.

12. ECOLOGICAL INFORMATION

Ecotoxicity: The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Toxicity: Based on available data the classification criteria are not met.

Ecological information on ingredients:

Formic acid … %:

Acute toxicity – fish: LC_{50}, 96 hour: 130 mg/l, Brachydanio rerio (Zebra Fish)

Acute toxicity – aquatic invertebrates: EC_{50}, 48 hour: 365 mg/l, Daphnia magna

Acute toxicity – aquatic plants: EC_{50}, 72 hour: 1240 mg/l, Pseudokirchneriella subcapitata

Chronic toxicity – aquatic invertebrates: NOEC, 21 days: 100 mg/l, Daphnia magna

Persistence and degradability:

Ecological information on ingredients:

Formic acid … %:

Persistence and degradability: The product is readily biodegradable.

Bioaccumulative potential:

Ecological information on ingredients:

Formic acid … %:

Bioaccumulative potential: The product is not bioaccumulating.

Partition coefficient: log Pow: -2.1

Mobility in soil:

Ecological information on ingredients:

Formic acid … %:

Mobility: The product is soluble in water.

Results of PBT and vPvB assessment:

Ecological information on ingredients:

Formic acid … %:

Results of PBT and vPvB assessment: This substance is not classified as PBT or vPvB according to current EU criteria.

Other adverse effects:

Ecological information on ingredients:

Formic acid … %:

Other adverse effects: Not known.

[cont…]

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

General information: The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods: Dispose of waste product or used containers in accordance with local regulations

14. TRANSPORT INFORMATION

UN number:

UN No. (ADR/RID): 3412

UN No. (IMDG): 3412

UN No. (ICAO): 3412

UN No. (ADN): 3412

UN proper shipping name:

Proper shipping name (ADR/RID): FORMIC ACID

Proper shipping name (IMDG): FORMIC ACID

Proper shipping name (ICAO): FORMIC ACID

Proper shipping name (ADN): FORMIC ACID

Transport hazard class(es):

ADR/RID class: 8

ADR/RID classification code: C3

ADR/RID label: 8

IMDG class: 8

ICAO class/division: 8

ADN class: 8

Transport labels:

Packing group:

ADR/RID packing group: II

IMDG packing group: II

ADN packing group: II

ICAO packing group: II

[cont…]

Environmental hazards:

Environmentally hazardous substance/marine pollutant: No.

Special precautions for user:

IMDG Code segregation group: 1. Acids

EmS: F-A, S-B

ADR transport category: 2

Emergency Action Code: •2W

Hazard Identification Number (ADR/RID): 80

Tunnel restriction code: (E)

Transport in bulk according to Annex II of MARPOL and the IBC Code:

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

15. REGULATORY INFORMATION

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

National regulations: Health and Safety at Work etc. Act 1974 (as amended).
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].
EH40/2005 Workplace exposure limits.

EU legislation: Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Chemical safety assessment: No chemical safety assessment 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

Abbreviations and acronyms used in the safety data sheet:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

[cont…]

RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
IATA: International Air Transport Association.
ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
CAS: Chemical Abstracts Service.
ATE: Acute Toxicity Estimate.
LC_{50}: Lethal Concentration to 50 % of a test population.
LD_{50}: Lethal Dose to 50% of a test population (Median Lethal Dose).
EC_{50}: 50% of maximal Effective Concentration.
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: Very Persistent and Very Bioaccumulative.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
DNEL: Derived No Effect Level.
PNEC: Predicted No Effect Concentration.
UN: United Nations.
IBC: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code).
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.

Classification abbreviations and acronyms:

Acute Tox. = Acute toxicity
Eye Dam. = Serious eye damage
Skin Corr. = Skin corrosion

Key literature references and sources for data:

Source: European Chemicals Agency, http://echa.europa.eu/

Classification procedures according to Regulation (EC) 1272/2008:

Acute Tox. 4 - H332: Acute Tox. 4 - H302: Eye Dam. 1 - H318: Skin Corr. 1B - H314: Calculation method.

Hazard statements in full:

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H331 Toxic if inhaled.
H332 Harmful if inhaled.

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.

[final page]