

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 Version 2 Revision Date 16.12.2018

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Formic acid

Product Number : 5315

Brand : Better Equipped

Index-No. : 607-001-00-0

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.

CAS-No. : 64-18-6

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : Not for sale to the general public

### 1.3 Details of the supplier of the safety data sheet

Company : Better Equipped,  
Wrenbury Business Park,  
Wrenbury Road,  
Wrenbury,  
Nantwich, Cheshire,  
CW5 8EB, UK

Telephone +44 (0) 800 9707142

Fax +44 (0) 800 066 4443

E-mail address [sales@betterequipped.co.uk](mailto:sales@betterequipped.co.uk)

### 1.4 Emergency telephone number

Emergency Phone # +44 (0)1270 781238

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Skin corrosion (Category 1B), H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

#### Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

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

Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.
Supplemental Hazard information (EU)	
EUH071	Corrosive to the respiratory tract.

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Formula	:	CH <sub>2</sub> O <sub>2</sub>
Molecular weight	:	46.03 g/mol

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
<b>Formic acid</b>		
CAS-No.	64-18-6	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1A; H226, H302, H331, H314 Concentration limits: >= 90 %: Skin Corr. 1A, H314; 10 - < 90 %: Skin Corr. 1B, H314; 2 - < 10 %: Skin Irrit. 2, H315; 2 - < 10 %: Eye Irrit. 2, H319; > 78.5 %: Acute Tox. 3, H331; 75 - 78.5 %: Acute Tox. 4, H332; > 75 %: , EUH071;
EC-No.	200-579-1	
Index-No.	607-001-00-0	
Registration number	01-2119491174-37-XXXX	
		>= 78.5 - < 90 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Water spray, alcohol resistant foam, dry powder or carbon dioxide. Use water spray to keep fire exposed containers cool.

**Unsuitable extinguishing media**

Do NOT use water jet.

**5.2 Special hazards arising from the substance or mixture**

Vapour air mixtures are explosive.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**- 6.1.1 For non-emergency personnel**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**- 6.1.2 For emergency responders**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**6.3 Methods and materials for containment and cleaning up**

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**6.4 Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

7.1.2 Advice on general occupational hygiene:

- No smoking.
- Do not eat or drink.
- Wash hands after use.
- Remove contaminated clothing.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	ValueForm of exposure	Control parameters	Basis
Formic acid	64-18-6	TWA	5 ppm 9 mg/m <sup>3</sup>	Europe. Indicative occupational exposure limit values
	Remarks	Indicative		
		TWA	5 ppm 9.6 mg/m <sup>3</sup>	UK. EH40 WEL - Workplace Exposure Limits
		Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used		

#### 8.1.2 Information on currently recommended monitoring procedures

For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)

#### 8.1.3 The relevant DNELs and PNECs for the substance/s for the exposure scenarios:

DNEL's. The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole.

#### Data for Workers

INHALATION Exposure	Threshold	Most sensitive study
<b>Systemic Effects</b>		
Long-term:	Other toxicological threshold	
Acute /short term:	Medium hazard (no threshold derived)	
<b>Local Effects</b>		

Long-term:	(DNEL) 9.5 mg/m <sup>3</sup>	irritation (respiratory tract)
Acute /short term:	Medium hazard (no threshold derived)	
DERMAL Exposure	Threshold	Most sensitive study
<b>Systemic Effects</b>		
Long-term:	High hazard (no threshold derived)	
Acute /short term:	High hazard (no threshold derived)	
<b>Local Effects</b>		
Long-term:	High hazard (no threshold derived)	
Acute /short term:	High hazard (no threshold derived)	
EYE Exposure		
High hazard (no threshold derived)		

#### Data for the General Population

INHALATION Exposure	Threshold	Most sensitive study
<b>Systemic Effects</b>		
Long-term:	Other toxicological threshold	
Acute /short term:	Medium hazard (no threshold derived)	
<b>Local Effects</b>		
Long-term:	(DNEL) 3 mg/m <sup>3</sup>	irritation (respiratory tract)
Acute /short term:	Medium hazard (no threshold derived)	
DERMAL Exposure	Threshold	Most sensitive study
<b>Systemic Effects</b>		
Long-term:	High hazard (no threshold derived)	
Acute /short term:	High hazard (no threshold derived)	

Local Effects		
Long-term:	High hazard (no threshold derived)	
Acute /short term:	High hazard (no threshold derived)	
ORAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	Low hazard (no threshold derived)	
Acute /short term:	Low hazard (no threshold derived)	
EYE Exposure		
High hazard (no threshold derived)		

PNEC's. The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole.

Hazard for Aquatic Organisms	
Freshwater	2 mg/L (1)
Intermittent releases (freshwater)	1 mg/L (1)
Marine water	200 µg/L (1)
Intermittent releases (marine water)	-
Sewage treatment plant (STP)	7.2 mg/L (1)
Sediment (freshwater)	13.4 mg/kg sediment dw (1)
Sediment (marine water)	1.34 mg/kg sediment dw (1)
Hazard for Air	
Air	No hazard identified (1)
Hazard for Terrestrial Organism	
Soil	1.5 mg/kg soil dw (1)
Hazard for Predators	
Secondary poisoning	No potential for bioaccumulation (1)

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Use Local exhaust ventilation (LEV).

## Personal protective equipment

### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M) Splash contact

Material: Nature latex/chloroprene Minimum layer thickness: 0.6 mm Break through time: 480 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M) cdata source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	2.2 at 2.2 g/l at 20 °C
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	100 °C
g)	Flash point	48 °C
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 57 %(V) Lower explosion limit: 18 %(V)
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available

o)	Partition coefficient: n- octanol/water	log Pow: -0.54
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

None based on the data available

#### Chemical stability

Stable under recommended storage conditions.

### 10.2 Possibility of hazardous reactions

None under normal processing

### 10.3 Conditions to avoid

Heat, flames and sparks.

### 10.4 Incompatible materials

Strong oxidizing agents, Strong bases, Powdered metals

### 10.5 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 730 mg/kg (Formic acid)  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - 4 h - 7.4 mg/l (Formic acid)

#### Skin corrosion/irritation

Skin - Rabbit (Formic acid)  
Result: Severe skin irritation  
(Draize Test)

#### Serious eye damage/eye irritation

Eyes - Rabbit (Formic acid)  
Result: Severe eye irritation

#### Respiratory or skin sensitisation

Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals. (Formic acid)

Buehler Test - Guinea pig (Formic acid)

Result: Did not cause sensitisation on laboratory animals.  
(OECD Test Guideline 406)

#### Germ cell mutagenicity

No data available (Formic acid)

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### Reproductive toxicity



No data available (Formic acid)

**Specific target organ toxicity - single exposure**

No data available (Formic acid)

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available (Formic acid)

**Additional Information**

RTECS: LQ4900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting (Formic acid)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Formic acid)

Kidney - Irregularities - Based on Human Evidence (Formic acid)

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**SECTION 12: Ecological information**

**12.1 Toxicity**

Toxicity to fish LC50 - Leuciscus idus (Golden orfe) - 46 - 100 mg/l - 96 h (Formic acid)

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 34.2 mg/l - 48 h (Formic acid)

Toxicity to bacteria EC50 - Pseudomonas putida - 46.7 mg/l - 17 h (Formic acid)

**12.2 Persistence and degradability**

Biodegradability Result: > 90 % - Readily biodegradable. (OECD Test Guideline 301C)

Biochemical Oxygen Demand (BOD) 86 mg/g (Formic acid)

Chemical Oxygen Demand (COD) 348 mg/g (Formic acid)

Ratio BOD/ThBOD 8.60 % (Formic acid)

**12.3 Bioaccumulative potential**

Bioaccumulation is unlikely.

**12.4 Mobility in soil**

No data available (Formic acid)

**12.5 Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6 Other adverse effects**

Harmful to aquatic life.

Additional ecological information No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. Unused product may be returned and reused, in addition to disposal.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 1779

IMDG: 1779

IATA: 1779

### 14.2 UN proper shipping name

ADR/RID: FORMIC ACID

IMDG: FORMIC ACID

IATA: Formic acid

### 14.3 Transport hazard class(es)

ADR/RID: 8 (3)

IMDG: 8 (3)

IATA: 8 (3)

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

No data available

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

N/A

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## SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

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## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3.

EUH071	Corrosive to the respiratory tract.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.

Revisions made since previous version of data sheet:

The following sections of this data sheet have been updated:

1.1, 1.2, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, 11, 12, 13, 14.7, 16

We strongly recommend reading the entire data sheet for this chemical in preparation ahead of use.

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Better Equipped and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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