

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 16-Dec-2022

Revision date 12-Sep-2024

Revision Number 2

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

1.1. Product identifier

Product Code(s)	45399
Safety data sheet number	45399
Product Name	FORMIC ACID 80 - <85% SOL
Index No	607-001-00-0
EC Number	200-579-1
CAS No	64-18-6
Synonyms	FORMIC ACID 80% SOL FR, FORMIC ACID 85% SOL FR, FORMIC ACID 85% SOL (<85%), FORMIC ACID 80% SOL BE, FORMIC ACID <85% SPECIAL GRADE
Pure substance/mixture	Substance

Contains FORMIC ACID ...%

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

Recommended use	Chemical Industrial application For further information, see attached Exposure Scenario
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1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Acute toxicity - Oral	Category 4 - (H302)
Acute toxicity - Inhalation (Vapours)	Category 3 - (H331)
Skin corrosion/irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)

2.2. Label elements

Contains FORMIC ACID ...%



Signal word

Danger

Hazard statements

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H331 - Toxic if inhaled

EUH071 - Corrosive to the respiratory tract

Precautionary statements

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

P280 - Wear protective gloves/protective clothing and eye/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

P310 - Immediately call a POISON CENTER or doctor

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Additional information

This product requires child resistant fastenings if supplied to the general public. This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
FORMIC ACID ...% 64-18-6	80 - <85%	200-579-1	-	Skin Corr. 1A (H314)	Eye Irrit. 2 :: 2%≤C<10% Skin Corr. 1A :: C≥90% Skin Corr. 1B :: 10%≤C<90% Skin Irrit. 2 :: 2%≤C<10%	-	-

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

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (UK REACH Article 59)

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

General advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention. Immediate medical attention is required. Inhale Corticosteroid dose aerosol.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention. Drink plenty of water.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not breathe vapour or mist. Use personal protective equipment as required. See section 8 for more information.

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

Symptoms	Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.
Inhalation	Coughing and/ or wheezing. Difficulty in breathing. Corrosive to the respiratory tract. Toxic if inhaled.
Eyes	Causes severe burns. May cause permanent damage if eye is not immediately irrigated.
Dermal	Causes severe burns.
Ingestion	Causes digestive tract burns Harmful if swallowed

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

Note to doctors	Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.
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SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable Extinguishing Media	Dry chemical, CO ₂ , alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours.

Hazardous combustion products Carbon oxides.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not breathe vapour or mist. Follow precautions for safe handling described in this safety data sheet. In case of inadequate ventilation wear respiratory protection.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up After cleaning, flush away traces with water. For waste disposal, see section 13.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Do not breathe vapour or mist. Ensure adequate ventilation. Ensure that eyewash stations and safety showers are close to the workstation location.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is

recommended. Wash hands before breaks and immediately after handling the product. Do not breathe vapour or mist. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Protect from moisture. Store locked up. Store away from other materials. Keep at temperatures between >0 and <30 °C. Reacts with alkalis. and. Amines.

7.3. Specific end use(s)

Specific use(s)

See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	United Kingdom
FORMIC ACID ...% 64-18-6	TWA: 5 ppm TWA: 9.6 mg/m ³ STEL: 15 ppm STEL: 28.8 mg/m ³

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
FORMIC ACID ...% 64-18-6			19 mg/m ³ [5] [7] 9.5 mg/m ³ [5] [6]

[5] Local health effects.
[6] Long term.
[7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
FORMIC ACID ...% 64-18-6			3 mg/m ³ [5] [6] 9.5 mg/m ³ [5] [6]

[5] Local health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
FORMIC ACID ...% 64-18-6	2.0 mg/l	1 mg/L	0.20 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
FORMIC ACID ...% 64-18-6	13.4 mg/kg sediment dw	1.34 mg/kg	7.2 mg/L	1.5 mg/kg	

8.2. Exposure controls

Engineering controls

Ensure adequate ventilation. Ensure that eyewash stations and safety showers are close to the workstation location. Use engineering controls to keep exposures below the OEL or DNEL.

Personal protective equipment

Eye/face protection

Tight sealing safety goggles. Face protection shield. Use eye protection according to EN 166.

Hand protection

Wear suitable gloves. Impervious gloves. Wear protective butyl rubber gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.

Skin and body protection

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection

Recommended filter type:

In case of inadequate ventilation wear respiratory protection.
Use respiratory equipment with combination filter, type B+E/P3. Respirator with ABEK filter.

General hygiene considerations

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Do not breathe vapour or mist. Remove contaminated clothing and protective equipment before entering eating areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Colour	Colourless to pale yellow
Odour	Pungent.
Odour threshold	No information available

Property	Values	Remarks • Method
Melting point / freezing point	-13 °C	
Initial boiling point and boiling range	107.3 °C	
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits	47.6%	
Lower flammability or explosive limits	14.9%	
Flash point	> 65 °C	
Autoignition temperature	500 °C	
Decomposition temperature		No information available.
pH	< 2	
pH (as aqueous solution)		No information available.
Kinematic viscosity		No information available.
Dynamic viscosity	1.4 mPa s @ 20°C	

Water solubility	Soluble in water	
Solubility(ies)		No information available.
Partition coefficient		No information available.
Vapour pressure	< 4.4 kPa	
Relative density	1.195 @ 20°C	
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	No information available	
Oxidising properties	No information available	

9.2. Other information**SECTION 10: Stability and reactivity****10.1. Reactivity**

Reactivity Reacts with alkalis. and. Amines.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Excessive heat. Keep at a temperature not exceeding 30 °C.

10.5. Incompatible materials

Incompatible materials Alkali. Amines.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon dioxide (CO₂). 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****Product Information****Inhalation**

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. Toxic by inhalation.

Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing. Difficulty in breathing.

Acute toxicity**Numerical measures of toxicity****Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
FORMIC ACID ...%	= 730 mg/kg (Rat)	-	= 7.85 mg/L (Rat) 4 h 74000 mg/m ³ air

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes severe skin burns and eye damage.

FORMIC ACID ...% (64-18-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal			Corrosive

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

FORMIC ACID ...% (64-18-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Corrosive

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

FORMIC ACID ...% (64-18-6)

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

Germ cell mutagenicity Based on available data the classification criteria are not met.

Component Information

FORMIC ACID ...% (64-18-6)

Method	Species	Results
OECD Test No. 471: Bacterial Reverse Mutation Test	Ames Test	Negative
OECD 477	in vivo	Based on available data the classification criteria are not met.

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity Based on available data the classification criteria are not met.

FORMIC ACID ...% (64-18-6)

Method	Species	Results
OECD Test No. 416: Two-Generation Reproduction Toxicity	Rat	Based on available data the classification criteria are not met.

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Component Information

FORMIC ACID ...% (64-18-6)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rat	Inhalation	0.122 mg/L		NOAEC

Aspiration hazard Not applicable.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Harmful to aquatic life with long lasting effects. Not considered to be harmful to aquatic life. Substantial amounts of the product may lead to a local change in acidity in small water systems which may have adverse effects on aquatic organisms.

FORMIC ACID ...% (64-18-6)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
OECD Test No. 203: Fish, Acute Toxicity Test	Brachydanio rerio	LC50	130 mg/L	96 hours	
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	EC50	365 mg/L	48 hours	
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Selenastrum capricornutum	EC50	1240 mg/L	72 hours	
	Leuciscus idus	LC50	122 mg/L	96 hours	
	Daphnia magna	EC50	85 mg/L	48 hours	
	Scenedesmus subspicatus	EbC50	25 mg/L	96 hours	
OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)	activated sludge	EC50	1000 mg/L	30 minutes	
	Daphnia magna	NOEC	>100 mg/L	21 days	
	Leuciscus idus	LC50	68 mg/L	96 hours	
	Daphnia magna	EC50	32.19 mg/L	48 hours	
	Scenedesmus	EC50	32.64 mg/L	72 hours	

	subspicatus				
	activated sludge	EC10	72 mg/L	13 days	

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

FORMIC ACID ...% (64-18-6)

Method	Exposure time	Value	Results
	11 days	100% Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Component Information

Chemical name	Partition coefficient
FORMIC ACID ...%	-1.9

12.4. Mobility in soil

Mobility in soil Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
FORMIC ACID ...%	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Waste from residues/unused products Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information**IATA**

14.1 UN number or ID number	UN3412
14.2 UN proper shipping name	FORMIC ACID SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
ERG Code	8L

IMDG

14.1 UN number or ID number	UN3412
UN proper shipping name	FORMIC ACID SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	II

14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
EmS-No	F-A, S-B
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	UN3412
14.2 UN proper shipping name	FORMIC ACID SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
Classification code	C3

ADR

14.1 UN number or ID number	UN3412
14.2 UN proper shipping name	FORMIC ACID SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
Classification code	C3
Tunnel restriction code	(E)

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

Product restricted per REACH Annex XVII: 3

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
FORMIC ACID ...% - 64-18-6	75	-

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Dangerous substance category per COMAH Regulations 2015 (as amended)

H2 - ACUTE TOXIC

Named dangerous substances per COMAH Regulations 2015 (as amended)

Not applicable

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Chemical name	The Biocidal Products Regulations 2001 (as amended)
FORMIC ACID ...% - 64-18-6	Product-type 2: Disinfectants and algacides not intended for direct application to humans or animals Product-type 3: Veterinary hygiene Product-type 4: Food and feed area

	Product-type 5: Drinking water Product-type 6: Preservatives for products during storage
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The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Chemical name	Poisons and Explosive Precursors
FORMIC ACID ...%	Poison, Reportable 25 % w/w

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AIIC	- Australian Inventory of Industrial Chemicals
NZIoC	- New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No information available

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**

H314 - Causes severe skin burns and eye damage

Legend

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note **SDS sections updated 1 3 4 5 6 7 8 9 10 11 12****Classification procedure**

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method

Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGl(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By Amy Whitfield

Supersedes date 16-Dec-2022

Revision date 12-Sep-2024

**This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name Formic acid
REACH registration number 01-2119491174-37-XXXX
CAS No 64-18-6
EC No (EU Index No) 200-579-1
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Distribution of substance
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC15 - Use as laboratory reagent

Product Name Formic acid
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and	Use suitable eye protection and gloves

health evaluation	
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method

ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508

PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203
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Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Formulation & (re)packing of substances and mixtures
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures)
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	80%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8a - Transfer of substance or	Worker - inhalative, long-term	7.717 mg/m ³	0.812

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	- local		
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	2.894 mg/m ³	0.305
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use as an intermediate
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15 - Use as laboratory reagent
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide extract ventilation to points where emissions occur

control dispersion from source towards the worker	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves If above technical/organizational control measures are not feasible, then adopt following PPE Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method

ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in coatings (Industrial)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC7 - Industrial spraying PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid

Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	30%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1500 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent	Assumes a good basic standard of occupational hygiene is implemented

/limit releases, dispersion and exposure	
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	0.019 mg/m ³	0.002
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	3.858 mg/m ³	0.406

PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC7 - Industrial spraying	Worker - inhalative, long-term - local	7.234 mg/m ³	0.762
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	2.894 mg/m ³	0.305
PROC10 - Roller application or brushing	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in Cleaning Agents (Industrial)
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC7 - Industrial spraying PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC19 - Hand-mixing with intimate contact and only PPE available
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid

Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	30%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1500 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1980 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC7 - Industrial spraying	Worker - inhalative, long-term - local	7.234 mg/m ³	0.762
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC10 - Roller application or	Worker - inhalative, long-term	4.823 mg/m ³	0.508

brushing	- local		
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in Cleaning Agents (Professional)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC19 - Hand-mixing with intimate contact and only PPE available
Product Name	Formic acid
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	80%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	15%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1500 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	50%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1980 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	50%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1980 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
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PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC10 - Roller application or brushing	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC11 - Non industrial spraying	Worker - inhalative, long-term - local	7.234 mg/m ³	0.762
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in cleaning agents
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Product category(ies)	PC35 - Washing and cleaning products (including solvent based products)
Product Name	Formic acid
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of consumer exposure

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	2%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Amounts used	Amount per use 0.025 kg
Exposure duration	20 minutes
Risk management measures	Covers use under typical household ventilation. Ensure that direct skin contact is avoided
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Use in room with a volume of minimum	58 m ³
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - local	0.6 mg/m ³	0.06
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, short-term - local	3.7 mg/m ³	0.195

Section 4 - Guidance to check compliance with the exposure scenario

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Laboratory activities
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process category(ies)	PROC15 - Use as laboratory reagent
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	1.929 mg/m ³	0.203

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Laboratory activities
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	PROC15 - Use as laboratory reagent
Product Name	Formic acid
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	240 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	3.858 mg/m ³	0.406

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Polymer production
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC6c - Industrial use of monomers for manufacture of thermoplastics
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU12 - Manufacture of plastics products, including compounding and conversion

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6c - Industrial use of monomers for manufacture of thermoplastics

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6c - Industrial use of monomers for manufacture of thermoplastics

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508

dedicated facilities			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - local	4.823 mg/m ³	0.508

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Polymer production
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure
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	PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line,
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	including weighing) PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	80%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC5 - Mixing or blending in batch processes for formulation of	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812

preparations and articles (multi-stage and/or significant contact)			
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	2.894 mg/m ³	0.305
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in process chemicals
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6b - Industrial use of reactive processing aids
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC6 - Calendaring operations PROC7 - Industrial spraying PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Product Name	Formic acid
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU5 - Manufacture of textiles, leather, fur SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
 - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
 - ERC5 - Industrial use resulting in inclusion into or onto a matrix
 - ERC6b - Industrial use of reactive processing aids

Remarks	As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.
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Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20'C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently
Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC6 - Calendaring operations PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20'C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently
Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	30%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20'C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Efficiency of at least 95% Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to	Use suitable eye protection and gloves

personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1500 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Efficiency of at least 90% Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Efficiency of at least 90% Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1980 cm2
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

- ERC5 - Industrial use resulting in inclusion into or onto a matrix

- ERC6b - Industrial use of reactive processing aids

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	4.822 mg/m ³	0.508
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC6 - Calendaring operations	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC7 - Industrial spraying	Worker - inhalative, long-term - local	7.234 mg/m ³	0.762
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC10 - Roller application or brushing	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in process chemicals
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d - Wide dispersive outdoor use of processing aids in open systems ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Product Name	Formic acid
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
 - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Remarks	As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.
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Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 80% Handle substance within a closed system
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 80% Handle substance within a closed system
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 80% Handle substance within a closed system
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor

Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently
Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	20%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	80%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	20%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	80%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur Efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves Wear a respirator providing a minimum efficiency of 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1500 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	20%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	960 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	20%
Physical form of product	Liquid

Vapour pressure	42.7 hPa @ 20°C
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Covers skin contact area up to	1980 cm ²
Indoor/Outdoor use	Indoor
Operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated differently

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8d - Wide dispersive outdoor use of processing aids in open systems
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
- ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
Freshwater sediment	13.4 mg/l
Marine water	0.2 mg/l
Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method ECETOC TRA v2.0 Worker; modified version

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC8a - Transfer of substance or	Worker - inhalative, long-term	7.717 mg/m ³	0.812

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	- local		
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC10 - Roller application or brushing	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC11 - Non industrial spraying	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local	7.717 mg/m ³	0.812

Section 4 - Guidance to check compliance with the exposure scenario

For scaling see. <http://www.ecetoc.org/tra>.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Product Name	Formic acid
REACH registration number	01-2119491174-37-XXXX
CAS No	64-18-6
EC No (EU Index No)	200-579-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use in process chemicals
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d - Wide dispersive outdoor use of processing aids in open systems ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release ERC11a - Wide dispersive indoor use of long-life articles and materials with low release
Product category(ies)	PC23 - Leather tanning, dye, finishing, impregnation and care products PC32 - Polymer preparations and compounds PC34 - Textile dyes, finishing and impregnating products
Product Name	Formic acid
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
 - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations
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Control of consumer exposure

Product categories [PC]	PC23 - Leather tanning, dye, finishing, impregnation and care products PC34 - Textile dyes, finishing and impregnating products
Covers concentrations up to	2%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Amounts used	Amount per use 0.045 kg

Exposure duration	3 minutes
Use frequency	Covers use up to 4 hours
Exposure route	Inhalation exposure
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Use in room with a volume of minimum	58 m ³
Operational conditions	Covers use at ambient temperatures

Product categories [PC]	PC32 - Polymer preparations and compounds
Covers concentrations up to	2%
Physical form of product	Liquid
Vapour pressure	42.7 hPa @ 20°C
Amounts used	Amount per use 0.025 kg
Exposure duration	20 minutes
Use frequency	Covers use up to 4 hours
Exposure route	Dermal Inhalation exposure
Risk management measures	Covers use under typical household ventilation.
Covers skin contact area up to	480 cm ²
Indoor/Outdoor use	Indoor
Use in room with a volume of minimum	58 m ³
Operational conditions	Covers use at ambient temperatures

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix
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- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix
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- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

Predicted No Effect Concentration (PNEC)

Freshwater	2 mg/l
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Marine sediment	1.34 mg/kg
Soil	1.5 mg/kg
Impact on Sewage Treatment	7.2 mg/l
Intermittent release	1 mg/l

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - local	9.5 mg/m ³
Worker - inhalative, short-term - local	19 mg/m ³

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - inhalative, long-term - local	0.004 mg/m ³	0.0004
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - inhalative, short-term - local	0.09 mg/m ³	0.005
PC32 - Polymer preparations and compounds	Consumer - inhalative, long-term - local	0.6 mg/m ³	0.06
PC32 - Polymer preparations and	Consumer - inhalative,	3.7 mg/m ³	0.195

compounds	short-term - local		
PC34 - Textile dyes, finishing and impregnating products	Consumer - inhalative, long-term - local	0.004 mg/m ³	0.0004
PC34 - Textile dyes, finishing and impregnating products	Consumer - inhalative, short-term - local	0.09 mg/m ³	0.005

Section 4 - Guidance to check compliance with the exposure scenario