

F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Formic acid

Number : 000000020237

Product Use Description : Laboratory chemicals



Manufacturer or supplier's details : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
+1-231-726-3171

(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : colourless

Odor : stinging

Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 3
Acute toxicity, Category 4, Oral
Acute toxicity, Category 3, Inhalation
Skin corrosion, Category 1A
Serious eye damage, Category 1

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GHS Label elements, including precautionary statements

Symbol(s)



Signal word

: Danger

Hazard statements

: Flammable liquid and vapour.
Harmful if swallowed.
Causes severe skin burns and eye damage.
Toxic if inhaled.

Precautionary statements

: **Prevention:**
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.**Response:**IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Wash contaminated clothing before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.**Storage:**Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.

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Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
Formic acid	64-18-6	>=90.00 - <=100.00 %

SECTION 4. FIRST AID MEASURES

- General advice : First aider needs to protect himself. Immediately take off contaminated clothing and rinse body with plenty of water.
- Inhalation : If inhaled, remove to fresh air. Call a physician immediately.
- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off immediately all contaminated clothing. Call a physician immediately.
- Eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Protect unharmed eye.
- Ingestion : Rinse mouth with water. Do NOT induce vomiting. Call a physician immediately.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder

SAFETY DATA SHEET



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- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during firefighting : Fire may cause evolution of:
Carbon monoxide
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.
- Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Evacuate personnel to safe areas.
Wear personal protective equipment. Unprotected persons must be kept away.
Remove all sources of ignition.
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
- Methods for cleaning up : Soak up with inert absorbent material.
Sweep up and shovel into suitable containers for disposal.
Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus.

SECTION 7. HANDLING AND STORAGE

Handling

- Handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Use only acid resistant equipment.
- Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking.
Take measures to prevent the build up of electrostatic charge.
Use explosion-proof equipment.
Vapours may form explosive mixtures with air.

Storage

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Version 1.0

Revision Date 07/13/2017

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Requirements for storage areas and containers : Store in original container.
Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.
Do not breathe vapours or spray mist.
Do not get in eyes, on skin, or on clothing.

Engineering measures : Use with local exhaust ventilation.

Eye protection : Wear as appropriate:
Goggles or face shield, giving complete protection to eyes

Hand protection : Imperious gloves
Gloves must be inspected prior to use.
Replace when worn.

Skin and body protection : acid-proof protective clothing

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Hygiene measures : Separate rooms are required for washing, showering and changing clothes.
Keep working clothes separately.
Take off all contaminated clothing immediately.
Remove and wash contaminated clothing before re-use.
Wash hands before breaks and at the end of workday.
When using do not eat or drink.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Formic acid	64-18-6	STEL : Short term exposure limit	19 mg/m ³ (10 ppm)	10 2006	CAD AB OEL:Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

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Version 1.0

Revision Date 07/13/2017

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Formic acid	64-18-6	TWA : Time weighted average	9.4 mg/m ³ (5 ppm)	10 2006	CAD AB OEL:Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)
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Formic acid	64-18-6	TWA : Time weighted average	(5 ppm)	07 2007	CAD BC OEL:Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)
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Formic acid	64-18-6	STEL : Short term exposure limit	(10 ppm)	07 2007	CAD BC OEL:Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)
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Formic acid	64-18-6	STEL : Short term exposure limit	(10 ppm)	03 2011	CAD MB OEL:Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)
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SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

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Version 1.0

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Formic acid	64-18-6	TWA : Time weighted average	(5 ppm)	03 2011	CAD MB OEL:Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)
-------------	---------	--------------------------------------	---------	------------	---

Formic acid	64-18-6	TWA : Time weighted average	(5 ppm)	12 2007	CAD ON OEL:Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)
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Formic acid	64-18-6	STEL : Short Term Exposure Limit (STEL):	(10 ppm)	12 2007	CAD ON OEL:Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)
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Formic acid	64-18-6	8 HR ACL : 8 hour average contamin ation limit:	(5 ppm)	05 2009	CAD SK OEL:Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)
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Formic acid	64-18-6	15 MIN ACL : 15 minute average contamin ation limit:	(10 ppm)	05 2009	CAD SK OEL:Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)
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SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

Formic acid	64-18-6	TWA : Time weighted average	9.4 mg/m ³ (5 ppm)	12 2008	OEL (QUE):Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)
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Formic acid	64-18-6	STEL : Short term exposure limit	19 mg/m ³ (10 ppm)	12 2008	OEL (QUE):Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Color	: colourless
Odor	: stinging
pH	: Note: acidic
Melting point/range	: 4 °C Method: OECD Test Guideline 102
Boiling point/boiling range	: ca. 100.4 °C at 1,013 hPa Method: OECD Test Guideline 103
Flash point	: 121.1 °F (49.5 °C)
Lower explosion limit	: 12 %(V) at 42 °C
Upper explosion limit	: 38 %(V) Note: no data available

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Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

Vapor pressure : 42 hPa
at 20 °C(68 °F)Method: OECD 104

Density : 1.22 g/cm³ at 20 °C
Method: OECD Test Guideline 109

Water solubility : Note: soluble

Auto-ignition temperature : 528 °C

Decomposition temperature : 350 °C
Note: Decomposition temperature

Viscosity, dynamic : 1.72 mPa.s at 20 °C

Viscosity, kinematic : 1.41 mm²/s at 20 °C

Molecular weight : 46.03 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Heating can release hazardous gases.
Hazardous polymerization does not occur.

Conditions to avoid : Keep away from heat and sources of ignition.

Incompatible materials to avoid : Alkalis
Amines
Strong oxidizing agents

Hazardous decomposition products : Carbon monoxide

F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

SECTION 11. TOXICOLOGICAL INFORMATION

- Acute oral toxicity : LD50: 730 mg/kg
Species: Rat
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC50: 7.85 mg/l , vapour
Exposure time: 4 h
Species: Rat
Method: OECD Test Guideline 403
- Acute dermal toxicity : Note: no data available
- Skin irritation : Species: Rabbit
Result: Causes severe burns.
Classification: Corrosive
Method: OECD
- Eye irritation : Species: Rabbit
Result: Risk of serious damage to eyes.
Method: OECD Test Guideline 405
- Sensitisation : Buehler Test
Species: Guinea pig
Classification: non-sensitizing
- Genotoxicity in vitro : Test Method: sister chromatid exchange assay
Cell type: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 479
- : Test Method: Ames test
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 471
- : Test Method: In vitro gene mutation study in mammalian cells
Cell type: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

	Method: OECD Test Guideline 476
Genotoxicity in vivo	: Species: Drosophila melanogaster (vinegar fly) Method: OECD Test Guideline 477 Result: negative
Carcinogenicity	: Species: Rat Test substance: REACH dossier "read-across" Note: Animal testing did not show any carcinogenic effects.
Reproductive toxicity	: Test Method: Two-generation study Species: Rat Application Route: Oral NOAEL: 1,000 mg/kg bw/d NOAEL: 1,000 mg/kg bw/d Note: REACH dossier "read-across"
Teratogenicity	: Species: Rabbit Application Route: Oral NOAEL: 1,000 mg/kg bw/d NOAEL: 1,000 mg/kg bw/d No observed adverse effect level: 1,000 mg/kg bw/d Method: OECD Test Guideline 414 Note: REACH dossier "read-across"

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish	: static test LC50: 130 mg/l Exposure time: 96 h Species: Danio rerio (zebra fish) Test substance: REACH dossier "read-across" Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: Immobilization EC50: 365 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test substance: REACH dossier "read-across"

F94318 Formic acid ~98% f. MS ,050LFL

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Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

Method: OECD Test Guideline 202

Toxicity to algae : Growth rate
EC50: 1,240 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Test substance: REACH dossier "read-across"
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : semi-static test
NOEC: >= 100 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: anhydrous substance
Method: OECD Test Guideline 211

Elimination information (persistence and degradability)

Bioaccumulation : Note: Bioaccumulation is unlikely.

Biodegradability : Result: Readily biodegradable
Value: 100 %
Method: OECD 301 E

Further information on ecology**Ecotoxicology Assessment**

Results of PBT assessment

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

TDG UN/ID No. : UN 1779
Proper shipping name : Formic acid

SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

000000020237

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Revision Date 07/13/2017

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Class : 8
Packing group : II
Hazard Labels : 8 (3)

IATA UN/ID No. : UN 1779
Description of the goods : Formic acid
Class : 8
Packaging group : II
Hazard Labels : 8 (3)
Packing instruction (cargo aircraft) : 855
Packing instruction (passenger aircraft) : 851
Packing instruction (passenger aircraft) : Y840

IMDG UN/ID No. : UN 1779
Description of the goods : Formic acid
Class : 8
Packaging group : II
Hazard Labels : 8 (3)
EmS Number : F-E, S-C
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous : On the inventory, or in compliance with the inventory

SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

Revision Date 07/13/2017

Print Date 07/26/2018

and Nuclear Waste Control Act

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

Reportable quantity: 5000 lbs
: Formic acid 64-18-6

WHMIS Components : Formic acid 64-18-6

NPRI Components : Formic acid 64-18-6

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 3	3
Flammability	: 2	2
Physical Hazard	: 0	
Instability	:	0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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

SAFETY DATA SHEET



F94318 Formic acid ~98% f. MS ,050LFL

000000020237

Version 1.0

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materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group