

0.1% Formic Acid in Methanol**LC445-2.5**

Version 2.1

Revision Date 08/21/2018

Print Date 06/28/2019

SECTION 1. IDENTIFICATION

Product name : 0.1% Formic Acid in Methanol

Number : 00000013137

Product Use Description : Solvent

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, clear

Color : colourless

Odor : alcohol-like

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Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 2
Specific target organ toxicity - single exposure, Category 1,
Eyes, Nervous system, Systemic toxicity

GHS Label elements, including precautionary statements

Symbol(s)



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.
Causes damage to organs.

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.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF exposed: Call a POISON CENTER or doctor/ physician.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

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Storage:

Store in a well-ventilated place. Keep cool.
Store locked up.

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 : Mixture

Chemical name	CAS-No.	Concentration
Methanol	67-56-1	99.90 %
Formic acid	64-18-6	0.10 %

SECTION 4. FIRST AID MEASURES

- Inhalation : Call a physician immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present.
- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids,

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for at least 15 minutes. Call a physician.

Ingestion : Call a physician immediately. Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person.

Notes to physician

Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : Flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
Formaldehyde

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.
- Methods and materials for containment and cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

- Precautions for safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
- Advice on protection against : Keep away from fire, sparks and heated surfaces.

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fire and explosion

Take precautionary measures against static discharges.
 Ensure all equipment is electrically grounded before beginning transfer operations.
 Use explosion-proof equipment.
 Keep product and empty container away from heat and sources of ignition.
 No sparking tools should be used.
 No smoking.

Storage

Conditions for safe storage, including any incompatibilities : Store in area designed for storage of flammable liquids. Protect from physical damage.
 Keep containers tightly closed in a dry, cool and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Keep away from heat and sources of ignition.
 Keep away from direct sunlight.
 Store away from incompatible substances.
 Container hazardous when empty.
 Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : Use with local exhaust ventilation.
 Prevent vapour buildup by providing adequate ventilation during and after use.

Eye protection : Do not wear contact lenses.
 Wear as appropriate:
 Safety glasses with side-shields
 If splashes are likely to occur, wear:
 Goggles or face shield, giving complete protection to eyes

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- Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.
- Skin and body protection : Wear as appropriate:
Solvent-resistant apron
Flame retardant antistatic protective clothing.
If splashes are likely to occur, wear:
Protective suit
- Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection.
- Hygiene measures : When using, do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
This material has an established AIHA ERPG exposure limit.
The current list of ERPG exposure limits can be found at http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/2011erpgweelhandbook_table-only.pdf.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Methanol	67-56-1	SKIN_DES : Skin designation:	Can be absorbed through the skin.	2008	ACGIH:US. ACGIH Threshold Limit Values
Methanol	67-56-1	STEL : Short term exposure limit	(250 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values

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Methanol	67-56-1	TWA : Time weighted average	(200 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Methanol	67-56-1	STEL : Short term exposure limit	325 mg/m3 (250 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Methanol	67-56-1	SKIN_DE S : Skin designati on:	Can be absorbed through the skin.	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Methanol	67-56-1	REL : Recomm ended exposure limit (REL):	260 mg/m3 (200 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Methanol	67-56-1	PEL : Permissi ble exposure limit	260 mg/m3 (200 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Methanol	67-56-1	SKIN_FI NAL : Skin designati on (Final Rule Limit Limit applies):	Can be absorbed through the skin.	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

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Methanol	67-56-1	STEL : Short term exposure limit	325 mg/m ³ (250 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Methanol	67-56-1	TWA : Time weighted average	260 mg/m ³ (200 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Formic acid	64-18-6	TWA : Time weighted average	(5 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Formic acid	64-18-6	STEL : Short term exposure limit	(10 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Formic acid	64-18-6	REL : Recomm ended exposure limit (REL):	9 mg/m ³ (5 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Formic acid	64-18-6	PEL : Permissi ble exposure limit	9 mg/m ³ (5 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Formic acid	64-18-6	TWA : Time weighted average	9 mg/m ³ (5 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid, clear
Color	: colourless
Odor	: alcohol-like
Odor threshold	: Note: no data available
pH	: Note: not determined
Melting point/range	: -97.68 °C Note: The physical data is that of the main component.
Boiling point/boiling range	: 64.7 °C Note: The physical data is that of the main component.
Flash point	: 52 °F (11 °C) Method: closed cup
Evaporation rate	: ca. 5 Method: Compared to Butyl acetate.
Lower explosion limit	: 6 %(V) Note: The physical data is that of the main component.
Upper explosion limit	: 36 %(V) Note: The physical data is that of the main component.
Vapor pressure	: 129.32 hPa at 20 °C(68 °F)Note: The physical data is that of the main component.

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Vapor density	:	1.11 Note: (Air = 1.0), The physical data is that of the main component.
Density	:	0.792 g/cm ³ at 20 °C Note: The physical data is that of the main component.
Water solubility	:	Note: completely soluble
Partition coefficient: n-octanol/water	:	Note: no data available
Ignition temperature	:	464 °C Method: The physical data is that of the main component.
Viscosity, dynamic	:	Note: no data available
Viscosity, kinematic	:	Note: no data available

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials	:	Strong oxidizing agents Aluminium Magnesium May attack many plastics, rubbers and coatings.

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Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Methanol

: LD50: 5,628 mg/kg
Species: Rat

Formic acid

: LD50: 730 mg/kg
Species: Rat
Method: OECD Test Guideline 401

Acute inhalation toxicity

: Acute toxicity estimate: > 40 mg/l , vapour
Exposure time: 4 h
Method: Calculation method

Acute dermal toxicity

Methanol

: LD50: 15,800 mg/kg
Species: Rabbit

Formic acid

: Note: no data available

Skin irritation

Methanol

: Species: Rabbit
Classification: irritating
Exposure time: 24 h

Formic acid

: Species: Rabbit
Result: Causes severe burns.

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Classification: Corrosive
Method: OECDEye irritation
Methanol: Species: rabbit eye
Classification: irritating

Formic acid

: Species: Rabbit
Result: Risk of serious damage to eyes.
Method: OECD Test Guideline 405Sensitisation
Formic acid: Buehler Test
Species: Guinea pig
Classification: non-sensitizingRepeated dose toxicity
Methanol: Species: Rat
Application Route: Inhalation
Test substance: Methanol
Developmental Toxicity
NOAEL (maternal toxicity)
10,000 ppm
NOAEL (developmental toxicity)
5,000 ppm
Skeletal and visceral malformations.Genotoxicity in vitro
Methanol

: Note: In vitro tests did not show mutagenic effects

Formic acid

: 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

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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
Method: OECD Test Guideline 476

Genotoxicity in vivo
Methanol : Note: In vivo tests did not show mutagenic effects

Formic acid : Species: *Drosophila melanogaster* (vinegar fly)
Method: OECD Test Guideline 477
Result: negative

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish
Methanol : LC50: 29,400 mg/l
Exposure time: 96 h
Species: *Pimephales promelas* (fathead minnow)

Formic acid : 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
Methanol : LC50: 10,000 mg/l
Exposure time: 24 h
Species: *Daphnia* (water flea)

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Formic acid : Immobilization
EC50: 365 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test substance: REACH dossier "read-across"
Method: OECD Test Guideline 202

Toxicity to algae
Formic acid : 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 bacteria
Methanol : EC50: 43,000 mg/l
Exposure time: 5 min
Species: Photobacterium phosphoreum

EC50: 40,000 mg/l
Exposure time: 15 min
Species: Photobacterium phosphoreum

EC50: 39,000 mg/l
Exposure time: 25 min
Species: Photobacterium phosphoreum

Further information on ecology

Additional ecological information : Accumulation in aquatic organisms is unlikely.
The product is readily degradable in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

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

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SECTION 14. TRANSPORT INFORMATION

DOT

UN/ID No.	: UN 1230
Proper shipping name	: METHANOL SOLUTION
Class	: 3
Packing group	: II
Hazard Labels	: 3

IATA

UN/ID No.	: UN 1230
Description of the goods	: METHANOL SOLUTION
Class	: 3
Packaging group	: II
Hazard Labels	: 3 (6.1)
Packing instruction (cargo aircraft)	: 364
Packing instruction (passenger aircraft)	: 352
Packing instruction (passenger aircraft)	: Y341

IMDG

UN/ID No.	: UN 1230
Description of the goods	: METHANOL SOLUTION
Class	: 3
Packaging group	: II
Hazard Labels	: 3 (6.1)
EmS Number	: F-E, S-D
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

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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 and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

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
: Methanol 67-56-1

SARA 302 Components : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
: Methanol 67-56-1

SARA 311/312 Hazards : Fire Hazard

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Acute Health Hazard
Chronic Health Hazard

CERCLA Reportable Quantity : 5005 lbs

California Prop. 65 :



WARNING: This product can expose you to chemicals, listed below, known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Methanol 67-56-1

Massachusetts RTK : Methanol 67-56-1
: Formic acid 64-18-6

New Jersey RTK : Methanol 67-56-1
: Formic acid 64-18-6

Pennsylvania RTK : Methanol 67-56-1
: Formic acid 64-18-6

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	1
Flammability	: 3	3
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

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

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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. 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.

Previous Issue Date: 02/08/2017

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group