

LC441-1 0.1% FORMIC ACID IN ACETONITRILE

000000011214

Version 1.5

Revision Date 07/23/2014

Print Date 02/25/2016

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 0.1% Formic Acid in Acetonitrile

MSDS Number : 000000011214

Product Use Description : Laboratory Use

Manufacturer or supplier's details : Honeywell International Inc.
115 Tabor Road
Morris Plains, NJ 07950-2546

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 : sweet ether-like

Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 2
Eye irritation, Category 2A
Specific target organ toxicity - single exposure, Category 1,
Central nervous system, Respiratory system
Specific target organ toxicity - repeated exposure, Category 2,
Central nervous system, Respiratory system, Kidney, Blood,

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Liver

GHS Label elements, including precautionary statements

Symbol(s)

:



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.
Causes serious eye irritation.
Causes damage to organs.
May cause damage to organs through prolonged or repeated exposure.

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/ eye protection/ face protection.

Response:

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed: Call a POISON CENTER or doctor/ physician.
If eye irritation persists: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

Store in a well-ventilated place. 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 : Mixture

Chemical Name	CAS-No.	Concentration
Acetonitrile	75-05-8	>99.00 %
Formic acid	64-18-6	0.10 %

SECTION 4. FIRST AID MEASURES

- Inhalation : 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. Call a physician.
- 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, for at least 15 minutes. Call a physician.
- Ingestion : Call a physician. Do not induce vomiting without medical advice. Immediate medical attention is required. Never give anything by mouth to an unconscious person.

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Notes to physician

Treatment : Treat as cyanide poisoning. Symptoms of poisoning may not appear for several hours. Keep under medical supervision for at least 48 hours.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
Dry chemical
Alcohol-resistant foam
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:
Hydrogen cyanide (hydrocyanic acid)
Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : 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.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

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- 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 for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

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

- Requirements for storage areas and containers : 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.

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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 |
| 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. |

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Keep working clothes separately.
Remove and wash contaminated clothing before re-use.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Acetonitrile	75-05-8	TWA : time weighted average	(20 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Acetonitrile	75-05-8	SKIN_DES : Skin designation:	Can be absorbed through the skin.	2008	ACGIH:US. ACGIH Threshold Limit Values
Acetonitrile	75-05-8	REL : Recommended exposure limit (REL):	34 mg/m3 (20 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Acetonitrile	75-05-8	PEL : Permissible exposure limit	70 mg/m3 (40 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Acetonitrile	75-05-8	TWA : time weighted average	70 mg/m3 (40 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Acetonitrile	75-05-8	STEL : Short term exposure limit	105 mg/m3 (60 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

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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/m3 (5 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Formic acid	64-18-6	PEL : Permissi ble exposure limit	9 mg/m3 (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/m3 (5 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Color	: colourless
Odor	: sweet ether-like
pH	: 4.1
Melting point/freezing point	: -46 °C
Boiling point/boiling range	: 82 °C

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Flash point : 46 °F (8 °C)
Method: closed cup

Evaporation rate : 5
Method: Compared to Butyl acetate.

Lower explosion limit : 3 %(V)
Upper explosion limit : 16 %(V)

Vapor pressure : 97 hPa
at 20 °C(68 °F)

Vapor density : 1.42 Note: (Air = 1.0)

Density : 0.7822 g/cm³ at 20 °C
0.7767 g/cm³ at 25 °C

Water solubility : Note: completely soluble

Ignition temperature : 524 °C
Note: Information regarding ignition temperature applies only to the solvent.

SECTION 10. STABILITY AND REACTIVITY

Chemical stability : Stable under normal conditions.

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Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials to avoid	: Acids Bases Oxidizing agents Reducing agents Sulfites Perchlorates May attack many plastics, rubbers and coatings.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Hydrogen cyanide (hydrocyanic acid) Carbon dioxide (CO ₂), carbon monoxide (CO), oxides of nitrogen (NO _x), dense black smoke.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity Acetonitrile	: LD50: 2,460 mg/kg Species: rat
Formic acid	: LD50: 1,100 mg/kg Species: rat
Acute inhalation toxicity Acetonitrile	: LC50: 16000 ppm Exposure time: 4 h Species: rat
Formic acid	: LC50: 7.4 mg/l Exposure time: 4 h Species: rat
Acute dermal toxicity Acetonitrile	: LD50: > 2,000 mg/kg

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Species: rabbit

Skin irritation
Formic acid

: Result: Causes severe burns.

Eye irritation
Acetonitrile: Species: rabbit
Result: Irritating to eyes.

Formic acid

: Result: Risk of serious damage to eyes.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish
Acetonitrile: flow-through test
LC50: 1,640 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

Formic acid

: LC50: < 100 mg/l
Exposure time: 96 h
Species: Leuciscus idus (Golden orfe)

Further information on ecology

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

SECTION 14. TRANSPORT INFORMATION

DOT

UN/ID No.

: UN 1648

Proper shipping name

: ACETONITRILE SOLUTION

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Class	3
Packing group	II
Hazard Labels	3

IATA

UN/ID No.	: UN 1648
Description of the goods	: ACETONITRILE SOLUTION
Class	: 3
Packaging group	: II
Hazard Labels	: 3
Packing instruction (cargo aircraft)	: 364
Packing instruction (passenger aircraft)	: 353
Packing instruction (passenger aircraft)	: Y341

IMDG

UN/ID No.	: UN 1648
Description of the goods	: ACETONITRILE SOLUTION
Class	: 3
Packaging group	: II
Hazard Labels	: 3
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

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

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Korea. Toxic Chemical : On the inventory, or in compliance with the inventory
Control Law (TCCL) List

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

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

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

National regulatory information

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

Reportable quantity: 5000 lbs
: Acetonitrile 75-05-8

SARA 302 Components : SARA 302: 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:
: Acetonitrile 75-05-8

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

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California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause cancer.
Acrylonitrile 107-13-1

Massachusetts RTK : Acetonitrile 75-05-8

New Jersey RTK : Acetonitrile 75-05-8

Pennsylvania RTK : Acetonitrile 75-05-8

WHMIS Classification : B2: Flammable liquid
D1A: Very Toxic Material Causing Immediate and Serious Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
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 and belief at the date of its publication. The information given is designed only as a

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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: 04/02/2014

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group