

0.1% Ammonium Hydroxide in Acetonitrile (v/v) (473)

Version 1

Revision Date 05/13/2008

Print Date 05/13/2008

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 0.1% Ammonium Hydroxide in Acetonitrile (v/v) (473)
MSDS Number : 000000012981
Product Use Description : Laboratory chemicals

Company : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
(Monday-Friday, 9:00am-5:00pm)

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

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : sweet ether-like

Hazard Summary : Flammable. In use, may form flammable/explosive vapour-air mixture. May be harmful if inhaled. May be harmful if absorbed through skin. May be harmful if swallowed. Irritating to eyes, respiratory system and skin. Causes headache, drowsiness or other effects to the central nervous system. May cause irritation of the gastrointestinal tract. Can cause fatal cyanide poisoning. May cause convulsions. Symptoms may be delayed. Can be absorbed through skin. Repeated exposure may cause skin dryness or cracking. Do not swallow. Avoid breathing vapors, mist or gas. Avoid contact with skin, eyes and clothing.

Potential Health Effects

Skin : May be harmful if absorbed through skin.
Irritating to skin.
Can be absorbed through skin.
May cause systemic poisoning with symptoms paralleling those of inhalation.
Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.

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	<p>Can cause fatal cyanide poisoning. Symptoms may be delayed.</p>
Eyes	<p>: Irritating to eyes. Causes itching, burning, redness and tearing.</p>
Ingestion	<p>: May be harmful if swallowed. Causes headache, drowsiness or other effects to the central nervous system. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause systemic poisoning with symptoms paralleling those of inhalation. Can cause fatal cyanide poisoning. Symptoms may be delayed.</p>
Inhalation	<p>: May be harmful if inhaled. Causes respiratory tract irritation. Causes headache, drowsiness or other effects to the central nervous system. Inhalation of high vapour concentrations can cause CNS-depression and narcosis. Can cause fatal cyanide poisoning. May cause convulsions. Symptoms may be delayed.</p>
Chronic Exposure	<p>: Can cause fatal cyanide poisoning. Symptoms may be delayed. Causes damage to the kidneys/liver/eyes/brain/respiratory system/central nervous system through prolonged or repeated exposure. Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.</p>
Aggravated Medical Condition	<p>: People suffering from pre-existing thyroid conditions may experience adverse effects. Neurological disorders Heart disease Respiratory disorders Liver disorders Kidney disorders Skin disorders Eye disorders</p>
Target Organs	<p>: Respiratory system Cardiovascular system Central nervous system Liver Kidney Skin Eyes</p>

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Heart
thyroid gland**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

Component	CAS-No.	Weight %
Acetonitrile	75-05-8	>99.00
Ammonium hydroxide	1336-21-6	<1.00

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 : Do not induce vomiting without medical advice. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Call a physician.

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. FIRE-FIGHTING MEASURES

- Flash point : 6.1 °C (43.0 °F)
- Lower explosion limit : not determined

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Upper explosion limit	:	not determined
Suitable extinguishing media	:	Carbon dioxide (CO ₂) Dry chemical Alcohol-resistant foam
Extinguishing media which shall not be used for safety reasons	:	Water may be ineffective. Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during fire fighting	:	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. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. 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.
Special protective equipment for fire-fighters	:	In the event of fire and/or explosion do not breathe fumes. Wear self-contained breathing apparatus and protective suit. No unprotected exposed skin areas.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Immediately evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Wear personal protective equipment. Unprotected persons must be kept away. Ensure adequate ventilation. Remove all sources of ignition. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. Do not swallow. Avoid breathing vapors, mist or gas. Avoid contact with skin, eyes and clothing.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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Methods for 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**

Handling : Handle with care.
Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
No sparking tools should be used.
Use explosion-proof equipment.
Do not smoke.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : Vapours may form explosive mixtures with air.
Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits.
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.
Container hazardous when empty.
Keep product and empty container away from heat and sources of ignition.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Take measures to prevent the build up of electrostatic charge.
To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.
Electrical equipment should be protected to the appropriate standard.
No sparking tools should be used.
Use explosion-proof equipment.
No smoking.

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Storage

Requirements for storage areas and containers : Storage rooms must be properly ventilated.
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 in area designed for storage of flammable liquids. Protect from physical damage.
Store away from incompatible substances.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Do not swallow.
Avoid breathing vapors, mist or gas.
Avoid contact with skin, eyes and clothing.

Engineering measures : Use with local exhaust ventilation.
Prevent vapor 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 and boots
Flame retardant antistatic protective clothing
If splashes are likely to occur, wear:
Protective suit

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection.

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.
 When using, do not eat, drink or smoke.
 Wash hands before breaks and immediately after handling the product.
 Keep working clothes separately.
 Remove and wash contaminated clothing before re-use.
 Do not swallow.
 Avoid breathing vapors, mist or gas.
 Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Acetonitrile	75-05-8	ACGIH	TWA	20 ppm
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Skin designation:
 Can be absorbed through the skin.

NIOSH	REL	20 ppm	34 mg/m3
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US CA OEL	TWA PEL	40 ppm	70 mg/m3
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US CA OEL	STEL	60 ppm	105 mg/m3
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Skin designation:
 Can be absorbed through the skin.

OSHA Z1	PEL	40 ppm	70 mg/m3
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OSHA Z1A	TWA	40 ppm	70 mg/m3
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OSHA Z1A	STEL	60 ppm	105 mg/m3
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Ammonia	7664-41-7	ACGIH	TWA	25 ppm
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ACGIH	STEL	35 ppm
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NIOSH	REL	25 ppm	18 mg/m3
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NIOSH	STEL	35 ppm	27 mg/m3
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US CA OEL	TWA PEL	25 ppm	18 mg/m3
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US CA OEL	STEL	35 ppm	27 mg/m3
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OSHA Z1	PEL	50 ppm	35 mg/m3
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OSHA Z1A	STEL	35 ppm	27 mg/m3
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid, clear
Color	: colourless
Odor	: sweet ether-like
pH	: 10.9
Boiling point/boiling range	: 65.5 °C (149.9 °F)
Vapor pressure	: 97.325 hPa at 20 °C (68 °F) The information regarding the vapour pressure is that of the solvent.
Density	: 0.7819 g/cm ³ at 20 °C (68 °F)
Water solubility	: completely soluble

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight.
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.
Hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

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Acute oral toxicity (Component)	Component: 75-05-8 Acetonitrile LD50 rat Dose: 2,460 mg/kg
Acute oral toxicity (Component)	Component: 1336-21-6 Ammonium hydroxide LD50 rat Dose: 350 mg/kg
Acute dermal toxicity (Component)	Component: 75-05-8 Acetonitrile LD50 rabbit Dose: > 2,000 mg/kg
Acute inhalation toxicity (Component)	Component: 75-05-8 Acetonitrile LC50 rat Dose: 12.68 mg/l Exposure time: 8 h
Acute inhalation toxicity (Component)	Component: 1336-21-6 Ammonium hydroxide LC50 rat Dose: 5.1 mg/l Exposure time: 1 h

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish (Component)	:	Component: 75-05-8 Acetonitrile flow-through test LC50 Species: Pimephales promelas (fathead minnow) Dose: 1,640 mg/l Exposure time: 96 h
Toxicity to fish (Component)	:	Component: 1336-21-6 Ammonium hydroxide LC50 Species: Oncorhynchus mykiss (rainbow trout) Dose: > 0.1 mg/l Exposure time: 96 h
Toxicity to fish (Component)	:	Component: 1336-21-6 Ammonium hydroxide LC50 Species: Bluegill sunfish Dose: > 0.2 mg/l Exposure time: 96 h
Toxicity to fish (Component)	:	Component: 1336-21-6 Ammonium hydroxide LC50 Species: Fathead minnow Dose: > 0.7 mg/l Exposure time: 96 h

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Toxicity to fish
(Component) : Component: 1336-21-6 Ammonium hydroxide
 LC50
 Species: Cyprinus carpio (Carp)
 Dose: 1.1 mg/l
 Exposure time: 96 h

Toxicity to daphnia and
other aquatic invertebrates.
(Component) : Component: 1336-21-6 Ammonium hydroxide
 LC50
 Species: Daphnia
 Dose: 25.4 mg/l
 Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

DOT UN-Number : 1648
 Proper shipping name : Acetonitrile solution
 Class : 3
 Packing group : II
 Hazard Label : 3

IATA UN Number : 1648
 Description of the goods : Acetonitrile solution
 Class : 3
 Packaging group : II
 Hazard Label : 3
 Packing instruction (cargo aircraft) : 307
 Packing instruction (passenger aircraft) : 305
 Packing instruction (passenger aircraft) : Y305

IMDG Substance No. : UN 1648
 Description of the goods : Acetonitrile solution
 Class : 3
 Packaging group : II
 Hazard Label : 3
 EmS Number : F-E
 Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

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Inventories

- EU. EINECS : On the inventory, or in compliance with the inventory
- 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). (Can. Gaz. Part II, Vol. 133) : All components of this product are on the Canadian DSL list.
- Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory
- Korea. Toxic Chemical Control Law (TCCL) List : 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
- TSCA 12B : US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Acetonitrile

75-05-8

National regulatory information

- SARA 313 Components** : Acetonitrile 75-05-8
 : Ammonium hydroxide 1336-21-6
- SARA 311/312 Hazards** : Fire Hazard
 Acute Health Hazard
 Chronic Health Hazard
- CERCLA Reportable Quantity** : 5000 lbs

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

Massachusetts RTK : Acetonitrile 75-05-8
 : Ammonium hydroxide 1336-21-6

New Jersey RTK : Acetonitrile 75-05-8
 : Ammonium hydroxide 1336-21-6

Pennsylvania RTK : Acetonitrile 75-05-8
 : Ammonium hydroxide 1336-21-6

WHMIS Classification : B2
 D1A
 D2B

SECTION 16. OTHER INFORMATION

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

Further information

* - Chronic health hazard