Material Safety Data Sheet

Issuing Date 29-Jun-2007 **Revision Date** **MSDS PN:** 903969
REV. H

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name **N-METHYLIMIDAZOLE/ACETONITRILE**

Product Code(s) 402141
Trade Name(s) Not Applicable

UN-No UN2924

Recommended Use For research use only. Not for use in diagnostic procedures.

Supplier Address
APPLIED BIOSYSTEMS850 LINCOLN CENTRE DRIVEFOSTER CITY CA USA 94404TELEPHONE: (650) 570-6667 (USA)

Emergency Telephone Number CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE
Very toxic if swallowed
Harmful in contact with skin
May cause burns of eyes, skin and mucous membranes
Harmful by inhalation
Irritating to eyes, respiratory system and skin
May cause drowsiness and dizziness
May cause adverse liver effects
May cause adverse kidney effects
May cause central nervous system depression

Appearance Liquid **Physical State** Liquid **Odor** Ether

Potential Health Effects
Principle Routes of Exposure Inhalation, Skin contact, Eye contact.

Acute Toxicity
Eyes Irritating to eyes. May cause burns.
Skin May be absorbed through the skin in harmful amounts. Contact causes severe skin irritation and possible burns.

Inhalation Harmful by inhalation. May cause irritation of respiratory tract. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Effects of overexposure may be delayed due to the slow formation of cyanide anions in the body. Cyanide anions prevent the body from using oxygen and can lead to internal asphyxiation. Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock.

Ingestion May be fatal if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system depression. May cause additional affects as listed under "Inhalation". Ingestion causes burns of the upper digestive and respiratory tract.

Chronic Effects Avoid repeated exposure. See Section 11 for additional Toxicological Information.

Aggravated Medical Conditions Central nervous system. Preexisting eye disorders. Kidney disorders. Liver disorders. Skin disorders. Cardiovascular. Respiratory disorders. Blood disorders.

Interactions with Other Chemicals Use of alcoholic beverages may enhance toxic effects.

Environmental Hazard Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. See Section 12 for additional Ecological information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
1-Methylimidazole	616-47-7	10-30
Acetonitrile	75-05-8	>60

4. FIRST AID MEASURES

General Advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. In case of injury caused by fire:. Flush with plenty of water immediately. Continue flushing during transport to hospital or medical center.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Call a physician immediately.

Skin Contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If symptoms persist, call a physician.

Ingestion Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Do not induce vomiting. Call a physician or Poison Control Center immediately.

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. 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. Treat symptomatically.

Protection of First-aiders Remove all sources of ignition. Use personal protective equipment.

5. FIRE-FIGHTING MEASURES

Flammable Properties HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.

Flash Point	< 21°C / < 70°F
Suitable Extinguishing Media	Water spray. Carbon dioxide (CO2). Foam. Dry powder. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.

Explosion Data
Sensitivity to mechanical impact None
Sensitivity to static discharge Yes.

Specific Hazards Arising from the Chemical
The product causes burns of eyes, skin and mucous membranes. Flammable. Risk of ignition. In the event of fire and/or explosion do not breathe fumes. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. In the event of fire, cool tanks with water spray. Thermal decomposition can lead to release of toxic and corrosive gases/vapors.

Protective Equipment and Precautions for Firefighters
Corrosive hazard. Wear protective gloves/clothing and eye/face protection. As in any fire, wear self-contained breathing apparatus and full protective gear.

NFPA	**Health Hazard** 3	**Flammability** 3	**Stability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard** 3*	**Flammability** 3	**Stability** 0	**Personal Precautions** -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Methods for Containment	Prevent further leakage or spillage if safe to do so
Methods for Cleaning Up	Dam up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers. Soak up with inert absorbent material. Take up mechanically and collect in suitable container for disposal. After cleaning, flush away traces with water.
Other Information	Use water spray to reduce vapors or divert vapor cloud drift. Refer to protective measures listed in Sections 7 and 8.

7. HANDLING AND STORAGE

Handling	Wear personal protective equipment. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in an area containing flame proof equipment. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing.
Storage	Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat and sources of ignition. Keep away from direct sunlight. Keep in properly labeled containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acetonitrile	TWA: 20 ppm Skin	TWA: 40 ppm TWA: 70 mg/m^3 STEL: 105 mg/m^3 STEL: 60 ppm TWA: 40 ppm	500 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures Showers, eyewash stations, and ventilation systems.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin and Body Protection Wear fire/flame resistant/retardant clothing. Long sleeved clothing.

Respiratory Protection In case of insufficient ventilation wear suitable respiratory equipment.

Hygiene Measures Regular cleaning of equipment, work area and clothing. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid.	**Odor**	Ether.
Odor Threshold	No information available.	**Physical State**	Liquid.
pH	No information available.		
Flash Point	< 21°C / < 70°F	**Autoignition Temperature**	Not applicable
Decomposition Temperature	No information available.	**Boiling Point/Range**	No information available.
Melting Point/Range	No information available.		
Flammability Limits in Air	No information available.	**Explosion Limits**	No information available.
Specific Gravity	No information available.	**Water Solubility**	Soluble in water.
Solubility	Ethanol, Ether, Acetone.	**Evaporation Rate**	No information available.
Vapor Pressure	>20&20	**Vapor Density**	<1
VOC Content	80-90%	**Partition Coefficient (n-octanol/water)**	No information available.

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions

Incompatible Products Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Conditions to Avoid Heat, flames and sparks. Extremes of temperature and direct sunlight.

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen cyanide. Nitrous vapors.

Hazardous Polymerization Hazardous polymerization does not occur

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetonitrile	1327 mg/kg (Rat)	395 mg/kg (Rabbit)	16000 ppm (Rat) 4 h

Chronic Toxicity

Chronic Toxicity Avoid repeated exposure. See Section 11 for additional Toxicological Information.

Target Organ Effects Central nervous system (CNS), Central Vascular System (CVS), Eyes, Kidney, Liver, Respiratory system, Skin, Blood, Thyroid.

Other Adverse Effects Harmful: danger of serious damage to health by prolonged exposure if swallowed.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects of component substances.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Acetonitrile		LC50= 1000 mg/L Pimephales promelas 96 h LC50= 1640 mg/L Pimephales promelas 96 h LC50= 1650 mg/L Poecilia reticulata 96 h LC50= 1850 mg/L Lepomis macrochirus 96 h	EC50 = 28000 mg/L 48 h EC50 = 73 mg/L 24 h EC50 = 7500 mg/L 15 h	EC50 = 5838 mg/L 18 h

Chemical Name	Log Pow
Acetonitrile	-0.34

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

Contaminated Packaging Dispose of in accordance with local regulations.

US EPA Waste Number D001

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Acetonitrile - 75-05-8	waste number U003	Included in waste streams: F039, K011, K013, K014		waste number U003 (Ignitable waste, Toxic waste)

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Acetonitrile	Toxic; Ignitable

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name Flammable liquids, corrosive, n.o.s.
Hazard Class 3
Subsidiary Class 8
UN-No UN2924
Packing Group II
Description Flammable liquids, corrosive, n.o.s. (Acetonitrile,1-Methylimidazole),3,(8),UN2924,PG II

TDG

Proper Shipping Name Flammable liquid, corrosive, n.o.s.
Hazard Class 3
Subsidiary Class 8
UN-No UN2924
Packing Group II
Description FLAMMABLE LIQUID, CORROSIVE, N.O.S.(Acetonitrile,1-Methylimidazole),3,UN2924,PG II

MEX

Proper Shipping Name Flammable liquid, corrosive, n.o.s.
Hazard Class 3
Subsidiary Class 8
UN-No UN2924
Packing Group II
Description UN2924 Flammable liquid, corrosive, n.o.s.(Acetonitrile,1-Methylimidazole),3,II

ICAO

UN-No UN2924
Proper Shipping Name Flammable liquid, corrosive, n.o.s.*
Hazard Class 3
Subsidiary Class 8
Packing Group II
Description Flammable liquid, corrosive, n.o.s.*(Acetonitrile,1-Methylimidazole),3(8),UN2924,PG II

IATA

UN-No UN2924
Proper Shipping Name Flammable liquid, corrosive, n.o.s.*

14. TRANSPORT INFORMATION

Hazard Class	3
Subsidiary Class	8
Packing Group	II
ERG Code	3CH
Description	UN2924,Flammable liquid, corrosive, n.o.s.*(Acetonitrile,1-Methylimidazole),3(8),PG II

IMDG/IMO

Proper Shipping Name	Flammable liquid, corrosive, n.o.s.
Hazard Class	3
Subsidiary Class	8
UN-No	UN2924
Packing Group	II
EmS No.	F-E, S-C
Description	UN2924, Flammable liquid, corrosive, n.o.s.(Acetonitrile,1-Methylimidazole),3(8),PG II

RID

Proper Shipping Name	Flammable liquid, corrosive, n.o.s.
Hazard Class	3
UN-No	UN2924
Packing Group	II
Classification Code	FC
Description	UN2924 Flammable liquid, corrosive, n.o.s.(Acetonitrile,1-Methylimidazole),3,II,RID
ADR/RID-Labels	3 + 8

ADR

Proper Shipping Name	Flammable liquid, corrosive, n.o.s.
Hazard Class	3
UN-No	UN2924
Packing Group	II
Classification Code	FC
ADR/RID-Labels	3 + 8

ADN

Proper Shipping Name	Flammable liquid, corrosive, n.o.s.
Hazard Class	3
Packing Group	II
Classification Code	FC
Special Provisions	274, 944
Description	UN2924 Flammable liquid, corrosive, n.o.s.(Acetonitrile,1-Methylimidazole),3,II
Hazard Labels	3 + 8
Limited Quantity	1 L

15. REGULATORY INFORMATION

International Inventories

TSCA	Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only.
DSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
CHINA	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values
Acetonitrile	75-05-8	>60	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Acetonitrile	5000 lb	

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetonitrile	X	X	X	X	X

International Regulations

Chemical Name	Carcinogen Status	Exposure Limits
Acetonitrile		Mexico: TWA= 40 ppm Mexico: TWA= 70 mg/m^3 Mexico: STEL= 105 mg/m^3 Mexico: STEL= 60 ppm

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B2 Flammable liquid
D1B Toxic materials
D2B Toxic materials
E Corrosive material

Chemical Name	NPRI
Acetonitrile	X

Legend
NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Issuing Date 29-Jun-2007

Revision Date

Revision Note No information available

Disclaimer
The information provided on this MSDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS