

**BMI Activator (731)**

Version 1

Revision Date 07/23/2008

Print Date 07/23/2008

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : BMI Activator (731)  
MSDS Number : 000000011319  
Product Use Description : Pharmaceutical, Laboratory Use

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 +1-703-527-3887**  
: (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. 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.

**Potential Health Effects**

Skin : Irritating to skin.  
Can be absorbed through skin.  
May be harmful if absorbed through skin.  
Can cause fatal cyanide poisoning.  
Symptoms may be delayed.  
Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.

Eyes : Irritating to eyes.

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- Causes itching, burning, redness and tearing.
- Ingestion** : 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.
- Inhalation** : Causes respiratory tract irritation.  
Inhalation of high vapour concentrations can cause CNS-depression and narcosis.  
Causes headache, drowsiness or other effects to the central nervous system.  
Can cause fatal cyanide poisoning.  
Symptoms may be delayed.
- Chronic Exposure** : Can cause fatal cyanide poisoning.  
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.
- Aggravated Medical Condition** : 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
- Target Organs** : Respiratory system  
Cardiovascular system  
Central nervous system  
Liver  
Kidney

**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 %
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Acetonitrile	75-05-8	93.00
5-Benzylmercapto-1H-tetrazole	21871-47-6	6.50
1-Methylimidazole	616-47-7	0.50

**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.

**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 : 11 °C (52 °F)  
ASTM D 56-82
- Ignition temperature : 524 °C (975 °F)  
The physical data is that of the main component.
- Lower explosion limit : 3 %(V)  
The physical data is that of the main component.
- Upper explosion limit : 16 %(V)  
The physical data is that of the main component.
- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Dry chemical  
Alcohol-resistant foam  
Cool closed containers exposed to fire with water spray.

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- Extinguishing media which shall not be used for safety reasons : 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.  
 In case of fire hazardous decomposition products may be produced such as:  
 Hydrogen cyanide (hydrocyanic acid)  
 Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke.
- Special protective equipment for fire-fighters : 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 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.
- 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 : Wear personal protective equipment.  
 Use only in well-ventilated areas.

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Keep container tightly closed.  
 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 : 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.  
 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 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.

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- 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.  
 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
		Skin designation: Can be absorbed through the skin.			
		NIOSH	REL	20 ppm	34 mg/m3
		US CA OEL	TWA PEL	40 ppm	70 mg/m3
		US CA OEL	STEL	60 ppm	105 mg/m3
		Skin designation: Can be absorbed through the skin.			
		OSHA Z1	PEL	40 ppm	70 mg/m3
		OSHA Z1A	TWA	40 ppm	70 mg/m3
		OSHA Z1A	STEL	60 ppm	105 mg/m3

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form : liquid, clear

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Color	: colourless
Odor	: sweet ether-like
pH	: not determined
Freezing point	: -44 °C (-47 °F) The physical data is that of the main component.
Boiling point/boiling range	: 82 °C (180 °F) The physical data is that of the main component.
Vapor pressure	: 97 hPa at 20 °C (68 °F) The physical data is that of the main component.
Relative vapour density	: 1.42 (Air = 1.0), The physical data is that of the main component.
Density	: 0.803 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	: completely soluble
Solubility in other solvents	: 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 <sub>2</sub> ), carbon monoxide (CO), oxides of nitrogen (NO <sub>x</sub> ), dense black smoke.
Hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity	:	LD50 rat Dose: 2,460 mg/kg Test substance: Acetonitrile
Acute oral toxicity	:	LD50 rat Dose: 1,130 mg/kg Test substance: 1-Methylimidazole
Acute dermal toxicity	:	LD50 rabbit Dose: > 2,000 mg/kg Test substance: Acetonitrile
Acute dermal toxicity	:	LD50 rabbit Dose: 400 - 600 mg/kg Test substance: 1-Methylimidazole
Acute inhalation toxicity	:	LC50 rat Dose: 7551 ppm Exposure time: 8 h Test substance: Acetonitrile
Skin irritation	:	rabbit Corrosive Test substance: 1-Methylimidazole
Eye irritation	:	rabbit Corrosive Test substance: 1-Methylimidazole

**SECTION 12. ECOLOGICAL INFORMATION**

Toxicity to fish	:	flow-through test LC50 Species: Pimephales promelas (fathead minnow) Dose: 1,640 mg/l Exposure time: 96 h Test substance: Acetonitrile
Toxicity to fish	:	static test LC50 Species: Leuciscus idus (Golden orfe) Dose: 100 - 220 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates.	:	static test EC50 Species: Daphnia magna (Water flea)

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		Dose: 268 mg/l
		Exposure time: 48 h
		Test substance: 1-Methylimidazole
Toxicity to algae	:	EC50
		Species: Algae
		Dose: 180 mg/l
		Exposure time: 72 h
		Test substance: 1-Methylimidazole
Toxicity to bacteria	:	EC50
		Species: Bacteria
		Dose: 1,100 mg/l
		Exposure time: 17 h
		Test substance: 1-Methylimidazole

**SECTION 13. DISPOSAL CONSIDERATIONS**

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

**SECTION 14. TRANSPORT INFORMATION**

<b>DOT</b>	UN-Number	:	1648
	Proper shipping name	:	Acetonitrile solution
	Class	:	3
	Packing group	:	II
	Hazard Label	:	3
<b>IATA</b>	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
<b>IMDG</b>	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

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**SECTION 15. REGULATORY INFORMATION****Inventories**

EU. EINECS	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
US. Toxic Substances Control Act	: Not On TSCA Inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Australia. Industrial Chemical (Notification and Assessment) Act	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	: This product contains the following components that are not on the Canadian DSL nor NDSL lists.	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Japan. Kashin-Hou Law List	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Korea. Toxic Chemical Control Law (TCCL) List	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
China. Inventory of Existing Chemical Substances	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
Switzerland. Consolidated Inventory	: Not in compliance with the inventory	
	: 5-Benzylmercapto-1H-tetrazole	21871-47-6
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	: Not in compliance with the inventory	

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TSCA 12B : 5-Benzylmercapto-1H-tetrazole 21871-47-6  
 : US. Toxic Substances Control Act (TSCA) Section 12(b) Export  
 Notification (40 CFR 707, Subpt D)

Acetonitrile 75-05-8

**National regulatory information**

TSCA : This material must be used in compliance with the TSCA  
 Research and Development Exemption requirements (40 CFR  
 720.36).

TSCA : Products used for the synthesis of drug substances are exempt  
 from the requirements of TSCA. (40 CFR 720.30(a) & 720.3(e)  
 (6))

**SARA 313 Components** : Acetonitrile 75-05-8

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

**CERCLA Reportable  
 Quantity** : 5376 lbs

**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

**New Jersey RTK** : Acetonitrile 75-05-8

**Pennsylvania RTK** : Acetonitrile 75-05-8

**WHMIS Classification** : B2  
 D1A  
 D2B

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**SECTION 16. OTHER INFORMATION**

	<b>HMIS III</b>	<b>NFPA</b>
Health Hazard	: 2*	2
Flammability	: 3	3
Physical Hazard	: 0	
Instability	:	0

**Further information**

\* - Chronic health hazard