

**024-4 n-BUTYL ALCOHOL**

Version 1

Revision Date 03/23/2009

Print Date 01/08/2010

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : n-Butyl Alcohol (024)  
MSDS Number : 000000011398  
Product Use Description : Solvent

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 : characteristic alcoholic  
Hazard Summary : Flammable. In use, may form flammable/explosive vapour-air mixture. May be harmful if swallowed. May be harmful if absorbed through skin. Irritating to eyes, respiratory system and skin. Can be absorbed through skin. Repeated exposure may cause skin dryness or cracking.

**Potential Health Effects**

Skin : Irritating to skin.  
May be harmful if 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.

Eyes : Irritating to eyes.  
Causes itching, burning, redness and tearing.  
May cause corneal injury.

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- Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.  
 May cause systemic poisoning with symptoms paralleling those of inhalation.
  
- Inhalation : Causes respiratory tract irritation.  
 Vapours may cause drowsiness and dizziness.  
 Inhalation of high vapour concentrations can cause CNS-depression and narcosis.  
 High concentration of vapours may induce unconsciousness.
  
- Chronic Exposure : Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.  
 May cause damage to the following organs: heart.  
 Repeated or prolonged exposure to the substance can produce kidney damage.  
 Repeated or prolonged exposure to the substance can produce liver damage.
  
- Aggravated Medical Condition : Eye disorders  
 Cardiac irregularities  
 Liver disorders  
 Kidney disorders  
 Neurological disorders  
 Respiratory disorders  
 Skin disorders
  
- Target Organs : Eyes  
 Skin  
 Respiratory system  
 Central nervous system

**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 %
Butan-1-ol	71-36-3	100.00

**SECTION 4. FIRST AID MEASURES**

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- |              |   |   |
|--------------|---|---|
| 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 if irritation develops or persists. |
| 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 symptomatically. |
|-----------|---|------------------------|

### SECTION 5. FIRE-FIGHTING MEASURES

- |  |   |   |
|--|---|---|
| Flash point  | : | 37 °C (99 °F)<br>closed cup   |
| Ignition temperature   | : | 343 °C (649 °F)   |
| Lower explosion limit  | : | 1.4 %(V)  |
| Upper explosion limit  | : | 11.2 %(V)   |
| Suitable extinguishing media                                   | : | Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical<br>Cool closed containers exposed to fire with water spray.   |
| 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.<br>Vapours may form explosive mixtures with air.<br>Vapours are heavier than air and may spread along floors.<br>Vapors may travel to areas away from work site before igniting/flashing back to vapor source.<br>In case of fire hazardous decomposition products may be produced such as:<br>Carbon monoxide |

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Carbon dioxide (CO<sub>2</sub>)

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. Unprotected persons must be kept away.  
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.  
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.

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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 : 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.

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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 and face 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**

Butan-1-ol	71-36-3	ACGIH	TWA		20 ppm
		NIOSH	Ceil_Time	50 ppm	150 mg/m3
Skin designation: Can be absorbed through the skin.					
		US CA OEL	Ceiling	50 ppm	150 mg/m3
Skin designation: Can be absorbed through the skin.					
		OSHA Z1	PEL	100 ppm	300 mg/m3
		OSHA Z1A	Ceiling	50 ppm	150 mg/m3
Skin designation (Final Rule Limit applies): Can be absorbed through the skin.					

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form : liquid, clear  
 Color : colourless  
 Odor : characteristic alcoholic  
 Molecular Weight : 74.12 g/mol  
 pH : not applicable  
 Melting point/range : -89 °C (-128 °F)

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Boiling point/boiling range	: 117 °C (243 °F)
Vapor pressure	: 8.67 hPa at 25 °C (77 °F)
Relative vapour density	: 2.55 (Air = 1.0)
Density	: 0.81 g/cm <sup>3</sup> at 20 °C (68 °F)
Water solubility	: 78 g/l at 20 °C (68 °F)

**SECTION 10. STABILITY AND REACTIVITY**

Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight.
Materials to avoid	: Oxidizing agents Strong acids and strong bases Aluminium May attack many plastics, rubbers and coatings.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO <sub>2</sub> )
Hazardous reactions	: Hazardous polymerisation does not occur. Stable under recommended storage conditions.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity	: LD50 rat Dose: 790 mg/kg
Acute dermal toxicity	: LD50 rabbit Dose: 3,400 mg/kg
Acute inhalation toxicity	: LC50 rat Dose: 8000 ppm Exposure time: 4 h
Skin irritation	: rabbit Moderate skin irritation

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Eye irritation : rabbit  
Severe eye irritation

**SECTION 12. ECOLOGICAL INFORMATION**

Toxicity to fish : static test LC50  
Species: Fathead minnow  
Dose: 1,510 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates. : EC50  
Species: Daphnia magna (Water flea)  
Dose: 2,337 mg/l  
Exposure time: 24 h

Toxicity to daphnia and other aquatic invertebrates. : EC50  
Species: Daphnia magna (Water flea)  
Dose: 1,983 mg/l  
Exposure time: 48 h

Toxicity to algae : LC50  
Species: Scenedesmus subspicatus  
Dose: > 500 mg/l  
Exposure time: 48 h

Toxicity to bacteria : EC50  
Species: Photobacterium phosphoreum  
Dose: 2,056 mg/l  
Exposure time: 5 min

Toxicity to bacteria : EC50  
Species: Photobacterium phosphoreum  
Dose: 2,186 mg/l  
Exposure time: 30 min

Additional ecological information : Do not flush into surface water or sanitary sewer system.

**SECTION 13. DISPOSAL CONSIDERATIONS**

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

**SECTION 14. TRANSPORT INFORMATION**

DOT UN-Number : 1120  
Proper shipping name : Butanols



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Class	3
Packing group	III
Hazard Label	3

<b>IATA</b>	UN Number	: 1120
	Description of the goods	: Butanols
	Class	: 3
	Packaging group	: III
	Hazard Label	: 3
	Packing instruction (cargo aircraft)	: 310
	Packing instruction (passenger aircraft)	: 309
	Packing instruction (passenger aircraft)	: Y309

<b>IMDG</b>	Substance No.	: UN 1120
	Description of the goods	: Butanols
	Class	: 3
	Packaging group	: III
	Hazard Label	: 3
	EmS Number	: F-E
	Marine pollutant	: no

### SECTION 15. REGULATORY INFORMATION

#### 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	: On the inventory, or in compliance with the inventory

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Control Law (TCCL) List

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

CH INV - Switzerland : On the inventory, or in compliance with the inventory

NZIOC - New Zealand : On the inventory, or in compliance with the inventory

**National regulatory information**

**SARA 313 Components** : Butan-1-ol 71-36-3

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

**CERCLA Reportable Quantity** : 5000 lbs

**California Prop. 65** : This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

**Massachusetts RTK** : Butan-1-ol 71-36-3

**New Jersey RTK** : Butan-1-ol 71-36-3

**Pennsylvania RTK** : Butan-1-ol 71-36-3

**WHMIS Classification** : B2  
 D2B  
 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.

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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