SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Toluene (346, 347)
MSDS Number : 000000011441
Product Use Description : Solvent

Company : Honeywell International, Inc.
101 Columbia Road
Morristown, NJ 07962-1057

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 pungent

Hazard Summary : Flammable. In use, may form flammable/explosive vapour-air mixture. Harmful or fatal if swallowed. May be fatal if inhaled. Aspiration hazard if swallowed - can enter lungs and cause damage. Irritating to eyes, respiratory system and skin. May be harmful if absorbed through skin. Repeated exposure may cause skin dryness or cracking. Avoid contact with skin, eyes and clothing. Possible risk of harm to the unborn child. Avoid exposure to pregnant women especially.

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.

**Ingestion**
- Harmful or fatal if swallowed.
- Aspiration hazard if swallowed - can enter lungs and cause damage.
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
- May cause systemic poisoning with symptoms paralleling those of inhalation.

**Inhalation**
- May be fatal if inhaled.
- Causes respiratory tract irritation.
- Causes headache, drowsiness or other effects to the central nervous system.
- Vapours may cause drowsiness and dizziness.
- Inhalation of high vapour concentrations can cause CNS-depression and narcosis.

**Chronic Exposure**
- Repeated and prolonged exposure to solvents may cause brain and nervous system damage.
- Repeated or prolonged exposure to the substance can produce liver damage.
- Repeated or prolonged exposure to the substance can produce kidney damage.
- Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering.
- Possible risk of harm to the unborn child.
- Potential embryo-foetal toxicity and teratogenicity.

**Aggravated Medical Condition**
- Respiratory disorders
- Liver disorders
- Kidney disorders
- Skin disorders
- Heart disease
- Neurological disorders
- Do not use if pregnant.

**Target Organs**
- Eyes
- Skin
- Respiratory 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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>100.00</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

- **Inhalation**: Call a physician immediately. 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.

- **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. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately. Never give anything by mouth to an unconscious person.

**Notes to physician**

**Treatment**: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

- **Flash point**: 4 °C (39 °F) 
  closed cup

- **Ignition temperature**: 480 °C (896 °F)

- **Lower explosion limit**: 1.1 %(V)

- **Upper explosion limit**: 7.1 %(V)

- **Suitable extinguishing media**: Foam 
  Carbon dioxide (CO2) 
  Dry chemical
Toluene (346, 347)

Version 1  Revision Date 03/26/2009  Print Date 09/27/2011

Extinguishing media which shall not be used for safety reasons:
- Do not use a solid water stream as it may scatter and spread fire.
- 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/flashign back to vapor source.
- In case of fire hazardous decomposition products may be produced such as:
  - Carbon monoxide
  - Carbon dioxide (CO2)

Specific hazards during fire fighting:
- Cool closed containers exposed to fire with water spray.

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.
- Do not breathe vapours or spray mist.
- 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:
- Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Do not breathe vapours or spray mist.
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.
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.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
This material has an established AIHA ERPG exposure limit.
The current list of ERPG exposure limits can be found at http://www.aiha.org/1documents/Committees/ERP-erpglevels.pdf.

**Exposure Guidelines**

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<tr>
<th>Compounds</th>
<th>CAD AB OEL</th>
<th>TWA</th>
<th>Limit</th>
<th>Limit</th>
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<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>50 ppm</td>
<td>188 mg/m3</td>
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Skin designation: Can be absorbed through the skin.

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<th>Compounds</th>
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Skin designation: Can be absorbed through the skin.

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Skin designation: Can be absorbed through the skin.

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<td>Toluene</td>
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<td>50 ppm</td>
<td>188 mg/m3</td>
</tr>
</tbody>
</table>

Skin designation: Can be absorbed through the skin.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form : liquid, clear
Color : colourless
Odor : sweet pungent
Molecular Weight : 92.14 g/mol
pH : not applicable
Melting point/range : -95 °C (-139 °F)
Boiling point/boiling range : 110.6 °C (231.1 °F)
Vapor pressure : 38 hPa
 at 25 °C (77 °F)
Relative vapour density : 3.1
 (Air = 1.0)
Density : 0.867 g/cm³
 at 20 °C (68 °F)
Water solubility : 0.74 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 : Strong oxidizing agents
 Strong acids and strong bases
 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 (CO₂)

Hazardous reactions : Hazardous polymerisation does not occur.
 Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD₅₀ rat
 Dose: 2,600 - 7,500 mg/kg
### Toluene (346, 347)

**Acute dermal toxicity**: LD50 rabbit  
Dose: 12,124 mg/kg

**Acute inhalation toxicity**: LC50 rat  
Dose: 8800 ppm  
Exposure time: 4 h

**Repeated dose toxicity**: Inhalation rat  
Chronic toxicity, 2500 ppm, Based on experimental results, may cause adverse health effects on the following: Heart, Liver, Kidney, Urinary tract, Bladder  
Exposure time: 15 Weeks

**Genotoxicity in vitro**:  
Ames test negative

**Genotoxicity in vitro**:  
Chromosome aberration test in vitro  
Chinese Hamster Ovary Cells negative

### SECTION 12. ECOLOGICAL INFORMATION

**Toxicity to fish**: LC50  
Species: Fathead minnow  
Dose: 36.2 mg/l  
Exposure time: 96 h

**Toxicity to fish**: LC50  
Species: Lepomis macrochirus (Bluegill sunfish)  
Dose: 13 mg/l  
Exposure time: 96 h

**Toxicity to daphnia and other aquatic invertebrates**: LC50  
Species: Daphnia magna (Water flea)  
Dose: 313 mg/l  
Exposure time: 48 h

**Toxicity to algae**: LC50  
Species: Algae  
Dose: > 100 mg/l  
Exposure time: 24 h

**Toxicity to bacteria**: EC50  
Species: Photobacterium phosphoreum  
Dose: 19.7 mg/l  
Exposure time: 0.5 h

**Additional ecological**: Bioaccumulation is unlikely.
**SECTION 13. DISPOSAL CONSIDERATIONS**

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

**SECTION 14. TRANSPORT INFORMATION**

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<td>EmS Number</td>
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<td>Marine pollutant</td>
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</table>

**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** : On the inventory, or in compliance with the inventory
Assessment) Act


Japan. Kashin-Hou Law List

Korea. Toxic Chemical Control Law (TCCL) List

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act

China. Inventory of Existing Chemical Substances

CH INV - Switzerland

NZIOC - New Zealand

National regulatory information

US. Drug Enforcement Administration (DEA) Listed Precursor and Essential Chemicals (21 CFR 1310)

DEA EC

WHMIS Classification

Toluene 108-88-3

B2

D2A

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.

WHMIS Components

Toluene 108-88-3

NPRI Components

Toluene 108-88-3
SECTION 16. OTHER INFORMATION

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<tr>
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Further information

* - Chronic health hazard