SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 50% Methanol / 50% Water
MSDS Number : 000000011287
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 703-527-3887
(24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview
Form : liquid, clear
Color : colourless
Odor : slight alcoholic

Hazard Summary : Flammable. In use, may form flammable/explosive vapour-air mixture. May be fatal if swallowed. May be fatal if inhaled. May be harmful if absorbed through skin. Irritating to eyes, respiratory system and skin. Causes headache, drowsiness or other effects to the central nervous system. May cause blindness. The product may be absorbed through the skin. Repeated exposure may cause skin dryness or cracking. Do not swallow. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. This product may cause adverse reproductive effects. Possible risk of harm to the unborn child. Avoid exposure to pregnant women especially.

Potential Health Effects
Skin : Irritating to skin.
The product may be absorbed through the 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 blindness.  
|                      | May cause irreversible eye damage.  
| Ingestion            | May be fatal if swallowed.  
|                      | Causes headache, drowsiness or other effects to the central nervous system.  
|                      | May cause blindness if swallowed.  
|                      | Repeated or prolonged exposure to the substance can produce liver damage.  
|                      | Repeated or prolonged exposure to the substance can produce kidney damage.  
| 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.  
|                      | May cause blindness.  
|                      | Repeated or prolonged exposure to the substance can produce liver damage.  
|                      | Repeated or prolonged exposure to the substance can produce kidney damage.  
| Chronic Exposure     | 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.  
|                      | This product may cause adverse reproductive effects.  
|                      | Possible risk of harm to the unborn child.  
| Aggravated Medical Condition | Liver disorders  
|                          | Eye disorders  
|                          | Skin disorders  
|                          | Neurological disorders  
|                          | Kidney disorders  
|                          | Do not use if pregnant.  
| Target Organs          | Eyes  
|                          | Skin  
|                          | Liver  
|                          | Kidney  
|                          | Respiratory system  
|                          | Central nervous system  
|                          | Gastrointestinal tract  

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>Water</td>
<td>7732-18-5</td>
<td>55.80</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>44.20</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: Call a physician immediately. Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person.

Notes to physician

Treatment: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point: 29 °C (84 °F)

Ignition temperature: 464 °C (867 °F)

Lower explosion limit: 6 %(V)

Upper explosion limit: 36 %(V)
Material Safety Data Sheet

50% Methanol / 50% Water (400)

| Suitable extinguishing media          | Alcohol-resistant foam  |
|                                      | Carbon dioxide (CO2)    |
|                                      | Dry chemical            |

| 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: |
|                                       | Carbon monoxide |
|                                       | Carbon dioxide (CO2) |
|                                       | Formaldehyde |

| 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. |

**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. |
|                     | 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

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.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion: Vapours may form explosive mixture 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/flashign 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.

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. Do not breathe vapours or spray mist. 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 practice. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the
Exposure Guidelines

<table>
<thead>
<tr>
<th>Product</th>
<th>ACGIH</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>TWA 200 ppm</td>
<td>STEL 250 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin designation:</td>
<td>Can be absorbed through the skin.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL 200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td>NIOSH STEL 250 ppm</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td></td>
<td>US CA OEL TWA PEL 200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td>US CA OEL Ceiling 1,000 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>US CA OEL STEL 250 ppm</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1 PEL 200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1A TWA 200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1A STEL 250 ppm</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Skin designation (Final Rule Limit applies):</td>
<td>Can be absorbed through the skin.</td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid, clear
Color : colourless
Odor : slight alcoholic
pH : not determined
**Material Safety Data Sheet**

**50% Methanol / 50% Water (400)**

Version 1  Revision Date 10/31/2007  Print Date 01/25/2008

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/range</td>
<td>not determined</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>129 hPa</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>1.11 (Air = 1.0)</td>
</tr>
<tr>
<td>Density</td>
<td>0.9264 g/cm³ at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>completely soluble</td>
</tr>
</tbody>
</table>

**SECTION 10. STABILITY AND REACTIVITY**

- **Conditions to avoid**: Heat, flames and sparks. Keep away from direct sunlight.
- **Materials to avoid**: Strong oxidizing agents
  - Aluminium
  - Magnesium
  - 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)
  - Formaldehyde
- **Hazardous reactions**: Hazardous polymerisation does not occur. Stable under recommended storage conditions.

**SECTION 11. TOXICOLOGICAL INFORMATION**

- **Acute oral toxicity**
  - Component: 67-56-1 Methanol
  - LD50 rat
  - Dose: 5,628 mg/kg

- **Acute dermal toxicity**
  - Component: 67-56-1 Methanol
  - LD50 rabbit
  - Dose: 15,800 mg/kg

- **Acute inhalation toxicity**
  - Component: 67-56-1 Methanol
  - LC50 rat
  - Dose: 83.8 mg/l
  - Exposure time: 4 h
Skin irritation (Component)  Component: 67-56-1 Methanol rabbit irritating Exposure time: 24 h

Eye irritation (Component)  Component: 67-56-1 Methanol rabbit eye irritating

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to fish (Component)  : Component: 67-56-1 Methanol LC50 Species: Fathead minnow Dose: 29,400 mg/l Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates (Component)  : Component: 67-56-1 Methanol LC50 Species: Daphnia Dose: 10 g/l Exposure time: 24 h

Additional ecological information  : Accumulation in aquatic organisms is unlikely. The product is readily degradable in the environment. Do not flush into surface water or sanitary sewer system.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Information: Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of according to all federal, state and local applicable regulations.

Other Disposal Considerations: Observe all Federal, State, and Local Environmental regulations.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

SECTION 14. TRANSPORT INFORMATION

DOT Proper shipping name  : Methanol solution
Material Safety Data Sheet

50% Methanol / 50% Water (400)

Version 1  Revision Date 10/31/2007  Print Date 01/25/2008

UN-Number : 1230
Class : 3
Packing group : II

IATA
UN Number : 1230
Description of the goods : Methanol solution
Class : 3
Packaging group : II
Hazard Label : 3 (6.1)
Packing instruction (cargo aircraft) : 307
Packing instruction (passenger aircraft) : 305
(Passenger aircraft) : Y305

IMDG
Substance No. : UN 1230
Description of the goods : Methanol solution
Class : 3
Packaging group : II
Hazard Label : 3 (6.1)
EmS Number : F-E
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

Inventories

EU. EINECS : On or in compliance with the inventory
US. Toxic Substances Control Act : On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act : On or in compliance with the inventory
Japan. Kashin-Hou Law List : On or in compliance with the inventory
Korea. Toxic Chemical Control Law (TCCL) List : On or in compliance with the inventory
Philippines. The Toxic Substances and Hazardous
and Nuclear Waste Control Act
China. Inventory of Existing Chemical Substances: On or in compliance with the inventory
Switzerland. Consolidated Inventory: On or in compliance with the inventory
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand: On or in compliance with the inventory

National regulatory information

SARA 313 Components: Methanol 67-56-1
SARA 311/312 Hazards: Fire Hazard
Acute Health Hazard
Chronic Health Hazard
CERCLA Reportable Quantity: 11312 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: Methanol 67-56-1
New Jersey RTK: Water 7732-18-5
: Methanol 67-56-1
Pennsylvania RTK: Water 7732-18-5
: Methanol 67-56-1
WHMIS Classification: D1B
D2A
D2B
B2
## SECTION 16. OTHER INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>HMIS III</th>
<th>NFPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Hazard</td>
<td>2*</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Instability</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Further information**

* - Chronic health hazard