Methanol (BDH1135-19L, BDH1135-204L, BDH1135-1LP, BDH1135-4LP, BDH1135-4LG)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Methanol (BDH1135-19L, BDH1135-204L, BDH1135-1LP, BDH1135-4LP, BDH1135-4LG)

MSDS Number : 000000011700

Product Use Description : Solvent

Manufacturer : Honeywell
1953 South Harvey Street
Muskegon, MI 49442

Manufactured for : VWR International LLC
Radnor Corporate Center
Building One
Suite 200
100 Matsonford Road
Radnor PA 19087

For more information call : (Monday-Friday, 8.00am-5:00pm)
1-800-932-5000

In case of emergency call : (24 hours/day, 7 days/week)
1-800-424-9300(USA Only)
For Transportation Emergencies:
1-800-424-9300 (CHEMTREC - Domestic)
1-613-966-6666 (CANUTEC - Canada)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form : liquid, clear
Color : colourless
Odor : slight alcohol-like

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. May cause blindness. May cause
irritation of the gastrointestinal tract. Can be absorbed through skin. Repeated exposure may cause skin dryness or cracking. This product may cause adverse reproductive effects. Possible risk of harm to the unborn child.

**Potential Health Effects**

**Skin**
- Irritating to skin.
- Can be absorbed through 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 blindness.

**Ingestion**
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
- Causes headache, drowsiness or other effects to the central nervous system.
- May cause systemic poisoning with symptoms paralleling those of inhalation.

**Inhalation**
- Causes respiratory tract irritation.
- Causes headache, drowsiness or other effects to the central nervous system.
- Inhalation of high vapour concentrations can cause CNS-depression and narcosis.
- May cause blindness.

**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
Target Organs:
- Eyes
- Skin
- 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>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</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: 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
SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : 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/flashback to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO2)
Formaldehyde

Special protective equipment for firefighters : 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.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.
Methods for cleaning up:
- Ventilate the area.
- No sparking tools should be used.
- Use explosion-proof equipment.
- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national 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:
- 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.
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.
<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>SKIN_DES : Skin designation: Can be absorbed through the skin.</td>
<td>2008</td>
<td>ACGIH:US. ACGIH Threshold Limit Values</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL : Short term exposure limit (250 ppm)</td>
<td>2008</td>
<td>ACGIH:US. ACGIH Threshold Limit Values</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA : time weighted average (200 ppm)</td>
<td>2008</td>
<td>ACGIH:US. ACGIH Threshold Limit Values</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>STEL : Short term exposure limit 325 mg/m3 (250 ppm)</td>
<td>2005</td>
<td>NIOSH/GUIDE: US. NIOSH: Pocket Guide to Chemical Hazards</td>
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<tr>
<td></td>
<td></td>
<td>SKIN_DES : Skin designation: Can be absorbed through the skin.</td>
<td>2005</td>
<td>NIOSH/GUIDE: US. NIOSH: Pocket Guide to Chemical Hazards</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
Material Safety Data Sheet

Methanol (BDH1135-19L, BDH1135-204L, BDH1135-1LP, BDH1135-4LP, BDH1135-4LG)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid, clear</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>slight alcohol-like</td>
</tr>
<tr>
<td>pH</td>
<td>Note: not applicable</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Note: not applicable</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>64.7 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>52 °F (11 °C)</td>
</tr>
<tr>
<td></td>
<td>Method: closed cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>ca. 5</td>
</tr>
<tr>
<td></td>
<td>Method: Compared to Butyl acetate.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>6 %(V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>36 %(V)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>129.32 hPa</td>
</tr>
<tr>
<td></td>
<td>at 20 °C(68 °F)</td>
</tr>
<tr>
<td>Vapour density</td>
<td>1.11</td>
</tr>
<tr>
<td></td>
<td>Note: (Air = 1.0)</td>
</tr>
<tr>
<td>Density</td>
<td>0.792 g/cm3 at 20 °C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Note: completely soluble</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>464 °C</td>
</tr>
</tbody>
</table>
Material Safety Data Sheet

Methanol (BDH1135-19L, BDH1135-204L, BDH1135-1LP, BDH1135-4LP, BDH1135-4LG)

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 : LD50: 5,628 mg/kg Species: rat

Acute inhalation toxicity : LC50: 64000 ppm
Exposure time: 4 h
Species: rat

Acute dermal toxicity : LD50: 15,800 mg/kg
Species: rabbit

Skin irritation : Species: rabbit
Classification: irritating
Exposure time: 24 h
Eye irritation
Species: rabbit eye
Result: irritating

Repeatead dose toxicity
Species: rat
Application Route: Inhalation
Test substance: Methanol
Note: Developmental Toxicity NOAEL (maternal toxicity)
10,000 ppm NOAEL (developmental toxicity) 5,000 ppm
Skeletal and visceral malformations.

Genotoxicity in vitro
Methanol
Note: In vitro tests did not show mutagenic effects

Genotoxicity in vivo
Methanol
Note: In vivo tests did not show mutagenic effects

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish
LC50: 29,400 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates.
LC50: 10,000 mg/l
Exposure time: 24 h
Species: Daphnia

Toxicity to bacteria
EC50: 43,000 mg/l
Exposure time: 5 min
Species: Photobacterium phosphoreum

EC50: 40,000 mg/l
Exposure time: 15 min
Species: Photobacterium phosphoreum

EC50: 39,000 mg/l
Exposure time: 25 min
Further information on ecology

Additional ecological information: Accumulation in aquatic organisms is unlikely. The product is readily degradable in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

DOT
- UN/ID No.: UN 1230
- Proper shipping name: METHANOL
- Class: 3
- Packing group: II
- Hazard Labels: 3

IATA
- UN/ID No.: UN 1230
- Description of the goods: METHANOL
- Class: 3
- Packaging group: II
- Hazard Labels: 3 (6.1)
- Packing instruction (cargo aircraft): 364
- Packing instruction (passenger aircraft): 352
- Packing instruction: Y341

IMDG
- UN/ID No.: UN 1230
- Description of the goods: METHANOL
- Class: 3
- Packaging group: II
- Hazard Labels: 3 (6.1)
- EmS Number: F-E
- Marine pollutant: no
SECTION 15. REGULATORY INFORMATION

Inventories

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) : 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. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

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

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

SARA 302 Components : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Methanol 67-56-1
Material Safety Data Sheet

Methanol (BDH1135-19L, BDH1135-204L, BDH1135-1LP, BDH1135-4LP, BDH1135-4LG)

000000011700

Version 1  Revision Date 06/20/2012  Print Date 06/20/2012

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

CERCLA Reportable Quantity: 5000 lbs

California Prop. 65: WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Methanol  67-56-1

Massachusetts RTK: Methanol  67-56-1

New Jersey RTK: Methanol  67-56-1

Pennsylvania RTK: Methanol  67-56-1

WHMIS Classification: B2: Flammable liquid
D1B: Toxic Material Causing Immediate and Serious Toxic Effects
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

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.

SECTION 16. OTHER INFORMATION

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

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.
Further information

The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.
Previous Issue Date: 06/12/2012
Prepared by: Honeywell Performance Materials and Technologies  Product Stewardship Group