### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Reagent Alcohol (BDH1156-1LP, BDH1156-4LP, BDH1156-19L, BDH1156-5GL)</th>
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</thead>
<tbody>
<tr>
<td>MSDS Number</td>
<td>00000001694</td>
</tr>
<tr>
<td>Product Use Description</td>
<td>Solvent</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Honeywell</td>
</tr>
<tr>
<td></td>
<td>1953 South Harvey Street</td>
</tr>
<tr>
<td></td>
<td>Muskegon, MI 49442</td>
</tr>
<tr>
<td>Manufactured for</td>
<td>VWR International LLC</td>
</tr>
<tr>
<td></td>
<td>1310 Goshen Parkway</td>
</tr>
<tr>
<td></td>
<td>West Chester, PA 19380</td>
</tr>
<tr>
<td>For more information call</td>
<td>(Monday-Friday, 8.00am-5:00pm)</td>
</tr>
<tr>
<td></td>
<td>1-800-932-5000</td>
</tr>
<tr>
<td>In case of emergency call</td>
<td>(24 hours/day, 7 days/week)</td>
</tr>
<tr>
<td></td>
<td>1-800-424-9300(USA Only)</td>
</tr>
<tr>
<td></td>
<td><strong>For Transportation Emergencies:</strong></td>
</tr>
<tr>
<td></td>
<td>1-800-424-9300 (CHEMTREC - Domestic)</td>
</tr>
<tr>
<td></td>
<td>1-613-966-6666 (CANUTEC - Canada)</td>
</tr>
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### SECTION 2. HAZARDS IDENTIFICATION

#### Emergency Overview

- **Form**: liquid, clear
- **Color**: colourless
- **Odor**: mild 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. May cause blindness. The product may be absorbed through the skin. Repeated exposure may cause skin dryness or cracking. This product may cause adverse reproductive effects. Possible risk of harm to the unborn child. Avoid exposure to pregnant women especially. Cannot be made non-poisonous.
**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 | Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.  
May cause systemic poisoning with symptoms paralleling those of inhalation.  
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 | 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
- Blood
- 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>Ethanol</td>
<td>64-17-5</td>
<td>90.00</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>5.00</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>5.00</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**

Treatment : Treat symptomatically.

---

**SECTION 5. FIRE-FIGHTING MEASURES**

Flash point : 15 °C (59 °F)
   closed cup
   The information regarding the flash point is that of the pure substance.

Lower explosion limit : not determined

Upper explosion limit : not determined

Suitable extinguishing media : Alcohol-resistant foam
   Carbon dioxide (CO2)
   Dry chemical
   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.
   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:
   Carbon monoxide
   Carbon dioxide (CO2)
   Formaldehyde

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

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

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>Ensure that eyewash stations and safety showers are close to the workstation location.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering measures</td>
<td>Use with local exhaust ventilation. Prevent vapor buildup by providing adequate ventilation during and after use.</td>
</tr>
<tr>
<td>Eye protection</td>
<td>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</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Solvent-resistant gloves Gloves must be inspected prior to use. Replace when worn.</td>
</tr>
<tr>
<td>Skin and body protection</td>
<td>Wear as appropriate: Solvent-resistant apron Flame retardant antistatic protective clothing If splashes are likely to occur, wear: Protective suit</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>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.</td>
</tr>
<tr>
<td>Hygiene measures</td>
<td>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.</td>
</tr>
</tbody>
</table>
Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing.

### Exposure Guidelines

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>OEL (QUE)</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>OEL</td>
<td>1,000 ppm</td>
<td>1,880 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD AB</td>
<td>1,000 ppm</td>
<td>1,880 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD BC</td>
<td>1,000 ppm</td>
<td>1,000 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD ON</td>
<td>1,000 ppm</td>
<td>1,900 mg/m³</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>CAD AB</td>
<td>200 ppm</td>
<td>262 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD AB</td>
<td>250 ppm</td>
<td>328 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD BC</td>
<td>200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD BC</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD ON</td>
<td>200 ppm</td>
<td>260 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD ON</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>67-63-0</td>
<td>CAD AB</td>
<td>400 ppm</td>
<td>983 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD AB</td>
<td>500 ppm</td>
<td>1,230 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD BC</td>
<td>200 ppm</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD BC</td>
<td>400 ppm</td>
<td>400 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD ON</td>
<td>200 ppm</td>
<td>200 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAD ON</td>
<td>400 ppm</td>
<td>400 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL (QUE)</td>
<td>400 ppm</td>
<td>983 mg/m³</td>
</tr>
</tbody>
</table>

Skin designation:
- Can be absorbed through the skin.
Reagent Alcohol (BDH1156-1LP, BDH1156-4LP, BDH1156-19L, BDH1156-5GL)

OEL (QUE)  STEL  500 ppm  1,230 mg/m3

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid, clear
Color : colourless
Odor : mild alcoholic
pH : not applicable
Melting point/range : -114.1 °C (-173.4 °F)
The information regarding melting point/freezing point are those of the pure substance.
Boiling point/boiling range : 78.32 °C (172.98 °F)
The information regarding the boiling point is that of the pure substance.
Vapor pressure : 59.5 hPa
at 20 °C (68 °F)
The information regarding the vapour pressure is that of the solvent.
Relative vapour density : 1.6
(Air = 1.0)
Density : 0.78 g/cm3
The information regarding the density is that of the pure substance.
Water solubility : completely soluble

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Heat, flames and sparks.
Keep away from direct sunlight.
Materials to avoid : Strong oxidizing agents
Potassium superoxide
Bromine Pentafluoride
Acetyl bromide
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 rat
- Dose: 7,060 mg/kg
- Test substance: Ethanol

Acute oral toxicity: LD50 rat
- Dose: 5,628 mg/kg
- Test substance: Methanol

Acute oral toxicity: LD50 rat
- Dose: 5,045 mg/kg
- Test substance: Isopropanol

Acute dermal toxicity: LD50 rabbit
- Dose: 15,800 mg/kg
- Test substance: Methanol

Acute dermal toxicity: LD50 rabbit
- Dose: 12,800 mg/kg
- Test substance: Isopropanol

Acute inhalation toxicity: LC50 rat
- Dose: 20000 ppm
- Exposure time: 10 h
- Test substance: Ethanol

Acute inhalation toxicity: LC50 rat
- Dose: 64000 ppm
- Exposure time: 4 h
- Test substance: Methanol
Dose: 16000 ppm  
Exposure time: 8 h  
Test substance: Isopropanol

**Skin irritation**  
rabbit  
irritating  
Exposure time: 24 h  
Test substance: Methanol

**Skin irritation**  
rabbit  
Mild skin irritation  
Test substance: Isopropanol

**Eye irritation**  
rabbit eye  
irritating  
Test substance: Methanol

**Eye irritation**  
rabbit  
Test substance: Isopropanol  
Severe eye irritation

---

### SECTION 12. ECOLOGICAL INFORMATION

**Biodegradability**  
Biochemical Oxygen Demand (BOD) Biochemical oxygen demand within 5 days  
Biodegradation: 58 %  
Test substance: Isopropanol

**Toxicity to fish**  
LC50  
Species: Fathead minnow  
Dose: 29.4 g/l  
Exposure time: 96 h  
Test substance: Ethanol

**Toxicity to fish**  
LC50  
Species: goldfish  
Dose: > 5 g/l  
Exposure time: 24 h  
Test substance: Isopropanol

**Toxicity to fish**  
LC50  
Species: Leuciscus idus (Golden orfe)  
Dose: 8,970 mg/l  
Exposure time: 48 h
Test substance: Isopropanol

Toxicity to fish:
- LC50
  - Species: Pimephales promelas (fathead minnow)
  - Dose: 10,400 mg/l
  - Exposure time: 96 h
  - Test substance: Isopropanol

Toxicity to daphnia and other aquatic invertebrates:
- LC50
  - Species: Daphnia
  - Dose: 10,000 mg/l
  - Exposure time: 24 h
  - Test substance: Isopropanol

Toxicity to daphnia and other aquatic invertebrates:
- EC50
  - Species: Daphnia magna (Water flea)
  - Dose: > 100 mg/l
  - Exposure time: 48 h
  - Test substance: Isopropanol

Toxicity to algae:
- LC50
  - Species: Scenedesmus subspicatus
  - Dose: > 2,000 mg/l
  - Exposure time: 72 h
  - Test substance: Isopropanol

Toxicity to bacteria:
- EC50
  - Species: Photobacterium phosphoreum
  - Dose: 43,000 mg/l
  - Exposure time: 5 min
  - Test substance: Methanol

Toxicity to bacteria:
- EC50
  - Species: Photobacterium phosphoreum
  - Dose: 40,000 mg/l
  - Exposure time: 15 min
  - Test substance: Methanol

Toxicity to bacteria:
- EC50
  - Species: Photobacterium phosphoreum
  - Dose: 39,000 mg/l
  - Exposure time: 25 min
  - Test substance: Methanol

Toxicity to bacteria:
- EC50
  - Species: Photobacterium phosphoreum
  - Dose: 35,390 mg/l
  - Exposure time: 5 min
  - Test substance: Methanol
Test substance: Isopropanol

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>TDG</th>
<th>UN-Number</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>Alcohols, n.o.s.</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
<td></td>
</tr>
<tr>
<td>IATA</td>
<td>UN Number</td>
<td>1987</td>
</tr>
<tr>
<td>Description of the goods</td>
<td>Alcohols, n.o.s. (ETHANOL, METHANOL, ISOPROPA NOL)</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Packaging group</td>
<td>II</td>
<td></td>
</tr>
<tr>
<td>Hazard Label</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Packing instruction (cargo aircraft)</td>
<td>307</td>
<td></td>
</tr>
<tr>
<td>Packing instruction (passenger aircraft)</td>
<td>305</td>
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<td>IMDG</td>
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<td>Class</td>
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<td>Packaging group</td>
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<tr>
<td>EmS Number</td>
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<tr>
<td>Marine pollutant</td>
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</tr>
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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 Assessment) Act : On the inventory, or in compliance with the inventory


Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Toxic Chemical Control Law (TCCL) List : 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

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

WHMIS Classification : B2

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:
- Ethanol 64-17-5
- Methanol 67-56-1
- Isopropanol 67-63-0

NPRI Components:
- Ethanol 64-17-5
- Methanol 67-56-1
- Isopropanol 67-63-0

SECTION 16. OTHER INFORMATION

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

Further information

* - Chronic health hazard