SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form : Mixture
Product name : Reagent Alcohol, 90% v/v
Product code : VT600
Other means of identification : Ethanol, Denatured, 90% v/v
BIG no : 10113

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : For laboratory and manufacturing use only.

1.3. Details of the supplier of the safety data sheet
Val Tech Diagnostics, A Division of LabChem Inc
Jackson's Pointe Commerce Park Building 1000
1010 Jackson's Pointe Court
Zelienople, PA 16063
T 412-826-5230
F 724-473-0647

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US classification
Flam. Liq. 2 H225
Acute Tox. 4 (Oral) H302
Skin Irrit. 2 H315
Eye Irrit. 2A H319
Repr. 2 H361
STOT SE 3 H336
STOT SE 1 H370

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US) :

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>GHS02</th>
<th>GHS07</th>
<th>GHS08</th>
</tr>
</thead>
</table>

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) :
H225 - Highly flammable liquid and vapour
H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H361 - Suspected of damaging fertility or the unborn child
H370 - Causes damage to organs (central nervous system, optic nerve) (oral, Dermal)

Precautionary statements (GHS-US) :
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe mist, spray, vapours
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
**Reagent Alcohol, 90% v/v**

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### P271 - Use only outdoors or in a well-ventilated area
### P280 - Wear eye protection, face protection, protective clothing, protective gloves
### P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
### P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
### P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
### P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
### P308+P313 - IF exposed or concerned: Get medical advice/attention
### P304+P351+P338 - If skin irritation occurs: Get medical advice/attention
### P337+P313 - If eye irritation persists: Get medical advice/attention
### P362 - Take off contaminated clothing and wash before reuse
### P370+P378 - In case of fire: Use carbon dioxide (CO2), powder, alcohol-resistant foam for extinction
### P403+P233 - Store in a well-ventilated place. Keep container tightly closed
### P405 - Store locked up
### P501 - Dispose of contents/container to comply with local, state and federal regulations

---

2.3. **Other hazards**

Other hazards not contributing to the classification: None.

2.4. **Unknown acute toxicity (GHS-US)**

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. **Substance**

Not applicable

Full text of H-phrases: see section 16

#### 3.2. **Mixture**

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>(CAS No) 64-17-5</td>
<td>74.55 - 80.55</td>
<td>Flam. Liq. 2, H225 Carc. 1A, H350 Repr. 2, H361</td>
</tr>
<tr>
<td>Water</td>
<td>(CAS No) 7732-18-5</td>
<td>9.63 - 14.45</td>
<td>Not classified</td>
</tr>
<tr>
<td>Methanol</td>
<td>(CAS No) 67-56-1</td>
<td>3.34 - 4.83</td>
<td>Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 STOT SE 1, H370</td>
</tr>
</tbody>
</table>

### SECTION 4: First aid measures

#### 4.1. **Description of first aid measures**


**First-aid measures after inhalation**: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

**First-aid measures after skin contact**: Rinse with water. Take victim to a doctor if irritation persists.

**First-aid measures after eye contact**: Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

**First-aid measures after ingestion**: Rinse mouth with water. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.
### 4.2. Most important symptoms and effects, both acute and delayed

<table>
<thead>
<tr>
<th>Symptoms/injuries after inhalation</th>
<th>EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Respiratory difficulties. Central nervous system depression. Symptoms similar to those listed under ingestion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Slight irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Redness of the eye tissue. Lacrimation. ON CONTINUOUS EXPOSURE/CONTACT: Irritation of the eye tissue.</td>
</tr>
</tbody>
</table>

**Chronic symptoms**


### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media**: Water spray. Alcohol-resistant foam. BC powder. Carbon dioxide.

**Unsuitable extinguishing media**: Solid water jet ineffective as extinguishing medium.

### 5.2. Special hazards arising from the substance or mixture

**Fire hazard**: DIRECT FIRE HAZARD. Highly flammable. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD. May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

**Explosion hazard**: DIRECT EXPLOSION HAZARD. Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

**Reactivity**: Upon combustion: CO and CO2 are formed. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Violent to explosive reaction with (some) acids.

### 5.3. Advice for firefighters

**Firefighting instructions**: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat.

**Protection during firefighting**: Heat/fire exposure: compressed air/oxygen apparatus.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**General measures**: Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

#### 6.1.1. For non-emergency personnel


#### 6.1.2. For emergency responders

**Protective equipment**: Equip cleanup crew with proper protection. Avoid breathing mist, spray, Vapors.

**Emergency procedures**: Ventilate area.

### 6.2. Environmental precautions

Prevent spreading in sewers.
**6.3. Methods and material for containment and cleaning up**

**For containment**: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapour with water curtain. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.

**Methods for cleaning up**: Take up liquid spill into a non combustible material e.g.: sand, earth, vermiculite or kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. See “Material-handling” for suitable container materials. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

**6.4. Reference to other sections**

See Heading 8. Exposure controls and personal protection.

---

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Precautions for safe handling**: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

**Hygiene measures**: Wash exposed skin thoroughly after handling.

**7.2. Conditions for safe storage, including any incompatibilities**

**Technical measures**: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/ lighting/… equipment.

**Storage conditions**: Keep container tightly closed. Keep only in the original container in a cool, well ventilated place away from: incompatible materials. Keep in fireproof place.

**Incompatible products**: Strong bases. Strong acids.

**Incompatible materials**: Sources of ignition. Direct sunlight. Heat sources.

**Heat and ignition sources**: KEEP SUBSTANCE AWAY FROM: heat sources. Ignition sources.

**Prohibitions on mixed storage**: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. Water/moisture.

**Storage area**: Keep out of direct sunlight. Store in a dry area. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. Meet the legal requirements.

**Special rules on packaging**: SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

**Packaging materials**: SUITABLE MATERIAL: stainless steel. aluminium. iron. copper. nickel. synthetic material. glass.

---

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Ethanol (64-17-5)**

- USA OSHA OSHA PEL (TWA) (mg/m³) 1900 mg/m³
- USA OSHA OSHA PEL (TWA) (ppm) 1000 ppm

**Isopropyl Alcohol (2-Propanol) (67-63-0)**

- USA ACGIH ACGIH TWA (ppm) 200 ppm
- USA ACGIH ACGIH STEL (ppm) 200 ppm
- USA OSHA OSHA PEL (TWA) (mg/m³) 980 mg/m³
- USA OSHA OSHA PEL (TWA) (ppm) 400 ppm

**Methanol (67-56-1)**

- USA ACGIH ACGIH TWA (ppm) 200 ppm
Reagent Alcohol, 90% v/v
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Methanol (67-56-1)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH STEL (ppm)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>OSHA PEL (TWA) (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>200 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>260 mg/m³</td>
<td>200 ppm</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

- Personal protective equipment: Avoid all unnecessary exposure.
- Materials for protective clothing:
  - GIVE EXCELLENT RESISTANCE: butyl rubber, viton.
  - GIVE GOOD RESISTANCE: neoprene, tetrafluoroethylene.
  - GIVE LESS RESISTANCE: nitrile rubber, polyethylene.
  - GIVE POOR RESISTANCE: natural rubber, PVA, PVC.

- Hand protection: Gloves.
- Eye protection: Safety glasses.
- Skin and body protection: Protective clothing.
- Respiratory protection: Wear gas mask with filter type A if conc. in air > exposure limit.
- Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state: Liquid
- Appearance: Liquid.
- Molecular mass: 46.07 g/mol
- Colour: Colourless.
- Odour: Alcohol odour. Pleasant odour.
- Odour threshold: 100 ppm
  - 188 mg/m³
- pH: No data available
- Relative evaporation rate (butylacetate=1): 2.4
- Relative evaporation rate (ether=1): 8.3
- Melting point: No data available
- Freezing point: No data available
- Boiling point: No data available
- Flash point: 25 °C
- Self ignition temperature: No data available
- Decomposition temperature: No data available
- Flammability (solid, gas): No data available
- Vapour pressure: No data available
- Relative vapour density at 20 °C: 1.6
- Relative density: No data available
- Density: 0.82 g/l
- Solubility:
  - Soluble in water.
  - Soluble in ether.
  - Soluble in acetone.
  - Soluble in chloroform.
  - Soluble in oils/fats.
  - Soluble in methanol.
  - Soluble in acids.
  - Water: Complete
  - Ethanol: Not applicable
  - Ether: Complete
  - Acetone: Complete
- Log Pow: No data available
- Log Kow: No data available
- Viscosity, kinematic: No data available
- Viscosity, dynamic: No data available
- Explosive properties: No data available
- Oxidising properties: No data available
- Explosive limits:
  - 3.3 - 19.0 vol %
  - 67 - 290 g/m³
9.2. Other information

Other properties: Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Volatile. Substance has neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Upon combustion: CO and CO2 are formed. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Violent to explosive reaction with (some) acids.

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products


SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50 oral rat</th>
<th>LD50 dermal rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (64-17-5)</td>
<td>&gt; 10740 mg/kg Rat</td>
<td>&gt; 16000 mg/kg Rabbit</td>
</tr>
<tr>
<td>Isopropyl Alcohol (2-Propanol) (67-63-0)</td>
<td>5045 mg/kg (5840 mg/kg bodyweight; Rat; Experimental value)</td>
<td>12870 mg/kg (16.4; Rabbit; Experimental value)</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>≥ 90000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Methanol (67-56-1)</td>
<td>&gt; 5000 mg/kg (1187-2769 mg/kg bodyweight; Rat; Rat)</td>
<td>15800 mg/kg (Rabbit)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.

Serious eye damage/irritation: Causes serious eye irritation.

Respiratory or skin sensitisation: Not classified.

Germ cell mutagenicity: Not classified.

Based on available data, the classification criteria are not met.

Carcinogenicity: Not classified.

Ethanol (64-17-5)

IARC group: 1 - Carcinogenic to humans.

Isopropyl Alcohol (2-Propanol) (67-63-0)

IARC group: 3 - Not classifiable.

Reproductive toxicity: Suspected of damaging fertility or the unborn child.

Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure) : May cause drowsiness or dizziness. Causes damage to organs (central nervous system, optic nerve) (oral, Dermal).

Specific target organ toxicity (repeated exposure) : Not classified
Based on available data, the classification criteria are not met

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential Adverse human health effects and symptoms : EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Respiratory difficulties. Central nervous system depression. Symptoms similar to those listed under ingestion.

Symptoms/injuries after inhalation : Slight irritation.

Symptoms/injuries after skin contact : Redness of the eye tissue. Lacrimation. ON CONTINUOUS EXPOSURE/CONTACT: Irritation of the eye tissue.

Symptoms/injuries after eye contact : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Irritation of the eye tissue.


SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Not harmful to fishes (LC50(96h) >1000 mg/l). Not harmful to invertebrates (Daphnia). Slightly harmful to algae (EC50 (72h): 100 - 1000 mg/l). Not harmful to bacteria (EC50 >1000 mg/l). Inhibition of activated sludge.

<table>
<thead>
<tr>
<th>Reagent Alcohol, 90% v/v</th>
<th>Threshold limit other aquatic organisms 1</th>
<th>65 mg/l (72 h; Protozoa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold limit algae 1</td>
<td>1450 mg/l (192 h; Microcystis aeruginosa; Growth rate)</td>
<td></td>
</tr>
<tr>
<td>Threshold limit algae 2</td>
<td>5000 mg/l (168 h; Scenedesmus quadricauda; Growth rate)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
</tr>
<tr>
<td>Threshold limit other aquatic organisms 1</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
</tr>
<tr>
<td>Threshold limit algae 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Isopropyl Alcohol (2-Propanol) (67-63-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
</tr>
<tr>
<td>Threshold limit algae 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
</tr>
<tr>
<td>Threshold limit other aquatic organisms 1</td>
</tr>
</tbody>
</table>
Reagent Alcohol, 90% v/v

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<table>
<thead>
<tr>
<th>Substance</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol (67-56-1)</td>
<td>Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the substance available.</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.8 - 1.12 g O²/g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.42 g O²/g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>1.5 g O²/g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>0.8 % ThOD</td>
</tr>
</tbody>
</table>

| Ethanol (64-17-5)          | Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the substance available. |
|                            | Biochemical oxygen demand (BOD) 0.8 - 0.967 g O²/g substance                                      |
|                            | Chemical oxygen demand (COD) 1.70 g O²/g substance                                               |
|                            | ThOD 2.10 g O²/g substance                                                                       |
|                            | BOD (% of ThOD) 0.43 % ThOD                                                                     |

| Isopropyl Alcohol (2-Propanol) (67-63-0) | Readily biodegradable in water. Biodegradable in the soil under anaerobic conditions. No (test)data on mobility of the substance available. |
|                                         | Biochemical oxygen demand (BOD) 1.19 g O²/g substance                                             |
|                                         | Chemical oxygen demand (COD) 2.23 g O²/g substance                                               |
|                                         | ThOD 2.40 g O²/g substance                                                                       |
|                                         | BOD (% of ThOD) 0.49 % ThOD                                                                     |

| Water (7732-18-5)             | Not established.                                                                               |

12.3. Bioaccumulative potential

| Ethanol (64-17-5)             | Log Pow -0.31 (Experimental value)                                                            |
|                            | Bioaccumulative potential Low potential for bioaccumulation (Log Kow < 4).                   |

| Isopropyl Alcohol (2-Propanol) (67-63-0) | Log Pow 0.05 (Experimental value)                                                             |
|                                         | Bioaccumulative potential Low potential for bioaccumulation (Log Kow < 4).                    |

| Water (7732-18-5)             | Bioaccumulative potential Not established.                                                    |

12.4. Mobility in soil

| Ethanol (64-17-5)             | Surface tension 0.022 N/m (20 °C)                                                            |

| Isopropyl Alcohol (2-Propanol) (67-63-0) | Surface tension 0.021 N/m (25 °C)                                                            |

| Methanol (67-56-1)            | Surface tension 0.023 N/m (20 °C)                                                            |
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12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Do not discharge into surface water. May be discharged to wastewater treatment installation.

Additional information : LWCA (the Netherlands): KGA category 03. Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1987 Alcohols, n.o.s. (Ethanol, methanol), 3, III
UN-No.(DOT) : 1987
DOT NA no. : UN1987
DOT Proper Shipping Name : Alcohols, n.o.s.
Ethanol, methanol

Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102) : 172 - This entry includes alcohol mixtures containing up to 5% petroleum products.
B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.
IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HN2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T4 - 2.65 178.274(d)(2) Normal............. 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / (1 + a (tr - tf)) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx) : 4b;150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 220 L

DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
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Additional information

Other information : No supplementary information available.

State during transport (ADR-RID) : as liquid.

ADR

Transport document description : UN 1170 ethanol (ethyl alcohol), 3, III, (D/E)

Packing group (ADR) : III

Class (ADR) : 3 - Flammable liquids

Hazard identification number (Kemler No.) : 33

Classification code (ADR) : F1

Danger labels (ADR) : 3 - Flammable liquids

Orange plates :

33

1170

Tunnel restriction code : D/E

Transport by sea

UN-No. (IMDG) : 1170

Class (IMDG) : 3 - Flammable liquids

EmS-No. (1) : F-E

EmS-No. (2) : S-D

Air transport

UN-No. (IATA) : 1170

Class (IATA) : 3 - Flammable Liquids

Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Reagent Alcohol, 90% v/v

SARA Section 311/312 Hazard Classes : Fire hazard

Ethanol (64-17-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isopropyl Alcohol (2-Propanol) (67-63-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Methanol (67-56-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (Specific toxic chemical listings)

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 5000 lb

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

Fire hazard
15.2. International regulations

**CANADA**

<table>
<thead>
<tr>
<th>Reagent Alcohol, 90% v/v</th>
<th>WHMIS Classification</th>
<th>CANADA Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class B Division 3 - Combustible Liquid</td>
<td>Class B Division 3 - Combustible Liquid</td>
</tr>
<tr>
<td></td>
<td>Class D Division 2 Subdivision A - Very toxic material causing other toxic effects</td>
<td>Class D Division 2 Subdivision A - Very toxic material causing other toxic effects</td>
</tr>
</tbody>
</table>

**Isopropyl Alcohol (2-Propanol) (67-63-0)**

<table>
<thead>
<tr>
<th>WHMIS Classification</th>
<th>CANADA Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class B Division 2 - Flammable Liquid</td>
<td>Class B Division 2 - Flammable Liquid</td>
</tr>
<tr>
<td>Class D Division 2 Subdivision B - Toxic material causing other toxic effects</td>
<td>Class D Division 2 Subdivision B - Toxic material causing other toxic effects</td>
</tr>
</tbody>
</table>

**Water (7732-18-5)**

- Listed on the Canadian DSL (Domestic Substances List) inventory.
- WHMIS Classification: Uncontrolled product according to WHMIS classification criteria

**Methanol (67-56-1)**

- Listed on the Canadian DSL (Domestic Substances List) inventory.
- WHMIS Classification: Class B Division 2 - Flammable Liquid, Class D Division 2 Subdivision A - Very toxic material causing other toxic effects, Class D Division 2 Subdivision B - Toxic material causing other toxic effects

**EU-Regulations**

No additional information available

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

**Classification according to Directive 67/548/EEC or 1999/45/EC**

F; R11

Full text of R-phrases: see section 16

15.2.2. National regulations

**Ethanol (64-17-5)**

- Listed on IARC (International Agency for Research on Cancer)

**Water (7732-18-5)**

- Not listed on the Canadian Ingredient Disclosure List

**Methanol (67-56-1)**

- Listed on the Canadian Ingredient Disclosure List

15.3. US State regulations

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

**SECTION 16: Other information**

Indication of changes: Revision - See : *.

Other information: None.

Full text of H-phrases: see section 16:

- Acute Tox. 3 (Dermal): Acute toxicity (dermal), Category 3
- Acute Tox. 3 (Inhalation): Acute toxicity (inhal.), Category 3
### Reagent Alcohol, 90% v/v

**Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Oral)</td>
<td>Acute toxicity (oral), Category 3</td>
</tr>
<tr>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral), Category 4</td>
</tr>
<tr>
<td>Carc. 1A</td>
<td>Carcinogenicity, Category 1A</td>
</tr>
<tr>
<td>Eye Irrit. 2A</td>
<td>Serious eye damage/eye irritation, Category 2A</td>
</tr>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids, Category 2</td>
</tr>
<tr>
<td>Repr. 2</td>
<td>Reproductive toxicity, Category 2</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td>STOT SE 1</td>
<td>Specific target organ toxicity — single exposure, Category 1</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity — Single exposure, Category 3, Narcosis</td>
</tr>
</tbody>
</table>

| H225 | Highly flammable liquid and vapour |
| H301 | Toxic if swallowed |
| H302 | Harmful if swallowed |
| H311 | Toxic in contact with skin |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H331 | Toxic if inhaled |
| H336 | May cause drowsiness or dizziness |
| H350 | May cause cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H370 | Causes damage to organs |

**NFPA health hazard**: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

**NFPA fire hazard**: 3 - Liquids and solids that can be ignited under almost all ambient conditions.

**NFPA reactivity**: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

**HMIS III Rating**

- **Health**: 2 Moderate Hazard - Temporary or minor injury may occur
- **Flammability**: 3 Serious Hazard
- **Physical**: 1 Slight Hazard
- **Personal Protection**: D

**SDS US ValTech**

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