1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Methanol

Cat No.
A408-1; A408-4; A408-4LC; A408-SK4; A411-4; A411-20; A412-1; A412-4; A412-4LC; A412-20; A412-200; A412-200LC; A412-500; A412CU-1300; A412FB-19; A412FB-50; 412FB-115; A412FB-200; A412P-4; A412POP-19; A412POP-200; 412RB-50; A412RB-115; A412RB-200; A412RS-19; A412RS-28; 412RS-50; 412RS-115; A412RS-200; A412SK-4; A412SS-115; A413-4; A413-20; 413-200; A413-500; A433F-1GAL; A433P-4; A433S-4; A433S-20; A433S-200; A434-20; A450-4; A452-1; A452-4; A452-4LC; A452N-119; A452N-219; A452POP-50; 452POP-200; A452RS-19; A452RS-28; A452RS-50; 452RS-115; A452RS-200; A452SK-1; A452SK-4; A452SS-19; A452SS-28; 452SS-50; A452SS-200; A453-1; A453-1LC; A453-500; A454-1; A454-4; A454-4LC; A454RS-28; A454RS-115; A454RS-200; A454SK-4; A454SS-28; A454SS-200; A455-1; A455-4; A455-500; A457-4; A935-4; A935RB-200; A947-4; A947POP-200; A947RS-28; A947RS-115; A947RS-200; A947SS-28; A947SS-50; A947SS-115; A947SS-200; BP1105-1; BP1105-4; BP1105SS-19; BP1105SS-28; LCMSKIT; OPTIMAKIT; SC95-1; SW2-1; TIA947-4; TIA947P-200L; HC4001GAL

Synonyms: Methyl alcohol; (Spectranalyzed; Laboratory; Certified ACS; NF; Histological; Pesticide; HPLC; OPTIMA; LC/MS; GC Resolv; Electronic; Low Water; Peroxide-Free/Sequencing)

Recommended Use: Laboratory chemicals

Company: Fisher Scientific
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION
2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview
Flammable liquid and vapor. Poison, may be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Vapor harmful. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Irritating to eyes and skin. WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

| Appearance | Colorless | Physical State | Liquid | odor | Alcohol-like |

Target Organs
Gastrointestinal tract (GI), Central nervous system (CNS), Eyes, Respiratory system, Skin, Optic nerve, Liver, Kidney, spleen, Blood

Potential Health Effects

Acute Effects

Principle Routes of Exposure

- **Eyes**
  - Irritating to eyes.

- **Skin**
  - Toxic in contact with skin. Irritating to skin.

- **Inhalation**
  - Toxic by inhalation. Vapor harmful. May cause irritation of respiratory tract.

- **Ingestion**
  - Poison, may be fatal or cause blindness if swallowed. Cannot be made non-poisonous. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects
Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects. Component substance is listed on California Proposition 65 as a developmental hazard.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

**Ingestion**
Do not induce vomiting. Call a physician or Poison Control Center immediately.
Notes to Physician
Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>124°C / 53.6°F</td>
</tr>
<tr>
<td>Method</td>
<td>No information available.</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>455°C / 851°F</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>31.00 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>6.0 vol %</td>
</tr>
<tr>
<td>Suitable Extinguishing Media</td>
<td>CO₂, dry chemical, dry sand, alcohol-resistant foam. Use water spray to cool unopened containers.</td>
</tr>
<tr>
<td>Unsuitable Extinguishing Media</td>
<td>Water may be ineffective</td>
</tr>
<tr>
<td>Hazardous Combustion Products</td>
<td>No information available.</td>
</tr>
<tr>
<td>Sensitivity to mechanical impact</td>
<td>No information available.</td>
</tr>
<tr>
<td>Sensitivity to static discharge</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

### Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

### Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

## 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions
Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment. Ensure adequate ventilation.

### Environmental Precautions
Should not be released into the environment.

### Methods for Containment and Clean Up
Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Handling
Use only under a chemical fume hood. Use explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

### Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Flammables area.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>TWA: 200 ppm, STEL: 250 ppm</td>
<td>(Vacated) TWA: 200 ppm, (Vacated) STEL: 250 ppm</td>
<td>IDLH: 6000 ppm TWA: 200 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td>(Vacated) STEL: 325 mg/m³</td>
<td>TWA: 260 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin</td>
<td>STEL: 325 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>TWA: 200 ppm, STEL: 250 ppm</td>
<td>TWA: 200 ppm, STEL: 310 mg/m³</td>
<td>TWA: 200 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td>TWA: 262 mg/m³</td>
<td>STEL: 250 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 328 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment
Eye/face Protection
Tightly fitting safety goggles.
Skin and body protection
Antistatic boots. Wear fire/flame resistant/retardant clothing. Impervious gloves.
Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Appearance: Colorless
odor: Alcohol-like
Odor Threshold: No information available.
pH: No information available.
Vapor Pressure: 128 hPa @ 20 °C
Vapor Density: (Air = 1.0)***
Viscosity: 0.55 cP at 20 °C
Boiling Point/Range: 64.7°C / 148.5°F @ 760 mmHg
Melting Point/Range: -98°C / -144.4°F
Decomposition temperature: No information available.
Flash Point: 12***°C / 53.6°F
Evaporation Rate: 5.2 (ether = 1)
Specific Gravity: 0.791
Solubility: Miscible with water
log Pow: No data available
Molecular Weight: 32.04
Molecular Formula: C H4 O
10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Conditions to Avoid
Incompatible products. Heat, flames and sparks.

Incompatible Materials
Strong oxidizing agents, Strong acids, Acid anhydrides, Acid chlorides, Strong bases, Metals, Peroxides

Hazardous Decomposition Products
Carbon monoxide (CO), Formaldehyde

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing..

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal (Rabbit)</th>
<th>LC50 Inhalation (Dust)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>5628 mg/kg</td>
<td>15800 mg/kg</td>
<td>64000 ppm (Rat) 4 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>83.2 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

Irritation
Irritating to eyes and skin

Toxicologically Synergistic Products
Carbon tetrachloride

Chronic Toxicity

Carcinogenicity
There are no known carcinogenic chemicals in this product

Sensitization
No information available.

Mutagenic Effects
Mutagenic effects have occurred in experimental animals.

Reproductive Effects
Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects
Developmental effects have occurred in experimental animals. Component substance is listed on California Proposition 65 as a developmental hazard.

Teratogenicity
Teratogenic effects have occurred in experimental animals.

Other Adverse Effects
See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available
12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>Not listed</td>
<td>Pimephales promelas: LC50 &gt; 10000 mg/L 96h</td>
<td>EC50 = 39000 mg/L 25 min &lt;br&gt;EC50 = 40000 mg/L 15 min &lt;br&gt;EC50 = 43000 mg/L 5 min</td>
<td>EC50 &gt; 10000 mg/L 24h</td>
</tr>
</tbody>
</table>

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>-0.74</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Should not be released into the environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol - 67-56-1</td>
<td>U154</td>
<td>-</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: UN1230<br>Proper Shipping Name: METHANOL<br>Hazard Class: 3<br>Packing Group: II

TDG

UN-No: UN1230<br>Proper Shipping Name: METHANOL<br>Hazard Class: 3<br>Subsidiary Hazard Class: 6.1<br>Packing Group: II

IATA

UN-No: UN1230<br>Proper Shipping Name: METHANOL<br>Hazard Class: 3<br>Subsidiary Hazard Class: 6.1<br>Packing Group: II
14. TRANSPORT INFORMATION

IMDG/IMO

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>METHANOL</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>3</td>
</tr>
<tr>
<td>Subsidiary Hazard Class</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-659-6</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Database Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>&gt;95</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: Yes
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act
Not applicable
Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OSHA
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>5000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>-</td>
</tr>
</tbody>
</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl alcohol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
Serious risk, Grade 3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
B2 Flammable liquid
D1B Toxic materials
D2B Toxic materials
16. OTHER INFORMATION

Prepared By  Regulatory Affairs
            Thermo Fisher Scientific
            Email: EMSDS.RA@thermofisher.com

Creation Date  27-Apr-2009
Print Date  04-Jun-2012
Revision Summary  (M)SDS sections updated 1 3 16

Disclaimer
The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of MSDS