



Scientific Documentation

I1056, Isopropyl Alcohol, 99 Percent, FCC

Not appropriate for regulatory submission.
Please visit www.spectrumchemical.com or
contact Tech Services for the most up-to-date
information contained in this information
package.

Spectrum Chemical Mfg Corp

769 Jersey Avenue
New Brunswick, NJ 08901
Phone 732.214.1300

Ver4.02 23.May.2016



Dear Customer,

Thank you for your interest in Spectrum's quality products and services.

Spectrum has been proudly serving our scientific community for over 45 years. It is our mission to manufacture and distribute fine chemicals and laboratory products with Quality and delivery you can count on every time.

To accomplish our mission, Spectrum utilizes our sourcing leverage and supplier qualification expertise in offering one of the industry's most comprehensive line of fine chemical products under one brand, in packaging configurations designed to meet your research and production requirements. Our product grades include: USP, NF, BP, EP, JP, FCC, ACS, KSA, Reagent grade, as well as DEA controlled substances. We operate facilities in the United States on the East Coast, West Coast, as well as in Shanghai, China in order to provide the best logistical support for our customers.

At Spectrum, Quality is priority number one. Suppliers with the best qualifications are preferred and we employ full-functioning in-house analytical laboratories at each of our facilities. Our facilities and systems are USFDA registered and ISO certified. We frequently host customer audits and cherish opportunities for improvements. Quality is engrained into our culture. Quality is priority number one.

In the following pages, we have designed and prepared documented scientific information to aid you in your initial qualification or your continual use of our products. Please do not hesitate to contact us if further information or the most up-to-date documentation is desired from any of the covered areas.

We appreciate your business and we look forward to hearing from you.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Wang", with a large, sweeping flourish at the end.

Alan Wang, MSQA, ASQ CQA
Senior Manager of Technical Services
techservices@spectrumchemical.com

23.May.2016

I1056, Isopropyl Alcohol, 99 Percent, FCC

Table of Contents

- Product Specification
- Safety Data Sheet (SDS)
- Manufacturer
- Certification of Quality Management System (QMS)
- Certification of current Good Manufacturing Practices (cGMP)
- Product BSE/TSE Statement
- Product Allergen Statement
- Product Aflatoxin Statement
- General Label Information – Sample Label
- Product Certificate of Analysis Sample(s)
- General Lot Numbering System Guidance
- Stability – Shelf Life Guidance

spectrum[®]
CHEMICAL MFG CORP



Specification for Isopropyl Alcohol, 99 Percent, FCC (I1056)

Item Number	I1056
Item	Isopropyl Alcohol, 99 Percent, FCC
CAS Number	67-63-0
Molecular Formula	C ₃ H ₈ O
Molecular Weight	60.10
MDL Number	
Synonyms	Dimethyl Carbinol ; IPA ; Isopropanol ; Propan-2-ol ; 2-Propanol

Test	Specification	
	Min	Max
ASSAY	99.7 %	
DISTILLATION RANGE	WITHIN 1 C	
ACIDITY (as CH ₃ COOH)		10 mg/kg
LEAD (Pb)		1 mg/kg
NONVOLATILE RESIDUE		10 mg/kg
SPECIFIC GRAVITY		0.7840
SUBS. REDUCING PERMANGANATE (as SO ₂)		TO PASS TEST
WATER		0.2 %
IDENTIFICATION		TO PASS TEST
RETEST DATE		

Spectrum Chemical Mfg Corp

Corporate Headquarters:
769 Jersey Ave.
New Brunswick, NJ 08901
732.214.1300

West Coast Facility:
14422 S. San Pedro St.
Gardena, CA 90248
310.516.8000

SAFETY DATA SHEET

Preparation Date: 4/1/2013

Revision Date: 4/1/2013

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: I1056
Product Name: ISOPROPYL ALCOHOL, 99 PERCENT, FCC

Other means of identification

Synonyms: 1-Methylethanol
1-Methylethyl alcohol
2-Hydroxypropane
2-Propanol
2-Propyl alcohol
Alcojel
Alcool isopropylique (French)
Alcosolve
Avantin
Avantine
Combi-schutz
Dimethylcarbinol
Hartosol
Imsol A
Isohol
Isopropanol
Lutosol
n-Propan-2-ol
Petrohol
sec-Propyl alcohol
Spectrar
Sterisol hand disinfectant
Takineocol
Virahol

CAS #: 67-63-0
RTECS # NT8050000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Solvent. Preservative. Antiseptic. Disinfectant. In pharmaceuticals.
Uses advised against No information available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)

Contact Person:

Regina Wachenheim (East Coast)

2. HAZARDS IDENTIFICATION**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Flammable liquids	Category 2

Label elements**Danger****Hazard statements**

Causes serious eye irritation
 Suspected of damaging fertility or the unborn child
 May cause respiratory irritation. May cause drowsiness or dizziness
 May cause damage to organs through prolonged or repeated exposure
 Highly flammable liquid and vapor

**Hazards not otherwise classified (HNOC)**

Not Applicable

Other hazards

May be harmful if swallowed.

Precautionary Statements - Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Wear eye/face protection
 Do not breathe dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Keep away from heat/sparks/open flames/hot surfaces. — No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use explosion-proof electrical/ventilating/lighting/./? /equipment
 Use only non-sparking tools
 Take precautionary measures against static discharge
 Keep cool

Product code: I1056**Product name:** ISOPROPYL
ALCOHOL, 99 PERCENT, FCC**2 / 13**

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

In case of fire: Use CO₂, dry chemical, or foam for extinction

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Precautionary Statements - Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Isopropyl Alcohol 67-63-0	67-63-0	100	*

4. FIRST AID MEASURES

First aid measures**General Advice:**

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops.

Eye Contact:

Flush eye with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed**Symptoms**

Moderate eye irritation. Mild skin irritation. Central nervous system effects. Dizziness. Drowsiness. Ataxia. Narcosis. Irritability. hallucinations. May cause cardiovascular effects. Cardiac arrhythmias. May affect respiration. Dyspnea (Difficulty breathing and shortness of breath). Respiratory depression. Nausea. Vomiting.

Indication of any immediate medical attention and special treatment needed**Notes to Physician:**

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media:**

Carbon dioxide (CO₂). Dry chemical. Alcohol-resistant foam. Water spray.

Unsuitable Extinguishing Media:

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products:

El monóxido de carbono, dióxido de carbono

Specific hazards:

Flammable. May be ignited by heat, sparks or flames. Container explosion may occur under fire conditions or when heated. Material can burn with invisible flame. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Actions for Firefighters

Specific Methods:

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment

Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities**Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Sensitive to light. Store in light-resistant containers. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents. Acids. Bases. isocyanates. Amines. Ammonia. Halogenated compounds. Halogens. Chlorine. Phosgene. Ethylene oxide. Acetaldehyde. chromium trioxide . Potassium t-butoxide. Aluminum. Oleum.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****National occupational exposure limits****United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Isopropyl Alcohol - 67-63-0	400 ppm TWA 980 mg/m ³ TWA	400 ppm TWA 980 mg/m ³ TWA 500 ppm STEL 1225 mg/m ³ STEL	400 ppm STEL 200 ppm TWA	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Isopropyl Alcohol - 67-63-0	200 ppm TWA 492 mg/m ³ TWA 400 ppm STEL 984 mg/m ³ STEL	200 ppm TWA 400 ppm STEL	200 ppm TWA	400 ppm TWAEV 985 mg/m ³ TWAEV 500 ppm STEV 1230 mg/m ³ STEV

Australia and Mexico

Components	Australia	Mexico
Isopropyl Alcohol 67-63-0	500 ppm STEL 1230 mg/m ³ STEL 400 ppm TWA 983 mg/m ³ TWA	400 ppm TWA 980 mg/m ³ TWA 500 ppm STEL 1225 mg/m ³ STEL

Appropriate engineering controls**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment**Personal Protective Equipment**

- Eye protection:** Goggles. Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.	Appearance: No information available	Color: Clear. Colorless.
Odor: Pleasant. Odor resembling that of a mixture of ethanol and acetone.	Taste Bitter. Burning.	Formula: C3-H8-O
Molecular/Formula weight: 60.1	Flash point (°C): 12	Flashpoint (°C/°F): 12-14 °C/52.6-57.2°F 23.9 °C/75 °F
Flash Point Tested according to: Closed cup Open cup	Lower Explosion Limit (%): 2%	Upper Explosion Limit (%): 12.7%
Autoignition Temperature (°C/°F): 399 °C/750.2 °F	pH: No information available	Melting point/range(°C/°F): -88.5 °C/-127.3 °F
Boiling point/range(°C/°F): 78.3 °C/ °F	Decomposition temperature(°C/°F): No information available	Specific gravity: 0.78505
Density (g/cm3): No information available	Bulk density: No information available	Vapor pressure @ 20°C (kPa): 4.4
Evaporation rate: 21 (ether=1) 1.7-2.3 (n-butyl acetate=1)	Vapor density: 2.07	VOC content (g/L): 785
Odor threshold (ppm): 22	Partition coefficient (n-octanol/water): 0.05 - 0.1	Viscosity: No information available
Miscibility: Miscible with water Miscible with Acetone Miscible with alcohol Miscible with Ether Miscible with Benzene Miscible with Chloroform	Solubility: No information available	

10. STABILITY AND REACTIVITY

Reactivity

Reactive with acids

Reacts with bases

It can react vigorously, violently or explosively with oxidizers

Contact with strong oxidizers may cause fire

Vigorous reaction when mixed with sodium dichromate + sulfuric acid

Explosive reaction can occur when it is mixed with nitroform

Contact with potassium-tert-butoxide can cause ignition

It forms explosive mixtures with trinitromethane, hydrogen peroxide, barium perchlorate

Hydrogen peroxide sharply reduces the autoignition temperature of isopropyl alcohol

After a delay, isopropyl alcohol ignites on contact with dioxgenyl tetrafluoroborate, chromium trioxide, potassium tert-butoxide

It reacts violently with hydrogen-palladium combination, oleum, aluminum triisopropoxide, COCl₂

In the presence of iron salts, thermal decomposition can occur, which in some cases can become explosive

Chemical stability

Stability:

Stable at normal conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Exposure to light. Incompatible materials.

Incompatible Materials: Oxidizing agents. Acids. Bases. isocyanates. Amines. Ammonia. Halogenated compounds. Halogens. Chlorine. Phosgene. Ethylene oxide. Acetaldehyde. chromium trioxide . Potassium t-butoxide. Aluminum. Oleum.

Hazardous decomposition products: Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Skin. Eyes. Inhalation.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	4396mg/kg
ATEmix (dermal)	12800mg/kg
ATEmix (inhalation-gas)	16000mg/l

Component Information

Isopropyl Alcohol - 67-63-0

LD50/oral/rat	= 4396 mg/kg Oral LD50 Rat
LD50/oral/mouse	= 3600 mg/kg (RTECS)
LD50/dermal/rabbit	= 12800 mg/kg Dermal LD50Rabbit
LD50/dermal/rat	= 12800 mg/kg Dermal LD50 Rat
LC50/inhalation/rat	= 16000 ppm Inhalation LC50 Rat 8 h
LC50/inhalation/mouse	= 27.2 mg/l 4 h
Other LD50 or LC50information	=
LD50 oral	6410 mg/kg [Rabbit]

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 4396

LD50/oral/mouse =
Value - Acute Tox Oral = 3600mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = 12870mg/kg

LD50/dermal/rat
VALUE -Acute Tox Dermal = 12800mg/kg

LC50/inhalation/rat

Product code: I1056

Product name: ISOPROPYL
ALCOHOL, 99 PERCENT, FCC

7 / 13

VALUE-Vapor = 72.6mg/l (4-hr)
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = 27.2 mg/l 4 h

Symptoms

Skin Contact: May cause skin irritation. It may be absorbed through the skin. If absorbed through skin it may cause systemic effects.

Eye Contact: Causes eye irritation.

Inhalation Irritating to respiratory system
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause abdominal pain. May affect the cardiovascular system (change in heart rate). May affect cardiovascular system (hypotension, cardiac arrhythmias). May affect respiration (dyspnea, respiratory depression). May affect urinary system (kidneys). May affect peripheral nervous system (peripheral nerve and sensation - spastic paralysis with or without sensory change). It may affect behavior/central nervous system (central nervous system depression, ataxia, general anesthetic). May affect behavior/central nervous system (dizziness, headache). May affect behavior/central nervous system (somnolence). May affect behavior central nervous system (irritability, hallucinations, coma). Aspiration may lead to pulmonary edema. Aspiration into the lungs can cause chemical pneumonitis.

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated skin contact may cause dermatitis and defatting, dryness, and cracking of the skin. Chronic exposure may cause central nervous system effects. Prolonged or repeated ingestion may affect the liver. Prolonged or repeated inhalation may affect the peripheral nervous system (weakness, paresthesia - a tingling, pricking, or numbness of the skin (known as the feeling of "pins and needles") generally of the hands and feet (extremities)). Prolonged or repeated inhalation may affect the liver. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may affect the blood (changes in serum composition, pigmented or nucleated red blood cells).

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: Not classifiable as a human carcinogen. Not classifiable as to its carcinogenicity to humans.

Components	ACGIH - Carcinogens	IARC	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Isopropyl Alcohol	A4 Not Classifiable as a Human Carcinogen	Group 3 - Monograph 71 [1999] Supplement 7 [1987] Monograph 15 [1977]	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)
A4 - Not Classifiable as a Human Carcinogen
IARC (International Agency for Research on Cancer)
Not classifiable as a human carcinogen
NTP (National Toxicology Program)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity	<u>Suspected of damaging fertility or the unborn child</u>
Reproductive Effects:	No information available
Developmental Effects:	Possible risk of harm to the unborn child. May cause adverse developmental effects.
Teratogenic Effects:	May cause birth defects (teratogenic effects) based on animal test data. Showed teratogenic effects in animal experiments.
Specific Target Organ Toxicity	
STOT - single exposure	respiratory system. central nervous system.
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure. liver. kidney. Peripheral Nervous System (PNS). central nervous system. spleen. Blood.
Target Organs:	Skin. Central nervous system. Peripheral nervous system. Brain. Liver. Kidneys. Blood. Spleen.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Isopropyl Alcohol - 67-63-0

Freshwater Algae Data:	1000 mg/L EC50 Desmodesmus subspicatus 72 h 1000 mg/L EC50 Desmodesmus subspicatus 96 h
Freshwater Fish Species Data:	11130 mg/L LC50 Pimephales promelas 96 h static 1 9640 mg/L LC50 Pimephales promelas 96 h flow-through 1 1400000 µg/L LC50 Lepomis macrochirus 96 h 1
Water Flea Data:	13299 mg/L EC50 Daphnia magna 48 h
Persistence and degradability:	No information available
Bioaccumulative potential:	No information available
Mobility:	No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Isopropyl Alcohol	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1219
Proper Shipping Name: Isopropanol
Hazard Class: 3
Subsidiary Risk: Not applicable
Packing Group: II
Marine Pollutant: No data available
ERG No: 129
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: UN1219
Proper Shipping Name: Isopropanol
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

ADR

UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3
Packing Group: II
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-E
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3
Subsidiary Risk: 3
Packing Group: II
Classification Code: No information available
Description: No information available

14. TRANSPORT INFORMATION

ICAO

UN-No: UN1219
Proper Shipping Name: Isopropanol
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Description: No information available

IATA

UN-No: UN1219
Proper Shipping Name: Isopropanol
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 3L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	Philippines (PICCS)	KOREA KECL	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Isopropyl Alcohol</i>	Present	Present	Present KE-29363	Present (2)-207	Present	Present	Present 200-661-7

U.S. Regulations

Isopropyl Alcohol

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey (EHS) List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Minnesota - Hazardous Substance List: Present
California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Isopropyl Alcohol</i>	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>Isopropyl Alcohol</i>	None	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Isopropyl Alcohol	Not Applicable	12/15/1986 12/15/1996

Canada

WHMIS hazard class:

B2 Flammable liquid
D2B Toxic materials

Isopropyl Alcohol

B2 D2B including 70%

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Isopropyl Alcohol	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Isopropyl Alcohol	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Isopropyl Alcohol	Not listed	Not listed

EU Classification

R-phrase(s)

R11 - Highly flammable.
R36 - Irritating to eyes.
R67 - Vapors may cause drowsiness and dizziness.

S -phrase(s)

S 7 - Keep container tightly closed.
S16 - Keep away from sources of ignition - No smoking.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S24/25 - Avoid contact with skin and eyes.

Components	Classification	Concentration Limits:	Safety Phrases
Isopropyl Alcohol	F; R11 Xi; R36 R67	No information	S2 S7 S16 S24/25 S26

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

F - Highly flammable.
Xi - Irritant.

Product code: I1056

Product name: ISOPROPYL
ALCOHOL, 99 PERCENT, FCC

12 / 13



16. OTHER INFORMATION

NFPA	HMIS	Personal Protective Equipment
------	------	-------------------------------



Health Hazard	2
Fire Hazard	3
Reactivity	0



See Section 8.

Preparation Date: 4/1/2013
Revision Date: 4/1/2013
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Material Safety Data Sheet



Manufacturer

Product Covered: I1056, Isopropyl Alcohol, 99 Percent, FCC

Spectrum takes ownership as the manufacturer for the Spectrum product listed above and provides full quality assurance, customer service, and technical product support.

While information concerning the raw material manufacturer of our starting materials is considered proprietary, such information can be made available upon request contingent on demonstration of business volume justification and successful execution of confidential disclosure agreement (CDA).

Requests for disclosure of proprietary raw material manufacturer information may be submitted to the assigned account representative for consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Wang", is written over a light gray rectangular background.

Alan Wang, MSQA, ASQ CQA
Senior Manager of Technical Services
techservices@spectrumchemical.com

23.May.2016

Certificate of Registration

Intertek

This is to certify that the quality management system of

Spectrum Chemicals and Laboratory Products, Inc

Main Site: 14422 South San Pedro Street, Gardena, California, 90248, USA

Additional Sites: 13915 South Main Street, Los Angeles, California, 90061, USA

755 Jersey Avenue, New Brunswick, New Jersey, 08901, USA

769 Jersey Avenue, New Brunswick, New Jersey, 08901, USA

7400 North Oracle Road, Suite 221, Tucson, Arizona, 85704, USA

has been assessed and registered by Intertek as conforming to the requirements of

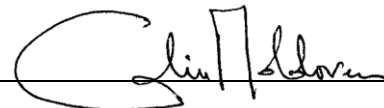
ISO 9001:2008

The quality management system is applicable to

California and New Jersey sites: The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, cosmetic, fragrance, biotechnology, environmental and process industries.

Arizona site: Supporting Spectrum's two manufacturing facilities by: selecting and qualifying distributors of Laboratory and Safety Equipment; processing bids and quotes to generate new sales opportunities; sourcing bulk chemicals in support of bulk bids and quotes; assisting production operations through order expediting and IT infrastructure support.

Certificate Number: 94-316m-01
Initial Certification Date: 27 December 1994
Certificate Issue Date: 29 January 2016
Certificate Expiry Date: 14 September 2018



Calin Moldovean, President
Intertek Testing Services NA, Inc.
900 Chelmsford Street, Suite 301-3, Lowell, MA, USA



In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone.

The certificate remains the property of Intertek, to whom it must be returned upon request.

CT-ISO 9001-2008-ANAB-EN-LT-L-26.jun.15

Certificate of Registration

Intertek

This is to certify that the quality management system of

Spectrum China Ltd.

Building A20, No. 3802, Shengang Road, Songjiang District, Shanghai, China

has been assessed and registered by Intertek as conforming to the requirements of

ISO 9001: 2008

The quality management system is applicable to:

Provision of service of purchase, testing and sales for chemical products, repacking of non-hazardous chemical products.

Organization Code: 77762704-8
Certificate Number: 111310001-01
Certificate Issue Date: 17 November 2015
Certificate Expiry Date: 14 September 2018



014

A handwritten signature in black ink, appearing to read 'Calin Moldovean'.

*Authorised Signature: Calin Moldovean – President, Business Assurance
Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom
Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.*

In the issuance of this certificate, Intertek assumes no liability to any party other than to the client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The annual validity of the certificate can also be checked through the website <http://www.cnca.gov.cn> of CNCA in China.



The certificate remains the property of Intertek, to whom it must be returned upon request.



March 28, 2016

Certificate of cGMP

Dear Valued Customer:

Spectrum Chemicals and Laboratory Products certify that our USP, NF, FCC, EP, BP, JP, and food grade products are produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

Spectrum is an FDA registered and inspected drug establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA:	<u>2020632</u>
Spectrum-New Brunswick, NJ:	<u>2246824</u>
Spectrum -Shanghai, China:	<u>3006174778</u>

Thank you for your interest with Spectrum products. Please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Michelle Weston".

Michelle Weston
Quality Assurance Specialist



May 16, 2016

Certificate of cGMP

Dear Valued Customer:

Spectrum Chemicals and Laboratory Products certify that the following product(s) is produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

Catalog Number	Product Name
I1056	Isopropyl Alcohol, 99 Percent, FCC

Spectrum is an FDA registered and inspected drug establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA: 2020632
Spectrum-New Brunswick, NJ: 2246824
Spectrum-Shanghai, China: 3006174778

Thank you for your interest with Spectrum products. Please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Michelle Weston
Quality Assurance Specialist



May 13, 2016

Re: Isopropyl Alcohol, 99 Percent, FCC- I1056

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding Bovine Spongiform Encephalopathy (BSE). Please be assured that the chemical

Isopropyl Alcohol, 99 Percent, FCC- I1056

is BSE/TSE free.

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature



May 13, 2016

Re: Isopropyl Alcohol, 99 Percent, FCC- I1056

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding the presence of allergens in raw materials. Please be assured that the following chemical does not contain (Milk; Egg; Fish; Shellfish; Sulfur dioxide and sulfites at concentrations of more than 10 mg/kg or 10 mg/liter expressed as SO₂; Tree nuts; Mollusks; Wheat; Peanuts; Soy; Cereals containing Gluten).

Isopropyl Alcohol, 99 Percent, FCC- I1056

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature



May 17, 2016

Re: Isopropyl Alcohol, 99 Percent, FCC- I1056

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfg. Corp. understand the concern regarding Aflatoxins in raw materials. To the best of our knowledge, the product listed below is not contaminated with Aflatoxins. Aflatoxins are not used in production. The following product does not come in contact with Aflatoxins at any stage of production.

Isopropyl Alcohol, 99 Percent, FCC- I1056

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature

Label Information

The Spectrum label presents technical and safety information in an easily understood format. Our technical specialists stay abreast of the latest requirements of the Globally Harmonized System for Classification and Labelling of Chemicals (GHS), as well as the Occupational Safety and Health Administration (OSHA), the Food and Drug Administration (FDA) and other government regulatory agencies in order to ensure compliance, accuracy and concise hazard communication.

DANGER

• Highly flammable liquid or vapor • Can burn with an invisible flame • Causes serious eye irritation • May cause respiratory irritation • May cause drowsiness or dizziness • May cause damage to organs through prolonged or repeated exposure • Suspected of damaging fertility or the unborn child • May be harmful if swallowed • Causes mild skin irritation.

Obtain special instructions before use • Do not handle until all safety precautions have been read and understood • Keep away from heat, sparks, open flames, hot surfaces • No smoking • Ground container and receiving equipment • Use explosion-proof equipment • Use only non-sparking tools • Take precautionary measures against static discharge • Wear protective gloves, protective clothing, eye protection, face protection • Do not breathe mist or vapors • Use only outdoors or in a well-ventilated area • Wash face, hands and any exposed skin thoroughly after handling.

FIRST AID: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. If skin irritation occurs: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

IN CASE OF FIRE: Use dry chemical, water spray, alcohol-resistant foam or CO₂ to extinguish.

KEEP FROM CHILDREN

SPECTRUM[®]

I1056 — 4 L

Isopropyl Alcohol

99%
F.C.C.

CAS 67-63-0

CAUTION: For manufacturing, processing or repacking.
Read and understand the label and Safety Data Sheet (SDS) prior to use.

DOT: UN1219, Isopropanol, 3, PG II

Chemical Emergency: (800)424-9300

www.SpectrumChemical.com

C₃H₈O — F.W. 60.10

Assay (C₃H₈O; by Wt.) Min. 99.7%
Distillation Range Within 1°C, including 82.3°C
Solubility in Water To pass test

MAXIMUM LIMITS

Acidity (as Acetic Acid) 10 mg/kg
Lead 1 mg/kg
Nonvolatile Residue 10 mg/kg
Specific Gravity 0.7840
Substances Reducing Permanganate To pass test
Water 0.2%

WARNING: This product contains a chemical known to the State of California to cause cancer.

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

LIGHT SENSITIVE: Keep tightly closed in light-resistant containers.

NON-PHOTOCHEMICALLY REACTIVE

R 11/E2GHS A Lot No. 062233

- A** Bar Code
- B** GHS Hazard Pictograms
- C** Warning, Safety Data and Precautionary Information
- D** Product Catalog Number
- E** Item Name, Form, Grade
- O** Storage Color Band
- F** Size/Quantity
- G** Chemical Abstracts Service (CAS) Registry Number
- H** Caution Information
- I** DOT Shipping Information
- J** Toll-Free 24-Hour Chemical Emergency Telephone Number
- K** Empirical Formula, Formula Weight and Technical Specifications Panel
- L** Expiration Information
- M** Lot Number
- N** Kosher Certified by Kosher Supervision of America (KSA).

This color-coded band indicates the hazard most likely to be posed by that material under storage conditions. The criteria used to assign band colors have been established by the Storage Code working group of the Society for Chemical Hazard Communication (SCHC). It is recommended that like colors be stored together, unless otherwise stated, based on the color codes indicated to the right. However, it is the responsibility of the customer to check with their local fire department for possible conflicts with our recommendations when storing hazardous chemicals.

- YELLOW:** Oxidizer
- RED:** Flammable
- GREEN:** General Storage
- BLUE:** Health Hazard
- WHITE:** Corrosive

Spectrum Chemical Mfg Corp

Corporate Headquarters:

769 Jersey Ave.
New Brunswick, NJ 08901

732.214.1300

West Coast Facility:

14422 S. San Pedro St.
Gardena, CA 90248

310.516.8000

Item Number	I1056	Lot Number	1EJ0368
Item	Isopropyl Alcohol, 99 Percent, FCC		
CAS Number	67-63-0		
Molecular Formula	C ₃ H ₈ O	Molecular Weight	60.10

Test	Specification		Result
	min	max	
ASSAY	99.7 %		99.93 %
DISTILLATION RANGE	WITHIN 1 C INCLUDING 82.3 C		82.1 - 82.9°C
ACIDITY (as CH ₃ COOH)		10 mg/kg	<10 mg/kg
LEAD (Pb)		1 mg/kg	<1 mg/kg
NONVOLATILE RESIDUE		10 mg/kg	0 mg/kg
SPECIFIC GRAVITY		0.7840	0.7832
SUBS. REDUCING PERMANGANATE (as SO ₂)		TO PASS TEST	PASSES TEST
WATER		0.2 %	0.04 %
IDENTIFICATION		TO PASS TEST	PASSES TEST
RETEST DATE			01-OCT-2020
MANUFACTURE DATE			01-OCT-2015
APPEARANCE			CLEAR COLORLESS LIQUID

Spectrum Chemical Mfg Corp
14422 South San Pedro Street
Gardena 90248 CA

Certificate of Analysis Results Certified By:



Adan Hernandez
Quality Control Manager
Spectrum Chemicals & Laboratory Products



All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.

Item Number	I1056	Lot Number	2FC0081
Item	Isopropyl Alcohol, 99 Percent, FCC		
CAS Number	67-63-0		
Molecular Formula	C ₃ H ₈ O	Molecular Weight	60.10

Test	Specification		Result
	min	max	
ASSAY	99.7 %		99.94 %
DISTILLATION RANGE	WITHIN 1 C INCLUDING 82.3 C		82.3 - 82.6 c
ACIDITY (as CH ₃ COOH)		10 mg/kg	<10 mg/kg
LEAD (Pb)		1 mg/kg	<1 mg/kg
NONVOLATILE RESIDUE		10 mg/kg	0.1 mg/kg
SPECIFIC GRAVITY		0.7840	0.7833
SUBS. REDUCING PERMANGANATE (as SO ₂)		TO PASS TEST	PASSES TEST
WATER		0.2 %	0.03 %
IDENTIFICATION		TO PASS TEST	PASSES TEST
RETEST DATE			22-FEB-2021
DATE OF MANUFACTURE			22-FEB-2016
APPEARANCE			COLORLESS LIQUID

Spectrum Chemical Mfg Corp
755 Jersey Avenue
New Brunswick 08901 NJ

Certificate of Analysis Results Certified By:



Mulbah F. Dwanah
Laboratory Supervisor
Spectrum Chemicals & Laboratory Products

All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.

January 26, 2016

RE: Lot Numbering System

Dear Valued Customer:

This letter is to inform you of Spectrum Chemicals and Laboratory Products' Lot Numbering System. The system is based on an alpha-numerical sequence which provides the month, year and location of production.

The lot numbering system utilized until 2010 is a sequence of **six characters**, two letters followed by four numbers. The first letter represents the year, for example, Y denotes 2009 and Z denotes 2010. The second letter represents the month and site, for example, A-L denotes January through December at Spectrum's Gardena, CA facility, while M-X denotes January through December at the New Brunswick, NJ facility. The following four numbers are sequentially assigned.

Example: ZI0928 = The 928th material produced in California in September 2010

The lot numbering system utilized for 2011 and forward, is a sequence of **seven characters**. The first character, a number, represents the production facility:

- 1 = Gardena, CA Facility
- 2 = New Brunswick, NJ Facility
- 3 = China Facility

The second character, a letter, represents the year. For example, A denotes 2011 and B denotes 2012. The third character, a letter, represents the month, with A denoting January and L denoting December. The following four numbers are sequentially assigned.

Example: 2AA0706 = The 706th material produced in New Jersey in January 2011

Thank you for your interest with Spectrum products. Please feel free to contact us at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,



Michael Dang
Manager, GMP Compliance



Stability – Shelf Life Guidance

Product Covered: I1056, Isopropyl Alcohol, 99 Percent, FCC

Spectrum Chemical's manufacturing partner has assigned the following shelf life guidance for the product listed above.

The product, I1056, Isopropyl Alcohol, 99 Percent, FCC, is assigned a 60 months shelf life from date of manufacturing. The quality and integrity of the chemical depends on the handling and storage conditions. Please refer to the Safety Data Sheet for proper storage and handling procedures.

Adan R. Hernandez
Quality Control Manager

A handwritten signature in black ink, appearing to read "Adan R. Hernandez".

Corporate Headquarters
769 Jersey Avenue
New Brunswick, NJ 08901-3605