



Scientific Documentation

IS115, Isopropyl Alcohol, 99 Percent, USP, EP,
BP, JP

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

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New Brunswick, NJ 08901
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Ver4.04 8.March.2019



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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.

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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 blue ink, appearing to read "Michael Dang", with a long horizontal flourish extending to the right.

Michael Dang
Director, Quality Systems & GMP Compliance
mdang@spectrumchemical.com

8.March.2019

IS115, Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP

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spectrum[®]
CHEMICAL MFG CORP

Item Number	IS115
Item	Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP
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 (C ₃ H ₈ O)	99.0%	
SPECIFIC GRAVITY @ 25°C	0.783	0.787
SPECIFIC GRAVITY @ 20°C	0.785	0.788
REFRACTIVE INDEX @ 20°C	1.376	1.378
ACIDITY		0.70 ml
ACIDITY OR ALKALINITY		0.6 ml
APPEARANCE	CLEAR AND COLORLESS	
CLARITY OF SOLUTION	SOLUTION IS CLEAR	
ABSORBANCE:		
230 nm		0.30
250 nm		0.10
270 nm		0.03
290 nm		0.02
310 nm		0.01
DISTILLING RANGE (MIN. 94%)	81° - 83°C	
NONVOLATILE RESIDUE		20 ppm
WATER		0.5 %
BENZENE AND RELATED SUBSTANCES		2 ppm
TOTAL IMPURITY		0.3 %
PEROXIDES	NO COLOR DEVELOPS	
VOLATILE IMPURITIES		
INDIVIDUAL IMPURITY		0.1 %
TOTAL IMPURITIES		1.0 %
ELEMENTAL IMPURITIES	AS REPORTED	
IDENTIFICATION (A)	SPECTRUM MATCHES REFERENCE	
IDENTIFICATION (B)	RETENTION TIME MATCHES STANDARD	
RETEST DATE		
DATE OF MANUFACTURE		
RESIDUAL SOLVENTS	AS REPORTED	

SAFETY DATA SHEET

Preparation Date: 1/20/2014

Revision Date: 1/16/2018

Revision Number: G3

1. IDENTIFICATION

Product identifier

Product code: IS115
Product Name: ISOPROPYL ALCOHOL, 99 PERCENT, USP, EP, BP, JP

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 Chemical Mfg. Corp
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: Ibad Tirmiz (East Coast)

Product code: IS115

Product name: ISOPROPYL
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2. HAZARDS IDENTIFICATION

Classification

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

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Serious eye damage/eye irritation	Category 2A
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

Can burn with an invisible flame
May be harmful if swallowed
Causes mild skin irritation

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/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

Precautionary Statements - Response

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

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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 skin irritation occurs: Get medical advice/attention
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

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

4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

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

Eye Contact: Flush eyes 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.

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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:

Carbon Monoxide, Carbon Dioxide.

Specific hazards:

Highly 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	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
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	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - 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	400 ppm STEL	None

Australia and Mexico

Components	CAS-No.	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
- 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	Flammability: No information available	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	Autoignition Temperature (°C/°F): 399 °C/750.2 °F	Lower Explosion Limit (%): 2%
Upper Explosion Limit (%): 12.7%	Melting point/range(°C/°F): -88.5 °C/-127.3 °F	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F): 78.3 °C/ °F	Bulk density: No information available	Density (g/cm3): No information available
Specific gravity: 0.78505	pH: 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 strong 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 dioxygenyl tetrafluoroborate, chromium trioxide, potassium tert-butoxide

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

Ignition occurs when potassium tert-butoxide reacts with n-propanol

Chemical stability

Stability:

Stable under recommended storage conditions.

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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

Component Information

Isopropyl Alcohol	
CAS-No.	67-63-0

LD50/oral/rat = 1870 mg/kg Oral LD50 Rat

LD50/oral/mouse = 3600 mg/kg (RTECS)

LD50/dermal/rabbit = 12800 mg/kg(RTECS)

4059 mg/kg(LOLI)

12870 mg/kg(EU Chemicals Bureau IUCLID dataset)

LD50/dermal/rat = No information available

LC50/inhalation/rat = 72.6 mg/l 4 h

16000 ppm Inhalation LC50 Rat 8 h

LC50/inhalation/mouse = 27.2 mg/l 4 h

Other LD50 or LC50 information = LD50 oral 6410 mg/kg [Rabbit]

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

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

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

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

LC50/inhalation/rat
VALUE-Vapor = 72.6 mg/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. Mild skin irritation. It may be absorbed through the skin. If absorbed through skin it may cause systemic effects.

Eye Contact: Causes serious eye irritation. Moderately irritating to the eyes.

Inhalation Irritating to respiratory system. It may affect the cardiovascular system (change in pulse rate). May affect respiration (respiratory depression). Inhalation of high concentrations of vapor may cause anesthetic effects. Inhalation of high concentrations of vapors may cause dizziness or suffocation. May affect behavior/central nervous system (dizziness, loss of coordination, coma). May affect behavior/central nervous system (headache, fatigue, lack of concentration, reduced memory, hallucinations, stupor, unconsciousness). May affect behavior/central nervous system (somnolence).

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. 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, peripheral neuropathy with 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, pigmentated 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	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Isopropyl Alcohol	67-63-0	Group 3 - Not Classifiable - Monograph 71 [1999] Supplement 7 [1987] Monograph 15 [1977]	A4 Not Classifiable as a Human Carcinogen	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)

Group 3 - Not classifiable as to its carcinogenicity to humans

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity Suspected of damaging fertility or the unborn child

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

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Freshwater Algae Data: 1000 mg/L EC50 Desmodesmus subspicatus 96 h 1000 mg/L EC50 Desmodesmus subspicatus 72 h

Freshwater Fish Species Data: 9640 mg/L LC50 Pimephales promelas 96 h flow-through 1 11130 mg/L LC50 Pimephales promelas 96 h static 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	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Isopropyl Alcohol	67-63-0	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1219
Proper Shipping Name: Isopropyl alcohol solution
Hazard Class: 3
Subsidiary Class: No information available
Packing group: II
Emergency Response Guide Number: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): No information available
Description: UN1219,Isopropanol ,3,,PG II

TDG (Canada)

UN-No: UN1219
Proper Shipping Name: Isopropyl alcohol solution
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No Information available
Description: ISOPROPANOL,3,UN1219,PG II

ADR

UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3

Product code: IS115

Product name: ISOPROPYL ALCOHOL, 99 PERCENT, USP, EP, BP, JP

Packing Group: II
Subsidiary Risk: No information available
Description: UN1219 Isopropanol,3,II

IMO / IMDG

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

RID

UN-No: UN1219
Proper Shipping Name: Isopropanol (Isopropyl alcohol)
Hazard Class: 3
Subsidiary Risk: 3
Packing Group: II
Description: UN1219 Isopropanol,3,II,RID

ICAO

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

IATA

UN-No: UN1219
Proper Shipping Name: Isopropyl alcohol solution
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 3L
Special Provisions No information available
Description: UN1219,Isopropanol,3,PG II

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Isopropyl Alcohol</i>	67-63-0	PresentACTIVE	Present KE-29363	Present	Present (2)-207	Present	Present	Present 200-661-7

U.S. Regulations

Isopropyl Alcohol

- Massachusetts RTK:** Present
- New Jersey RTK Hazardous Substance List:** 1076
- New Jersey (EHS) List:** 1076 500 lb TPQ
- New Jersey - Discharge Prevention - List of Hazardous Substances:** Present
- Pennsylvania RTK:** Environmental hazard
- Pennsylvania RTK - Environmental Hazard List** Present
- Minnesota - Hazardous Substance List:** Present

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California Directors List of Hazardous Substances: Present

FDA - Direct Food Additives 21 CFR 172.515, 21 CFR 173.240, 21 CFR 173.340

FDA - 21 CFR - Total Food Additives 172.385, 172.515, 172.560, 172.665, 172.695, 173.240, 173.340, 175.105, 176.180, 176.200, 176.210, 177.1200, 177.2800, 178.1010, 178.3910, 73.1, 73.1001, 73.30, 73.315, 73.345, 73.615

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	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Isopropyl Alcohol	67-63-0	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CAS-No.	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 de minimis
Isopropyl Alcohol	67-63-0	None	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Isopropyl Alcohol	67-63-0	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Isopropyl Alcohol
67-63-0 (100)

WHMIS 2015 Hazard Classification
Flammable liquids - Category 2: H225 Highly flammable liquid and vapour.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation. (70% aqueous solution)

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

WHMIS 1988 Hazard Class

B2 Flammable liquid
D2B Toxic materials

Components
Isopropyl Alcohol

WHMIS 1988
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 -
------------	------------------------------------

Product code: IS115

Product name: ISOPROPYL ALCOHOL, 99 PERCENT, USP, EP, BP, JP

13 / 15

Isopropyl Alcohol	1 %
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Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Isopropyl Alcohol	67-63-0	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Isopropyl Alcohol	67-63-0	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Isopropyl Alcohol	67-63-0	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Isopropyl Alcohol	67-63-0	Flammable liquids - Flam. Liq. 2: H225 Highly flammable liquid and vapour.; Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation.; Specific target organ toxicity - Single exposure - STOT SE 3: H336 May cause drowsiness or dizziness.603-117-00-0

EU - CLP (1272/2008)

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	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Isopropyl Alcohol	67-63-0	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: IS115

Product name: ISOPROPYL
ALCOHOL, 99 PERCENT, USP, EP,
BP, JP

14 / 15

16. OTHER INFORMATION

Preparation Date: 1/20/2014
Revision Date: 1/16/2018
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 Safety Data Sheet



Manufacturer

Product Covered: IS115, Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP

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,

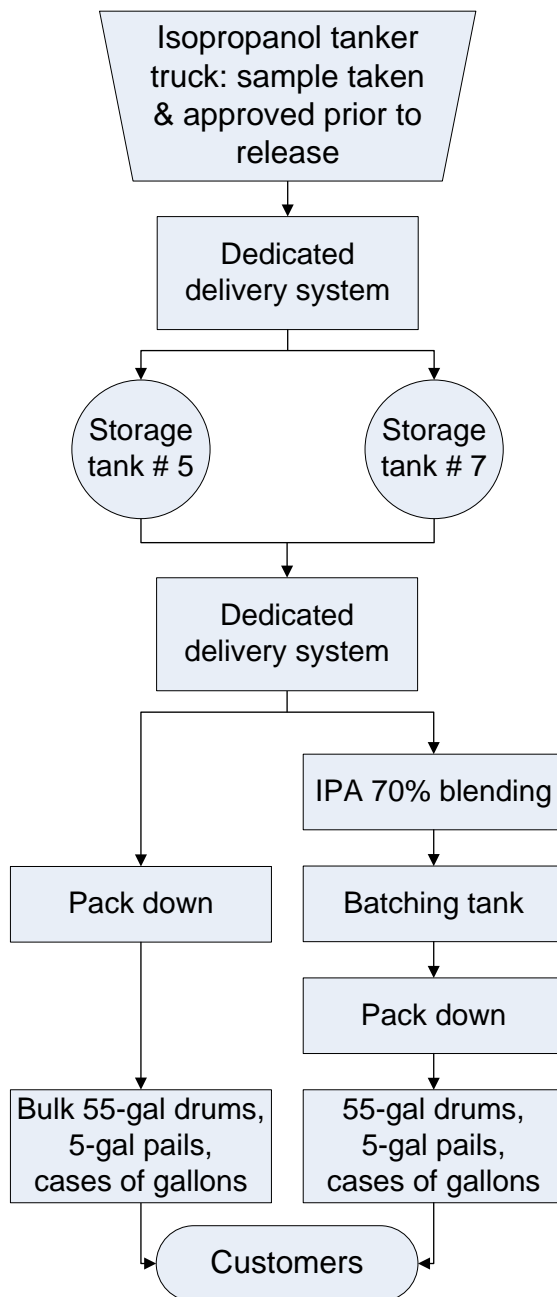
A handwritten signature in blue ink, appearing to read "Michael Dang", with a long horizontal flourish extending to the right.

Michael Dang
Director, Quality Systems & GMP
Compliance
mdang@spectrumchemical.com

8.March.2019

Manufacturing Process Flowchart

Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP - IS115



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

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

Spectrum Chemicals and Laboratory Products, Inc.

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

Additional Site: 13915 South Main Street,
Los Angeles, California, 90061, United States

See appendix for additional sites and additional site scopes

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, compounding pharmacy, cosmetic, fragrance, biotechnology, environmental and process industries.

Certificate Number:

94-316m

Initial Certification Date:

27 December 1994

Date of Certification Decision:

22 January 2019

Issuing Date:

22 January 2019

Valid Until:

28 January 2022



Intertek

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

Calin Moldovean

President, Business Assurance

Intertek Testing Services NA, Inc.,
900 Chelmsford Street,
Lowell, MA 01851.
USA.



APPENDIX TO CERTIFICATE OF REGISTRATION

This appendix identifies the locations covered by the management system of:

Spectrum Chemicals and Laboratory Products, Inc.

This appendix is linked to the Main Certificate # 94-316m and cannot be shown nor reproduced without it.

Spectrum Chemicals and Laboratory Products, Inc.

769 Jersey Avenue,
New Brunswick, New Jersey, 08901, United States

755 Jersey Avenue,
New Brunswick, New Jersey, 08901, United States

777 Jersey Avenue,
New Brunswick, New Jersey, 08901, United States

The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, compounding pharmacy, cosmetic, fragrance, biotechnology, environmental and process industries.

Spectrum Chemicals and Laboratory Products, Inc.

7400 N. Oracle, Suite 201,
Tucson, Arizona, 85704, United States

The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, compounding pharmacy, cosmetic, fragrance, biotechnology, environmental and process industries.



管理体系认证 注册证书

兹证明，以下组织：

斯百全化学(上海) 有限公司

注册地址：上海市松江区申港路3802号41幢

经营地址：上海市松江区申港路3802弄A20

的管理体系，符合以下标准要求并予以注册：

ISO 9001:2015

此管理体系适用于：

药用辅料销售，化学品销售。

统一社会信用代码：

91310000777627048K

证书编号：

111310001

首次认证日期：

2015年11月17日

认证决定日期：

2018年10月15日

签发日期：

2018年10月15日

有效期至：

2021年11月10日



014

Calin Moldovean

President, Business Assurance

Intertek Certification Limited, 10A Victory
Park, Victory Road, Derby DE24 8ZF, United
Kingdom

Intertek Certification Limited
是 UKAS 认可的认证机构，
注册号为 014



CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

Spectrum China Ltd.

Registered Address: Building 41, No.3802, Shengang Road,
Songjiang District, Shanghai, China

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

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

Sales for Pharmaceutical Excipients, Sales for Chemicals.

Unified Social Credit Identifier:

91310000777627048K

Certificate Number:

111310001

Initial Certification Date:

17 November 2015

Date of Certification Decision:

15 October 2018

Issuing Date:

15 October 2018

Valid Until:

10 November 2021



014

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

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.



January 08, 2019

Certification of Compliance with current Good Manufacturing Practices

Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies 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 and parts 110 and 111 of the Code of Federal Regulations, respectively.

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

Spectrum Gardena, California: 2020632
Spectrum New Brunswick, New Jersey: 2246824

Thank you for your interest in Spectrum products. Please feel free to contact me at 310-516-8000, extension 5610 or via email at mdang@spectrumchemical.com if I may be of further assistance.

Sincerely,



Michael Dang
Director, Quality Systems & GMP Compliance

CORPORATE HEADQUARTERS

769 Jersey Avenue
New Brunswick, NJ 08901
PHONE 732.214.1300
FAX 732.246.7132

WEST COAST FACILITY

14422 South San Pedro Street
Gardena, California 90248
PHONE 310.516.8000
FAX 310.516.9843

March 8, 2019

Certification of Compliance with current Good Manufacturing Practices

Dear Valued Customer:

Spectrum Chemical Mfg Corp certifies 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
IS115	Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP

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: 03006174778

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

Sincerely,



Oralia Chavez
Quality Assurance Specialist



April 14, 2016

Re: Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP- IS115

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, USP, EP, BP, JP- IS115

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



April 14, 2016

Re: Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP- IS115

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 (Apples, Aspartame (Phenylalanine), Bananas, Bee Pollen, Beef, Buckwheat, Chicken, FD&C Yellow #5 (Tartrazine), Gelatin, Guarana, Kiwi, Lupins, Maltitol, Mannitol, Matsutake Mushrooms, Mollusks, Monosodium Glutamate (MSG), Mustard, Oranges, Peaches, Pork & pork products, Propolis, Quinine, Royal Jelly, Seed & Seeds products, Sulfites & Sulfur Dioxide, Tomatoes, Yams, Milk and milk products, Egg and egg products, Fish, Crustacean Shellfish, Tree Nuts, Wheat and wheat products, Peanut and peanut products, Soybean and soybean products, Cereals containing Gluten, Celery, and Sesame Seed).

Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP- IS115

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



April 14, 2016

Re: Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP-IS115

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, USP, EP, BP, JP-IS115

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 the 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.

IS115 — **4 L**
Isopropyl Alcohol
 99%
 U.S.P., E.P., B.P., J.P.
 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
KEEP FROM CHILDREN
SPECTRUM CHEMICAL MFG. CORP.
 Gardena, CA 90248 • New Brunswick, NJ 08901

C₃H₈O — **F.W. 60.10**
 Assay (C₃H₈O)Min. 99.0%
 Specific Gravity @ 25°C0.783-0.787
 Specific Gravity @ 20°C0.785-0.788
 Refractive Index @ 20°C1.376-1.378
 AcidityTo pass test
 Acidity or AlkalinityTo pass test
 AppearanceTo pass test
 Clarity of SolutionTo pass test
 AbsorbanceTo pass test
 Distilling Range (Min. 94%)81°-83°C
MAXIMUM LIMITS
 Nonvolatile Residue20 ppm
 Water0.5%
 Benzene and Related SubstancesTo pass test
 PeroxidesTo pass test
 Volatile ImpuritiesTo pass test
 Residual SolventsTo pass test
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 15/E2GH5
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
- M** 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** Lot Number

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	IS115	Lot Number	1HI0678
Item	Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP		
CAS Number	67-63-0		
Molecular Formula	C ₃ H ₈ O	Molecular Weight	60.10

Test	Specification		Result
	min	max	
ASSAY (C ₃ H ₈ O)	99.0%		100.0 %
SPECIFIC GRAVITY @ 25°C	0.783	0.787	0.783
SPECIFIC GRAVITY @ 20°C	0.785	0.788	0.786
REFRACTIVE INDEX @ 20°C	1.376	1.378	1.377
ACIDITY		0.70 ml	0.65 ml
ACIDITY OR ALKALINITY		0.6 ml	<0.6 ml
APPEARANCE	CLEAR AND COLORLESS		CLEAR COLORLESS LIQUID
CLARITY OF SOLUTION	SOLUTION IS CLEAR		SOLUTION IS CLEAR
ABSORBANCE:	.		.
230 nm		0.30	0.06
250 nm		0.10	0.01
270 nm		0.03	0.01
310 nm		0.02	0.00
DISTILLING RANGE (MIN. 94%)	81° - 83°C		81° - 83°C
NONVOLATILE RESIDUE		20 ppm	0 ppm
WATER		0.5 %	0.03 %
BENZENE AND RELATED SUBSTANCES		2 ppm	<2 ppm
TOTAL IMPURITY		0.3 %	<0.1 %
PEROXIDES	NO COLOR DEVELOPS		NO COLOR DEVELOPS
VOLATILE IMPURITIES	.		.
INDIVIDUAL IMPURITY		0.1 %	<0.1 %
TOTAL IMPURITIES		1.0 %	<0.1 %
ELEMENTAL IMPURITIES	AS REPORTED		NO ELEMENTAL IMPURITIES PRESENT
IDENTIFICATION (A)	SPECTRUM MATCHES REFERENCE		SPECTRUM MATCHES REFERENCE
IDENTIFICATION (B)	RETENTION TIME MATCHES STANDARD		RETENTION TIME MATCHES STANDARD
RETEST DATE			23-AUG-2023
DATE OF MANUFACTURE			23-AUG-2018
RESIDUAL SOLVENTS	AS REPORTED		.
CLASS 2 (SOLVENT) / METHANOL			<3000 ppm
CLASS 3 (solvent) / ACETONE			<5000 ppm
CLASS 3 (solvent) / ETHANOL			<5000 ppm
CLASS 3 (solvent) / 1-PROPANOL			<5000 ppm

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.

Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.

Item Number	IS115	Lot Number	2HG0037
Item	Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP		
CAS Number	67-63-0		
Molecular Formula	C ₃ H ₈ O	Molecular Weight	60.10

Test	Specification		Result
	min	max	
ASSAY (C ₃ H ₈ O)	99.0%		99.94 %
SPECIFIC GRAVITY @ 25°C	0.783	0.787	0.783
SPECIFIC GRAVITY @ 20°C	0.785	0.788	0.785
REFRACTIVE INDEX @ 20°C	1.376	1.378	1.377
ACIDITY	TO PASS TEST		PASSES TEST
ACIDITY OR ALKALINITY	TO PASS TEST		PASSES TEST
APPEARANCE	TO PASS TEST		PASSES TEST
CLARITY OF SOLUTION	TO PASS TEST		PASSES TEST
ABSORBANCE	TO PASS TEST		PASSES TEST
DISTILLING RANGE (MIN. 94%)	81° - 83°C		81° - 83°C
NONVOLATILE RESIDUE		20 ppm	0 ppm
WATER		0.5 %	0.02 %
BENZENE AND RELATED SUBSTANCES	TO PASS TEST		PASSES TEST
PEROXIDES	TO PASS TEST		PASSES TEST
VOLATILE IMPURITIES	TO PASS TEST		PASSES TEST
ELEMENTAL IMPURITIES	AS REPORTED		NO ELEMENTAL IMPURITIES PRESENT
IDENTIFICATION	TO PASS TEST		PASSES TEST
RETEST DATE			22-JUN-2023
DATE OF MANUFACTURE			22-JUN-2018
RESIDUAL SOLVENTS	TO PASS TEST		PASSES TEST
CLASS 2 (SOLVENT) / METHANOL			<3000 ppm
CLASS 3 (solvent) / ACETONE			<5000 ppm
CLASS 3 (solvent) / ETHANOL			<5000 ppm
CLASS 3 (solvent) / 1-PROPANOL			<5000 ppm

Spectrum Chemical Mfg Corp
755 Jersey Avenue
New Brunswick 08901 NJ



Certificate Of Analysis Results Certified by



Ibad Tirmizi
Director of Quality
Spectrum Chemical Mfg. Corp.

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

Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.

June 15, 2018

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: Z10928 = 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
Director, Quality Systems & GMP Compliance
mdang@spectrumchemical.com



Stability – Shelf Life Guidance

Product Covered: IS115, Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP

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

The product, IS115, Isopropyl Alcohol, 99 Percent, USP, EP, BP, JP, 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