

Tebol 99 ALCOHOL

Version 1.1

Revision Date 07/08/2014

Print Date 03/23/2015

SDS No.: BE118

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Tebol 99 ALCOHOL
CAS Number: 75-65-0
Chemical characterization : Aliphatic alcohols
Chemical Name : t-Butyl Alcohol
Synonyms : Tert-Butanol, 2-Methyl, 2-Propanol, T-Butyl alcohol, TBA 99

Use of the Substance/Mixture : Solvent

Company : Lyondell Chemical Company
LyondellBasell Tower, Suite 300
1221 McKinney St.
P.O. Box 2583
Houston Texas 77252-2583

Telephone : Customer Service 888 777-0232
Product Safety 800 700-0946

Emergency telephone : CHEMTREC USA 800-424-9300
LYONDELL 800-245-4532

E-mail address : product.safety@lyondellbasell.com

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids	Category 2
Eye irritation	Category 2A
Specific target organ systemic toxicity - single exposure	Category 3

GHS Classification Scale (1= severe hazard; 4= slight hazard)

Label elements**Hazard symbols** :**Signal Word** : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

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H336 May cause drowsiness or dizziness.

Precautionary Statements : Prevention

P210 Keep away from open flames/hot surfaces. - No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash hands thoroughly after handling.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P362 Take off contaminated clothing and wash before reuse.

Storage

P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Other hazards

No additional information available.

3. Composition/information on ingredients**Substances**

Chemical nature : Substance

Ingredients

Chemical Name	CAS-No. EC-No.	Weight %	Component Type
tert-Butyl Alcohol	75-65-0	> 99.0 %	A

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Isopropyl Alcohol	67-63-0	<=0.27 %	C
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Key:

(A) Substance

(C) Impurity

SECTION 4. FIRST AID MEASURES**First aid procedures**

- General advice** : Remove contaminated shoes and clothing.
Consult a physician/doctor if necessary.
Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 2 of this SDS.
Show this material safety data sheet to the doctor in attendance.
- If inhaled** : Remove to fresh air.
Keep patient warm and at rest.
Do not leave the victim unattended.
If breathing is difficult, give oxygen.
If unconscious place in recovery position and seek medical advice.
In the event of unconsciousness, apnea or cardiac arrest (no pulse) apply cardiopulmonary resuscitation.
GET MEDICAL ATTENTION IMMEDIATELY!
- In case of skin contact** : Wash skin thoroughly with mild soap and water.
Flush with lukewarm water for 15 minutes.
Take off contaminated clothing and wash before reuse.
If sticky, use waterless cleaner first.
Seek medical attention if ill effect or irritation develops.
- In case of eye contact** : Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention.
Remove contact lenses.
Retract eyelids often.
- If swallowed** : If large quantity swallowed, give lukewarm water (pint/ 1/2 litre) if victim completely conscious/alert.
Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk.
Never give anything by mouth to an unconscious person.
Do not give milk or alcoholic beverages.
Obtain emergency medical attention.

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Notes to physician

- Symptoms** : Severe irritation
Symptoms are characterized by coughing, choking, or shortness of breath and may cause transient central nervous system (CNS) depression.
The onset of respiratory symptoms may be delayed for several hours after exposure.
- Hazards** : May cause harm to the unborn child.
Causes serious eye irritation.
Can cause pulmonary edema if aspirated into lungs.
- Treatment** : In case of ingestion, the stomach should be emptied by gastric lavage under qualified medical supervision.
Treat symptomatically.
Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIRE-FIGHTING MEASURES**Flammable properties**

Flash point : 59 °F (15 °C)
at 1,013 hPa (760 mm Hg)
Method: (Closed Cup)

Autoignition temperature : 878.1 °F (470.1 °C)
at 1,013 hPa (760 mm Hg)

Lower explosion limit : 2.4 vol%

Upper explosion limit : 8 vol%

Fire fighting

Suitable extinguishing media : SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.
Do not use straight streams

Unsuitable extinguishing media : Do not use solid water stream/may spread fire.

Further information : Eliminate all sources of ignition.
Always stay away from tanks engulfed in fire.
Cool containers with flooding quantities of water until well after fire is out.

Protective equipment and precautions for firefighters

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- Specific hazards during fire fighting : Flash point less than freeze point.
When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.
Heat/contamination can release extremely flammable isobutylene gas.
Diluting with water may not suffice to raise flash point above ambient temperatures.
Vapors may be heavier than air.
May travel long distances along the ground before igniting and flashing back to vapor source.
Move containers from fire area if it can be done without risk.
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
Blanket with alcohol-resistant foam.
Cool containers with flooding quantities of water until well after fire is out.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Always stay away from tanks engulfed in fire.
For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Special protective equipment for fire-fighters : Do not enter fire area without proper protection.
Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighter's protective clothing will only provide limited protection.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for containment /
Methods for cleaning up : Extremely flammable liquid/frozen form may also be highly flammable.
Eliminate all sources of ignition.
All equipment used when handling this product must be grounded.
Do not touch or walk through spilled material.
Stop leak if you can do it without risk.
Prevent entry into waterways, sewers, basements or confined areas.

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A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Dike large spills and place materials in salvage containers. Water spray may reduce vapor; but may not prevent ignition in closed spaces. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Additional advice : Avoid direct contact with released material. Stay upwind. Mark the contaminated area with signs and prevent access to unauthorized personnel. See section 8 for additional PPE information. See section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE**Handling**

Advice on safe handling : For industrial use only. Keep container tightly closed when not in use. Use only non-sparking tools. Containers must be properly grounded before beginning transfer. Carefully vent any internal pressure before removing closure. Wear recommended personal protective equipment. Extinguish all ignition sources. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Observe precautions pertaining to confined space entry. Check atmosphere for explosiveness and oxygen deficiencies. All electrical equipment should be grounded and conform to applicable electric codes and regulatory requirements. Handle empty containers with care; vapor residue may be flammable/explosive. Thaw frozen containers only at room temperature. Do not overfill containers. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on protection against fire and explosion : Use only in area provided with appropriate exhaust ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take measures to prevent the build up of electrostatic charge.

Storage

Requirements for storage areas and containers : Store in tightly closed/properly vented containers away from heat/sparks/open flame and strong oxidizing agents/acids.

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Store closed drums with bung in up position.
 Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas.
 Protect from freezing.
 Electrical installations / working materials must comply with the technological safety standards.
 Keep container tightly closed and properly labeled.
 Store in a well-ventilated place. Keep container tightly closed.
 Do not store this material in aluminum containers.
 Stainless steel preferred for storage.

Further information on storage conditions : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Other data : Stable under normal conditions.
 No decomposition if stored and applied as directed.

8. Exposure controls/personal protection**Control parameters****Ingredients with workplace control parameters****Occupational Exposure Limits**

Ingredients	CAS-No.	Type	Limit Value	Basis Revision Date	Additional Information
tert-Butyl Alcohol	75-65-0	TWA	100 ppm	US (ACGIH) 2012	
tert-Butyl Alcohol	75-65-0	IDLH	1,600 ppm	NIOSH September 2007	
tert-Butyl Alcohol	75-65-0	TWA	100 ppm 300 mg/m ³	US (OSHA) June 23, 2006	
Isopropyl Alcohol	67-63-0	STEL	400 ppm	US (ACGIH) 2012	
Isopropyl Alcohol	67-63-0	TWA	200 ppm	US (ACGIH) 2012	
Isopropyl Alcohol	67-63-0	IDLH	2,000 ppm	NIOSH September 2007	
Remarks: 10% LEL					
Isopropyl Alcohol	67-63-0	TWA	400 ppm 980 mg/m ³	US (OSHA) June 23, 2006	

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Consult local authorities for acceptable exposure limits.

Biological Exposure Indices

Ingredients	CAS-No.	Control parameters	Biological specimen	Sampling time	Concentration	Basis
Isopropyl Alcohol	67-63-0	Acetone	urine	end of shift at end of workweek	40 mg/l	ACGIH_BEI S
Remarks: background, nonspecific.						

Exposure controls**Engineering measures**

Both local exhaust and good general room ventilation must be provided not only to control exposure but also to prevent formation of flammable mixtures.
Special attention should be given to low areas/pits where flammable vapors can accumulate.

Personal protective equipment

- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Hand protection : Wear chemical resistant gloves such as:
Butyl rubber.
Solvent-resistant gloves
Before removing gloves clean them with soap and water.
- Eye and face protection : Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor.
- Skin and body protection : Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn.
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Flame retardant protective clothing
The equipment must be cleaned thoroughly after each use.
- Hygiene measures : Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Use good personal hygiene practices.
Wash hands before eating, drinking, smoking, or using toilet facilities.
Take off contaminated clothing and wash before reuse.
Handle in accordance with good industrial hygiene and safety

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practice.

When using do not eat, drink or smoke.

Protective measures : Ensure adequate ventilation.
Ensure that eye flushing systems and safety showers are located close to the working place.
The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state : liquid at > 77 °F (> 25 °C) (1,013 hPa (760 mm Hg))

Color : Clear, colorless.

Odor : Camphor-like odor.

Odor Threshold : 73 ppm
(T-Butyl Alcohol)., Odor is not an adequate warning of potentially hazardous ambient air concentrations.

Safety data

Flash point : 59 °F (15 °C)
at 1,013 hPa (760 mm Hg)
Method: (Closed Cup)

Lower explosion limit : 2.4 vol%

Upper explosion limit : 8 vol%

Oxidizing properties : Not considered an oxidizing agent.

Autoignition temperature : 878.1 °F (470.1 °C)
at 1,013 hPa (760 mm Hg)

Molecular weight : 74.12 g/mol

Decomposition temperature : not determined

pH : not applicable

Melting point/freezing point : 78.3 °F (25.7 °C)
at 1,013 hPa (760 mm Hg)

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Boiling point/boiling range	: 180.3 °F (82.4 °C) at 1,013 hPa (760 mm Hg)
Vapor pressure	: 54.13 hPa (40.60 mm Hg) at 77 °F (25 °C)
Water solubility	: 1,000 g/l at 77 °F (25 °C) Miscible
Partition coefficient: n-octanol/water	: log Pow: 0.32 at 68 °F (20 °C)
Viscosity, kinematic	: 5.72 mm ² /s at 77 °F (25 °C)
Relative vapor density	: ~2.3 at 68 °F (20 °C) (Air = 1.0 at 15 - 20°C/59 - 68°F)
Evaporation rate	: 0.95
Explosive properties	: Not explosive
Remarks - Other information	: Volatile Characteristics:, Appreciable: >10.0%, Additional properties may be listed in Sections 2 and 5.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Will not occur.
Chemical stability	: Stable under recommended storage conditions.
Conditions to avoid	: Heat, sparks, open flame, other ignition sources, oxidizing conditions, elevated temperature with dehydrating conditions.
Materials to avoid	: Severe oxidizing conditions. Mineral acids. Dehydrating agents. Contact with strong acids can decompose this material and generate extremely flammable isobutylene.
Hazardous decomposition products	: High temperature/catalytic agents may produce flammable isobutylene.

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- Thermal decomposition : Thermal decomposition may produce carbon monoxide, formaldehyde, other toxic gases, and flammable isobutylene.
- Hazardous reactions : Not expected to occur.

SECTION 11. TOXICOLOGICAL INFORMATION

- Product Summary** : The below given information is based on the assessment of the product including impurities.
- Acute toxicity**
- Acute oral toxicity** : Based on acute toxicity values, not classified.
Ingestion of high doses may cause discomfort and irritation of the gastrointestinal tract and CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).
- : LD50: 3,046 mg/kg
Species: rat
- Acute inhalation toxicity** : Based on acute toxicity values, not classified.
Breathing mist or vapors may cause respiratory tract effects. Overexposure may cause coughing, shortness of breath, dizziness, central nervous system depression, intoxication and collapse.
- : LC50: > 30 mg/l
Exposure time: 4 HOURS
Species: rat
- Acute dermal toxicity** : Based on acute toxicity values, not classified.
Overexposure may cause dizziness and central nervous system depression
- : LD50: > 2,000 mg/kg
Species: Rabbit.
- Skin corrosion/irritation** : Based on skin irritation values, not classified.
May cause slight transient skin irritation.
- Serious eye damage/eye irritation** : Classified
Causes serious eye irritation.

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Respiratory or skin sensitization

: Respiratory sensitization
Not classified
No study available.

: Skin sensitization
Not classified
No adverse effect observed.

Chronic toxicity**Carcinogenicity**

: Not classified
Contains a substance that has a positive carcinogenicity study.
The weight of evidence for the carcinogenicity of this substance does not meet the criteria for classification.

Germ cell mutagenicity

: Not classified
No adverse effect observed.

Reproductive toxicity**Effects on fertility /
Effects on or via lactation**

: Not classified
No adverse effect observed.

Effects on Development

: Not classified
Embryo/fetal toxicity and/or developmental delay was observed in animals following repeated oral or inhalation exposures to high concentrations that produced slight maternal toxicity in the dams. No teratogenicity was observed in the embryos/fetuses as well.

**Target Organ Systemic
Toxicant - Single exposure**

: Routes of exposure: Inhalation
Target Organs: Respiratory system
Classified, May cause respiratory irritation.

: Target Organs: Central nervous system
Classified, May cause drowsiness or dizziness.

**Target Organ Systemic
Toxicant - Repeated
exposure**

: Based on repeated exposure toxicity values, not classified.

Aspiration hazard

: Based on physico-chemical values or lack of human evidence, not classified.

12. ECOLOGICAL INFORMATION**Ecotoxicology Assessment**

- Acute aquatic toxicity : Based on acute aquatic toxicity values, not classified.
- Chronic aquatic toxicity : Not classified, based on readily biodegradability and low acute toxicity.

Toxicity to fish :
Acute toxicity to fish is very low.

Toxicity to daphnia and other aquatic invertebrates : Acute toxicity to freshwater and marine invertebrates is very low.

Toxicity to algae : Acute toxicity to aquatic plants very low.

Toxicity to bacteria : Low toxicity to sewage microbes.

Toxicity to fish (Chronic toxicity) : Low chronic toxicity to fish.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : no data available

Persistence and degradability

Biodegradability : Inherently biodegradable.
66% biodegraded after 56 days

Bioaccumulative potential

Bioaccumulation : This material is not expected to bioaccumulate.

Mobility in soil

Distribution among environmental compartments : Stability in water
Hydrolytically stable.
Half-life >1 year

: Stability in soil
no data available
Low absorption to soil particulates predicted

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Additional advice : No additional information available.
Environmental fate and pathways

Results of PBT and vPvB assessment

Not applicable.

Other adverse effects

Additional ecological information : No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes.
Comply with applicable federal, state, and local regulations.

Waste may be designated D003 under U.S. Resource Conservation and Recovery Act (RCRA) listings.

Contaminated packaging : Do not burn, or use a cutting torch on, the empty drum.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**DOT**

UN number : 1120
Description of the goods : Butanols
Class : 3
Packing group : II
Labels : 3

SECTION 15. REGULATORY INFORMATION

All components of this product are listed or are exempt from listing on the TSCA 8(b) inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA 302/304

This product contains no known chemicals regulated under SARA 302/304.

SARA 311/312

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SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Fire Hazard.

Immediate (Acute) Health Hazard.

Delayed (Chronic) Health Hazard.

SARA 313

This product contains the following chemicals subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372:

<u>Component</u>	<u>Reporting Threshold</u>
tert-Butyl Alcohol	1.0%
Isopropyl Alcohol	1.0%

State Reporting

This material is not known to contain a chemical substance known to the State of California to cause cancer, reproductive, or developmental toxicity under California Proposition 65. However, LyondellBasell has not tested for the presence of listed chemical substances.

This product contains the following chemicals regulated by New Jersey's Worker and Community Right to Know Act:

75-65-0 tert-Butyl Alcohol

67-63-0 Isopropyl Alcohol

This product contains the following chemicals regulated by Massachusetts' Right to Know Law:

75-65-0 tert-Butyl Alcohol

67-63-0 Isopropyl Alcohol

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act:

75-65-0 tert-Butyl Alcohol

67-63-0 Isopropyl Alcohol

Other international regulations**Global Inventory Status**

The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

*Additional Explanatory Status Statements follow the table, as necessary.

Country/Region	Inventory	Status Description
Australia	AICS	Compliant
Canada	DSL	Compliant
China	IECSC	Compliant
Europe	REACH	See REACH Compliance Statement
Japan	ENCS	Compliant
Korea	KECI	Compliant

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New Zealand	NZIoC	Compliant
Philippines	PICCS	Compliant
United States of America	TSCA	Compliant

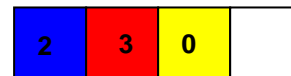
REACH status

If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)

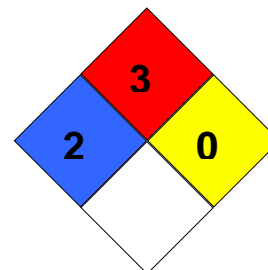
Contact product.safety@lyondellbasell.com for additional global inventory information.

SECTION 16. OTHER INFORMATION**Further information****HMIS Classification**

: Health Hazard: 2
 Flammability: 3
 Physical hazards: 0

**NFPA Classification**

: Health Hazard: 2
 Fire Hazard: 3
 Instability: 0

**Other Information**

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)

NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

Material safety datasheet sections which have been updated:

Updated format First Edition June 9 2014

Disclaimer

This document is generated for the purpose of distributing health, safety, and environmental data.

Information is correct to the best of our knowledge at the date of the SDS publication.

It is not a specification sheet nor should any displayed data be construed as a specification.

Before using a product sold by a company of the LyondellBasell family of companies, users should make their own independent determination that the product is suitable for the intended

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This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or (ii) the manufacture of any of the following, without prior written approval by Seller for each specific product and application: U.S. FDA Class II Medical Devices; Health Canada Class II or Class III Medical Devices; European Union Class II Medical Devices; film, overwrap and/or product packaging that is considered a part or component of one of the aforementioned medical devices; packaging in direct contact with a pharmaceutical active ingredient and/or dosage form that is intended for inhalation, injection, intravenous, nasal, ophthalmic (eye), digestive, or topical (skin) administration; tobacco related products and applications, electronic cigarettes and similar devices, and pressure pipe or fittings that are considered a part or component of a nuclear reactor. Additionally, the product(s) may not be used in: (i) U.S. FDA Class III Medical Devices; Health Canada Class IV Medical Devices; European Class III Medical Devices; (ii) applications involving permanent implantation into the body; (iii) life-sustaining medical applications; and (iv) lead, asbestos or MTBE related applications. All references to U.S. FDA, Health Canada, and European Union regulations include another country's equivalent regulatory classification.

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