

T³6 Disinfex™ (DIN 02231344)

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet meets or exceeds the requirements of the Canadian Controlled Product Regulations (WHMIS)

1. Product and Supplier Identification

Product: T³6 Disinfex™ (DIN 02231344)
(Formerly T³6[®] Disinfectant)

Product Codes: 1000-60TS, 1000-TWV, 1000-TWVU, 1000-4FTV, 1000-4FTVU

Product Use: Hard Surface Disinfectant

Manufacturer: ALDA Pharmaceuticals Corp
Unit 170-4320 Viking Way
Richmond, BC, Canada, V6V 2L4
Emergency Telephone: (604) 521-8300

Supplier: As Above

2. Composition

Component	% (w/w)	Exposure Limits (ACGIH)*	LD ₅₀	LC ₅₀
Ethyl Alcohol (CAS No 64-17-5)	65 - 75	TLV-TWA 1000 ppm, Basis: Upper respiratory tract irritation, eye irritation, CNS impairment	7060 mg/kg (oral/rat)	~21000 ppm (4 hour/ inhalation, mouse)
O-Phenylphenol (CAS No 90-43-7)	.25 - .33	Not established	2000 Mg/kg (oral/rat)	>5000 mg/m3 (4 hour/inhalation, male rat)
Other non-hazardous ingredients or those that do not meet the disclosure requirements of the Hazardous Products Act	25 - 35	Not Applicable	N. app.	N. app.

* ACGIH , American Conference of Governmental Industrial Hygienists

Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area.
Hygienists

3. Hazards Identification

Routes of Entry:

Skin Contact: Minor Eye Contact: Moderate Ingestion: Minor Inhalation: Minor

T³6 Disinfex™ (DIN 02231344)

Acute Health Effects: Inhalation: Ethanol readily forms high vapour concentrations. Harmful effects are unlikely to occur since it provides good warning of exposure. Vapours are irritating to the nose and throat well above the odour threshold and well below exposures expected to cause the effects typically associated with alcohol ingestion. Skin Contact: Ethanol is either not irritating or only mildly irritating to the skin. Eye Contact: Direct contact is expected to produce moderate to severe irritation. Eye exposure to high vapour concentrations may produce only mild irritation. Ingestion: Accidental ingestion of denatured alcohol may cause nausea and vomiting.

Chronic Health Effects: Occupational exposures that principally occur by inhalation and skin contact do not result in as high absorption of ethanol as that which occurs from drinking alcoholic beverages. Ethanol vapours and mists product irritation thus limiting long term inhalation exposure. Ethanol is not readily absorbed through the skin.

4. First Aid Measures

Eye Contact: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water until the irritation has subsided. If irritation persists, seek medical attention.

Skin Contact: No health effects expected. If contact occurs, flush with lukewarm water.

Inhalation: This product is flammable, therefore take precautions to ensure your own safety. Inhalation of ethanol is unlikely to cause a medical concern however, should breathing become difficult, remove victim to fresh air or administer oxygen if administered by trained personnel, preferably on a doctor's advice. If symptoms persist, immediately transport victim to an emergency care facility.

Ingestion: Never give anything by mouth if victim is rapidly losing consciousness. Have victim rinse mouth thoroughly with water. **Do not induce vomiting.** Dilute contents of stomach with 240 to 300 ml of water. If vomiting occurs naturally have victim lean forward to reduce risk of aspiration. Seek immediate medical attention.

5. Fire Fighting Measures

Flash point: 24 °C (PMCC)

Autoignition temperature: <363 °C (for ethanol)

Lower Explosive Limit: 3.3% (for ethanol)

Upper Explosion Limit: 19% (for ethanol)

Sensitivity to Impact: Not sensitive, stable

Sensitivity to Static Discharge: Will not accumulate static charge. Mixtures of ethanol vapours and air at concentrations within the flammable range may be ignited by a static discharge of sufficient energy.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and other noxious, toxic chemicals.

Extinguishing Media: Carbon dioxide, dry chemical powder, alcohol foam or polymer foam. Water may be ineffective because it will not cool ethanol below its flash point. Fire fighting foams are the extinguishing agent of choice.

Fire Fighting Instructions: Evacuate area and fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Do not enter confined fire space without proper personal protection. Use approved positive pressure self-contained breathing apparatus. If possible, isolate materials not yet involved in the fire, and move containers from fire area if this can be done without risk, and protect personnel. Otherwise, fire-exposed containers or tanks should be cooled by application of hose streams and this should begin as soon as possible and should concentrate on any unwetted portions of the container.

6. Accidental Release Measures

Personal Protection: See Section 8 for proper protective equipment to be worn while cleaning an accidental spill.

Environmental Precautions: Prevent product from entering sewers, natural waterways, or confined spaces.

Cleanup Procedures: Restrict access to area until completion of clean-up. Ensure that clean-up is done by trained personnel only. Keep flammable materials away from spill area. Absorb onto sand or other inert absorbent media and shovel into approved closable waste containers for disposal. Keep in mind that vapours are heavier than air, and may collect in low-lying areas.

7. Handling and Storage

Handling Procedures: This product is FLAMMABLE. This product is normally used in small quantities as a surface disinfectant, no special precautions are needed. Use in well-ventilated areas only.

For high volume industrial uses, it is imperative that the personal equipment requirements and personal hygiene measures be followed. Do not use with incompatible materials such as strong oxidants. Ensure all containers are correctly labeled indicating hazards. Keep container tightly closed when not in use. Wash face and hands thoroughly after handling and before eating, drinking, or using tobacco products.

Storage: Store in cool, dry, well-ventilated area in original container away from direct sunlight. Ensure that storage is also away from ignition and heat sources. Do not use container for other purposes. Avoid any contact with moisture away from oxidizing materials.

8. Exposure Controls, Personal Protection

Engineering Controls: If used indoors, ensure adequate ventilation by using local exhaust. Prevent handling methods that will increase airborne vapours.

Respiratory Protection: Under conditions of normal use, there is no need for respiratory protection.

Skin Protection: None required.

Eye and Face Protection: Where use may cause risk of splashing on face or into eyes, wear safety goggles.

Footwear: As required by the worksite.

Other: Eye wash station should be located near work area.

9. Physical and Chemical Properties

Appearance:	Clear to light straw coloured liquid	Solubility:	Miscible
Odour:	mild alcohol odour	Vapour Density:	1.59 (air=1)
Odour Threshold:	10 ppm	Freezing Point	-114 °C (ethanol)
pH:	Not available	Boiling Point:	78.3 °C (ethanol)
Vapour Pressure:	5.9 kPa@ 20°C	Critical Temperature:	Not applicable.
		Relative Density:	0.80 – 0.90

T³6 Disinfex™ (DIN 02231344)

Partition Coefficient: (water = 1)
Log P (oct) = -0.32
Evaporation Rate: <2.4 (n-butyl
acetate=1)

10. Stability and Reactivity

Chemical Stability and Reactivity: Product is normally stable.

Conditions to Avoid: Sparks, open flames, heat and other ignition sources.

Incompatibility: Keep away from strong oxidizing materials, alkali metals, acids, acid anhydrides, and acid chlorides.

Hazardous Decomposition Products: Carbon dioxide, and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

Acute Exposure: See Section 2 for LD₅₀ and LC₅₀ information

Chronic Exposure: See Section 3.

Exposure Limits: See Section 2.

Irritancy: See Section 3.

Sensitization: See Section 3.

Carcinogenicity: IARC has not evaluated the carcinogenicity of occupational exposure to alcohol. Classified as A4 (not classifiable as a human carcinogen)

Teratogenicity: There is no evidence of adverse effects on pregnancy following occupational exposure. It is well known that alcohol abuse during pregnancy can cause harmful effects to unborn children.

Reproductive toxicity: There is no evidence of adverse effects on pregnancy following occupational exposure. Reproductive effects have been observed in people who have consumed large amounts of alcoholic beverages that contain ethanol.

Mutagenicity: There are no reports of mutagenic effects in people with occupational exposure. Ethanol is considered a very toxic mutagen, because it has caused mutations in both the germ cells and somatic cells of live animals. These effects were observed following exposure of the animals to very high, oral doses of ethanol. Mutagenic effects, such as increased frequencies of chromosomal aberrations, sister chromatid exchanges and aneuploidies have been observed in the white blood cells of alcoholics. However, it is not possible to conclusively relate these effects directly to ethanol exposure, because of other potential causes, such as smoking and exposure to other potentially harmful chemicals at the same time.

Synergistic products: Ethanol has been associated with an increase in the toxicity of many chemicals such as other alcohols, ketones, benzene, toluene, and halogenated hydrocarbons.

12. Ecological Information

Environmental toxicity:

Ethanol: LC₅₀ Salmo gairdnerii (Rainbow trout) 13000 mg/L/96 hr at 12 deg C (95% Confidence limit 12000-16000 mg/L), wt 0.8 g /Static bioassay

T³6 Disinfex™ (DIN 02231344)

LC₅₀ Pimephales promelas (fathead minnows) 15.3 g/L/96 hr (95% confidence limit 14.0-16.6 g/L); age 30 days old, water hardness 47.3 mg/L (CaCO₃), temp 24.3 deg C, pH 7.60, dissolved oxygen 6.8 mg/L, alkalinity 43.7 mg/L (CaCO₃); tank vol: 6.3 L;

EC₅₀ Pimephales promelas (fathead minnows) 12.9 g/L/96 hr; age 30 days old, water hardness 47.3 mg/L (CaCO₃), temp 24.3 deg C, pH 7.60, dissolved oxygen 6.8 mg/L, alkalinity 43.7 mg/L (CaCO₃); tank vol: 6.3 L;

o-Phenylphenol: LC₅₀ Pimephales promelas (fathead minnow) 6.24 (6.03-6.46) mg/l 24 hr, wt 110 mg, flow-through bioassay, dissolved oxygen 7.4 (4.6-8.8) mg/l, water hardness 4.9 (42.4-46.6) mg/l as CaCO₃, pH 6.9-7.7, alkalinity 42.9 (39.6-61.4) mg/l CaCO₃, temp: 26.4 +/- 1.4 deg C, Purity 99%+

EC50; Species: Daphnia magna (Water flea, 6-24 hr old);
Concentration: 15 mg/L for 48 hr; Effect: lost ability to swim
/Conditions of bioassay not specified in source examined

Biodegradability:

Ethanol: *AEROBIC:* Ethanol was shown to biodegrade under aerobic conditions in various screening tests using different types of inocula and incubation periods. 5 day theoretical BOD values range from 37% - 86%. Biodegradation of 3, 7, and 10 mg/L ethanol with filtered sewage seed in fresh water resulted in a 74% theoretical BOD in 5 days and 84% in 20 days; in salt water 45% of the theoretical BOD was reached in 5 days and 75% was reached in 20 days. Formaldehyde and acetic acid are products of biodegradation by a soil inoculum. Ethanol present at 100 mg/L, achieved 89% of its theoretical BOD using an activated sludge inoculum at 30 mg/L and the Japanese MITI test. Ethanol was rapidly degraded in aerobic microcosms prepared from low organic (0.2% organic carbon) sandy aquifer material obtained from Jurere Beach, Brazil. Microcosms were prepared with 20 grams of aquifer material and 50 mL of groundwater (pH 5.2). At a starting concentration of 100 mg/L, ethanol had half-lives of approximately 3 days in samples prepared with 20 mg/L of either benzene, toluene or o-xylene under aerobic conditions

ANAEROBIC: Anaerobic degradation (thermophilic digestion, 54 deg C) of ethanol (5 ml of a 5% aqueous ethanol solution) produced approx 1000 ml gas/g sample using seed which had been prepared in a synthetic medium. Ethanol was rapidly degraded in anaerobic microcosms prepared from low organic (0.2% organic carbon) sandy aquifer material obtained from Jurere Beach, Brazil. Microcosms were prepared with 20 grams of aquifer material and 50 ml of groundwater (pH 5.2). At a starting concentration of 100 mg/L, ethanol had a half-life of approximately 1.5 days under denitrifying conditions and about 5 days under iron-reducing conditions

Environmental fate:

Ethanol: *TERRESTRIAL FATE:* Based on a classification scheme, an estimated Koc value of 1, determined from a structure estimation method, indicates that ethanol is expected to have very high mobility in soil. Volatilization of ethanol from moist soil surfaces is expected to be an important fate process given a Henry's Law constant of 5×10^{-6} atm-cu m/mole. The potential for volatilization of ethanol from dry soil surfaces may exist based upon an extrapolated vapor pressure of 59.3 mm Hg. Biodegradation is expected to be an important fate process for ethanol based on half-lives on the order of a few days for ethanol in sandy soil/groundwater microcosms

T³⁶ Disinfex™ (DIN 02231344)

AQUATIC FATE: Based on a classification scheme, an estimated Koc value of 1, determined from a structure estimation method, indicates that ethanol is not expected to adsorb to suspended solids and sediment. Volatilization from water surfaces is expected based upon a Henry's Law constant of 5×10^{-6} atm-cu m/mole. Using this Henry's Law constant and an estimation method, volatilization half-lives for a model river and model lake are 3 and 39 days, respectively. According to a classification scheme, an estimated BCF 3, from a log Kow of -0.31 and a regression-derived equation, suggests bioconcentration in aquatic organisms is low. Hydrolysis and photolysis in sunlit surface waters is not expected to be an important environmental fate process for ethanol since this compound lacks functional groups that hydrolyze or absorb light under environmentally relevant conditions. Ethanol was degraded with half-lives on the order of a few days in aquatic studies conducted using microcosms constructed with a low organic sandy soil and groundwater, indicating it is unlikely to be persistent in aquatic environments.

ATMOSPHERIC FATE: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, ethanol, which has an extrapolated vapor pressure of 59.3 mm Hg at 25 deg C, is expected to exist solely as a vapor in the ambient atmosphere. Vapor-phase ethanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 5 days, calculated from its rate constant of 3.3×10^{-12} cu cm/molecule-sec at 25 deg C

13. Disposal Considerations

Canadian Environmental Protection Act: All ingredients are listed on the DSL. Dispose according to all local, provincial and federal requirements.

14. Transport Information

Canadian Transportation of Dangerous Goods Regulations: Consumer Commodity

International Air Transport Association (IATA): ID8000, Consumer Commodity, Class 9

International Maritime Organization (IMO): UN 1170, Ethanol solution, Class 3, P.G. III
Limited Quantity
EmS No. F-E, S-D, Stowage Category "A"

15. Regulatory Information

Canadian Federal Regulations:

Canadian Environmental Protection Act: All ingredients are on the Domestic Substances List.

WHMIS Classification: B2, D2A, D2B

16. Other Information

Preparation Date: February 17, 2011

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T³6 Disinfex™ (DIN 02231344)

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