

## SAFETY DATA SHEET

Endodry

### 1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product Name:	Endodry
Product Codes:	DL5310 - Endodry 125mL Dispensing bottle
Recommended Use:	Used as source of ethanol for rapid drying of surfaces and as cleaning solution and solvent. Ethanol denatured with 5% Isopropyl alcohol.
Contact Information:	Dentalife Australia Pty. Ltd. Factory 9/505 Maroondah Highway Ringwood, VIC, 3134, Australia  Phone: +61 3 9879 1226
Emergency Telephone Number:	+61 3 9879 1226
Poisons Information Centre:	24 hour, 7 days a week in an emergency call: 13 11 26

### 2. HAZARD IDENTIFICATION

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Signal Word: DANGER

Hazard Pictograms:



Hazard Classifications: Eye Irritation Category 2A, Flammable Liquid Category 2

Hazard Statement: H319 Causes serious eye irritation.  
H225 Highly flammable liquid and vapour.  
H336 Vapours may cause drowsiness and dizziness

Prevention Precautionary Statements: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.

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P241 Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.  
P264 Wash all exposed external body areas thoroughly after handling.

### Response Precautionary Statements:

P370+P378 In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

### Storage Precautionary Statements:

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

### Disposal Precautionary Statements:

P501 Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

### Poison Schedule:

Not Applicable

### DANGEROUS GOOD CLASSIFICATION

Classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

## 3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO.	PROPORTION %
Ethanol	64-17-5	95
Isopropanol	67-63-0	5

## 4. FIRST AID MEASURES

### Inhalation:

If fumes or combustion products are inhaled remove from contaminated area.  
Lay patient down. Keep warm and rested.  
Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.  
Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.  
Transport to hospital, or doctor, without delay.

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<b>Skin Contact:</b>	If skin contact occurs: Immediately remove all contaminated clothing, including footwear Flush skin and hair with running water (and soap if available) Seek medical attention in event of irritation
<b>Eye Contact:</b>	If this product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
<b>Ingestion:</b>	Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone (Australia) 13 11 26

<b>For acute or short term repeated exposures to ethanol:</b>	Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K). Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination. Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine). Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions. Fructose administration is contra-indicated due to side effects.
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## 5. FIRE FIGHTING MEASURES

<b>Extinguishing media:</b>	Alcohol stable foam. Dry chemical powder. BCF (where regulations permit). Carbon dioxide. Water spray or fog - Large fires only.
<b>Fire incompatibility:</b>	Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.
<b>Fire/Explosion Hazard:</b>	Liquid and vapour are highly flammable.

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Severe fire hazard when exposed to heat, flame and/or oxidisers.  
Vapour may travel a considerable distance to source of ignition.  
Heating may cause expansion or decomposition leading to violent rupture of containers.  
On combustion, may emit toxic fumes of carbon monoxide (CO).  
Combustion products include: carbon dioxide (CO<sub>2</sub>) , other pyrolysis products typical of burning organic material.

Hazchem: 3YE

### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: See section 8

Minor Spills: Remove all ignition sources.  
Clean up all spills immediately.  
Avoid breathing vapours and contact with skin and eyes.  
Control personal contact with the substance, by using protective equipment.  
Contain and absorb small quantities with vermiculite or other absorbent material.  
Wipe up.  
Collect residues in a flammable waste container.

Large Spills: Clear area of personnel and move upwind.  
Alert Fire Brigade and tell them location and nature of hazard.  
Wear full body protective clothing with breathing apparatus.  
Prevent, by all means available, spillage from entering drains or water courses.  
Consider evacuation (or protect in place).  
No smoking, naked lights or ignition sources.  
Increase ventilation.  
Stop leak if safe to do so.  
Water spray or fog may be used to disperse / absorb vapour.  
Contain or absorb spill with sand, earth or vermiculite.  
Collect recoverable product into labelled containers for recycling.  
Collect solid residues and seal in labelled drums for disposal.  
Wash area and prevent runoff into drains.  
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.  
If contamination of drains or waterways occurs, advise emergency services.

### 7. HANDLING AND STORAGE

Safe handling: Containers, even those that have been emptied, may contain explosive vapours.  
Do NOT cut, drill, grind, weld or perform similar operations on or near containers.

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Avoid all personal contact, including inhalation.  
Wear protective clothing when risk of exposure occurs.  
Use in a well-ventilated area.  
Prevent concentration in hollows and sumps.  
DO NOT enter confined spaces until atmosphere has been checked.  
Avoid smoking, naked lights, heat or ignition sources.  
When handling, DO NOT eat, drink or smoke.  
Vapour may ignite on pumping or pouring due to static electricity.  
DO NOT use plastic buckets.  
Earth and secure metal containers when dispensing or pouring product.  
Use spark-free tools when handling.  
Avoid contact with incompatible materials.  
Keep containers securely sealed.  
Avoid physical damage to containers.  
Always wash hands with soap and water after handling.  
Work clothes should be laundered separately.  
Use good occupational work practice.  
Observe manufacturer's storage and handling recommendations contained within this SDS.  
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

### Other information:

DO NOT allow clothing wet with material to stay in contact with skin  
Store in original containers in approved flame-proof area.  
No smoking, naked lights, heat or ignition sources.  
DO NOT store in pits, depressions, basements or areas where vapours may be trapped. Keep containers securely sealed.  
Store away from incompatible materials in a cool, dry well ventilated area.  
Protect containers against physical damage and check regularly for leaks.  
Observe manufacturer's storage and handling recommendations contained within this SDS.

### Suitable container:

Packing as supplied by manufacturer.  
Plastic containers may only be used if approved for flammable liquid.  
Check that containers are clearly labelled and free from leaks.  
For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.  
For materials with a viscosity of at least 2680 cSt. (23 deg. C)  
For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)  
Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used.  
Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages  
In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless

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the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

### Storage incompatibility:

- Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.  
Alcohols:
- are incompatible with strong acids, acid chlorides, acid anhydrides, oxidising and reducing agents.
- reacts, possibly violently, with alkaline metals and alkaline earth metals to produce hydrogen react with strong acids, strong caustics, aliphatic amines, isocyanates, acetaldehyde, benzoyl peroxide, chromic acid, chromium oxide, dialkylzincs, dichlorine oxide, ethylene oxide, hypochlorous acid, isopropyl chlorocarbonate, lithium tetrahydroaluminate, nitrogen dioxide, pentafluoroguanidine, phosphorus halides, phosphorus pentasulfide, tangerine oil, triethylaluminium, triisobutylaluminium
- should not be heated above 49 deg. C. when in contact with aluminium equipment



X — Must not be stored together  
0 — May be stored together with specific preventions  
+ — May be stored together

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Australia Exposure Hazards:

Ingredient	Material Name	TWA	STEL
Ethanol	Ethyl alcohol	1000ppm / 1880mg/m <sup>3</sup>	N/A
Isopropano l	Isopropyl alcohol	400ppm / 983mg/m <sup>3</sup>	1230 mg/m <sup>3</sup> / 500ppm

### Emergency limits:

Ingredient	TEEL-1	TEEL-2	TEEL-3
Ethanol	N/A	N/A	15000ppm
Isopropano l	400ppm	20000ppm	12000ppm

### Engineering Controls:

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

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### Eye and face protection:

Safety glasses with side shields.

Chemical goggles.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

### Skin/hands/feet protection:

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

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As defined in ASTM F-739-96 in any application, gloves are rated as:

- Excellent when breakthrough time > 480 min
- Good when breakthrough time > 20 min
- Fair when breakthrough time < 20 min
- Poor when glove material degrades

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

### Body/other Protection:

Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent]

Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent]

Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean,



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impervious garments, including gloves, boots and continuous-air supplied hood.

Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

Overalls.

PVC Apron.

PVC protective suit may be required if exposure severe.

Eyewash unit.

Ensure there is ready access to a safety shower.

Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.

For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).

Non sparking safety or conductive footwear should be considered.

Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms.

Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

### Hygiene Measures:

Keep away from food, drink, and animal feedstuffs. When using do not eat, drink, or smoke. Wash hands prior to eating, drinking, or smoking. Avoid contact with clothing. Avoid eye contact and repeated or prolonged skin contact. Avoid inhalation of vapour, mist, or aerosols. Ensure that eyewash stations and safety showers are close to the workstation location.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid
Colour:	Colourless
Odour:	Characteristic alcohol odour
Solubility in water (g/L):	100% soluble in water
Vapour Density (Air=1)	Similar to water
Vapour Pressure (20 °C):	Ethanol = 44mm Hg at 20°C Isopropyl Alcohol = 33mm Hg at 20°C
Flammability Limits (%):	LEL: 3.5% in air UEL: 19% in air
Evaporation rate (n-butane=1):	Not available
Specific gravity:	Approx. 0.80g/mL
Other properties	Used as a solvent and cleaning solution as well as industrial applications

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### 10. STABILITY AND REACTIVITY

<b>Chemical Stability:</b>	Elevated temperatures Presence of open flame Product is considered stable at normal conditions Hazardous polymerization will not occur
<b>Conditions to Avoid:</b>	See section 7. Avoid sources of heat and ignition.
<b>Incompatible Materials:</b>	See section 7. Dimethyl ether is not compatible with Ozone, oxidizing agents (such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine and fluorine), strong acids such as hydrochloric, sulphuric, nitric acids and halogens.
<b>Hazardous Decomposition Products:</b>	See section 5. CO, CO <sub>2</sub>
<b>Hazardous Reactions:</b>	See section 7. Does not occur

### 11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

<b>Inhalation:</b>	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. The most common signs of inhalation overexposure to ethanol, in animals, include ataxia, incoordination and drowsiness for those surviving narcosis. The narcotic dose for rats, after 2 hours of exposure, is 19260 ppm. Exposure to aliphatic alcohols with more than 3 carbons may produce central nervous system effects such as headache, dizziness, drowsiness, muscle weakness, delirium, CNS depression, coma, seizure, and neurobehavioural changes. Symptoms are more acute with higher alcohols. Respiratory tract involvement may produce irritation of the mucosa, respiratory insufficiency, respiratory depression secondary to
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CNS depression, pulmonary oedema, chemical pneumonitis and bronchitis. Cardiovascular involvement may result in arrhythmias and hypotension. Gastrointestinal effects may include nausea and vomiting. Kidney and liver damage may result following massive exposures. The alcohols are potential irritants being, generally, stronger irritants than similar organic structures that lack functional groups (e.g. alkanes) but are much less irritating than the corresponding amines, aldehydes or ketones. Alcohols and glycols (diols) rarely represent serious hazards in the workplace, because their vapour concentrations are usually less than the levels which produce significant irritation which, in turn, produce significant central nervous system effects as well.

The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence. In the absence of such evidence, care should be taken nevertheless to ensure exposure is kept to a minimum and that suitable control measures be used, in an occupational setting to control vapours, fumes and aerosols.

Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination. The odour of isopropanol may give some warning of exposure, but odour fatigue may occur. Inhalation of isopropanol may produce irritation of the nose and throat with sneezing, sore throat and runny nose. The effects in animals subject to a single exposure, by inhalation, included inactivity or anaesthesia and histopathological changes in the nasal canal and auditory canal. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

### Skin Contact:

Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.

Open cuts, abraded or irritated skin should not be exposed to this material

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. 511 ipa

The material may produce moderate skin irritation; limited evidence or practical experience suggests, that the material either:

- produces moderate inflammation of the skin in a substantial number of individuals following direct contact and/or
- produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.

Skin irritation may also be present after prolonged or repeated

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exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

### Ingestion:

Effects on the nervous system characterise over-exposure to higher aliphatic alcohols. These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination), confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and diarrhoea. In the absence of effective treatment, respiratory arrest is the most common cause of death in animals acutely poisoned by the higher alcohols. Aspiration of liquid alcohols produces an especially toxic response as they are able to penetrate deeply in the lung where they are absorbed and may produce pulmonary injury. Those possessing lower viscosity elicit a greater response. The result is a high blood level and prompt death at doses otherwise tolerated by ingestion without aspiration. In general the secondary alcohols are less toxic than the corresponding primary isomers. As a general observation, alcohols are more powerful central nervous system depressants than their aliphatic analogues. In sequence of decreasing depressant potential, tertiary alcohols with multiple substituent OH groups are more potent than secondary alcohols, which, in turn, are more potent than primary alcohols. The potential for overall systemic toxicity increases with molecular weight (up to C7), principally because the water solubility is diminished and lipophilicity is increased.

Within the homologous series of aliphatic alcohols, narcotic potency may increase even faster than lethality. Only scanty toxicity information is available about higher homologues of the aliphatic alcohol series (greater than C7) but animal data establish that lethality does not continue to increase with increasing chain length. Aliphatic alcohols with 8 carbons are less toxic than those immediately preceding them in the series. 10 -Carbon n-decyl alcohol has low toxicity as do the solid fatty alcohols (e.g. lauryl, myristyl, cetyl and stearyl). However the rat aspiration test suggests that decyl and melted dodecyl (lauryl) alcohols are dangerous if they enter the trachea. In the rat even a small quantity (0.2 ml) of these behaves like a hydrocarbon solvent in causing death from pulmonary oedema.

Primary alcohols are metabolised to corresponding aldehydes and acids; a significant metabolic acidosis may occur. Secondary alcohols are converted to ketones, which are also central nervous system depressants and which, in the case of the higher homologues persist in the blood for many hours. Tertiary alcohols are metabolised slowly and incompletely so their toxic effects are generally persistent.

Ingestion of ethanol may produce nausea, vomiting, gastrointestinal bleeding, abdominal pain and diarrhoea. Systemic effects:

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Blood concentration:	Effects:
<1.5 g/L	Mild: Impaired visual acuity, coordination and reaction time, emotional lability
1.5-3.0g/L	Moderate: Slurred speech, confusion, ataxia, emotional lability, perceptual and sensation disturbances possible blackout spells, and incoordination with impaired objective performance in standardised tests. Possible diplopia, flushing, tachycardia, sweating and incontinence. Bradypnoea may occur early and tachypnoea may develop in cases of metabolic acidosis, hypoglycaemia and hypokalaemia. CNS depression may progress to coma.
3-5g/L	Severe: Cold clammy skin, hypothermia and hypotension. Atrial fibrillation and atrioventricular block have been reported. Respiratory depression may occur, respiratory failure may follow serious intoxication, aspiration of vomitus may result in pneumonitis and pulmonary oedema. Convulsions due to severe hypoglycaemia may also occur Acute hepatitis may develop.

The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern. Following ingestion, a single exposure to isopropyl alcohol produced lethargy and non-specific effects such as weight loss and irritation. Ingestion of near-lethal doses of isopropanol produces histopathological changes of the stomach, lungs and kidneys, incoordination, lethargy, gastrointestinal tract irritation, and inactivity or anaesthesia. Swallowing 10 ml. of isopropanol may cause serious injury; 100 ml. may be fatal if not promptly treated. The adult single lethal doses is approximately 250 ml. The toxicity of isopropanol is twice that of ethanol and the symptoms of intoxication appear to be similar except for the absence of an initial euphoric effect; gastritis and vomiting are more prominent. Ingestion may cause nausea, vomiting, and diarrhoea. There is evidence that a slight tolerance to isopropanol may be acquired. Accidental ingestion of the material may be damaging to the health of the individual.

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### Eye Contact:

Direct contact of the eye with ethanol may cause immediate stinging and burning with reflex closure of the lid and tearing, transient injury of the corneal epithelium and hyperaemia of the conjunctiva. Foreign-body type discomfort may persist for up to 2 days but healing is usually spontaneous and complete.

Isopropanol vapour may cause mild eye irritation at 400 ppm. Splashes may cause severe eye irritation, possible corneal burns and eye damage. Eye contact may cause tearing or blurring of vision.

Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate. Repeated or prolonged exposure to irritants may cause inflammation characterised by a temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

### Chronic:

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. On the basis of epidemiological data, the material is regarded as carcinogenic to humans. There is sufficient data to establish a causal association between human exposure to the material and the development of cancer.

Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long-term exposure to ethanol may result in progressive liver damage with fibrosis or may exacerbate liver injury caused by other agents. Repeated ingestion of ethanol by pregnant women may adversely affect the central nervous system of the developing foetus, producing effects collectively described as foetal alcohol syndrome. These include mental and physical retardation, learning disturbances, motor and language deficiency, behavioural disorders and reduced head size. Consumption of ethanol (in alcoholic beverages) may be linked to the development of Type I hypersensitivities in a small number of individuals. Symptoms, which may appear immediately after consumption, include conjunctivitis, angioedema, dyspnoea, and urticarial rashes. The causative agent may be acetic acid, a metabolite (1).

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(1) Boehncke W.H., & H.Gall, Clinical & Experimental Allergy, 26, 1089-1091, 1996 Long term or repeated ingestion exposure of isopropanol may produce incoordination, lethargy and reduced weight gain.

Repeated inhalation exposure to isopropanol may produce narcosis, incoordination and liver degeneration. Animal data show developmental effects only at exposure levels that produce toxic effects in the adult animals. Isopropanol does not cause genetic damage in bacterial or mammalian cell cultures or in animals.

There are inconclusive reports of human sensitisation from skin contact with isopropanol. Chronic alcoholics are more tolerant of systemic isopropanol than are persons who do not consume alcohol; alcoholics have survived as much as 500 ml. of 70% isopropanol.

Continued voluntary drinking of a 2.5% aqueous solution through two successive generations of rats produced no reproductive effects.

NOTE: Commercial isopropanol does not contain "isopropyl oil". An excess incidence of sinus and laryngeal cancers in isopropanol production workers has been shown to be caused by the byproduct "isopropyl oil". Changes in the production processes now ensure that no byproduct is formed. Production changes include use of dilute sulfuric acid at higher temperatures

### Toxicity/irritation:

	Toxicity	Irritation
<b>Endodry</b>	Not available	Not available
<b>Ethanol</b>	Dermal (rabbit) LD50: 17100mg/kg Inhalation(mouse) LC50; 39mg/L4h Oral (rat) LD50; >7692mg/kg	Eye (rabbit): 500mg SEVERE Eye(rabbit): 100mg/24hr - moderate Eye: adverse effect observe (irritating) Skin (rabbit): 20mg/24hr - moderate Skin (rabbit): 400mg (open) - mild Skin: no adverse effect observed (not irritating)
<b>Isopropanol</b>	Dermal (rabbit) LD50; 12792mg/kg Inhalation(mouse) LC50; 27.2mg/l4h Oral(rabbit) LD50; 667mg/kg	Eye (rabbit): 10mg - moderate Eye(rabbit): 100mg - SEVERE Eye (rabbit): 100mg/24hr - modeate Skin (rabbit): 500mg - mild

### **Acute Toxicity:**

Isopropanol has a low order of acute toxicity. It is irritating to the eyes, but not to the skin. Very high vapor concentrations are irritating to the eyes, nose, and throat, and prolonged exposure may produce central nervous system depression and narcosis. Human volunteers reported that exposure to 400 ppm isopropanol vapors for 3 to 5 min. caused mild irritation of the eyes, nose and throat.

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<b>Serious eye damage/irritation:</b>	Expected to cause serious eye damage/irritation.
<b>Respiratory or Skin Sensitisation:</b>	Not expected to be a respiratory sensitiser.
<b>Carcinogenicity:</b>	Not considered to be carcinogenic.
<b>Reproductivity:</b>	Not considered to be toxic to reproduction.

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	When ethanol is released into the soil it readily and quickly biodegrades but may leach into ground water; most is lost by evaporation. When released into water the material readily evaporates and is biodegradable. Ethanol does not bioaccumulate to an appreciable extent. The material is readily degraded by reaction with photochemically produced hydroxy radicals; release into air will result in photodegradation and wet deposition.
<b>Persistence and Degradability:</b>	Water/soil/air: LOW persistence
<b>Bioaccumulation Potential:</b>	LOW
<b>Mobility in Soil :</b>	HIGH
<b>Environmental Protection:</b>	DO NOT discharge into sewer or waterways

## 13. DISPOSAL CONSIDERATIONS

Containers may still present a chemical hazard/ danger when empty.

Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties



## SAFETY DATA SHEET

of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

### 14. TRANSPORT INFORMATION

This product is not considered to be a dangerous good within the meaning of transportation regulations

U.N. Number 1987  
Dangerous Goods Class: 3.1



Hazchem Code: 2YE  
CAS Number: 64-17-5  
Subsidiary Risk: Not applicable  
Pack. Group: II

### 15. REGULATORY INFORMATION

This material/constituent(s) is covered by the following requirements:

All components of this product are listed or exempt from the Australian Inventory of Industrial Chemicals (AIIC), Australia Hazardous Chemical Information System, (HCIS) - Hazardous Chemicals, Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5



## SAFETY DATA SHEET

### 16. OTHER INFORMATION

Product is considered safe if used as intended. Do not allow smoking in areas where Alcohol 95/5 is handled or stored. Product is intended for professional dental/medical use only.

This information was prepared in good faith from the best information available at the time of issue. It is based on the present level of research and to this extent we believe it is accurate. However, no guarantee of accuracy is made or implied and since conditions of use are beyond our control, all information relevant to usage is offered without warranty. The manufacturer will not be held responsible for any unauthorised use of this information or for any modified or altered versions.

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