



TAG SOLVENT PRODUCTS (PTY)LTD.

MATERIAL SAFETY DATA SHEET ***PROPYL ALCOHOL***

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	: PROPYL ALCOHOL
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600
Synonym	: Not available.
Trade name	: Propyl Alcohol.
Material uses	: A solvent in lacquers, etch primers varnishes, stains, liquids inks.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS#	% By Weight	Exposure Limits
1. n propanol	71-23-8	88.8	ACGIH (1996). TWA: 200 ppm STEL: 250 ppm INHALATION Respirable OSHA (PEL) [1994]. TWA: 200 ppm STEL: 250 ppm INHALATION Respirable TWA: 150ppm
2. sec-Butyl alcohol	78-92-2	±12	TWA: 450mg/m ³ TWA: 50 CEIL: 75 (ppm) TWA: 150 CEIL: 225 (mg/m ³)

3 HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: CAUSESEYE IRRITATION. MAY CAUSE SKIN IRRITATION. MAYBEHARMFUL IF SWALLOWED.
Routes of entry	: Eye contact. Ingestion. Inhalation. Absorbed through the skin.
Potential acute health effects	
Eyes	: Very hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, itching.: Sensitization of the product: Not available.
Skin	: Hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Inhalation	: Extremely hazardous in case of inhalation (lung irritant). May be fatal if inhaled.
Ingestion	: Very hazardous in case of ingestion. May be fatal if swallowed.
Potential chronic health effects	: CARCINOGENIC EFFECTS: Classified NONE by OSHA, NONE by NIOSH [n-Propanol]. Classified 4 (probably not for human) by IARC [sec-Butyl alcohol]. MUTAGENIC EFFECTS: Classified SUSPECTED for human [n-Propanol]. Non-mutagenic for mammals [n-Propanol]. Mutagenic for bacteria and/or yeast [n-Propanol]. TERATOGENIC EFFECTS: Classified PROVEN for human [n-Propanol].
Medical conditions aggravated by overexposure	: Persons with pre-existing eye, skin, respiratory, neurological or allergic conditions may be more sensitive. Persons also exposed to ethanol might be LESS sensitive.
Overexposure/signs/Symptoms	: CNS depression: Dizziness, headache, incoordination, confusion, stupor, hematemesis, diarrhea, circulatory collapse, persistent coma, death by respiratory arrest.

See toxicological information (section 11)

Eye contact	: Check for and remove any contact lenses. Immediately flush the eyes with running water for at least 15 minutes, keep eyelids open. Cold water may be used. DO NOT use eye ointment. Get medical attention.
Skin contact	: In the case of contact, flush the skin with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds. Cervices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. Wash clothes before reuse. Thoroughly clean shoes before reuse. If irritation persists seek medical attention.
Hazardous skin contact	: Wash with a disinfectant soap and cover skin with an anti-bacterial cream. Seek medical attention.
Inhalation	: If inhaled, remove to fresh air and allow victim to rest. Get medical attention.
Hazardous inhalation	: If inhaled, remove victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is laboured, give oxygen. If not breathing apply artificial respiration. Get medical attention. WARNING! It may be hazardous to the person performing aid to give CPR when inhaled material is toxic, infectious or corrosive. Seek medical attention.
Ingestion	: DO NOT induce vomiting unless directed to do so by medical personnel. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If not breathing apply artificial respiration. Get medical attention.
Hazardous ingestion	: No additional information
Notes to physician	: Support respiratory and cardiovascular function.

5 FIRE FIGHTING MEASURES

Flammability of the product	: Flammable
Autoignition temperature	: 400°C
Flash points	: CLOSED CUP: 25°C (77°F).
Flammable limits	: LOWER: 2.1% UPPER: 13.5%
Products of combustion	: These products are carbon oxides (CO, CO ₂)
Fire hazards in presence of various substances	: Highly flammable in the presence of open flames and sparks, of heat and oxidizing materials.
Explosion hazards in presence of various substances	: Risk of explosion of the product in presence of mechanical impact: None. Risk of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of oxidizing materials.
Fire fighting media and instructions	: Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical, CO ₂ , alcohol foam or water spray. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Protective clothing (fire)	: Wear MSHA/NIOSH self-contained respirator or equivalent and full protective gear.
Special remarks on fire hazards	: Explosive in the form of vapour when exposed to heat or flame. Vapour may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and fumes. (n-Propanol).

Special remarks on explosive hazards : No additional remarks.

6 ACCIDENTAL RELEASE MEASURES

Small spill or leak	: Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Large spill or leak	: Flammable liquid. Keep away from heat. Keep away from sources of Ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Be careful that the product is not present at a concentration level above TLV. Check TLV on MSDS and with the local authorities

7 HANDLING AND STORAGE

Handling	: Keep locked up. Keep away from heat. Keep away from sources of ignition. DO NOT ingest. Do not breathe gas, fumes, vapour or spray. In the case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container label. Avoid contact with eyes and skin. Keep away from incompatibles such as oxidizing agents and acids.
Storage	: Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from all sources of ignition. Keep container tightly closed. Keep in a well-ventilated area. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering controls	: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below their respective threshold limit values. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal protection	
Body	Eyes : Splash goggles. : Lab coat.
	Respiratory : Vapour respirator. Be sure to use an MSHA/NIOSH approved respirator equivalent. Wear appropriate respirator when ventilation is inadequate.
	Hands : Butyl rubber gloves.
	Feet : Not applicable.
Protective clothing	: Splash goggles. Full chemical resistant protective suit. Vapor respirator. Butyl gloves. Chemical resistant boots.
Personal protection in case of large spills	: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling the product.

Chemical Name or Product Name

Exposure Limits

1.	Isopropyl alcohol	TWA: 200 ppm. STEL: 250 ppm. INHALATION Respirable
2.	sec-Butyl alcohol	TWA: 200 ppm. STEL: 250 ppm. INHALATION Respirable
		TWA: 150ppm
		TWA: 450mg/m ³
3.	Isobutyl alcohol	TWA: 50 CEIL: 75 (ppm)
		TWA: 150 CEIL: 225 (mg/m ³)

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance	: Liquid.
Colour	: Colourless. Clear.
Odor	: Mild. Alcohol like.
Taste	: Not available.
Molecular weight	: Not applicable.
Molecular formula	: Not applicable.
PH (1% soln/water)	: Neutral.
Boiling/condensation point	: 95°C (203°F).
Melting/freezing point	: -127°C (-196.6°F).
Critical temperature	: The lowest known value is 263.7°C (506.7°F) [n-Propanol].
Specific gravity	: 0.804(water=1)
Vapor pressure	: 10 mm of Hg (@20°C).
Vapor density	: 2.1 (Air=1)
Volatility	: 100% vlv. [n-Propanol]. 100(w/w) [n-Propanol].
Odor threshold	: The highest known value is 30 ppm [n-Propanol]. Weighted average 27.14ppm
Evaporation rate	: 1.176 [Butyl acetate].
VOC	: 100 (%)
Viscosity	: The highest known value is 2.256 cP [n-Propanol].
LogK_{ow}	: Not available.
Iconicity (in water)	: Not available.
Dispersion properties	: See solubility in water, methanol and diethyl ether.
Solubility	: Easily soluble in cold water, hot water, methanol, diethyl ether.
Physical chemical comments	: No additional remark.

10 STABILITY AND REACTIVITY

Stability and reactivity	: The product is stable.
Conditions of instability	: No additional remark.
Incompatibility with various substances	: Highly reactive with oxidizing agents. Reactive with acids.
Hazardous decomposition products	: Not available.
Hazardous polymerization	: None.

11 TOXICOLOGICAL INFORMATION

Toxicity to animals	: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE: Acute oral toxicity (LD50): 1870 mg/kg [Rat] (n-Propanol). Acute toxicity of the Vapour (LC50): 4000ppm 4 hour(s) [Rat] (n-Propanol). Acute dermal toxicity (LD50): 4060mg/kg [Rabbit]. (n-Propanol).
Chronic effects on humans	: CARCINOGENIC EFFECTS: Classified NONE by OSHA, NONE by NIOSH [n-Propanol]. MUTAGENIC EFFECTS: Classified SUSPECTED for human [n-Propanol]. Non-mutagenic for mammals [n-Propanol]. Mutagenic for bacteria and/or yeast [n-Propanol]. TERATOGENIC EFFECTS: Classified PROVEN for human [n-Propanol]. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male {SUSPECTED} [n-Propanol].
Other toxic effects on humans	: Very hazardous in the case of eye contact (irritant), Hazardous incase if skin contact (irritant, permeator), of inhalation, of ingestion.
Special remarks on toxicity to animals	: No additional remark.
Special remarks on chronic effects on humans	: Can cause gastrointestinal disturbances. [sec-Butyl alcohol].
Special remarks on other toxic effects on humans	: Exposure can cause nausea, headache and vomiting. [n-Propanol].

12 ECOLOGICAL INFORMATION


Ecotoxicity	: Not available.
BOD5 and COD	: No data available.
Biodegradable/OECD	: No data available.
Mobility	: No data available. Possibly hazardous short-term degradation products are likely. However, long-term degradation products may arise.
Toxicity of the products of biodegradation	: The products of degradation are less toxic than the product itself.
Special remarks on the products of biodegradation	: No food chain concentration potential. [n-Propanol]

13 DISPOSAL CONSIDERATIONS

Waste information	: Absorb in vermiculite, dry sand, earth or similar material and dispose of in secured sanitary landfill. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.
Waste stream	: In a waste chemical stream may be disposed of by controlled incineration.

Consult your local or regional authorities.

14 TRANSPORT INFORMATION

Dot Classification	: DOT CLASS 3: Flammable Liquid.	
	ALCOHOLS N.O.S. (n-Propanol) UN1987 II	
Marine Pollutant	: Not available	
Hazardous Substances Reportable Quantity	: Not available.	
Special Provisions for Transport	: No additional remarks.	
TDG Classification	: TDG CLASS 3: Flammable liquid.	
ADR/RID Classification	: ADR CLASS 3: Flammable liquid A.	
IMO/IMDG Classification	: IMDG CLASS 3: Flammable liquid.	
ICAO/IATA Classification	: ITAT CLASS 3: Flammable liquid.	

15 REGULATORY INFORMATION

HCS Classification	: HCS Class: Flammable liquid having flash point lower than 37.8°C (100°F) HCS Class: Target organ effects. HCS Class: Irritating substance. HCS Class: Reproductive toxins.
U.S. Federal regulations	: TSCA inventory: <i>n-Propanol, sec-Butyl alcohol</i> Clean water act (CWA) 307: No products were found. Clean water act (CWA) 311: No products were found. Clean water act (CAA) 112 accidental release prevention: No products were found. Clean water act (CAA) 112 regulated flammable substances: No products were found. Clean water act (CAA) 112 regulated toxic substances: No products were found.
International Regulations	
WHMIS (Canada)	: WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C. WHMIS CLASS D-2A: Material causing other toxic effects <u>CEPA DSL:</u> Product(s): sec-Butyl alcohol.
EINECS	: Not available.
DSCL (EEC)	: R10 – Flammable. R38 – Irritating to skin. R41 – Risk of serious damage to eyes. R46 – May cause heritable genetic damage. R May impair fertility. R 61 – May cause harm to the unborn child.
International lists	: No products were found.

State regulations	: Pennsylvania RTK: <i>n-Propanol, sec-Butyl alcohol</i> Florida: <i>n-Propanol, sec-Butyl alcohol</i> Massachusetts RTK: <i>n-Propanol, sec-Butyl alcohol</i> California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: No products were found
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16 OTHER INFORMATION

Label requirements	- HIGHLY FLAMMABLE LIQUID AND VAPOUR. - VAPOUR MAY CAUSE FLASH FIRE. - CONTAINS MATERIAL, WHICH CAN CAUSE BIRTH DEFECTS. - CONTAINS MATERIAL, WHICH MAY CAUSE SPECIFIC ORGAN OR SYSTEM DAMAGE (kidneys, lungs, reproductive system, liver, cardiovascular system, skin.) - MAY CAUSE SKIN IRRITATION.
Hazardous Material information System (U.S.A.)	[Frame1]
References	: -LOLI Database: The regulated List of Lists. - CHEMINFO: Canadian Centre for Occupational Health and Safety, Issue: 97-3 (August 1997). – BDH; Hazard Data Disk, Version 3. – CESARS: Chemical Evaluation and Retrieval System, Produced by: Ontario Ministry of Environment and Michigan Department of Natural Resources, Issue 97-3 (August 1997). – TOMES Plus System: Toxicology, Occupational Medicine & Environmental Series: incorporating: - MEDITEX, HAZARDTEXT, 1 st Medical Response Protocols, INFOTEXT, HSDB, CHRIS, OHM/TAD, IRIS, NIOSH Pocket Guide, RTECS, NJ Facts Sheets, North American Emergency Response Guides, REPROTEXT, REPROTOX, TERIS, Shepard's Catalog of Teratogenic Agents.
Other special considerations	No additional remarks.
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Notice to reader:

This MSDS summarizes at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product, and in particular how to safely handle, use and transport the product in the workplace. Since TAG Solvent Products (PTY) LTD. and its subsidiaries cannot anticipate or control the conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond, and communicate such information to all relevant parties. If clarification or further information is required to ensure that an appropriate assessment can be made, the user should contact the company.

We shall not assume any liability for the accuracy or completeness of the information contained herein or any advice given unless there has been gross negligence on our part. In such event our liability shall be limited only to direct damages suffered. Our responsibility for the product as sold is subject to our standards terms and conditions, a copy of which is sent to our customers and is also available upon request. All risk with possession and application of the product passes on delivery.