1. **PRODUCT IDENTIFICATION**

**Name:**  
*n*-Propyl Alcohol or *n*-Propanol

**Synonyms:** 1-propanol, normal propyl alcohol, 1-hydroxypropane

**CAS#** 71-23-8

**Europe EC#** 200-746-9

**Product Uses**  
paint & ink solvent, chemical feedstock, and others

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<table>
<thead>
<tr>
<th>EMERGENCY INFORMATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Canada</strong></td>
<td>Call CANUTEC (collect) 613-996-6666</td>
</tr>
<tr>
<td><strong>U.S.A.</strong></td>
<td>Call CHEMTREC 800-424-9300</td>
</tr>
</tbody>
</table>

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2. **HAZARDS**

**GHS Class**  
(Flammable 3)

**Signal Words**  
(Danger)

**Hazard Statements**
- highly flammable liquid & vapour (H226)
- harmful if swallowed (H302)
- causes serious eye damage (H318)
- may cause dizziness (H336)

**GHS Precautionary Statements for Labelling**

- P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.
- P240 Ground or bond container and receiving equipment.
- P241 Use explosion-proof electrical, ventilating and lighting equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P262 Do not get in eyes, on skin or on clothing.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear eye protection, protective gloves and clothing of nitrile or “Viton”.

**Canada – WHMIS**  
**Key:**
- **B 2, D 2B**
- **B 2 – Flash Point <38°C, B 3 – Flash Point >38°C & <93°C**
- **D 1 – Immediately Toxic, D 2 – Chronic Toxicity**
- **C – Oxidising Substance, E – Corrosive, F – Reactive Substance**

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3. **COMPOSITION**

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>TWAEV / TLV ppm / mg/m³</th>
<th>LD₅₀ (mg/kg)</th>
<th>LD₃₀ (mg/kg)</th>
<th>LC₅₀ ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>n</em>-Propyl Alcohol</td>
<td>100%</td>
<td>100 / 245</td>
<td>1870</td>
<td>5040</td>
<td>4000</td>
</tr>
</tbody>
</table>

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*Please ensure that this SDS is given to, and explained to people using this product.*

*Member: Canadian Association of Chemical Distributors*
4. **FIRST AID**

**SKIN:** Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.

**EYES:** Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.

**INHALATION:** Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.

**INGESTION:** Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. **FIRE FIGHTING & FLAMMABILITY**

- **Flash Point** above 15°C / 59°F (closed cup); also 23°C / 74°F (Pensky-Martens closed cup)
- **Autoignition Temperature** above 371°C / 700°F (higher values are also reported)
- **Flammable Limits** 2.2% – 13.7%
- **Combustion Products** carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
- **Firefighting Precautions** polymer foam, dry chemical, water fog or spray only to cool containers; product floats on water; water jet spreads flames; firefighters must wear SCBA
- **Static Charge Accumulation** cannot accumulate a static charge on agitation or pumping

6. **ACCIDENTAL RELEASE MEASURES**

**Serious Fire Potential:** blanket spill with foam as a precaution against accidental ignition. Take extreme care to avoid sparks – do not operate (turn on or off) electrical appliances near spill, unless explosion proof.

- **Leak Precaution** dyke to control spillage and prevent environmental contamination
- **Handling Spill** ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent; sweep & pick up using plastic or aluminium shovel; & store in closed containers for recycling or disposal

7. **HANDLING & STORAGE**

Store in a cool, dry environment, away from sources of ignition, heat, oxidising agents and substances listed in Part 7. Use non-sparking bronze or aluminium hand tools. All electrical and mechanical equipment (including lighting, switchgear and forklift trucks) used with or around this product must be explosion-proof. Although n-propanol is not a static accumulator, it is prudent to ground or bond the source container, the receiving container and transfer equipment before pumping or decanting.

Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, are tightly sealed unless in use.

Avoid creating or breathing product vapour. If vapour is created in use, install adequate exhaust ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator with organic vapour cartridge.

Never cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently.

An eye bath and safety shower must be available near the workplace.

8. **EXPOSURE CONTROL & PERSONAL PROTECTION**

- **Ontario TWAEV** 100ppm / 245mg/m³
- **Ontario STEV** 250ppm / 615mg/m³
- **ACGIH TLV** 100ppm / 246mg/m³
- **ACGIH STEL** not listed
- **OSHA PEL** 200ppm / 500mg/m³
- **OSHA STEL** 250ppm / 615mg/m³
- **Ventilation** mechanical ventilation may be required to control airborne titre; depending on handling procedures
- **Hands** nitrile or “Viton” gloves recommended; other types may also protect; consult supplier to confirm suitability
- **Eyes** safety glasses with side shields; always protect the eyes
- **Clothing** wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing.

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9. PHYSICAL PROPERTIES

Product Name: n-Propyl Alcohol

Odour & Appearance | clear, colourless liquid with sharp, pungent odour \(\text{similar to rubbing alcohol but stronger}\)
Odour Threshold | 5-11ppm
Vapour Pressure | 14.5mmHg / 1.95kPa (20°C / 68°F)
Evaporation Rate (Butyl Acetate = 1) | 0.9
Vapour Density (air = 1) | 2.1
Boiling Range | 98°C / 208°F
Freezing Point | -127°C / -197°F
Specific Gravity | 0.805 (20/20°C)
Water Solubility | complete
Also soluble in | most organic solvents, polar and non-polar
Log \(P_{\text{OW}}\) (Octanol/H\(_2\)O partition) | 0.25
Viscosity | 2.2 centipoise (20°C / 68°F)
\(\text{pH}\) | none (\text{does not liberate hydrogen ions when dissolved})
Conversion Factor | 1ppm = 2.45
Molecular Weight | 60 grams per mole

10. REACTIVITY

Dangerously Reactive With | strong oxidising agents, strong acids, acid chlorides, acid anhydrides,
Also Reactive With | alkali metals, alkaline earth metals release hydrogen \(\text{I reaction may be vigorous}\)
Stability | stable; will not polymerize
Decomposes in Presence of | not known
Decomposition Products | none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact | no

11. TOXICITY

Effects, Acute Exposure

Skin Contact | little to no effect after 24-hour contact
Skin Absorption | slight; no toxic effects likely by this route
Eye Contact | severely irritating \(\text{I injury incompletely resolved after 10 days};\) vapour irritating at 10,000ppm;
Inhalation | not known \(\text{I probably causes dizziness, drowsiness, intoxication, nausea}\)
Ingestion | dizziness, drowsiness, intoxication, nausea \(\text{I not a route of industrial exposure, particularly in view of propanol’s strong, unpleasant odour}\)
LD\(_{50}\) (oral) | 1870, 2200, 6500 & 8000mg/kg (rat), 2825 & 3500mg/kg (rabbit), 3000mg/kg (dog), 4500 & 6800mg/kg (mouse)
LD\(_{50}\) (skin) | 4030\(^1\), 5040 & 6730\(^1\)mg/kg (rabbit)
LC\(_{50}\) (inhalation) | >4000 & >13,550ppm (rat), 19,600ppm (mouse)

Effects, Chronic Exposure

General | prolonged exposure may cause dermatitis
Sensitising | not a sensitisser in humans or animals
Carcinogen/Tumorigen | not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect | no known effect in humans; fetotoxic & teratogenic at doses also causing maternal toxicity
Mutagen | no known effect on humans or animals
Synergistic With | liver toxins; enhances toxicity of chlorinated solvents

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12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulation</td>
<td>cannot bioaccumulate</td>
</tr>
<tr>
<td>Biodegradation</td>
<td>biodegrades readily &amp; rapidly in the presence of oxygen; aerobic: 75% in 20 days, 81% in 15 days</td>
</tr>
<tr>
<td></td>
<td>anaerobic 77-81% biodegradation in 15 days</td>
</tr>
<tr>
<td>Abiotic Degradation</td>
<td>reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 2.9 days</td>
</tr>
<tr>
<td>Mobility in soil, water</td>
<td>highly water soluble; moves readily in soil and water</td>
</tr>
<tr>
<td>Aquatic Toxicity</td>
<td></td>
</tr>
<tr>
<td>LC$_{50}$ (Fish, 96hr)</td>
<td>3800mg/litre (Alburnus alburnus)$_1$, 4480 &amp; 4555mg/litre (Pimephelas promelas),</td>
</tr>
<tr>
<td></td>
<td>4650mg/litre (Cyprinodon sp.)</td>
</tr>
<tr>
<td>EC$_{50}$ (Crustacea, 48hr)</td>
<td>3644$^1$ &amp; 6300mg/litre (Daphnia magna), 1000mg/litre (Gammarus pulex)$^1$,</td>
</tr>
<tr>
<td></td>
<td>1520mg/litre (Nemoura cinerea)</td>
</tr>
<tr>
<td>EC$_{50}$ (Algae, 72hr)</td>
<td>9170mg/litre (Pseudokirchnerella subcapitata)$^1$</td>
</tr>
<tr>
<td>NOEC (Algae, 48hr)</td>
<td>1150mg/litre (Chlorella pyrenoidosa)$^1$</td>
</tr>
<tr>
<td>EC$_{50}$ (Bacteria)</td>
<td>9600mg/litre (Activated sludge), 8686 &amp; 18,400mg/litre (Photobacterium phosphoreum)</td>
</tr>
</tbody>
</table>

13. DISPOSAL

Waste Disposal: do not flush to sewer, recycle solvent if possible, may be incinerated in approved facility
Containers: Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
Pails must be vented and thoroughly dried prior to crushing and recycling.
IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years.

Never cut, drill, weld or grind on or near this container, even if empty

14. TRANSPORT CLASSIFICATION

<table>
<thead>
<tr>
<th>Canada TDG</th>
<th>PIN</th>
<th>UN - 1274</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>Shipping Name</td>
<td>n-propanol or n-propyl alcohol</td>
</tr>
<tr>
<td>U.S.A. 49 CFR</td>
<td>Class &amp; Packing Group</td>
<td>3 (II)</td>
</tr>
<tr>
<td>Marine Pollutant</td>
<td></td>
<td>not a marine pollutant</td>
</tr>
<tr>
<td>ERAP Required</td>
<td></td>
<td>NO</td>
</tr>
</tbody>
</table>

15. REGULATIONS

<table>
<thead>
<tr>
<th>Canada DSL</th>
<th>on inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.A. TSCA</td>
<td>on inventory</td>
</tr>
<tr>
<td>Europe EINECS</td>
<td>on inventory</td>
</tr>
</tbody>
</table>

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15. **REGULATIONS, cont’d**

**U.S.A. Regulations:**

- **Immediately Dangerous to Life or Health:** 800 ppm
- **Allowable Tolerances:** Residues of n-propanol are exempted from the requirement of a tolerance when used as a solvent or cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest.
- **OSHA Standards:** Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 200 ppm (500 mg/cu m).
- **NIOSH Recommendations:** Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 200 ppm (500 mg/cu m).
- **Threshold Limit Values:** 8 hr Time Weighted Avg (TWA): 100 ppm
- **Atmospheric Standards:** This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. n-Propyl alcohol is produced, as an intermediate or a final product, by process units covered under this subpart.
- **FIFRA Requirements:** Residues of n-propanol are exempted from the requirement of a tolerance when used as a solvent or cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest.
- **FDA Requirements:** Propyl alcohol is a food additive permitted for direct addition to food for human consumption as a synthetic flavoring substance and adjuvant in accordance with the following conditions: 1) they are used in the minimum quantity required to produce their intended effect, and otherwise in accordance with all the principles of good manufacturing practice, and 2) they consist of one or more of the following, used alone or in combination with flavoring substances and adjuvants generally recognized as safe in food, prior-sanctioned for such use, or regulated by an appropriate section in this part.

16. **OTHER INFORMATION**

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577

*Data from RTECS, HSDB (Haz. Substance Data Base), Cheminfo (CCOHS), IUCLID Datasheets (ESIS – European Chem. Substance Info. System), & others.*

*Preparation Date: September 2011*  
*Revision Date: September 2014*

(1) **European Chemicals Agency (EChA) dossier on propan-1-ol:**  
[http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d9caf30-12fa-6dc6-e044-00144f67d249/DISS-9d9caf30-12fa-6dc6-e044-00144f67d249_DISS-9d9caf30-12fa-6dc6-e044-00144f67d249.html](http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d9caf30-12fa-6dc6-e044-00144f67d249/DISS-9d9caf30-12fa-6dc6-e044-00144f67d249_DISS-9d9caf30-12fa-6dc6-e044-00144f67d249.html)

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