

Safety Data Sheet

according to Globally Harmonized System (GHS)

Printing date 13.04.2015

Revision: 13.04.2015

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** n-Propyl Alcohol (NPA)
- **Synonyms:**
n-Propanol, 1-propanol, propan-1-ol, n-PrOH, Ethylcarbinol, 1-Hydroxypropane, Propanol, Propionic alcohol, Propionyl alcohol, Propionylol, Propyl alcohol, Propylic alcohol, Propylol
- **CAS Number:**
71-23-8
- **Relevant identified uses of the substance or mixture and uses advised against :**
- **Identified/Recommended uses:**
Solvent
Industrial use as intermediate
Chemical for synthesis
Raw Material for:
Uses in industrial coating
Adhesive
Printing inks
Biocide
Cleaning agent/ Cleaner
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Dairen Chemical Corporation
9th Fl., No. 301, SongJiang Rd.
Taipei City, 10483, TAIWAN
Tel: +886-2-7743-1500 Fax: +886-2-2509-9619
www.dcc.com.tw
- **Further information obtainable from:** Respective plant's environmental, health, and safety (EHS) Dept.
- **Emergency telephone number:** +886-2-7743-1500 (08:30-17:30; GMT+8)

2 Hazards identification

- **Classification of the substance or mixture**
Flam. Liq. 3 H226 Flammable liquid and vapour.
Acute Tox. 5 H303 May be harmful if swallowed.
Acute Tox. 5 H313 May be harmful in contact with skin.
Eye Dam. 1 H318 Causes serious eye damage.
STOT SE 3 H336 May cause drowsiness or dizziness.
Asp. Tox. 2 H305 May be harmful if swallowed and enters airways.

- **Label elements**
- **GHS label elements**
The substance is classified and labelled according to the Globally Harmonised System (GHS).
- **Hazard pictograms**



GHS02 GHS05 GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labelling:**
propan-1-ol
- **Hazard statements**
Flammable liquid and vapour.

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May be harmful if swallowed.
May be harmful in contact with skin.
Causes serious eye damage.
May cause drowsiness or dizziness.
May be harmful if swallowed and enters airways.

· Precautionary statements

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

3 Composition/information on ingredients

- **Chemical characterisation: Substances**
- **CAS No. Description**
71-23-8 propan-1-ol $\geq 99.8\%$
- **Identification number(s)**
- **EC number:** 200-746-9
- **Index number:** 603-003-00-0

4 First aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Do not induce vomiting; call for medical help immediately.
Drink 1 or 2 glasses of water.
Risk of aspiration!
- **Most important symptoms and effects, both acute and delayed**
Irritant effects
Dizziness
Headache
Coughing
Breathing difficulty
CNS disorders
May cause respiratory arrest.
Narcosis
Risk of blindness!
- **Indication of any immediate medical attention and special treatment needed**
If swallowed or in case of vomiting, danger of entering the lungs.
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet

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· Special hazards arising from the substance or mixture

Combustible.

Vapours are heavier than air and may spread along floors.

Pay attention to flashback.

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO₂)**· Advice for firefighters****· Protective equipment:**

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).

· Additional information

Cool endangered receptacles with water spray.

Do not inhale explosion gases or combustion gases.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Remove persons from danger area.

Keep people at a distance and stay on the windward side.

Wear protective equipment. Keep unprotected persons away.

Do not breathe dust/fume/gas/mist/vapours/spray.

· Environmental precautions:

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Collect, bind, and pump of spills.

Allow to solidify. Pick up mechanically.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

· Handling:**· Precautions for safe handling**

Wear protective gloves/protective clothing/eye protection/face protection.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Work only in fume cupboard.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Take precautionary measures against static discharge.

· Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

· Storage:**· Requirements to be met by storerooms and receptacles:**

Store in cool, dry place in tightly closed receptacles.

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- **Further information about storage conditions:** Keep container tightly sealed.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:**

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines.

Local exhaust ventilation may be necessary for some operations.

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

71-23-8 propan-1-ol

PEL (USA)	Long-term value: 500 mg/m ³ , 200 ppm
REL (USA)	Short-term value: 625 mg/m ³ , 250 ppm
	Long-term value: 500 mg/m ³ , 200 ppm
	Skin
TLV (USA)	Long-term value: 246 mg/m ³ , 100 ppm
TLV (Korea)	Short-term value: 625 mg/m ³ , 250 ppm
	Long-term value: 500 mg/m ³ , 200 ppm
	Skin

- **DNELs :**

- **Workers:**

DNEL (inhalation, chronic effects systemic): 268 mg/m³

DNEL (inhalation, acute effects systemic): 1723 mg/m³; AF=7,5

DNEL (dermal, chronic effects systemic): 136

- **Consumers:**

DNEL (inhalation, chronic effects systemic): 80 mg/m³

DNEL (inhalation, acute effects systemic): 1036 mg/m³; AF=12,5

DNEL (dermal, chronic effects systemic): 81 mg/kg bw/day

DNEL (oral, chronic effects systemic): 61 mg/kg bw/day

- **PNECs**

PNEC(fresh water): 10 mg/l with assessment factor of 100

PNEC (marine water): 1 mg/l with assessment factor of 1000

PNEC (intermittent release): 10 mg/l with assessment factor of 100

PNEC (sewage treatment plant; STP): 96 mg/l with assessment factor of 100

PNEC (freshwater sediments): 22,8 mg/kg sediment dw with assessment factor of N/A

PNEC (marine sediments): 2,28 mg/kg sediment dw with assessment factor N/A

PNEC (soil): 2,2 mg/kg soil dw with assessment factor of N/A

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Be sure to clean skin thoroughly after work and before breaks.

Ensure that washing facilities are available at the work place.

- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Short term filter device:

Filter A/P2

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· Protection of hands:



Protective gloves

The selected protective gloves have to satisfy the specifications of standard EN 374 or its equivalent. Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

Full Contact:

Nitrile rubber, NBR

Recommended thickness of the material: $\geq 0,40$ mm

Splash Contact:

Chloroprene rubber, CR

Recommended thickness of the material: $\geq 0,65$ mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Penetration time of glove material

Full Contact:

Break through time: > 480 min

Splash Contact:

Break through time: > 120 min

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

Safety glasses with side shields conforming to EN166, ANSI 87.1-2010, or equivalent.

· Body protection:

Flame retardant antistatic protective clothing

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:

Liquid

Colour:

Colourless

· Odour:

Alcohol-like

· Odour threshold:

Not determined.

· pH-value at 20 °C:

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· Change in condition

Melting point/Melting range:

 -127 °C

Boiling point/Boiling range:

 97 °C

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· Flash point:	23 °C
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	360 °C
· Decomposition temperature:	Not determined.
· Self-igniting:	Not determined.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	2,1 Vol %
Upper:	13,5 Vol %
· Vapour pressure at 20 °C:	19 hPa
· Density at 20 °C:	0,8035 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with water at 20 °C:	1 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic at 20 °C:	2,3 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	≥99,8 %
VOC (EC)	≥ 99,80 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
Vapour may form explosive mixture with air.
When properly handled and stored, no dangerous reaction is known.
- **Chemical stability** This product is stable under prescribed use and storage.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
Exothermic reaction with:
Alkali metals
Alkaline earth metals

Violent reaction possible with:
Strong oxidizing agents
- **Conditions to avoid**
Protect from heat. Keep ignition sources away.
To avoid thermal decomposition do not overheat.
- **Incompatible materials:**
Strong oxidizing agents
Strong acids
Alkalis.
Aldehydes

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Halogens

· Hazardous decomposition products:

Irritant gases/vapours

Carbon monoxide (CO) and carbon dioxide (CO₂)

Decomposition products depend upon temperature, air supply and the presence of other materials.

11 Toxicological information

· Information on toxicological effects**· Acute toxicity:**

May be harmful if swallowed.

May be harmful if inhaled.

· LD/LC50 values relevant for classification:**71-23-8 propan-1-ol**

Oral LD50 1870 mg/kg (rat)

Dermal LD50 4030 mg/kg (rabbit)

· Skin corrosion/irritation: Not classified based on available data.**· Serious eye damage/eye irritation:**

Causes serious eye damage.

Rabbit: severe eye irritation (OECD 405)

Non-corrosive but causes irreversible eye damage.

· Respiratory or skin sensitization: Not classified based on available data.**· Germ Cell Mutagenicity:**

Not classified based on available data.

In-vitro genotoxicity (mammalian cells): negative (OECD 476)

· Carcinogenicity: Not classified based on available data.**· Reproductive Toxicity:** Not classified based on available data.**· Specific Target Organ Toxicity - Single Exposure (STOT SE):** May cause drowsiness or dizziness.**· Specific Target Organ Toxicity - Repeated Exposure (STOT RE):**

Not classified based on available data.

· Aspiration Hazard:

May be harmful if swallowed and enters airways.

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

· Primary irritant effect:**· on the skin:** No irritating effect.**· on the eye:** Strong irritant with the danger of severe eye injury.**· Sensitisation:** No sensitising effects known.

12 Ecological information

· Toxicity**· Aquatic toxicity:**

Not classified based on available data.

LC50 (96hr, rainbow trout): 4555 mg/L (OECD 203)

· Persistence and degradability

Easily biodegradable

Degradation : 75% (20d, OECD N/A; BOD)

· Bioaccumulative potential

Bioaccumulation is not expected.

Bioconcentration Factor (BCF) : 0,88

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Partition coefficient, n-octanol/water (log Pow) : 0,2
log Koc: 0,633

· **Mobility in soil**

Potential for mobility in soil is very high.
Partition coefficient, soil organic carbon/water (Koc) : ~4
Henry's Law Constant (H) : 0,177 Pa m³/mol @20 °C

Mackay multimedia fugacity modeling:

Air: 3,87 %
Water: 96,13 %
Soil: 0 %
Sediment: 0 %

Source: External (M)SDS

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Any disposal method should also comply with national, regional, provincial, and local laws.

· **Uncleaned packaging:**

· **Recommendation:**

Empty containers may still contain hazardous residue.

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

Disposal must be made according to official regulations.

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **UN-Number**

· **ADR, IMDG, IATA**

UN1274

· **UN proper shipping name**

· **ADR**

1274 n-PROPANOL (PROPYL ALCOHOL, NORMAL) solution

· **IMDG, IATA**

N-PROPANOL (PROPYL ALCOHOL, NORMAL) solution

· **Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class**

3 Flammable liquids.

· **Label**

3

· **Packing group**

· **ADR, IMDG, IATA**

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- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Warning: Flammable liquids.
- **Danger code (Kemler):** 30
- **EMS Number:** F-E, S-D

Transport/Additional information:

- **ADR**
- **Limited quantities (LQ)** 5L
- **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
- **Transport category** 3
- **Tunnel restriction code** D/E

- **IMDG**
- **Limited quantities (LQ)** 5L
- **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
- **UN "Model Regulation":** UN1274, n-PROPANOL (PROPYL ALCOHOL, NORMAL) solution, 3, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Status of global inventories:**
All component(s) within this product is listed or exempted from the following country's chemical inventory:
USA – TSCA
Australia – AICS
Canada – DSL
China – IECSC
EU – EINECS/NLP
Japan – ENCS
Korea – KECI
New Zealand – NZIoC
Philippines – PICCS
Taiwan – ECSI
Mexico - INSQ
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

- **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Flam. Liq. 3: Flammable liquids, Hazard Category 3
Acute Tox. 5: Acute toxicity, Hazard Category 5

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Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
Asp. Tox. 2: Aspiration hazard, Hazard Category 2

Sources

Most toxicological and eco-toxicological data are obtained from European Chemical Agency (ECHA)'s public dissemination website.

General Disclaimers:

DCC Group recommends that all the users/customers/recipients to study this Safety Data Sheet (SDS) carefully and understand all the data or any potential hazards associated with this product. Please consult with appropriate expert if necessary. The information herein is provided in good faith and is believed to be accurate on the date of issue. No warranty, expressed or implied, is given. It is the customer's/user's responsibility to ensure that they are complying with local, regional, state, provincial, and/or national laws in using this product, as regulatory requirement may differ at each level. It is also the customer's/user's responsibility to determine the necessary condition required for using this product safely, as actual operating or usage conditions are beyond DCC Group's control. DCC Group will not be responsible for any SDS obtained from elsewhere other than from DCC Group. If you are unsure whether the SDS you have is current or have obtained the SDS from another source; please contact us to obtain the latest version.

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