

To the best of our knowledge, the information contained here in is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

GHS label elements

Hazard symbols:

**Signal word:** Danger**Hazard statement and precautionary statement:**

- Highly flammable liquid and vapour
- May be harmful if swallowed
- Causes mild skin irritation
- Cause damage to kidney, systemic toxicity and central nervous system-single exposure
- May cause respiratory irritation-single exposure
- Causes damage to liver-through prolonged or repeated exposure
- May causes damage to arterial system, nervous and spleen-through prolonged or repeated exposure

Precautionary statements:

- Keep out of reach of children. Read label before use. If medical advice is needed: Have product container or label at hand.

Prevention

- Keep away from ignition sources such as heat/sparks/open flame— No smoking.
- Take precautionary measures against static discharge.
- Wear protective gloves and eye/face protection as specified by the competent authority.
- Do not breathe dust/mist/vapors.
- Use only in a well-ventilated area. Call a doctor/physician if you feel unwell.
- Do not eat, drink or smoke when using this product.
- Avoid contact during pregnancy/while nursing.
- Wash hands thoroughly after handling.

Response

- In case of fire, use dry chemical, CO₂, water splay (fog) or foam for extinction.
- IF SWALLOWED: Call a doctor/physician if you feel unwell. Rinse mouth.
- IF ON SKIN: Gently wash with plenty of soap and water.
- Wash/Decontaminate removed clothing before reuse.
- If skin irritation occurs, seek medical advice/attention.
- IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician.
- Collect spillage.

Storage

- Store in cool/well-ventilated place. Store locked up.
- Call a doctor/physician if exposed or you feel unwell.

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Disposal

- Waste must be disposed of according to applicable regulations.

3 Composition/information on ingredients**Substance or mixture; mixture****Composition;**

Chemical name	concentration (%)	CAS number
Ethanol	80-90	64-17-5
1-Propanol	10-20	71-23-8
2-Propanol	<5	67-63-0

4 First-aid measures**Inhalation;**

Remove the victim from the contamination immediately to fresh air. Keep the victim warm and quiet and arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Skin contact;

Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible. Wash the affected area under running water using a mild soap. If irritation persists, arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Eye contact;

Gently rinse the affected eyes with clean water for at least 15 minutes. Remove contact lenses if easily possible. and refer for medical attention.

Ingestion;

Never give anything by mouth to someone who is unconscious or convulsing. If the victim is responsive, give him one or two glasses of water. And refer for medical attention.

5 Fire-fighting measures**Suitable extinguishing media;**

Use dry chemical, CO₂, water spray (fog) or foam.

Fire fighting procedures;

Use water spray to cool fire-exposed surfaces and to protect personnel. Shut off "fuel" to fire. If a leak or spill has not ignited, use water spray to disperse the vapors.

Avoid spraying water directly into storage containers due to danger of boil over.

Unusual fire/explosion hazard;

Flammable liquid, can release vapors that form flammable mixtures at temperatures at or above the flashpoint.

Special protective equipment and precautions for fire fighters;

Fire fighters should wear boots, overalls, gloves, eye and face protection and breathing apparatus.

6 Accidental release measures

Shut off all sources of ignition; No smoking or flames in area. Absorb spill with inert material (e.g.,

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dry sand or earth), then place in closed containers using non-sparking tools. Flush residual spill (area) with copious amounts of water.

7 Handling and storage

Handling;

Use only in the well-ventilated areas.

Make available in the work area emergency shower and eyes wash.

Avoid contact with skin or eyes.

Storage;

Close up the container and keep it in dark cool(0~20) place.

Keep away from combustible materials and sources of ignition.

8 Exposure controls/personal protection

Exposure guidelines;

ACGIH TLV-TWA (ppm)

Ethanol	:1000
1-Propanol	:200(skin)
2-Propanol	:200

ACGIH STEL(ppm)

Ethanol	:No data
1-Propanol	:400(skin)
2-Propanol	:400

9 Physical and chemical properties

Appearance

Physical state

Color

Odor

Boiling point

Flash point

Upper/lower flammability or explosive limits

Vapor pressure

Vapor density (Air = 1)

Relative density

Solubility (Water)

Partition coefficient: n-octanol/water

Auto-ignition temperature

Decomposition temperature

:Liquid

:Clear

:Solvent odor

: 78.3 (ethanol)

:14.0 (closed cup)

:Lower 4.3 vol%, Upper 19 vol%(ethanol)

: 5.9kPa (20)(ethanol)

:1.59(ethanol)

:0.79(20)

:water;infinite(ethanol)

:-0.32(ethanol)

:390 (ethanol)

:No data

10 Stability and reactivity

Stability: The product is stable.

Conditions and materials to avoid: Not available

Hazardous decomposition products: These products are carbon oxides

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11 Toxicological information

Acute toxicity;

Ethanol

TDLo(oral,man): 700mg/kg(NTOTDY 8,77,1986)
LD50(oral,rat): 9000mg/kg(VCVGK* -, 93, 1984)
LC50(ihl,rat): 20000ppm/10H(NPIRI* 1,44,1974)
TCLo(ihl,human): 2500mg/m3/20M(VCVGK* -, 93,1984)

1-Propanol

LDLo(oral,woman): 5700mg/kg(ATXKA8 16,84,1956)
LD50(oral,rat): 1870mg/kg(AMIHBC 10,16,1954)
LCLo(ihl,rat): 4000ppm/4H(AMIHBC 10,16,1954)
LD50(skin,rabbit): 5040mg/kg(AMIHBC 10,16,1954)

2-Propanol

LD50(oral,rat): 5000mg/kg(VCVGK* -, 97, 1984)
LC50(ihl,rat): 72600mg/m3(VCVGK* -, 97, 1984)
LC50(ihl,mouse): 53000mg/m3(VCVGK* -, 97, 1984)
TDLo(oral,human): 286mg/kg(VCVGK* -, 97, 1984)

Skin corrosion/irritation;

Ethanol

Skin; rabbit; 20mg/24H; Moderate(85JCAE -, 189, 1986)

1-Propanol

Skin; rabbit; 500mg; Mild(UCDS** 6/28/1972)
Skin; human; 100%/24H; Mild(CODEDG 39, 240, 1998)
Skin; human, erythema(EHC 102, 1990)

2-Propanol

Skin; rabbit; 500mg; Mild(NTIS** AD-A106-944)

Serious eye damage/irritation;

Ethanol

rabbit; 100mg/4S; Moderate(FCTOD7 20,573,1982)

1-Propanol

Eye; rabbit; 20mg/24H; Moderate(85JCAE -,191,1986)

2-Propanol

Eye; rabbit; 100mg/24H; Moderate(85JCAE -,191,1986)

Respiratory or skin sensitization;

Ethanol

1-Propanol

Not available

2-Propanol

Not available

Germ cell mutagenicity;

Ethanol

DNA damage; S.cerevisiae; 850mmol/L(MUREAV 326,165,1995)
Mutation in microorganisms; S.typhimurium; 11pph(ENVRAL 52, 225, 1990)
Cytogenetic analysis; human; lymphocyte; 2.5pph/24H(MUREAV 537, 117, 2003)

1-Propanol

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Sex chromosome loss and nondisjunction; A.nidulans; 18000ppm(MUREAV 215,187,1989)

Mutation in microorganisms; E.coli; 4pph(ABMGAJ 23,843,1969)

2-Propanol

TDLo(ori,rat): 8gm/kg(female 6-15 D preg)(RTOPDW 23,183,1996)

TCLo(ihl,rat): 3500ppm/7H(female 1-19 D preg)(FCTOD7 26,247,1988)

Carcinogenicity;

Ethanol

TDLo(ori,mouse): 320mg/kg/50W-I(CALEDQ 13,345,1981)

1-Propanol

TDLo(ori,rat): 50gm/kg/81W-I(ARGEAR 45,19,1975)

2-Propanol

Not available

Reproductive toxicity;

Ethanol

TDLo(ori,woman): 250mg/kg(37 W preg); Effects on Embryo or Fetus - other effects to embryo(AJOGAH 145,251,1983)

TDLo(ori,rat): 22.5gm/kg(female 11-20 D preg); Specific Developmental Abnormalities - Central Nervous Systems(NETEEC 24, 719, 2002)

1-Propanol

TCLo(ihl,rat): 7000 ppm/7H(female 1-19 D Preg)(FCTOD7 26,247,1988)

2-Propanol

TDLo(ori,rat): 8gm/kg(female 6-15 D preg)(RTOPDW 23,183,1996)

TCLo(ihl,rat): 3500ppm/7H(female 1-19 D preg)(FCTOD7 26,247,1988)

STOST-single exposure;

Ethanol

Human ihl, 5000ppm(9,4mg/L), respiratory tract irritation and confusion(ACGIH 2001)

1-Propanol

Rat, mouse, rabbit, ihl or ori, anesthesia(ACGIH 2004: EHC 102, 1990: PETTY 4th 1994)

Mouse, ihl, the respiratory tract irritation (EHC 102,1990)

2-Propanol

Not available

STOST-repeated exposure;

Ethanol

Not available

1-Propanol

Not available

2-Propanol

Not available

Aspiration hazard.

Ethanol

Not available

1-Propanol

Not available

2-Propanol

Not available

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12 Ecological information

Toxicity:

Ethanol

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LD50(ori,rat): 9000mg/kg(VCVGK* -, 93, 1984)
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1-Propanol

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LD50(skin,rabbit): 5040mg/kg(AMIHBC 10,16,1954)

2-Propanol

LD50(ori,rat): 5000mg/kg(VCVGK* -, 97, 1984)
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LC50(ihl,mouse): 53000mg/m3(VCVGK* -, 97, 1984)
TDLo(ori,human): 286mg/kg(VCVGK* -, 97, 1984)

Persistence and degradability:

Ethanol

This material is biodegradable.

1-Propanol

Not available

2-Propanol

This material is biodegradable.

Bioaccumulative potential:

Ethanol

Not available

1-Propanol

Not available

2-Propanol

Not available

Mobility in soil:

Ethanol

Not available

1-Propanol

Not available

2-Propanol

Not available

13 Disposal considerations

Scrap materials may be disposed by licensed contractor or burn in an approved incinerator.
Do not dump into sewer, on the ground or into any body of water.
Follow national and local regulations.

14 Transport information

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Follow all regulations in your country.

UN Number	:1210
UN Proper Shipping Name	:Printing ink, flammable
Transport hazard class	:Class 3(Flammable liquid)
Packing Group	:
Environmental hazards	:No

15 Regulatory information

Follow all regulations in your country.

Content of RoHS Directive material Cd<100ppm Pb, Hg, Hexavalent Cr, PBB, PBDE<1000ppm

16 References

- 1) Solvent, dye MSDS
- 2) Results of Eco-toxicity tests of chemicals conducted by Ministry of the Environment in Japan (-2006)
- 3) International Chemical Safety Cards

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